THE WORLD BANK GROUP ARCHIVES

PUBLIC DISCLOSURE AUTHORIZED

Folder Title:	President Wolfensohn - Briefing Book for President's Meetings and Events - Committee on Agricultural Sustainability for Developing Countries - December 13, 1995
Folder ID:	30484529
Dates:	07/26/1995 - 12/13/1995
Subfonds:	Records of President James D. Wolfensohn
Fonds:	Records of the Office of the President
ISAD Reference Code:	WB IBRD/IDA EXC-13
Digitized:	02/18/2025

To cite materials from this archival folder, please follow the following format:
[Descriptive name of item], [Folder Title], Folder ID [Folder ID], ISAD(G) Reference Code [Reference Code], [Each Level Label as applicable], World Bank Group Archives, Washington, D.C., United States.

The records in this folder were created or received by The World Bank in the course of its business.

The records that were created by the staff of The World Bank are subject to the Bank's copyright.

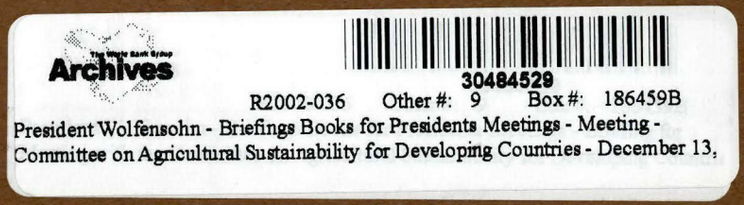
Please refer to http://www.worldbank.org/terms-of-use-earchives for full copyright terms of use and disclaimers.



THE WORLD BANK
Washington, D.C.
© International Bank for Reconstruction and Development / International Development Association or
The World Bank
1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

PUBLIC DISCLOSURE AUTHORIZED

DECLASSIFIED
WBG Archives



Mr. Wolfensohn Briefing

on

The Role of the World Bank

in

Agriculture, Rural and Natural Resource Development

The World Bank
Washington, D.C. 20433
U.S.A.

ISMAIL SERAGELDIN
Vice President
Environmentally Sustainable Development

December 7, 1995

Mr. James D. Wolfensohn

Dear Jim,

Briefing Note for Meeting on Dec. 13, 1995 with the Committee on Agricultural Sustainability for Developing Countries

On Wednesday, December 13, you will be meeting with the Committee on Agricultural Sustainability for Developing Countries, a coalition of organizations chaired by Ambassador Robert O. Blake. We propose that Mr. Alex McCalla, Director of AGR, and three of his colleagues (Hans Binswanger, AGR; Shawki Barghouti, Agriculture Division Chief, South Asia Country Department 2; and Sushma Ganguly, Agriculture Division Chief, Africa Country Department 2) accompany you to the meeting. and Ms. Afolabi Ojumu

In preparation for the meeting, Mr. McCalla and some of his colleagues have compiled the attached briefing book. **Tab 1** contains a **mission statement** of the Committee on Agricultural Sustainability for Developing Countries, **membership information** and **brief biographies** of likely attendees at the December 13 meeting.

The succeeding six tabs are likely to be most immediately useful. This is especially true of **Tab 2** detailing the **Committee's questions** and **material for responses**. Therefore, material from Tab 2 is summarized below.

Question 1: What is your thinking on how the World Bank should reorder its resources in the light of growing food scarcity—particularly, but not exclusively in Sub-Saharan Africa—and the likelihood of rising food prices?

NB: Mr. Blake may elaborate on this question to ask whether the Bank should issue a position statement on food security, given that confusion exists on the Bank's view.

The World Food Outlook (1993), an optimistic projection of food supplies through 2010, is often misconstrued as the Bank view. A somewhat more constrained, and widely accepted, outlook is indicated by Mr. McCalla's analysis (Tab 9).

Mailing Address: 1818 H Street, N.W., Washington, D.C. 20433, U.S.A. • Office Location: 1750 Pennsylvania Avenue, N.W., 7th Floor
Telephone: (202) 473-4502 • Cable Address: INTBAFRAD • Fax: (202) 473-3112

Scarcity:

- The Bank places high priority on research and technology development. Through 1994 (most recent data), 50% of agricultural projects contained at least one research component, and Agricultural Research projects and components accounted for roughly 36% of the cost of current agriculture projects.

- We strongly support the Consultative Group on International Agricultural Research (CGIAR), and have established a special group to work with borrowers on strengthening Agricultural Research and extension (ESDAR).

- Despite recent declines—attributable both to phasing out of poorly performing operations and to reclassification—at $10.8 billion at the end of 1994, the agricultural portfolio remains one of the largest portfolios in the Bank. Further, with the possible exception of forestry, all operations contribute to meeting food needs in an environmentally sustainable manner.

Rising Food Prices:

- The 50% increase in food prices observed early in 1995 may prevail for up to 18 months, placing stress on low-income, food importing developing countries. Along with the IMF, World Food Program and FAO, we are monitoring developments carefully and have released information about programs to mitigate negative impacts. (Tab 10)

- At only 13% of annual consumption, world food stocks are the lowest on record, and there are competing views on the outlook for long-run food supplies and prices. Mr. McCalla's analysis (Tab 9, Crawford Lecture) tends to be more sobering than traditional FAO, IFPRI and even Bank analysts. He suggests that meeting food needs by 2025 will be difficult without concerted efforts to raise productivity. I (Serageldin) believe that these views are the best articulation of the Bank's institutional position, and we should re-issue it as such.

Question 2: With the need for expanded agricultural research (in such areas as irrigation and water resources management) and in light of decreasing support from USAID, UNDP, and some other donors for the CGIAR, will the World Bank be able to make up the difference? If not, how do you think this growing gap can be filled?

6 to 1 ratio. broad partnership

- CGIAR has always been a high priority for the Bank, which has consistently provided up to 15% of total resource needs.

- Under the leadership of Mr. Serageldin, declines that had been projected for 1992-1994 (from $243 to $210-220 million) were avoided, and in 1994-5 the Bank put in an exceptional $20 million in matching grants on 2:1 basis, and mobilizing an extra $40 million from others.

- In 1996 our contribution will be back to 15% of the total, and will approach $45 million, plus roughly $5 million for the Secretariat. The research agenda is likely to be fully funded at $300 million, restoring in real terms the commitments made pre-1993.

- The Bank should not permanently compensate for declines from other sources of funding. We are continuing our commitment to vigorous leadership and support by finding new donors and exploring options for bringing in private sector actors.

Question 3: In view of the dangerous and widespread long-time mining of African soils and its impact on African food security, the African region of the World Bank is proposing a major investment by the Bank or by the GEF in building up African soil productivity. What is your view of this program?

- Soil degradation is a world-wide problem, but is particularly acute in Sub-Saharan Africa (Potential agricultural production already reduced by 10%). Many small farmers are locked in poverty cycles which force them to mine soils for family survival.

- The Bank has strongly supported investment and policy actions in Sub-Saharan Africa—e.g. agricultural research and natural resource management projects, and policy initiatives designed to improve farmers' profitability.

- Our Africa Region and AGR have initiated a collaborative program to tackle the problem of soil productivity decline. An interim Advisory Group of African, agency and donor representatives is being formed and an Action Plan is being drafted.

NB: You may wish to indicate your support for this initiative.

Question 4: It's our view that experience shows in many countries, properly supported community and farmer's group can successfully make the link between farmers and the new technologies and plants that will allow them to increase crop productivity. What kind of a role would you like to see NGO's, like those represented here today, play in supporting and working with the Bank in the regard?

- The Bank is firmly committed to including all stakeholders, and most especially beneficiaries.

do we work with them — yes, certainly.

→ meet at least once a month. very good relations! → alliance building → meet w/group of NGOs before every time!

- NGOs have a critical roles at local, regional and international levels.

- We appreciate and need your support—including constructive challenges—as we work to transform ourselves from a production-focused organization to one focused on sustainable development in partnership with others.

Question 5: We strongly approve your proposals to decentralize Bank operations. What time table do you have in mind?

We cannot provide material for this response.

The material in the Briefing Book is organized as follows:

Tab 1: Contains a mission statement of the Committee on Agricultural Sustainability for Developing Countries, membership information and brief biographies
Tab 2: Detailing the Committee's questions and material for responses
Tab 3: The five following tabs provide backup material on issues of: Key Issues and Challenges.
Tab 4: Lending Trends and Causes.
Tab 5: New Directions and Approaches.
Tab 6: Critical Partnerships.
Tab 7: The Next Twelve Months.
Tab 8: Papers on Bank strategic agricultural vision.
Tab 9: Food scarcity.
Tab10: Rising grain prices.
Tab 11: Copies of substantiating data and memoranda on lending trends.
Tab 12: Previous Correspondence on Agricultural Credit.

Sincerely,

Ismail Serageldin

Fax/ Tel: 00 91 22 415 5536
Tel: 00 91 22 414 9688

SAVE BOMBAY COMMITTEE

620 Jame Jamshed Road, Fourth Floor, Dadar East, Bombay 400 014

Ref:Worldbk/95/836
November 30, 1995

Mr Larry Williams
Director, International Program
Sierra Club
408 C Street N.E.
WASHINGTON D.C. 20002
United Statesa of America

Dear Larry,

I have yet to acknowledge the receipt of your letter dated 27.10.95 and various papers and publications you sent to us. We have gone through the papers and find them useful. The World Bank is so far away for India and the Third World that it appears to be unapproachable and amphibian and of course awe inspiring. We hardly have access to the Bank, otherwise pious, documents and statements while the Bank decisions for assistance are so much at loggerheads even with its own statements.

You have on your own sent papers on the Bank approach to transport problems. THIS is the area where we have been articulating. Bombay as you have noticed is always involved in traffic snarls and jams. The SBC has been involved in this area since its inception. I was a member and then the Chairman of the BEST Undertaking, the municipalised public road transport and electricity distribution agency, running the BEST buses and distributing electricity (and employing 40000 workers and having a budget of Rs.4 billion).

One proposal known as the Bombay Urban Transport Project (BUTPII) is now pending with the Bank for assistance. Though it is being worked out for five years now, the citizens have no information on the proposal for improvement of the public roads and railway commuter services within the Bombay Metropolitan Region now being considered by the Bank for assistance. We could not obtain any data from our authorities. We had approached the Bank long back and the concerned department has assured that information would be supplied and the Bank officers visiting Bombay would contact us for meeting.

...2

The Bank officers are now in Bombay for last few days. Our authorities Bombay Metropolitan Region Development Authority in this case, smartly split up the proposal in two parts, one covering the physical proposals for improvement and two covering the displacement and resettlement of the affected slum dwellers. The BMRDA organised a meeting (they say seminar) of selected NGO representatives involved in displacement and resettlement at less than 48 hour notice but simply kept out any discussion on the physical proposals.

I met Jelena Pentelec the Bank Officer in charge of resettlement separately (because she knows me) as I could not participate in the seminar however the physical proposals were never discussed. Mr. Hanson is the concerned Bank Officer for this area. The BUTPII is bound to bring about any improvement, most probably it would add to problems. Many developments that are being taken up by the BMRDA, government, municipality such as development of Bandra-Kurla Complex (intensive commercial development involving Rs.100 billion), providing free housing to 5 million slum dwellers within 5 years through private enterprise involving Rs 1000 billion, road development (inc. widening by narrowing or eliminating pavements) costing Rs 13 billion would defeat the peripheral BUTP II. In fact the taking up of the BUTPII and the Bank backing would provide alibi to the authorities to embark on more intensive programme which would aggravate the problem.

The Bank working only adds to the already burning issues. The Bank is not anxious to meet the citizens to understand their problems. We enclose herewith our letter to Mr. Shawki Barghouti Acting Director, South Asia Country Department II (Room G-3039) of the Bank on the meeting for Mr. Wolfensohn.

Yours sincerely,

Kisan Mehta
President

Fax/ Tel: 00 91 22 415 5536
Tel: 00 91 22 414 9688

SAVE BOMBAY COMMITTEE

620 Jame Jamshed Road, Fourth Floor, Dadar East, Bombay 400 014

Ref:Worldbk/95/650
November 9, 1995

Fax No:001 202 477 8277
Dept/Div no:244/20

For Mr Shawki Barghouti
Acting Director
Dept/Div South Asia
Country Dept II
Room G 3039

Dear Mr Barghouti

Sub: Mr. Wolfensohn visit in India

Thanks for your fax of 31.10.95 in connection with the meeting to be organised at the time of Mr Wolfensohn's Bombay visit.

We recognise that a national meeting in Bombay may not be necessary as the Bank will be holding meetings in places to be visited by him. Our suggestion is that we organise the Bombay meeting of NGOs involved in the Bank aided projects for Mr Wolfensohn and the Bank officials to participate. We can as well cover NGOs the bank may be contemplating to invite. Please convey the list of such organisations.

Kisan Mehta
President

Fax/ Tel: 00 91 22 415 5536
Tel: 00 91 22 414 9688

SAVE BOMBAY COMMITTEE

620 Jame Jamshed Road, Fourth Floor, Dadar East, Bombay 400 014

Ref:Worldbk/95/834
November 30, 1995

Mr Shawki Barghouti
Acting Director
South Asia Country Department II
The World Bank
1818, H Street N.W.
WASHINGTON D.C. 20433
U.S.A

Dear Mr Barghouti,

Mr Wolfensohn Visit in India
Our offer to hold meeting of voluntary organisations in Bombay for Mr Wolfensohn

We have been in touch with the World Bank since September 1995 when we offered to organise a meeting of representatives of voluntary organisations in the Mahatma Gandhi Memorial Centre in Bombay to enable Mr James Wolfensohn, the World Bank President to meet the grassroot workers involved in the development programmes in this country. Following your advice that meetings on similar lines are being organised in other places of his visit in India, we suggested that the meeting in Bombay could be regional rather than national. We enclose herewith copy of your fax letter dated 30.10.95 and our fax letter dated 09.11.95 to you on the matter.

We have not heard anything from you in this connection and in the meantime, valuable time is lost. A meeting of the type contemplated by us requires adequate advance notice and time to make the event meaningful.

Possibly the Bank does not want the Bank President to be exposed to such a citizen initiative as a part of the country familiarisation visit. We would have appreciated a frank statement on our offer. We are forced, much against fervent hope, to conclude that the Bank has not accepted our offer. We are closing this matter at this stage in view of your continued silence.

Yours sincerely,
Kisan Mehta
President

WORLD NEIGHBORS

4127 NW 122 Street, Oklahoma City, OK 73120-8869 U.S.A. (405) 752-9700 (800) A HAND UP FAX (405) 752-9393

TO: **Bob Blake, Committee on Agricultural Sustainability**

FROM: **Jethro Pettit, Director of International Programs, World Neighbors**

DATE: **11 December 1995** JP

RE: **World Bank support for Sustainable Agriculture**

I'm sorry that World Neighbors will not be able to come to the December 13 meeting with James Wolfensohn. In consultation with our staff in Asia and Africa, we've identified some issues for the Bank to consider in seeking to improve its support of sustainable agriculture in marginal and risk-prone areas of the developing world.

In general, we would encourage more support for **farmer-led methods of agricultural extension and research**. There is growing evidence that such approaches, many of them pioneered by smaller NGOs like World Neighbors, can be highly responsive in diverse agro-ecological and cultural conditions.

Building on local knowledge, experimentation, and farmer-to-farmer diffusion of technologies, a sustainable process of agricultural development can be set in motion. Productivity can be increased with limited input of outside resources.

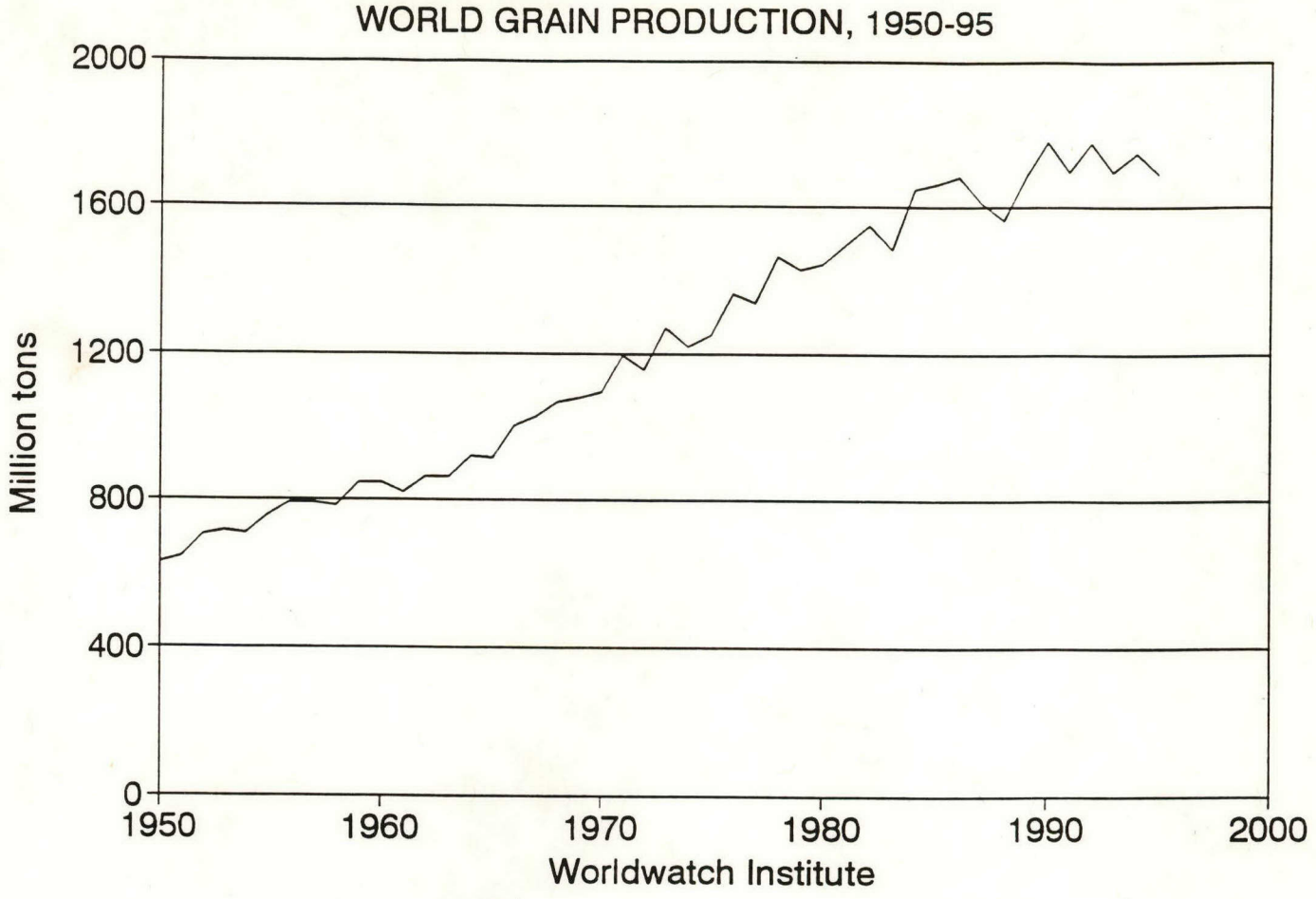
Yet a number of factors seem to be constraining the ability of the World Bank to invest in farmer-led extension and research. Many national research and extension systems have been hindered by austerity measures. The World Bank could **help local governments develop strategies to finance extension services** rather than supporting extension services with loans.

The World Bank might **re-examine its procedures for collaborating with NGOs**, particularly if it wishes to engage smaller field-based practitioner NGOs in testing and promoting extension and research methods. The high "transaction costs" of engagement (contract negotiation, bidding, reporting, etc.), and the political manoeuvering required in working through national governments, can be prohibitive to smaller organizations and lead to a bias in NGO selection.

World Neighbors contact with Bank staff has been positive, in Washington and around the world. Notably, staff in the NGO Unit, the Environment Program, the Africa Social/Technical Team (ATSAT) and Small Grants Program, among others, have been highly responsive. There is a genuine search afoot for innovation and partnership. **Yet the Bank's capacity to experiment with new approaches on the ground, and to collaborate with small practitioner NGOs, is constrained by current policies and procedures.** These limitations have made World Neighbors hesitant to accept World Bank invitations to work together.

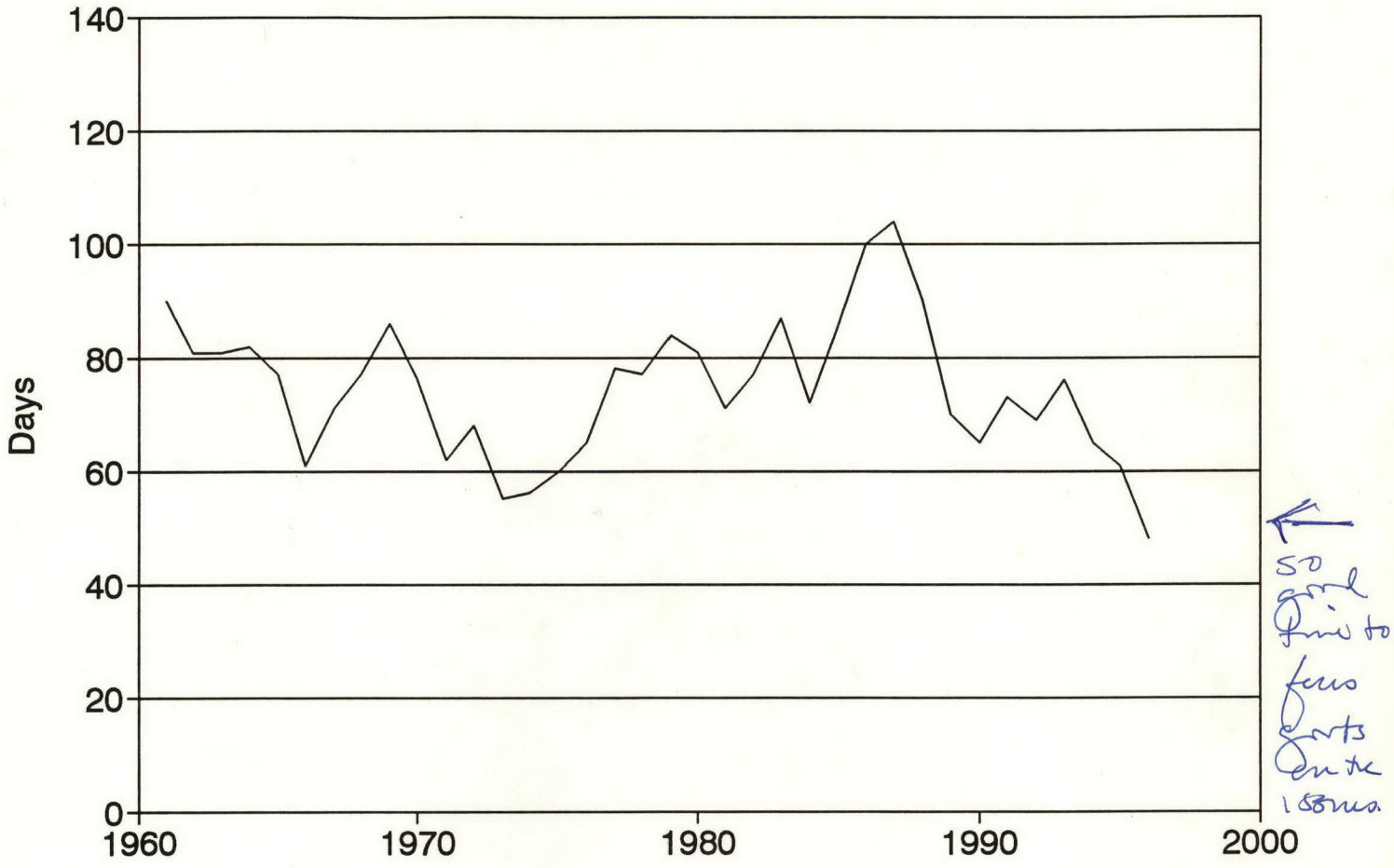
I hope these points are helpful, and would be happy to provide additional input.

Lester Brown.



Year	World Total (million tons)	Per Person (kg.)
1950	631	247
1951	645	249
1952	704	267
1953	717	268
1954	709	260
1955	759	273
1956	794	280
1957	794	271
1958	784	288
1959	849	278
1960	847	279
1961	822	267
1962	864	276
1963	865	270
1964	921	281
1965	917	274
1966	1,005	294
1967	1,029	295
1968	1,069	301
1969	1,078	297
1970	1,096	296
1971	1,194	316
1972	1,156	299
1973	1,272	323
1974	1,220	304
1975	1,250	306
1976	1,363	328
1977	1,337	316
1978	1,467	341
1979	1,428	326
1980	1,447	325
1981	1,499	331
1982	1,550	336
1983	1,486	317
1984	1,649	346
1985	1,664	343
1986	1,683	341
1987	1,612	321
1988	1,564	306
1989	1,685	324
1990	1,780	336
1991	1,696	315
1992	1,776	316
1993	1,697	305
1994	1,747	308
1995	1,691	293

World Grain Carryover Stocks as Days of Consumption, 1961-96



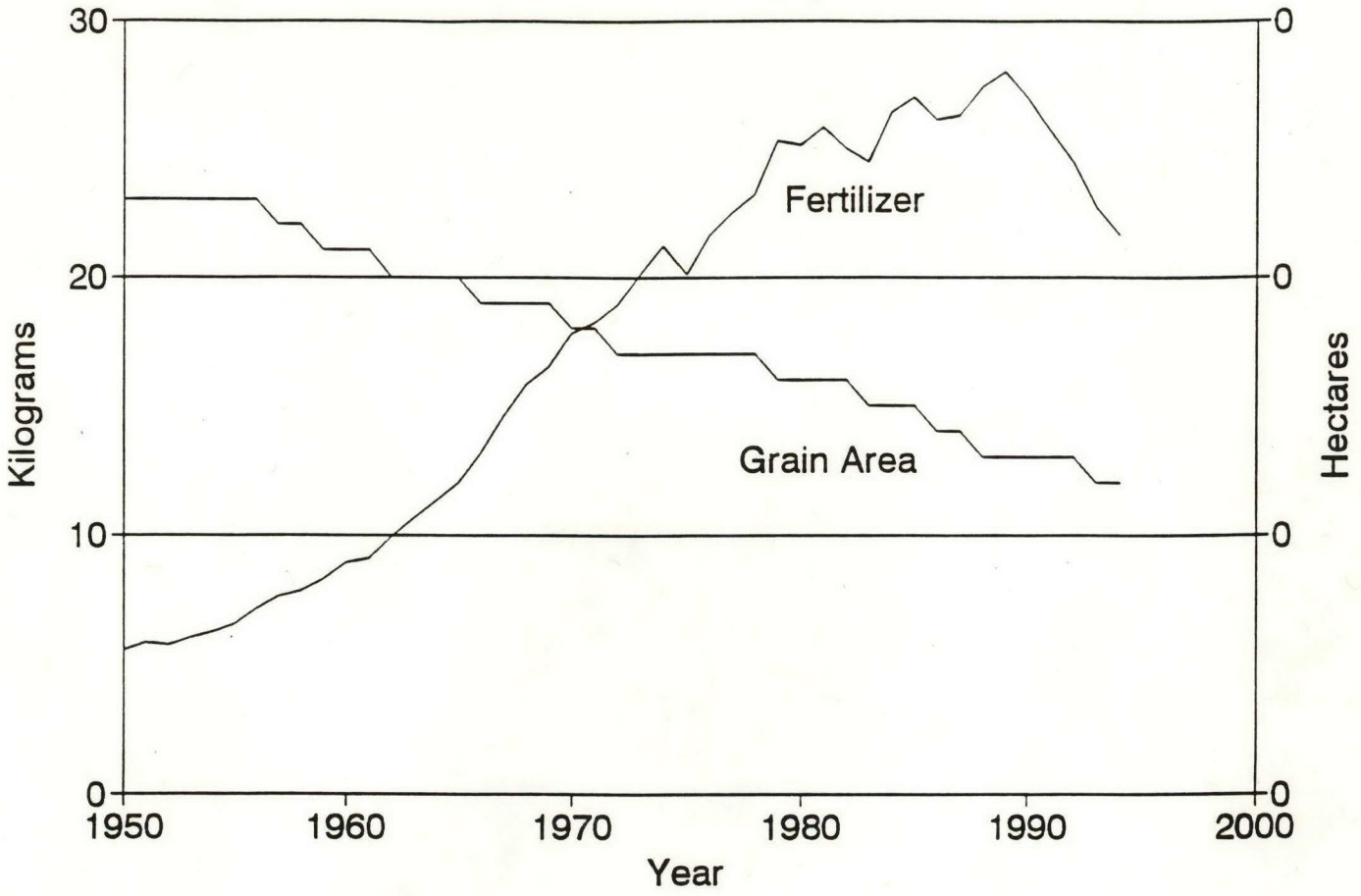
World Grain Carryover Stocks, Quantity and as Days of Consumption, 1961-96

Year	Quantity (million tons)	Consumption (days)
1961	203	90
1962	182	81
1963	190	81
1964	193	82
1965	194	77
1966	159	61
1967	190	71
1968	213	77
1969	244	86
1970	228	76
1971	193	62
1972	217	68
1973	180	55
1974	192	56
1975	200	60
1976	220	65
1977	280	78
1978	278	77
1979	328	84
1980	315	81
1981	288	71
1982	309	77
1983	357	87
1984	304	72
1985	366	85
1986	434	100
1987	465	104
1988	409	90
1989	316	70
1990	301	65
1991	342	73
1992	317	69
1993	351	76
1994	313	65
1995	296	61
1996 (est)	229	48

Note: Data are for year when new harvest begins.

Source: U.S. Department of Agriculture, "World Grain Situation and Outlook" (unpublished printout), Washington, D.C., November 1994.

See Worldwatch publication Vital Signs 1995 and State of the World 1995 for further information.



- no more productivity gains to be gotten out of fertilizer use.

World Grain Area Harvested Area, Total and Per Person, 1950-94

YEAR	AREA	PER PERSON
	mil hec	hectares
1950	587	0.23
1951	589	0.23
1952	609	0.23
1953	619	0.23
1954	627	0.23
1955	639	0.23
1956	648	0.23
1957	644	0.22
1958	646	0.22
1959	635	0.21
1960	639	0.21
1961	635	0.21
1962	641	0.2
1963	648	0.2
1964	657	0.2
1965	653	0.2
1966	7655	0.19
1967	665	0.19
1968	670	0.19
1969	672	0.19
1970	663	0.18
1971	672	0.18
1972	661	0.17
1973	688	0.17
1974	691	0.17
1975	708	0.17
1976	717	0.17
1977	714	0.17
1978	713	0.17
1979	711	0.16
1980	722	0.16
1981	732	0.16
1982	716	0.16
1983	706	0.15
1984	710	0.15
1985	715	0.15
1986	709	0.14
1987	685	0.14
1988	686	0.13
1989	694	0.13
1990	693	0.13
1991	686	0.13
1992	687	0.13
1993	677	0.12
1994	676	0.12

SOURCE: Grain data from U.S. Department of Agriculture, "World Grain Database (unpublished printouts)(Washington, D.C.: 1992). Population data from U.S. Bureau of the Census, private communication, November 1993; Population Reference Bureau, "Population Data Sheet," (Washington, D.C., various years). Fertilizer data from U.N. Food and Agriculture Organization, "Fertilizer Yearbook" (Rome: various years); Intl Fertilizer Ind. Assoc.; Worldwatch Institute.

Fertilizer Use, World Total and Per Capita, 1950-93

Year	Total (million tons)	Per Person (kilograms)
1950	14	5.5
1951	15	5.8
1952	15	5.7
1953	16	6.0
1954	17	6.2
1955	18	6.5
1956	20	7.1
1957	22	7.6
1958	23	7.8
1959	25	8.3
1960	27	8.9
1961	28	9.1
1962	31	9.9
1963	34	10.6
1964	37	11.3
1965	40	12.0
1966	45	13.2
1967	51	14.6
1968	56	15.8
1969	60	16.5
1970	66	17.8
1971	69	18.2
1972	73	18.9
1973	79	20.1
1974	85	21.2
1975	82	20.1
1976	90	21.6
1977	95	22.5
1978	100	23.2
1979	111	25.3
1980	112	25.1
1981	117	25.8
1982	115	25.0
1983	115	24.5
1984	126	26.4
1985	131	27.0
1986	129	26.1
1987	132	26.3
1988	140	27.4
1989	146	28.0
1990	143	27.0
1991	138	25.7
1992	134	24.5
1993	126	22.7
1994	121	21.6

Source: U.N. Food and Agriculture Organization (FAO), Fertilizer Yearbook (Rome: various years); International Fertilizer Industry Assoc.; Worldwatch Institute; population numbers from Population Reference Bureau, Population Data Sheet, (Washington , D.C., various years).

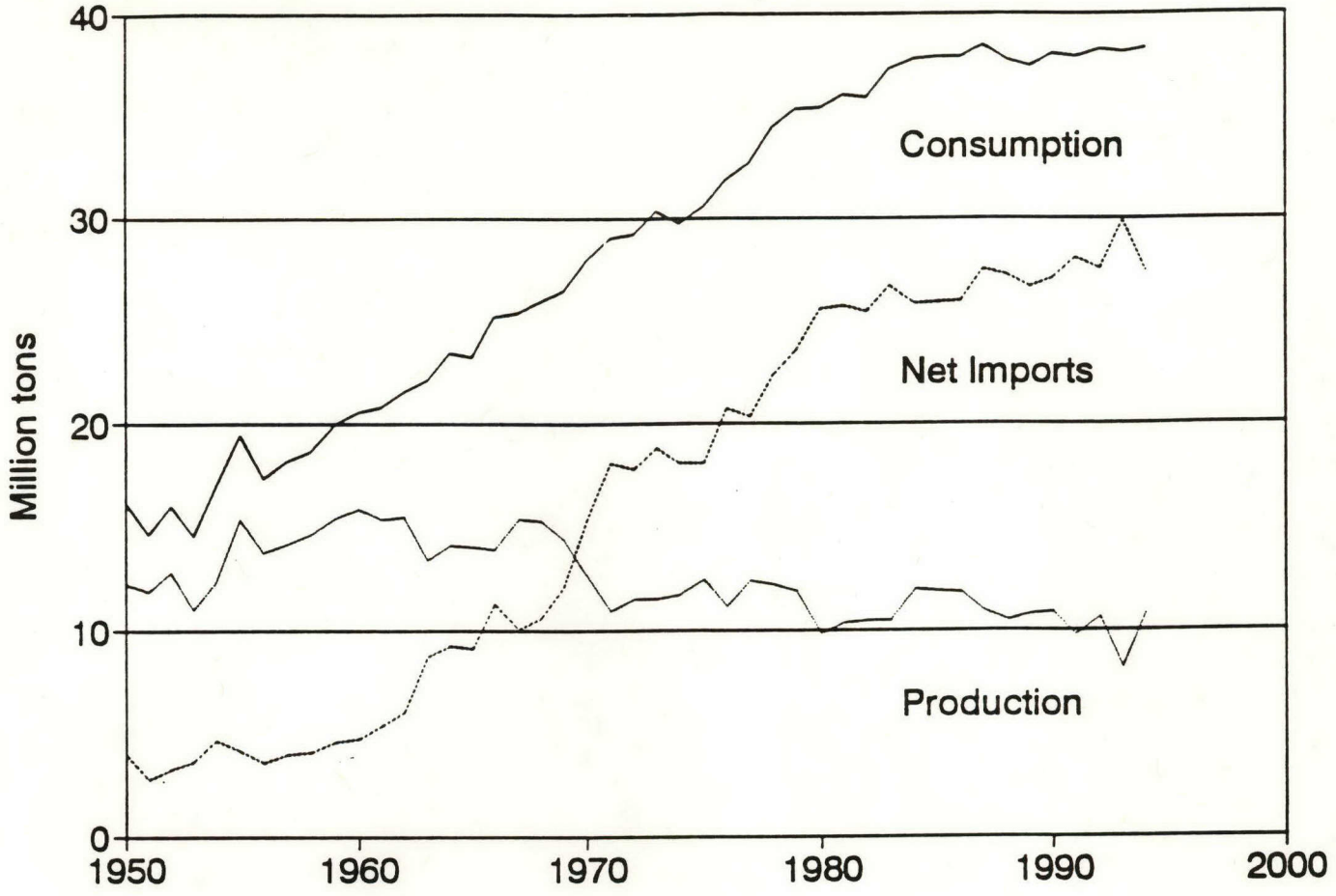
See Worldwatch publication Vital Signs 1995 for further information.

CHINA: GRAIN PRODUCTION, 1990-95

Grain	1990	1991	1992	1993	1994	1995
	(million metric tons)					
Wheat	98	96	102	106	99	100
Rice (milled)	132	129	130	124	123	124
Coarse grains	111	112	108	117	113	122
TOTALS	341	337	340	347	335	346

(World Bank projections, 1990-95 = + 30 million tons)

Japan: Grain Production, Consumption, and Imports, 1950-94



BANKROLLING SUCCESSES:

A Portfolio of Sustainable Development Projects



Published by
Friends of the Earth
and the
National Wildlife
Federation

By
James N. Barnes, Brent Blackwelder;
Barbara J. Bramble, Ellen Grosman,
and Walter V. Reid

BANKROLLING SUCCESSES: *A Portfolio of Sustainable Development Projects*

ISBN 0913890-94-4

BANKROLLING SUCCESSES:

A Portfolio of Sustainable Development Projects

By
James N. Barnes
Brent Blackwelder
Barbara J. Bramble
Ellen Grosman
Walter V. Reid

Published by
Friends of the Earth
and the
National Wildlife Federation

To help conserve our natural resources . . .
Contents of this book are printed on recycled paper
containing a minimum of 10% post consumer fiber.

© 1995 Friends of the Earth
All Rights Reserved



Authors

James N. Barnes was Director of the International Department at Friends of the Earth in Washington, D.C. during the preparation of this book, and now is a counselor at Les Amis de la Terre in France promoting reform of multilateral development and financial institutions. He is an attorney who has specialized in international environmental and development issues for the past twenty years.

Dr. Brent Blackwelder is President of Friends of the Earth. He has helped found a number of environmental organizations and helped initiate the campaign to reform multilateral development bank lending.

Barbara J. Bramble is Director of International Programs for the National Wildlife Federation. She was one of the co-founders of the citizens campaign to reform the multilateral development banks. She is an environmental attorney, and has over twenty years' experience collaborating with and representing a wide range of non-governmental organizations within the U.S. and in other countries.

Ellen Grosman is concluding a Master's Degree in International Development with a concentration in International Economic Policies and Agricultural Development from the School of International Studies, American University, Washington, D.C. She is currently preparing a thesis on the environmental implications of food insecurity.

Dr. Walter V. Reid is Director of Development at the World Resources Institute in Washington, D.C. He has written widely on development issues, particularly concerning biodiversity.

Table of Contents

Preface vii

Acknowledgments ix

Introduction to the Second Edition 1

The Policy Landscape 3
What Is New 3
Box 1: Overview of the GEF 5

Persistent Global Problems 7

New Approaches Are Needed 9
Poverty Alleviation: The Role of Microcredit 10
Box 2: The Grameen Bank 11
Box 3: Microenterprise In El Salvador: FINCA 13

Green Economics 14
Box 4: Green Accounting 15

Clean Production 16
Box 5: Clean or Cleaner: The Goal? 16

Environmental Debts 21
Declining Resource Productivity 22
Box 6: Majjia Valley Windbreaks 23
Box 7: Plan Sierra 25

Over-reliance on Chemicals 27
Box 8: PRRM Organic Farming Initiative 29

Keeping Options Open 31
Box 9: The Kuna Comarca and PEMASKY 32
Box 10: The Mananara-Nord Reserve 34
Box 11: Extractive Reserves in Brazil 35
Box 12: Bourgou in Mali 37
Box 13: HIFCO Gardening Project 38
Box 14: Guanacaste Conservation Area 40

Environmental Components of Success 43
Box 15: The Precautionary Approach 43

Increasing Efficiency and Renewable Energy 44
Box 16: Efficient Stoves and Transfer of Technology 45
Box 17: Solar Power in the Dominican Republic 46
Box 18: Some Energy Facts 47

Raising Productivity 49
Box 19: Guinope Rural Development 49
Box 20: Appropriate Technology Oilseed Project 51

Box 21: ADMADE: Wildlands and Human Needs 54
Box 22: CAMPFIRE in Zimbabwe 55

Sustainable Forest Management 56

Achieving Development Success 59
Appropriate Policies 59
Box 23: Bicycles in Lima 61

Resources for Women and Family Planning 62
Box 24: PROFAMILIA in Colombia 62
Box 25: Pakistan's Male Involvement Project 63
Box 26: COWAN in Nigeria 64

Encouraging Public Participation 65
Box 27: Participation Experience at the World Bank 66
Box 28: Zaire Fish Culture Project 67
Box 29: Proyecto Centro Maya 70
Box 30: Agroforestry Outreach in Haiti 71
Box 31: Java Social Forestry Program 73

Innovative Urban Projects 74
Box 32: Sustainable Urban Strategies in Dar Es Salaam 75
Box 33: Tara Paper Unit 76

Flexible Methods Of Implementation 78
Box 34: National Environmental Funds 78
Box 35: Central Selva 80

Effective Extension 82
Box 36: Small Organic Farming in Chile 82

A View Toward The Future 85

End Notes 87

Bibliography 99

Appendix: New Developments at the MDBs 107

Preface

For more than ten years citizens' organizations from the North and South have been engaged in efforts to reform the lending practices of international financial institutions so that they support development that is environmentally, socially and economically sustainable. A primary objective has been to democratize the development process to allow communities affected by projects and policies to have a substantial role in deciding what is done with development assistance.

Campaigns have been designed for each multilateral development bank, as well as for the International Monetary Fund, with the goal of empowering community groups and non-governmental organizations while avoiding confrontation between them and their governments. These campaigns have had many notable successes in stopping dubious projects, in changing policies at the multilateral development banks and in promoting development that is more equitable and sustainable.

This publication provides many positive and creative examples of sustainable development. The case studies are neither theoretical nor abstract, but rather are workable, practical and tested. Although it is always dangerous to label any project a success, or even to offer a prognosis of positive change, the authors willingly accept those risks.

We hope that development institutions around the world will devote a substantially greater portion of their portfolios to the types of projects featured in the following pages, and that they will employ the approaches and concepts described herein in all of their projects and other development activities. We also hope that the book becomes a useful tool for academic institutions, development workers, community groups and NGOs.

Acknowledgements

The authors want to thank the many people involved in producing this book. Research assistance was provided by Keith Alexander, Bella Roscher, Roberta Cowan and Hänsel Cassadyne while working as Fellows at Friends of the Earth, and Roopali Phadke, Katie Geenen, Andreas Kristinus and Leigh Kurtz, while working as Interns in the International Department of the National Wildlife Federation. The Operations Services Department at the National Wildlife Federation deserves enormous gratitude for guiding us through the layout, graphics and printing process, in particular Marti Burton and Scherrie Bussineau.

Special thanks go to Sue Terry and Sam Boltik, the librarians at the World Resources Insitute who helped locate data and retrieve publications, and to Emily Goldman at National Wildlife Federation for her editing and translation of case studies. We are grateful to the following people for their contributions: Michael Cohen, John Florio and Josef Leitmann (World Bank), Bindu Lohani (Asian Development Bank), Mary Lynn Hanley (UNDP), Cassia Pacheco (American University), Roberto Smeraldi (Amici della Terra), Michael Scholand (International Institute for Energy Conservation), Peter Tilley (WWF-Zambia), Dr. Cynthia Jensen and Frances Seymour (WWF-US), Francelyn Begonia and Marvic Leonen (LRC-KSK), Hal Kane, Nancy Chege and Derek Denniston (Worldwatch Institute), Mark Dillenbeck (IUCN), Monica Moore (Pesticide Action Network), Mohamad El Ashry (Global Environment Facility), Ashok Khosla (Development Alternatives), Chip Fay (Ford Foundation), Emy Hafild (WALHI), Clifton Curtis, Cathy Fogel and Heather Spaulding (Greenpeace International), Dave Batker and Gani Serrano (Philippine Rural Reconstruction Movement), Marijke Torfs (FoE), Charlotte Fox (Wallace Genetic Foundation), Gilbert Arum (KENGO), Ashish Kothari (Indian Institute of Public Administration), Andrew Mushita (ENDA Senegal), Martin Khor (Third World Network), Anthony Quizon (ANGOC), Marcus Colchester (World Rainforest Movement), Andrew Dilworth and Tony Juniper (FoE-UK), Bruce Rich and Korinna Horta (Environmental Defense Fund), Carol Sherman (AIDWATCH Australia), Tom Fox, Nels Johnson and Robert Repetto (World Resources Institute), Nancy Alexander (Bread for the World Institute), John Cavanagh (Institute for Policy Studies), Juan Mayr Maldonado (Fundacion Pro Sierra Nevada de Santa Marta), Mary Helena Allegretti (Secretary for Planning and Environment, State of Amapa, Brazil) and Rafael Asenjo (UNDP).

Publication of *Bankrolling Successes* is supported by a generous grant from the C.S. Mott Foundation, with additional funding from the National Wildlife Federation. Some of the reviews in developing countries were supported by the International Development Research Centre in Canada.

Introduction to the Second Edition

Critics of multilateral development banks (MDBs)[1] often have been accused of being too negative. Instead, we want here to reinforce the more positive tendencies emerging in those institutions. One of the reasons for writing the first edition of *Bankrolling Successes* seven years ago was to balance an earlier critical report called *Bankrolling Disasters*.[2] We believed that demonstrating some of the elements of successful projects and defining the underpinnings required for sustainability would help move the dialogue forward, and we were right. The MDBs have responded positively to many of the initiatives outlined in *Bankrolling Successes* and elsewhere. The ongoing dialogue between Non-Governmental Organizations (NGOs) and the MDBs about how to achieve sustainable development has incorporated many themes from the first edition of this book and from other writers. We have similar hopes for this second edition.

Bankrolling Successes examines the practical meaning of "sustainable development," a concept that virtually all governments and development agencies now endorse.[3] The World Commission on Environment and Development and the 1992 United Nations Conference on Environment and Development (UNCED) defined sustainable development to be:

> development that meets the needs and aspirations of the present without compromising the ability of future generations to meet their own needs.[4]

Implicit in this definition, however, are assumptions about many issues that lie at the heart of the debate about development, such as governance, democracy, the question of equity both among nations and within nations, and the realities associated with living in the ecosystem called Earth. As Herman Daly has noted:

> . . . sustainability requires that growth must not exceed the capacity of the larger system to regenerate resources and absorb wastes at sustainable rates and without disrupting other vital natural services, such as photosynthesis, nitrogen fixation, etc.[5]

As we use the phrase in this book, sustainable development incorporates the concepts of ecological stability and social equity, as well as economic viability, and it is underpinned by basic democratic precepts. In the context of development assistance provided by the MDBs and bilateral donors, these precepts include the right of those affected to be fully informed and consulted in a timely manner, to comment on proposals, to have the opportunity to put forward alternatives that are honestly evaluated, and to be involved in planning, evaluating and carrying out policies and projects.

In analyzing the way that "development" is implemented in practice and whether it is likely to be economically, socially and environmentally sustainable, we ask these questions:

- Who are the beneficiaries of the proposed policies and projects?
- Will anyone be harmed as a result of imposed policies and development projects, and if so, what is being done to mitigate that harm or to find a better alternative?
- Who makes the decisions that control the process, the policies and the projects?
- What are the roles and rights of the people and communities directly affected by the policies and projects being put forward? Are local people, community organizations and NGOs involved at the earliest possible time in the project? Are the views and knowledge of affected communities and local NGOs incorporated into the planning and implementation?
- Are environmental and social costs integrated into the project during planning and evaluation?
- Is the project appropriate for local conditions, adaptable to the environment and acceptable both culturally and socially?
- Are women's issues seriously considered, has gender analysis been performed and are women's groups involved in planning, implementation and evaluation of projects and programs?
- Is biodiversity fostered or preserved?
- Are energy efficiency and energy conservation promoted?
- Are "clean production" techniques utilized?
- To what degree is there financial viability after outside funding has ended?
- How will "development impact" actually be measured?[6]

New approaches and new ideas for international development are needed as urgently as ever. *Bankrolling Successes* tries to help fill this gap by describing some of the key steps involved in nurturing development that is ecologically sound, socially equitable and eco-

nomically viable over the longer term. Positive examples can be found in many parts of the world and have been supported by all kinds of development/finance agencies. There is no doubt, for example, that many people working for MDBs and donor agencies care deeply about the quality of the projects they are involved with and are doing what they can to promote development that is socially just and environmentally sound. Innovative programs are being carried out by all of the MDBs, and many more have been funded by other development agencies, as well as by NGOs.

This second edition of *Bankrolling Successes* provides examples of some of these creative approaches to achieving sustainable development, drawn from the portfolios of the MDBs, bilateral aid agencies and NGOs. It includes summaries of several recent projects and descriptions of new institutions, as well as updated accounts of most of the original twenty case studies. We believe that all of the case studies included here describe projects that are moving in the right direction. In addition, this book highlights a number of principles that, if widely adopted, the authors believe would provide increased hope for the future, including use of the precautionary approach, implementation of green accounting techniques and investments in clean production.[7]

Five of the original case studies are excluded because they do not meet the criteria for sustainability described above, are no longer active or because there are better examples to present.[8] A few of the original case studies that don't fully meet the criteria are nevertheless included because of their relative success within a difficult policy context.

Bankrolling Successes incorporates the knowledge, experience and perspectives of people's organizations, communities and researchers around the world in evaluating the progress that has been made, and in highlighting the steps that must be taken, to ensure a more sustainable approach to development. Colleagues from many different institutions have helped identify and evaluate the projects and concepts featured in this edition. The case studies in this book are neither theoretical nor abstract, but are real life works in progress. Likewise, the principles discussed are all ripe for practical application, and point the way to a more sustainable future. The development approaches exemplified in the case studies and the principles that are profiled constitute alternatives to the types of projects and methodologies that have too often been promoted by development funders.[9] Therein lies the challenge of this book.

The Policy Landscape

The dramatic international changes that have occurred since the first edition of *Bankrolling Successes* have profoundly affected development possibilities. The end of the Cold War; the conclusion of a revised international trade agreement and creation of a World Trade Organization; the Rio Earth Summit, the International Conference on Population and Development in Cairo, and the World Summit for Social Development in Copenhagen; the negotiation of important new global environmental protection treaties, including on climate change and biodiversity; and the emergence of many new democratic governments; these have created a "new policy landscape."

What Is New?

The Rio Earth Summit brought together the leaders of 112 countries and NGOs from around the world, raising international awareness about the urgent need for development that is environmentally and socially sustainable. Agenda 21 was adopted at the Earth Summit. This blueprint for sustainable global development calls upon the industrialized countries to support investments, technical assistance and technology transfer for the benefit of developing countries in a multitude of areas related to the environment in the broadest sense, including health, sanitation, conservation and education. While Agenda 21 commits all nations to prepare national plans for sustainable development, Northern countries also promised to address their over-consumption of resources and high per capita pollution, which affect both the global environment and the growth potential of developing nations; and they made assurances of financial help to defray some of the extra costs to the South of complying with Agenda 21 commitments. One worrying factor is that many of the financial offers discussed by richer countries in Rio are not materializing.[10]

The United Nations Commission on Sustainable Development (CSD) was created in 1993 to follow up on the recommendations and commitments contained in Agenda 21. NGOs have been active participants during its first two years.[11] The fact that there is an official forum inside the U.N. with the mandate to promote and monitor progress toward sustainable development is a positive step forward. While some still fear it is just another diplomatic talk shop, the CSD has begun to take hold of several issues, notably lead pollution and forests. To deal more effectively with forestry issues, the CSD established an intergovernmental advisory panel at its 1995 meeting. Parallel to the CSD, many countries have established national sustainable development councils and commissions, including some with strong NGO and other private sector involvement.[12] A number of local authorities and NGOs have embarked on producing their own versions of Agenda 21.[13]

The United Nations created a new staff Department for Policy Coordination and Sustainable Development to follow up on Rio commitments,[14] and presented an ambitious *Agenda for Development* in 1994, which could lead to greater substantive U.N. involvement in development.[15]

The Rio process spawned new global environmental protection conventions on climate change, biodiversity and desertification. These conventions, along with the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, have major implications for development assistance and the policies being promoted by the MDBs and aid agencies. In addition, several other global conventions are now being negotiated and will need to be incorporated into the policies and projects of aid agencies and the MDBs.[16]

As a result of the Rio Earth Summit, the creation of the CSD and the negotiation of new global agreements, MDBs have been urged by governments to provide additional financial resources to developing countries and to take immediate steps to fully integrate the concept of sustainable development into their programs, projects and institutional objectives.[17] In addition, NGOs have been campaigning for increased public accountability of the MDBs during the past decade. In response, the institutions have made many positive changes in their policies and procedures.[18]

During the past seven years the MDBs have significantly increased their environmental and social staffs. The World Bank, for example, now employs more than 200 professionals in these areas. All of the MDBs now use environmental assessment procedures.[19] The banks have steadily increased their lending for health care, education, clean drinking water, sewerage and other investments in social infrastructure.[20] Loans specifically to help countries improve environmental management and make other "pro-environment" investments have risen dramatically.[21] All of the MDBs have established new policies to govern lending operations in such areas

as forestry, energy, compensation for forced resettlement and wildlands protection.

The World Bank recently set up an inspection panel, which can hear formal complaints from people affected by violations of Bank policies, procedures and loan conditions.[22] Although NGOs have complained that the panel's operating procedures are unduly restrictive, several complaints have been lodged by local people, most notably in Nepal and Brazil.[23] In the Nepal case, involving the Arun Dam, the inspection process sparked a reexamination of the project within the Bank itself, which resulted in cancellation of the project in August of 1995.[24]

The Asian Development Bank has announced its intention to create its own appeals mechanism, promising that it would be more transparent and accessible to the public than the World Bank model.[25] The Inter-American Development Bank is in the process of establishing an independent investigation mechanism to respond to appeals. Rather than a formal Panel, this board is to be composed of ten independent experts who will serve on an "on-call" basis.[26]

All of the MDBs and the IMF are wrestling with the crucial questions of how much information to make available to the public and when to do so. Timely access to information by the public lies at the heart of the dilemma facing these institutions, for without it, there is simply no possibility of meaningful community and public participation in the planning and evaluation of projects. The World Bank's recently revised information policy restates a presumption in favor of disclosure,[27] but in practice a significant amount of the information that a community or NGO would need to put forward a useful alternative proposal is withheld, at least until after the project has been approved by the Board.[28] On the other hand, the World Bank's new policy has established Public Information Centers in its country representatives' offices and in Tokyo, Paris and Washington, D.C. Despite the limitations on availability of certain technical information before Board approval of projects, these facilities are greatly increasing the ease with which local groups can get access to a wide range of Bank documents which were formerly available only in Washington.

Similarly, the ADB developed a revised information policy in 1994, which will result in the availability of additional information to affected communities and NGOs.[29] In January of 1995, the IDB approved an information policy similar to that of the World Bank, with public access to information at the Bank's headquarters, its Special Office in Europe and in each of the Bank's country offices.[30]

One of the more innovative steps taken by any MDB to promote greater awareness of the social aspects of development is the Asian Development Bank's Social Dimensions Unit. It has promulgated Social Dimensions Guidelines and endorsed the concept of "community acceptability" for all projects. This could be a model for the other MDBs.[31] Indeed, the World Bank has prepared "social assessment guidelines" but they have not yet been given official status.[32] The ADB and the Inter-American Development Bank have both agreed to change their project mix so that about half of all loans, measured both by volume and value, directly address social and environmental issues.

These and other changes[33] have resulted in a very different, much more cooperative, atmosphere in MDB relations with the public. This includes both those affected by lending operations and the interested NGOs, even though disagreements over specific projects and whole programs will continue to arise.

Another innovation since the first publication of *Bankrolling Successes* was the creation in 1990 of the Global Environment Facility (GEF), to help pay for projects that benefit the international environment, such as biodiversity conservation and reduction of emissions of greenhouse gases and ozone depleting chemicals. This fund of "new and additional" resources was a crucial part of the bargain struck between North and South in Rio. Researchers were critical of how the GEF operated during its initial Pilot Phase; the GEF was substantially restructured in 1994 and new funds were added.[34]

The seven years since *Bankrolling Successes* originally appeared also have brought the end of the Cold War. This has engendered a radical restructuring of alliances and a deep re-thinking of concepts such as national and global security. At a minimum, a post-Cold War agenda should allow some of the money previously spent on arms to now be spent on sustainable development. The IMF has joined institutions like UNDP in criticizing the high levels of military expenditures in developing countries, which compete with investments in education, health care, environmental protection and natural resources management.[38]

The European Bank for Reconstruction and Development (EBRD) was created in 1990 to provide loans to Eastern Europe and the countries of the former Soviet Union. Although the EBRD got off to a somewhat rocky start, its charter makes environmental protection a key goal, which distinguishes it from the older MDBs.

One of the biggest changes in landscape during the past seven years has been the resurgence of private capital flows to many developing countries. Because of the debt crisis of the 1980s, commercial bank lending and corporate investments essentially dried up for most Southern countries. This trend has now reversed. Funds are flowing into new plant and equipment, into privatized enterprises, and into stock markets. Many infra-

BOX 1

Overview of the GEF

The GEF provides grant and concessional funds to developing countries for projects and activities that aim to protect the global environment. The GEF is focusing its resources on climate change, ozone depletion, pollution of international waters and biodiversity. In theory, the GEF is jointly administered by three "implementing agencies," the United Nations Environment Program (UNEP), the United Nations Development Program (UNDP) and the World Bank. In practice it has been dominated by the World Bank, which administered over 60% of the funds during the pilot phase, much of which were tied to larger World Bank projects. In general, UNDP is responsible for technical assistance, capacity building and the Small Grants Program. UNEP is responsible for catalyzing scientific and technical analysis and managing the Scientific and Technical Advisory Panel (STAP), an independent body that provides guidance to the GEF. The World Bank is the repository for, and manages, the GEF Trust Fund.

An Independent Evaluation of the GEF carried out in 1993 verified many of the criticisms and recommendations made by NGOs during the 3-year "pilot phase".[35] That evaluation led governments to restructure the GEF as they negotiated a replenishment of $2 billion in 1994. The restructuring and replenishment of the GEF still leaves the World Bank with considerable influence, but by creating an independent Council of member governments with its own Secretariat, a foundation has been laid for better results. According to the Independent Evaluation, the GEF will be more successful if it:

- Provides timely public access to information on all GEF projects and associated activities of the implementing agencies;
- Establishes and implements clear procedures that ensure the participation of affected communities and knowledgeable NGOs during the entire GEF project cycle; and
- Establishes and implements priorities for using GEF funds to address global environmental problems, and criteria for evaluating potential projects.

Key issues during the establishment of the 'new' GEF in 1994/95 included governance of the Facility, establishment of methods for setting priorities and strategies, and NGO participation (both in Council meetings as well as in implementation of GEF funded projects).

In addition, the GEF has been struggling with the concept of "incremental costs" which should be modified or deemphasized. One of the assumptions underlying the agreement to establish the GEF was that it should be possible to calculate the extra costs of conserving global resources, such as atmosphere and biological diversity, which are of benefit to the whole world. These "incremental costs," over and above what poorer nations would normally pay for their own development priorities, would be compensated by grants from the GEF. But it has proven more difficult than anticipated to separate the global from the national benefits of conservation investments.

A recent report by the World Wide Fund for Nature notes that during the pilot phase too much importance was given to this concept in shaping the operational policy and project portfolio. It found that the use of incremental cost calculations was inconsistent, and that the implications of applying the concept to the Climate and Biodiversity Conventions were unclear. The report recommends that "The GEF Secretariat should reconsider the weight it gives to incremental cost analysis in the decision-making process and recognize that this tool should be reserved until the final technical step in screening and selecting projects."[36]

For example, as a result of using the incremental cost concept, countries are not being encouraged to approach biodiversity conservation as something that is in their national self-interest, but rather as something to be bought with international funds. Instead, some observers have recommended that international resources, including GEF funds, should be used to build the domestic capacity and stimulate the demand for biodiversity conservation, by supporting local action and national activities already seen to be of national value.

The role of NGOs and civil society in the GEF remains a major issue of concern. In some respects the GEF has established new precedents for public involvement. Up to ten NGO observers (self-selected by the NGO community through a global system of regional focal points) can now participate in Council meetings. Prior to each regular GEF Council meeting, a GEF-NGO consultation is held, at which NGO representatives can raise questions about specific projects and general strategy issues. But while new guidelines on NGO participation in projects are currently being prepared by the GEF and the implementing agencies, the agencies' traditional administrative and institutional constraints to public participation may be difficult to overcome.

So far NGOs can only access GEF funds at the discretion of one of the three implementing agencies—UNDP, UNEP and the World Bank. UNDP's GEF-funded Small Grants Program has been the only direct funding window for community based activities (so far it is only operational in 33 countries). While this innovative grants window has been praised for breaking new ground in the UN system, a recent evaluation has identified a number of continuing bureaucratic bottlenecks.

The overall impact of the GEF on the global environment remains a subject of intense debate. Assuming all the funded projects were sound and implemented professionally, they would still only amount to a fraction of the development lending which frequently conflicts with GEF goals. For example, MDB funding for the power sector, often to support coal-fired electrical generation, was about $65 billion during the decade of the '80s,[37] whereas the maximum the GEF could allocate to climate change prevention would be something less than its total funds of $2 billion. Nevertheless, the GEF has the potential to catalyze a range of important initiatives in areas such as biodiversity conservation and the introduction of new energy technologies.

structure projects which would heretofore have been purely public sector investments, using MDB funds, in some countries can now be financed by commercial banks.

But only the strongest economies are yet on the receiving end of these investments; the poorest nations have seen little change. Even those who are the beneficiaries of the increased flows have learned recently of the serious risks. National economies that depend on these investments are vulnerable to the whims of investor confidence and the chance that foreign capital will flee when problems surface, even in other countries.[39]

A global debate about the implications of trade agreements for the environment and sustainable development emerged during negotiations for the North American Free Trade Agreement (NAFTA), the revised General Agreement on Tariffs and Trade (GATT) and the creation of the World Trade Organization.[40] Promoters of free trade to the exclusion of other considerations tend to focus more on the "winners" than on those who may lose as a result of the GATT Uruguay Round.[41] There is concern, for example, that Africa could lose because of the revised trade rules, based on analysis by the UN's Economic Commission for Africa (UNECA) and other researchers.[42]

These changes in the world's political and social landscape arguably require modified development institutions from those set up at the end of World War II. In 1994, during their 50th anniversaries, the World Bank and the IMF were subject to an evaluation by the Bretton Woods Commission, which has recommended sweeping changes in their missions and staffing.[43] A recent U.N. study calls for the World Bank and IMF to be more than merely nominal members of the U.N. and recommends creation of a new type of development bank for assisting developing countries.[44] In response to these pressures, the G-7 agreed at the 1994 Naples Economic Summit to review the missions and institutional frameworks of a number of international bodies, including the Bretton Woods institutions (the World Bank and IMF) to "assure that the global economy of the 21st century will provide sustainable development with good prosperity and well-being . . ."[45] At the 1995 Economic Summit in Halifax, Canada, the G-7 leaders took few concrete steps, but made a number of recommendations and pledged to check on progress in future Economic Summits. This

agreement has in effect initiated a "Halifax Process" for a broad review of key international institutions.[46]

Persistent Global Problems

Whatever changes may be agreed to by the MDBs and the IMF and their shareholder governments to address the "new policy landscape," many elements of what may be called the "old policy landscape" remain to be dealt with by governments, multilateral institutions, citizens and the private sector if sustainable development is to be achieved on a broad scale.

Although the global debt crisis is over from the perspective of risk to Northern financial institutions, which to a large degree restructured their bad debts during the 1980s, it is far from over for many borrower countries. Although debt is the subject of ongoing discussions in the Paris Club[47] and a perennial topic at the G-7, the strategies agreed on so far have not done enough to reduce the debt to manageable levels for many countries.[48] The burden of repaying debt in hard currencies imposes a serious impediment to sustainable development in much of Africa and a number of other severely indebted countries.[49] In some cases the need for foreign exchange to pay interest on that debt has led to excessive short-term resource utilization that undercuts longer-term sustainability.[50] In the Philippines, economic policies instituted in the wake of the debt crisis have contributed to internal migration of poor people to the forested uplands, leading to increased deforestation and environmental degradation of those lands.[51]

As a fraction of overall Southern debt, the percentage of debt owed to the MDBs and the IMF by many of the poorer countries has been growing rapidly in recent years, also constraining their development options.[52] The MDBs are beginning to acknowledge the burdens that their own debt holdings place on developing countries' abilities to invest in sustainable policies, practices and institutions.[53] But this debt forms only a part of the persistent problem of net negative transfers. Between 1989 and 1992, for example, the World Bank received $3.42 billion more from its borrowers in paid back loans and interest than it disbursed.[54]

Between 1980 and 1991, fourteen countries belonging to the Organization for Economic Cooperation and Development (OECD)[55] were involved in debt write-offs totaling $10.8 billion, and between 1990 and 1992, over $3 billion per year of debt was forgiven.[56] This process is accelerating following the agreement by the G-7 leaders at the 1994 Naples Economic Summit to adopt more favorable terms for forgiving bilateral debts.[57]

Thus far the MDBs have not participated in debt reduction programs. Instead, the World Bank's "Fifth Dimension" program has used some IDA reflows (funds repaid on IDA loans) to make new loans to cover back interest due on earlier IBRD loans in 12 Sub-Saharan African countries.[58] Citizens groups are calling on the MDBs to institute programs that reduce their debt burdens on the poorer developing countries, especially in Africa, where a number of countries owe more to the World Bank and the IMF than to any other lender.[59] The large currency and gold reserves held by the Bank and Fund could be used, in part, to do so.[60] Another mechanism that could be considered is to allow a portion of the debt payments to be converted into a conservation donation; in other words, the "payment" would be made in local currencies rather than hard-currency foreign exchange, with the funds allocated to a national or regional environmental foundation.[61]

Another persistent problem is that for years the basic terms of trade between South and North have remained negative for the South.[62] Income lost from fallen prices of Southern products has been one of the larger factors that caused economic resources to be transferred on a net basis from South to North. This has limited the resources available for investments in sustainable development, and compounded the debt problem for many countries.[63] MDB and/or donor agency policy advice that, over the years, have promoted increasing exports of similar products or crops by many countries, may have helped accentuate the downward pressure on export commodity prices for many countries in the South.

Environmental problems in developing countries continue to be aggravated by the transfer of environmental costs from industrial nations. Producers of manufactured items may relocate the production facilities to the South because of lower labor costs, less powerful unions, lax standards for working conditions and special incentives such as tax breaks.[64] Although lax environmental laws are rarely the primary reason for relocating factories, producers can still capitalize on the relatively poor enforcement of environmental laws and regulations, which reduces their production costs.[65] Levelling the playing field for all producers could be accomplished by international rules requiring each company to mitigate the damage caused by the industrial pollution it creates.

Industrialized nations benefit from sales of environmentally harmful products to the developing world, another part of the old policy landscape. For example, firms based in the industrialized countries continue to sell to developing countries pesticides that are restricted for use in the Northern countries where they originated because they are unsafe to human health or the environment. Global pesticide sales rose 3,100%, from $850 million in 1960 to more than $26 billion in 1990, with developing countries rapidly providing both new markets and production locations for major pesticide manu-

facturers. In developing countries, total subsidies for pesticides have ranged from 15 to 90% of the retail cost, with the annual value running into the hundreds of millions of dollars in some cases.[66] About 31% of world pesticide exports are purchased by developing countries.[67] The result of the limited ability of many governments of developing countries to enforce regulations for safe use, production and storage of pesticides is that more than half of all global pesticide poisonings and three-quarters of global pesticide deaths occur in the South.[68] New research also is demonstrating the adverse impacts of pesticides on the reproductive capacity of a number of animal species.[69]

This "web" of practical realities constitutes a powerful barrier to progress toward sustainability. But without action by Northern governments and the key institutions they control, change is unlikely; and communities in many Southern countries will continue to suffer needlessly. In this context, it is useful to recall Principle 14 of the Rio Declaration:

> States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.

New Approaches Are Needed

Please, presidents, prime ministers and generals, listen to the poor, to the voice of the hungry people who are forced to destroy the environment. Listen to the silent death of dying forests, lakes, rivers, and the seas, the dying soil of the earth, poisoned and trampled by human greed, poverty and inequality. We, the young, hear them loud and clear.

JENNI DAMAYANTI
at *Our Common Future* Launch
London, April 27, 1987[70]

Perhaps the most noteworthy aspects of the current struggle for sustainable development are the scale and irreversibility of the problem. Never before have so many people stood to gain or lose so much from actions to ensure that development steps in time with the environment. World population is projected to stabilize by the year 2100 at between 8.5 billion and 11.5 billion people, possibly twice the current total. More than 90 percent of that growth will occur in developing countries, where the impacts of environmental deterioration on the quality of life are already serious. Already, 700 million people are malnourished and 40,000 die every day of hunger and hunger-related diseases.[71] Tens of millions live in polluted mega-cities, where drinking water and sanitation are luxuries, and clean air cannot be bought at any price. All development institutions agree that the alleviation of poverty must be one of the primary objectives of sustainable development.

But poverty is only one side of the environmental coin. Waste, and overconsumption by the affluent, is the other. Sustainable development in the industrialized world must include elimination of toxic wastes; reduction in use of nonrenewable natural resources; serious adoption of energy conservation; and phasing out of gaseous emissions which threaten atmospheric stability.

Out of the intricate web of factors influencing international development, environmental considerations are assuming an increasingly important position. The environment has become a vital issue not only because of the foresight of conservationists or development banks or the pressure of scientists and NGOs, but because the debts accrued in past decades are coming due. What were once called the "future" impacts of soil erosion, deforestation, diminished genetic diversity, over-reliance on pesticides and increased atmospheric carbon dioxide, have steadily turned into the realities of the present. The constraints placed on prospects for economic development by the degradation of natural resources are so apparent that environmental considerations, once viewed as luxuries that developing countries could ill afford, are now seen as necessities no country can ignore.

Environmental flaws in development projects may have immediate effects, but more often environmental costs take years or even decades to appear. In years past, in efforts to achieve short-term economic or political goals, development agencies and the MDBs paid insufficient attention to longer-term environmental costs. The developing world is littered with the rusting good intentions of projects that have failed to achieve even their primary goal of economic success. Environmental problems have built even more impressive monuments to failure in the form of sediment-choked reservoirs and desertified landscapes.

One sure lesson derived from the failures of past development assistance is that there are as many answers to the question "how do we achieve sustainable development?" as there are ecological, political and cultural systems. Success in development is achieved not by following "proven" cookbook methods or technologies, but by broadening the range of approaches to specific problems and by focusing on key components of sustainability. In this context, several common themes can be discerned in successful sustainable development.

For example, planners at most development agencies, and especially at the MDBs, now admit that they long ignored the importance of including locally affected people and knowledgeable NGOs in the planning process. This had both moral and practical implications. Experts now agree they should neither assume that they know the needs and wishes of poor people, nor expect that development projects will be sustained without the support of affected groups at the grassroots level. Principle 22 of the Rio Declaration, adopted by over 150 nations, reaffirms the concept of local community involvement in development, which is gaining acceptance by planners as a standard operating procedure.

Belatedly, but to their credit, the World Bank, Asian Development Bank and Inter-American Development Bank are developing initiatives on public participation. Although it is too soon to tell whether they will be successful, the initiatives mark a turning point in both philosophy and practice.[72] The World Bank created a Learning Group on Participatory Development in 1990, which concluded that:

> Participatory development is a process through which stakeholders influence and share control over development initiatives, and the decisions and resources which affect them. There is significant evidence that participation improves the quality, effectiveness and sustainability of projects, and strengthens ownership and commitment of stakeholders. Community participation is found to be particularly important for poverty alleviation. The Bank has always interacted with a limited number of stakeholders. However, it has not systematically sought the broad-based participation required by its over-arching objective of helping its borrowers pursue successful strategies for sustained poverty alleviation. The Bank needs to change its business practices to encourage the participation of a much wider range of stakeholders, in order to improve and sustain its development efforts.[73]

In September 1994 the Board approved a report which endorsed the Learning Group's main findings, and adopted a Long-term Strategy for Increased Participation in Bank Work:

> Emerging out of this analysis, participation is critical to a long-term strategy for more effective collaboration with client countries across every facet of Bank work, with the intensity of participatory involvement varying according to different country and task situations. The strategy is long-term because it entails bringing about a broad cultural change in the way business is conducted.[74]

World Bank management is following through on the report by requiring the staff of each regional department to prepare an action plan for implementing participatory techniques in their operations. As this attempt to "mainstream" participation takes root, it will be important to see whether emphasis is placed on increasing participation by poor and indigenous men and women, who are often bypassed or hurt by conventional development efforts.

The transformation of development from a series of projects to a process of economic planning for growth that is ecologically sustainable and socially equitable, on both national and global levels, requires new paradigms and new approaches. Although our interconnected global society has created institutions potentially capable of this, it has also placed many obstacles in their path, some of which are very persistent. Development projects that succeed often do so in spite of policies that tend to stifle sustainable development. Their success often can be attributed to innovative methods of transforming or circumventing economic, land tenure and other policy constraints.

Poverty Alleviation: The Role of Microcredit

One alternative to the conventional approach to poverty alleviation is to provide capital directly to the poorest segments of society. This notion, although seen as radical and marginal only a few years ago, is being carried out successfully today in dozens of countries. It is a model of a "bottom-up" approach.

Numerous microcredit institutions around the world provide loans to the poorest people in society, who lack the collateral or payment record required by conventional lenders. The capacity of these microlenders can be expanded, and similar new institutions created, if significant resources are made available by the MDBs and other donors to support these initiatives.

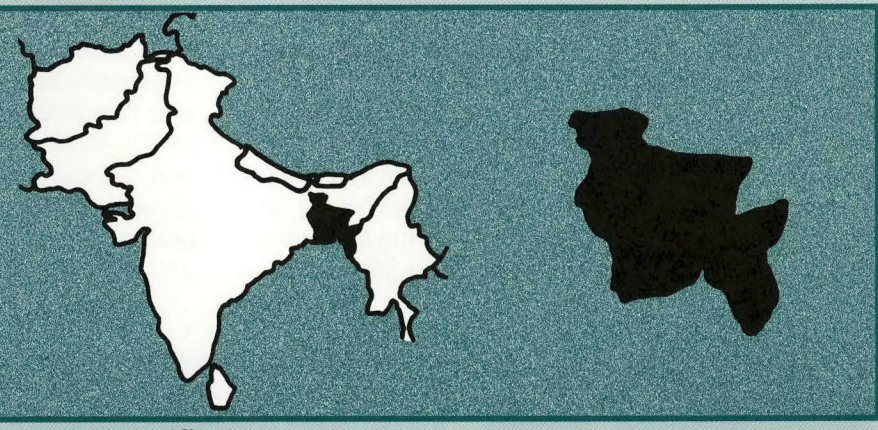
Long-term success will be assured only if the microcredit institutions can become self-sufficient and attract local capital. This usually requires a supportive national policy framework and a system for insuring the savings of depositors (which will encourage borrowers to become savers, thus boosting the capital available to lend). Several countries, including Nicaragua and Brazil, are beginning to actively promote microcredit efforts. The most successful programs are not limited to microlending alone, but include training and education for the borrowers, in everything from reading to accounting, and nutrition to sanitation. These development program costs are not expected to be covered out of the proceeds from making loans; self-sufficiency for microcredit agencies usually means the recovery of loan generation and financing costs out of borrowers' interest payments.

Once viewed by the World Bank as a marginal factor in Bangladesh, the Grameen Bank's size and influence have grown dramatically in the past five years.[75] Recently the World Bank has decided to become more involved in microcredit activities, with the Board approving a new initiative on June 29, 1994.[76]

Similarly, in El Salvador a village banking program backed by the U.S. Agency for International Development (USAID) and the Foundation for International Community Assistance (FINCA) has evolved into the largest credit program for the poor in Central America.

BOX 2

The Grameen Bank



ASIA BANGLADESH

The Grameen Bank in Bangladesh has been praised as one of the most effective poverty alleviation initiatives in the world. Traditional banks operate on the premise that only people with collateral will pay back their loans. Thus, banks do not lend to very poor people. The Grameen Bank has demonstrated, however, that poor people have both the incentive and the honesty to pay back loans, and the skills to use borrowed funds; it is only the *opportunity* that is denied them.

Based on faith in the integrity of the poor, the Grameen Bank was incorporated in 1983 with the explicit purpose of lending to the very poorest of the poor in a country where poverty is endemic. Bank staff are specially trained, and travel out to the small villages, by foot or bicycle if necessary, to reach rural residents. Loans are made for very small businesses such as food preparation; cloth or basket weaving, and domestic animal raising. Groups of about five borrowers form loan circles, and work together in deciding who will receive each loan, and help each other assure repayment. The bank provides information and instruction in literacy, accounting, sanitation, family health and nutrition, small business management, etc.

Today, the Grameen Bank lends to over 2 million people in 32,000 villages in Bangladesh and the repayment rate is around 97%. The Bank continues to lend to the poorest of the poor, with 61% of the women borrowers belonging to households with less than 0.1 acre of land.

The Grameen Bank operates on the principle that conventional aid, given to people as handouts, does not provide a long-term solution to poverty, in part because it does not increase the self-confidence or the skills of the poor. Instead, it tends to foster dependence upon the donor. The trust that the microlender places in the borrowers creates self-confidence, which helps them to pull themselves out of poverty.

Grameen also rejects the traditional notion that only men can be engaged in 'productive' work. Instead its program is based on the assumption that women engage in important economic activity and they should be given opportunities to balance traditional tasks with this other work.

The Grameen initiative originally was a response to a specific, complex social system with unique characteristics; it was made possible by the application of local knowledge to the development process. The Bengalis who designed this alternative lending mechanism, for example, were familiar with the "purdah" system in Bangladesh and knew how to challenge it in some ways while accepting it in others. The principles discovered by the Grameen initiative have been applied by others in a wide variety of situations, but the key remains to work closely with local people to adapt the general idea in appropriate ways.

The astonishing success of the Grameen Bank's methods demonstrate the wisdom of its approach. Rather than relying on traditional aid, or on the creation by outsiders of jobs for wage-employment, the Bank gives loans to encourage microentrepreneurs to create self-employment. Credit provided to people who are considered uncreditworthy by conventional banks creates an environment for the stable improvement of people's lives in many ways.

It is important to note that the Grameen Bank is not a women-in-development program even though a large majority of its borrowers are women. The program's main goal is to decrease poverty. Its leaders learned that targeting women is a better way to guarantee that the loans are used to increase the standard of living. As the founder, Dr. Mohammed Yunus, explains: "In the families in which the women received the loans, the children were better cared for, the houses were better maintained. I realized women were the real agents of change in rural society."

Ninety-six per cent of women in a study of Grameen Bank borrowers reported that they perceived an improvement in their socio-economic status. The percentage of husbands who said they considered their wives to be their equals rose from 43% to 93%.[77] Additionally, over 90% of both male and female borrowers reported that they perceived an improvement in their economic condition after they joined the Bank.[78] Other studies report similar success. Data from the Bangladesh Institute for Development Studies indicates that incomes of Grameen borrowers increased as much as 53% in real terms over three years and calorie consumption increased by 9% in Grameen borrower households.[79] In addition, contraceptive use in Grameen Bank villages is higher than in comparison villages, not only among borrowers but in whole communities, by 54% versus 43%.[80]



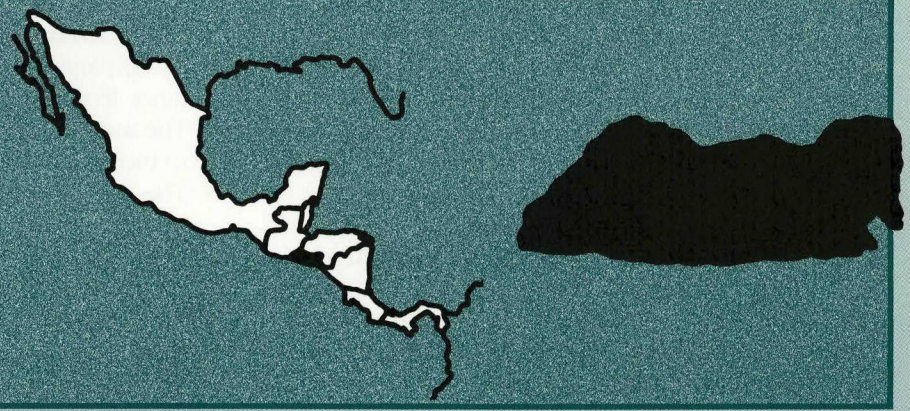
The Gamma Liaison Network/Cindy Andrews

Loans from the Grameen Bank to rural women encourage micro-entrepreneurs to create self-employment opportunities.

Starting amidst a difficult political and economic period for El Salvador, it has brought opportunities for economic and social growth by providing small loans to the poorest self-employed borrowers, 95% of whom are women. The FINCA model differs from the one employed by Grameen, in that they form separate village banks of 20 to 50 members, each of whom is also encouraged to become a saver; by contrast, Grameen brings to each village a branch office of the larger Grameen Bank.

BOX 3

Microenterprise In El Salvador: FINCA



CENTRAL AMERICA

EL SALVADOR

According to the 1992 census, El Salvador's population was 5.05 million, making it the most densely populated country on the mainland of the western hemisphere. In recent years, this has helped fuel the enormous economic, social and political upheavals of that nation. One particularly disturbing manifestation of these problems is the 1.5 million or so people living in absolute poverty.

Over the past two decades, the El Salvadorean financial system has hardly functioned. The nationalization of the banking system, the prevalence of negative real interest rates, inefficient financial regulations and nearly 12 years of civil war caused a serious deterioration of the already weak financial sector. By 1989, more than 40% of loans made by the nationalized banking system were in default.

In the aftermath of the civil war, the Foundation for International Community Assistance (FINCA) has built a national credit program that is contributing to the reconstruction of the country. Like the Grameen Bank, its founders believe that the poor are good credit risks. In June 1991, FINCA's Centro de Apoyo a la Microempresa (CAM) began its village banking operation with a three-year grant from USAID to provide very poor families with self-employment loans ranging from $50 to $300. CAM was created as an independent NGO whose board of directors is comprised of a broad range of representatives from El Salvador's private sector, including local NGOs.

By August 1993, after only 26 months of operation, CAM was operating 898 village banks, serving 25,900 families or over 130,000 people. With a portfolio of $1.7 million, it was making loans of an average size of $66 and receiving repayment at a rate of 99.83%. The program has encountered a seemingly limitless demand among poor communities for village banking services. CAM now offers village banking services in all of the nation's 14 geographic departments, including operations in 45 of 109 municipalities within the former war zone. There are an estimated 600,000 extremely poor people in the rural areas, and CAM has decided to try to reach virtually all of this population by 1998.

The participation of the borrowers in the management of the credit system is one of the most important features of FINCA's model. Village banks, whose membership ranges from 20 to 50 individuals, function as autonomous informal credit associations that manage all individual loan transactions. Each village bank is governed by a democratically appointed man-



FINCA International

FINCA borrower is now in business as a baker.

agement committee, and its by-laws are determined by the members, using guidelines provided by FINCA. The bank members meet weekly to conduct loan transactions, discuss business matters and share moral support. In addition, both the management committee and the borrowers receive training and oversight by FINCA extension workers.

As of May 1995, with 1,033 banks in operation and an average loan size of $105, CAM is reported to be totally self-sufficient and making a profit.[81] With the grant from USAID paid out, CAM is seeking soft loans from commercial banks. A July 1993 socio-economic survey revealed the following information:

- Of every 20 beneficiaries, 19 were women, 7 of whom were heads of households, and almost all beneficiaries were engaged in year-round, economic activities;
- In nine out of ten cases the income generated was either the only source of family income or was considered to be vital;
- Participants lived within ten-minutes walking distance from their bank;
- The main reason for joining the bank was the need to increase income for economic survival;
- The average period of participation is just over 15 months and on average borrowers received three to four loans;
- On average borrowers' sales volumes increased by 160%, weekly income increased by 145% and savings and inventories doubled; and
- Three out of five beneficiaries felt empowered because their participation in the program was respected at home. They felt less shy in front of strangers and were making significant contributions, in terms of decisions and income, to their families.[82]

Green Economics

International financial institutions face a major challenge in developing and using "greener" economics: they must learn how to factor the environment into conventional models of economic development and into macro- and micro-economic analysis; they must learn different measures of economic performance; and they must develop new methods of economic analysis of project and programs.

An example of one issue embedded in this challenge is the question of how to "discount" the long-term future. Economists use a discount rate to put a present value on the future value of money, of a resource or a benefit—on the hypothesis that the present value is higher than the future, or deferred, value. There is no one "right way" to make this calculation. Depending on the assumptions used in the calculation, and the discount rate used, the future value of a resource can be made to appear small or large. The discounting method used in conventional investment models puts an emphasis on earning a satisfactory rate of return during the first decade of a project. This encourages the consumption of resources in the short term, and in essence assigns preference to ourselves over our descendants. Many analysts, including some economists, believe this is not a wise or ethical prescription for society.[83]

Economists claim that high discount rates are appropriate when the short-term income resulting from resource extraction or other development can be reinvested in activities yielding greater future benefits. This may be so, but the conventional estimation of costs and benefits of natural resource depletion overstates the benefits and underestimates the costs of short-term income resulting from resource depletion. In order to make correct investment decisions, models must take into account both the long-term costs of doing things wrong and the long-term benefits of doing things right.[84]

Tropical hardwood plantations, for instance, which yield economic returns only after 50 to 100 years compare poorly to plantations of fast-growing exotic species, unless the value of biodiversity is factored in. Reforestation projects generally do not fare well when analyzed with high discount rates. Similarly, the economic models typically used by the MDBs to evaluate energy alternatives seem to discriminate against investments in demand-side management, efficiency and conservation.[85] The World Bank's Development Committee began to consider these problems with the conventional investment model in 1987, focusing on formulas that would better account for long-term costs and benefits.[86]

Significant intellectual work on many other aspects of green economics has been generated at the Bank, as evidenced by the growing number of research papers and conferences.[87] The Bank's first conference on Environmentally Sustainable Development held in 1993, focused on Valuing the Environment. Conference participants, including senior Bank officials, concurred that while it may not yet be possible to agree on what the proper valuation should be, there was no excuse for continuing to treat environmental resources as if they had no value.[88]

However, the intellectual work undertaken at the World Bank and elsewhere has borne little fruit as yet in practical terms.[89] In the past five years project streams in many sectors have flowed largely unchanged. In contrast

to the major improvements that have been taking place elsewhere around the Bank in recent years, such as the new public information access and environmental assessment rules, establishment of the inspection panel and adoption of principles for public participation, the same economic methods are still being used to evaluate projects as in the past.[90] Similarly, the IMF's stabilization programs continue to rely on conventional macroeconomic analysis, wrongly estimating economic growth, income and wealth and ignoring liabilities and losses in environmental assets in the national balance sheet.[91]

Growth, coventionally defined as an increase in the Gross National Product (GNP) is a misleading indicator of economic performance.[92] GNP treats consumption and degradation of natural resources as income, regardless of the short and long term implications. Activities that pollute, along with the resulting clean-up, restoration and health expenditures, are all counted as increases in the GNP. As Robert Repetto pointed out in a seminal World Resources Institute study:

> A country could exhaust its mineral resources, cut down its forests, erode its soils, pollute its aquifers, and hunt its wildlife and fisheries to extinction, but measured income would not be affected as these assets disappeared.[93]

While the Bank has undertaken research in this field since 1987, and has recently released rough estimates of net domestic product, savings and wealth adjusted for natural and human capital,[94] the Bank is not applying the research results in its lending and advisory programs.

The UN Development Program (UNDP) prepares a Human Development Index (HDI), each year which combines "quality of life" factors such as life expectancy and adult literacy, with income, and provides a contrast to conventional GNP as an indicator of progress.[95] UNICEF has recently reported on new ways that progress and welfare can be measured, contrasting them with conventional GDP.[96]

Former World Bank economist Herman Daly has urged the MDBs and national governments to take three steps which will lead them to better manage the economy: First, "stop counting natural capital depletion and liquidation as income." Second, "tax [natural resources] through-put more, and tax income and value added less." Third, "maximize and invest in the productivity of natural capital," which is the one of the three production factors (from classical economic theory) that is becoming increasingly limited. The other two factors are human-made capital and labor, which are both abundant.[97]

The first of Herman Daly's three steps is better known as Green Accounting, which requires new techniques to calculate economic progress.[98]

BOX 4

Green Accounting

Economic growth is measured by an increase in the Gross Domestic Product (GDP) or Gross National Product (GNP), which are computed under the System of National Accounts (SNA). This conventional measure of growth is a misleading indicator by which to steer national economies and measure progress and well being. The current SNA fails to account for key non-market costs and benefits, such as those provided by the natural environment, and it treats extraction of natural resources as income instead of as the drawing down of capital.

Today's environmental and socio-economic challenges call for a dramatic change in the SNA through the use of what is known as "integrated economic and environmental accounting." If sustainable development is to be anything more than a slogan, nations

must develop and apply new measurements of progress toward this goal at the national and global levels.

Negotiators at the Rio Earth Summit adopted a number of recommendations to integrate environment and economics, including: "expanding existing systems of national economic accounts in order to integrate environment and social dimensions in the accounting framework, including at least satellite accounts for natural resources in all member States."[99]

Implementation of these commitments has been very slow. Official research and data collection programs, when they exist, remain underfunded and peripheral to on-going efforts to improve economic and environmental policies. International leadership and coordination have been weak. Thus, decisions continue to be made on the misleading and incomplete basis currently provided by the SNA.

MDBs and governments could dramatically improve the ability of the system of national accounts to provide information on the role of environmental and social factors in the economy. First, governments could mandate their national statistical, environmental and other appropriate agencies to incorporate integrated accounting into their activities. Second, international organizations could augment their research, training and financial assistance. In particular, the World Bank, International Monetary Fund and regional development banks could begin to apply integrated accounting in their own policies, programs and projects.[100]

Clean Production

Clean Production can be defined as the elimination of toxic, persistent or bioaccumulative absorption into living tissue inputs into production cycles, and thus implies the elimination of toxic wastes. A number of global environmental advocates, including governments and NGOs, have proposed initiatives to ensure total pollution prevention and risk reduction by industry. The overall goals are: to secure a global elimination of toxic by-products whose releases adversely affect human health and the environment and to halt the bioaccumulation of toxic chemicals within humans, wildlife species and habitat. The Clean Production approach can be contrasted with conventional methods of end-of-the-pipe pollution control. It is closely linked to the Precautionary Approach profiled below in Box 15.

BOX 5

Clean or Cleaner: The Goal?

There is an ongoing debate about whether the immediate goal of pollution prevention and risk reduction should be the complete elimination of pollution at the source, as indicated by the concept of "clean production," or if instead the best path is a gradual reduction of pollution emissions which should eventually lead to elimination of toxics. This approach is often cited as "cleaner production." Many decisionmakers feel that minimization, not elimination, of hazardous substances and polluting technologies is an acceptable goal, at least for the foreseeable future; but other organizations, particularly NGOs, campaign for a stricter and more comprehensive approach to clean production.

While UNEP endorses the concept of Clean Production as an eventual goal, it has created a "Cleaner Production" program for shorter term implementation. It has organized a network of over twenty clean technology centers around the world. UNEP defines Cleaner Production as: "the conceptual and procedural approach to production that demands that all phases of the life-cycle of a product or process should be addressed with the objective of prevention or minimization of short and long-term risks to humans and the environment. A total societal commitment is required for effecting this comprehensive approach to achieving the goal of sustainable societies."

Greenpeace has put forward criteria for evaluating whether food and manufactured products have been produced using a Clean Production approach. These include whether the product is non-toxic, energy-efficient, non-polluting throughout its life cycle, durable and reusable, easy to dismantle, repair and rebuild, and supports the ability of future generations to meet their needs. Such products would be made using renewable materials that are routinely replenished and extracted in a manner that maintains the viability of the ecosystem and human community from which they were taken, or made from non-renewable materials previously extracted but able to be reprocessed in an energy-efficient and non-toxic manner. Their production would not detract from the preservation of diversity in nature and culture.[101]

A technology can be seen as antithetical to the goals of clean production, based on the following criteria:

- It is based on the manufacture, use or disposal of toxic, persistent or bioaccumulative compounds;
- Safer replacement technologies have been identified;
- It has become obsolete or regulated out of existence for environmental or health reasons in one or more countries; and
- It faces major opposition from local governments or communities and labor organizations.

A number of environmental organizations have been actively promoting Clean Production in international law, and it is gaining acceptance as a key environmental goal. Elements of at least the cleaner production approach are found in the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal; Agenda 21; the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa (1991); protocols to the Oslo and Paris Commissions; as well as other international and regional conventions.[102] In October 1994, the First European Roundtable on Cleaner Production attracted governments from all over the world.

Basel Convention

The sixty-six contracting parties to the Basel Convention are required to "ensure that the generation of hazardous wastes and other wastes within it is reduced to a minimum . . .,"[103] while the Convention's preamble states that "the most effective way of protecting human health and the environment from the dangers posed by [hazardous and other wastes] is the reduction of their generation to a minimum in terms of quantity and/or hazard potential."

Technical Guidelines for Basel Convention parties further elaborate on the "Source Reduction Principles," "by which the generation of waste should be minimized in terms of its quantity and its potential to cause pollution. This may be achieved by using appropriate plant and process designs." Technical Guidelines also stress the "The Integrated Life-Cycle Principles," "by which substances and products should be designed and managed such that minimum environmental impact is caused during their generation, use, recovery and disposal."[104]

Agenda 21

Agenda 21 identifies cleaner production as "a way to reconcile the environment and economy."[105] It calls on governments to move towards Clean Production by:

- Encouraging greater efficiency in the use of energy and resources taking into account all aspects related to the life cycle of products;
- Promoting environmentally sound technology and sustainable practices to eliminate the discharge or emissions of organohalogen compounds;
- Changing consumption patterns; and
- Protecting freshwater resources, seas and atmosphere.[106]

Regional Conventions on Toxic Materials and Hazardous Wastes

The Mediterranean countries which are parties to the Barcelona Convention have agreed to "facilitate access to and transfer of cleaner production methods,

including clean technologies, in particular to promote a transition to clean production in order to reduce and eliminate the amount of wastes generated, and to ensure that the above measures do not result in additional pollution in other parts of the environment. The recommendations will facilitate the transfer of technologies from the North to the South of the Mediterranean."[107]

The Paris Convention commits its European member states to phase out organochlorine compounds by the year 2010 in order to protect human health and the environment. The Central American Regional Agreement on Transfrontier Movement of Hazardous Wastes requires member states to adopt Clean Production measures as part of a preventive and precautionary approach to pollution control. The Bamako Convention, convened under the auspices of the Organization of African Unity, requires parties to promote Clean Production methods applicable to entire product life cycles.

How is Clean Production Being Implemented?

Most clean or cleaner production programs are built on pollution prevention programs, and phase-outs of hazardous substances. While these initiatives do not generally require industries immediately to abandon dirty technologies and hazardous substances, they provide incentive programs to encourage polluting industries to develop and convert to cleaner modes of production.

The PREPARE Working Group

PREPARE (Preventative Environmental Protection Approaches in Europe) is an international working group within the framework of EUREKA, a joint European technology research and development initiative. The group began in 1992, and now representatives of fourteen European countries meet twice each year to assess progress in demonstration projects and to hold seminars on life-cycle-analysis, auditing and eco-design particularly for the electronic sector. PREPARE publishes multi-lingual manuals, and is planning a series of workshops for 1995-1997 which will focus on textiles, footwear, building materials, biomaterials, metal and other surface treatment, ecotourism, pulp and paper, pharmaceuticals, and consumer electronics.[108]

Norwegian Initiatives

In order to implement the precautionary approach and to promote cleaner technology and the use of life-cycle analysis, Norway initiated a Cleaner Technology Program in 1988. This is a combination of financial grants, demonstration projects and auditing with the intention of promoting technological innovation and environmental protection. The alliance between the Departments of Industry and Environment has been recognized as a strong feature of the program.

The government provides expertise for waste minimization assessments and will provide up to 50 percent of the costs of such auditing. The Norwegian Institute of Technology and the Institute of Energy Technology provide technical help, making energy considerations a major part of the assessment. A "seed grant" component stimulates development of environmentally sound technology; loans for energy-saving projects and loan guarantees to industry for environmental projects are available. The Environmental Ministry provides financial support based on the following criteria:

- The project will help solve a high-priority environmental problem in Norway;
- The owner of the facility is willing to contribute financially; and
- It is possible to transfer the results of the projects to other enterprises with a similar problem.

Denmark

Denmark has devoted proportionately more resources to cleaner technology programs than any other European country. An Action Program was put into place (1990-1992) to reduce consumption and to prevent pollution from industrial processes, energy production, traffic, building, agriculture and fish farms, industrial and household products, and public sewage and treatment. The new Cleaner Technology Action Plan (1993-1997) has a budget of 550 million DKK or US$100 million.

Netherlands

The Netherlands Ministry of Environment manages the Stimulation of the Development of Environmental Technology Program, which provides $7.6 million annually to industry and research institutions. Approximately one half of this supports development of cleaner technologies. The Netherlands also provides accelerated depreciation for environmental

technologies that have been proven technologically sound but are not yet widely used or required by regulation. Through negotiations between the Ministry of Environment and Industry, approximately 120 technologies have been chosen, including ultrafiltration membranes, catalytic oxidation devices, ultrasonic cleaning and low-NOx (nitrogen-oxide) boilers. For technologies on the list, companies may write off the cost of purchases in one year rather than the usual ten. When a technology is used in sufficient volume to bring down the price, it is taken off the list.

Austria

The main focus on pollution prevention in Austria is in Graz, where the "Ecoprofit" or Ecological Project for Integrated Environmental Technology was established in 1991. It has developed case studies on cleaner technology in 50 companies, and has produced a software package that demonstrates the economic benefits of reducing waste. Economic evaluation of measures by Ecoprofit show that 24% of companies had a payback on investment in less than one year; 30% had a payback in less than 2 years; 15% were cost neutral; and 31% had increased costs. The Ecoprofit program was the first EUREKA project under the PREPARE initiative in Europe. Ecoprofit is providing training for both industry and consultants, helping to make pollution prevention a key element of industrial planning in Austria.[109]

Ideally, the MDBs and bilateral aid agencies each should adopt clean production criteria that require them not to lend for projects that involve toxic, persistent or bioaccumulative substances, or for technologies or processes that are obsolete. Furthermore, the MDBs and bilateral aid agencies should agree to promote Clean Production and the transfer of clean production technologies. In this context, Greenpeace has produced a clean production blueprint for Poland that describes in detail some of the investment options that will likely be most sustainable in the longer run.[110]

Environmental Debts

Environmental degradation exacts a price in all countries, from the wealthiest to the least developed. Revelations stemming from the end of the Cold War about the terrible ecological legacy of communism are stunning in their depth and breadth. Now it is clear that the drive to develop at any price over several decades, with no governmental accountability to citizens, turned some regions of Eastern Europe and the former Soviet Union essentially into toxic wastelands. Major rivers and lakes are close to biological death and the health of millions of people has been endangered. The disaster at Chernobyl is the best known of these tragedies, since it affected people, croplands and pastures over a huge stretch of territory, much of it outside Ukraine.[111]

Not only in the former communist world, but also in the U.S. and many others of the world's wealthiest nations, the cost of cleaning up past environmental mistakes, both in the civilian and military economies, is colossal. The most well-known example in the U.S. is the Superfund program, which aims to clean up toxic waste sites around the country and return them to productive use. After many billions of dollars and years of effort, very few sites have been cleaned up and there are thousands awaiting treatment. Currently, the U.S. Superfund Program lists about 1,300 sites on the "national priority list" that require cleanup. In addition, various states have identified nearly 22,000 other sites that deserve attention.[112] At military sites, especially those dealing with nuclear weapons, similarly expensive and time-consuming cleanups are underway, swallowing annual appropriations in the billions of dollars.

There is a large and growing "environmental debt" owed to the global commons, much of it generated by the industrialized nations over 200 years, as they utilized products, processes and fuels that burdened the Earth's ecosystems. The most obvious examples are depletion of the ozone layer from chlorofluorocarbons and the possibility of global warming due to the buildup of carbon dioxide from burning fossil fuels. But the alarming loss of wetlands, the collapse of many fisheries, the rapid depletion of old-growth forests, the growing threats to groundwater from both overuse and pollution, all constitute part of this debt.

How should the components of this "debt" be quantified? This question is part of the movement toward a greener shade of economics discussed above.[113]

The environmental and social costs being exacted on a daily basis to pay the ecological debt are clearly apparent in developing nations, where there are direct impacts on the supply of food and fuel for the rural poor. This section summarizes the impacts of environmental deterioration on development prospects and highlights some projects where the cycle of degradation has been broken.

It is important to recognize that such costs are not inevitable consequences of human population growth and development. Although economists often claim that "there is no free lunch," the environment does provide "free lunches" to those clever enough to find them. Take energy, for example. Only a small fraction of the energy striking the earth is actually used for plant production. By fostering systems and technologies that make greater and more efficient use of that energy, resource use can increase without compromising future productivity, and with strikingly fewer negative external impacts. Agriculture offers other examples.

Models of modified environments that are both highly productive and sustainable abound in traditional agricultural systems. In parts of Senegal, farmers have traditionally planted crops among nitrogen-fixing *Acacia albida* trees that maintain the nutrient composition of the soil and shed their leaves during the rainy season, thereby reducing competition with annual crops for sunlight; yields of millet and sorghum double when grown under *Acacia albida*.[114] In Niger, extensive intercropping mimics the structure of nearby rain forests and provides food and other harvests without depleting soil productivity.[115] Aztec farmers in Tenochtitlan developed "floating gardens" (chinampas) that combined the fertilizer of lake sediments with an abundant and predictable water supply to produce extremely high crop yields.[116]

More recently, inappropriate environmental and economic policies, poorly planned development projects, and surging population growth have overwhelmed traditional production systems. All too often, short-term goals of development have been pursued without giving thought to longer-term environmental and social impacts. For instance, the Aswan High Dam in Egypt, although it reached its objective of increasing irrigation in the Nile Valley, left a more lasting legacy: it led to an increase in the disease schistosomiasis, the destruction of the Mediterranean sardine fishery, the salinization and sinking of parts of the Nile Delta and the displace-

ment of local people. Furthermore, development induced by the dam is slowly causing the extinction of the Nubian people and their culture.

These effects were largely unforeseen by the planners, yet should have been obvious had adequate environmental and social analyses been carried out. Perhaps most disturbing among these impacts, the dam has led to the degradation of one of the world's longest lasting sustainable agricultural regions, the Nile Delta, which has been farmed successfully for thousands of years. The "value" of this lost resource may be difficult to calculate, but it is real—especially for those communities that were directly dependent on the natural replenishment of the Delta soils from the Nile's annual silt-filled floods, before the dam ended them forever.

Declining Resource Productivity

Soil erosion, nutrient depletion, salinization and overgrazing seriously constrain the prospects for sustainable development. Since 1945, 11% of the Earth's vegetation has been degraded, an area the size of India and China combined.[117] Historically, falling soil productivity led to the decline of civilizations and the emigration of people to new, more usable lands. Today, the latter option has all but disappeared. By 1988, only 15% of people in developing countries lived in areas where abundant land resources might be able to accommodate farmers displaced from unproductive soils.[118] In Asia, nearly 80% of the arable land was already cultivated.[119] World grain harvested area peaked in 1981 and has since fallen by about 40 million hectares. On a per-capita basis, the availability of grain land has been cut in half since 1950, yet worldwide, grains remain the most important crops for basic caloric intake.[120]

Where large areas of land remain today, they are often unsuitable for agriculture due to low fertility or rainfall or the prevalence of diseases which prevent settlement. Even in 1981 the Food and Agriculture Organization of the United Nations (FAO) estimated that agricultural expansion into new land could account for only one-quarter of the growth in food output from 1975 to 2000.[121]

No accurate estimates exist for the loss of soil productivity resulting from inappropriate land use practices, but it is large. The FAO reports that an area of cropland the size of Ireland is lost every year to land degradation, although a similarly sized area is also brought into production. The net effect is a "stable" planted area but of declining production potential, since much of the new land is of poorer quality.[122] Moderately degraded soils account for about 910 million hectares worldwide.[123] Restoring such soils requires fundamental changes in agricultural practices, and in developing countries depends on financial and technical support from MDBs and aid agencies.

Soil erosion has claimed at least 2.9 billion acres of land in the last fifty years.[124] In Guatemala, 40% of the productive capacity of the land had been lost to erosion by 1986 and in Haiti, the loss has been so great that no top-quality soil remains.[125] In Africa, without conservation measures, it was estimated in 1987 that at least 16% of the rainfed cropland available in 1975 would be lost to erosion by the end of this century.[126] Erosion has reduced the annual harvest on the African continent by an estimated $1.9 billion.[127]

As a rule of thumb, erosion of an inch of topsoil reduces yields by about 6%. Similar losses come from salinization, waterlogging and other problems. The World Bank estimates that soil erosion reduces GNP by 0.5-1.5% a year in Costa Rica, Malawi, Mali and Mexico.[128]

Declining soil productivity has made even the maintenance of existing yields difficult. In the period between 1950 and 1984, grain yield per hectare increased 2.3% per year worldwide. Comparatively, there was only a 1% yearly increase between the years 1984 and 1993.[129] In U.S. agriculture, nearly half of the 19 million tons of fertilizer applied each year replaces soil nutrients lost by erosion.[130] In India, soil erosion takes with it nutrients worth $6 billion per year in chemical fertilizer replacements.[131]

Off-site costs of erosion are also significant. In developing countries, the sedimentation of hydroelectric projects was estimated in 1987 to cost about $3 billion annually between 1987 and 2002.[132] The latest World Bank analysis indicates that the true cost of sedimentation of hydroelectric projects worldwide is about $6 billion per year.[133] To this must be added such costs as increased flooding due to sediment filling river beds, and the need for dredging to keep rivers and harbors clear for shipping. Between 1968 and 1988, the flood-prone area in India doubled to about 59 million hectares, resulting in flood damage to crops and property costing billions of dollars annually.[134]

Increased intensity of agricultural use also reduces the productive capacity of land through nutrient depletion. Traditional methods of shifting cultivation and crop rotation succeeded in the past because fallow periods restored soil nutrients lost to agriculture. Today, the pressures of population growth, smaller farms and declining yields force farmers to use their land more intensively, to wait longer periods before returning parts of their land to fallow, and to shorten fallow periods, resulting in lower future yields.

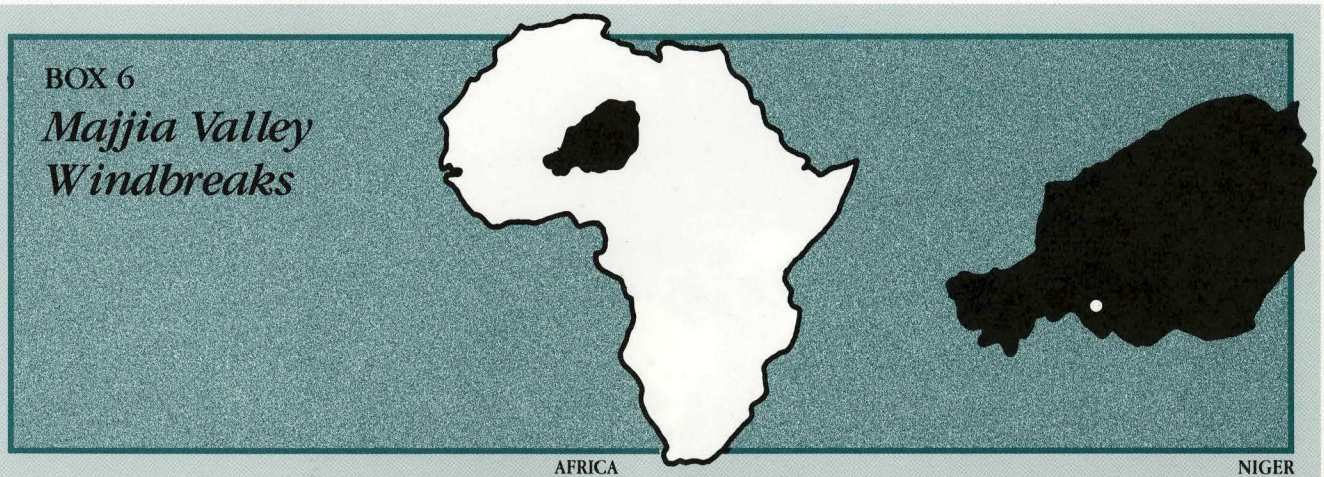
In many developing countries, particularly in Asia, waterlogging and salinization resulting from the irrigation of inappropriate soils or without provision for

drainage are also reducing crop yields. Some 40 million hectares of farmland in arid regions have been degraded by salinity, and it is believed that crop yields are adversely affected by salinization on half the world's irrigated land.[135]

Available technologies and land-use practices can interrupt this cycle of declining productivity. In the Majjia Valley in Niger, the decline in crop yield was halted by the establishment of windbreaks. These reduced the rate of soil erosion and increased soil moisture. The windbreaks provided further benefits as sources of fuelwood and construction materials.

BOX 6

Majjia Valley Windbreaks



The Majjia Valley, an important agricultural region in central Niger, is located in the southern Sahel, an area with low and variable rainfall (400 to 600 millimeters a year). Farmers grow millet and sorghum in the rainy season of May to September. In the dry season, some fields are irrigated with water from hand-dug wells and planted with watermelon, cowpeas, cotton, tobacco, and tomatoes.

At the beginning of the nineteenth century, the valley was heavily wooded. But the growing communities—with a relentless need for fuelwood, fodder, and construction materials—overharvested the natural vegetation. By the drought years of the early 1970s, Majjia Valley began to experience severe problems. Wind erosion removed nearly 20 tons of topsoil per hectare annually from fields. This alarming rate of erosion contrasts with typical agricultural erosion losses of 0.5 to 2.0 tons per hectare per year. In the growing season, wind-blown sediment often covered emerging plants, forcing farmers to reseed the fields.

In 1975, CARE began a project to control erosion by planting windbreaks. By 1992, some 980 kilometers of windbreaks, consisting of double rows of an Asian evergreen, neem (*Azadirachta indica*), had been planted and over 4,500 hectares of cropland had been protected. The trees cut wind velocity near the ground by 45 to 80%, resulting in less soil erosion and more soil moisture. One study of crop yields found a net increase of 15%, and another noted jumps of 18 to 23%, even after accounting for the land taken out of production by the tree lines. In 1984, the first trees planted were cut, and the wood was distributed to residents for fuelwood and construction.

The Majjia Valley windbreak project literally blocked the further development of serious erosion, deforestation and desertification. The higher millet and sorghum yields provided immediate benefits to the farmers, who are now also receiving the delayed benefits of increased wood production.

From the beginning, the project appeared to be ecologically sustainable. But its social and political sustainability was less clear. Although it was initiated at the request of the valley's farmers, they played only a minor role in project planning and their initial participation was modest. Farmers were not involved in raising seedlings, nor did they have rights to the trees planted on their land since they belonged to the government of Niger. During the first three to four dry seasons the trees were protected by paid guards.

The government recently granted the tree usage rights to the farmers and the local village development councils. Moreover, the obvious beneficial effect of the windbreaks—particularly as a source of cash income from the sale of wood—has encouraged some farmers to start their own nurseries. Currently 129 private nurseries are being tended. Farmers have



M. Ahern/CARE

The windbreaks block further erosion and desertification and help increase production.

exclusive rights to all the seedlings from these plantings and to nearly half the seedlings from the government-operated nurseries. The long-term success of the project may be aided by the eventual spread of the woodlots and nurseries into private control. CARE Niger has ended its support for production of trees within the Majjia Valley. Recent studies have found that the overall need for windbreaks within the valley has been met, and that farmers, where interested, are able to produce and plant trees on the surrounding hillsides on their own. After nearly 20 years of work in the valley, the local participants agree it is time for them to be fully in charge.

Within the past 3 years, several factors have become crucial to this decision. One is the growing clarity on use rights to the trees, which have been given to village councils. Annual tree harvests, planned on a rotational basis with CARE extension agents, are now routine. Training has been provided to the councils, CARE support has been gradually withdrawn, and the councils are sufficiently informed and empowered to continue without CARE support.

Additionally, the arrival of a new disease has begun to decimate neem in some of the dryer plantation areas. This common problem with introduced species underlines an important element that promotes sustainability: reliance on local species whenever possible.

This experience has led CARE to participate in several international studies of the disease. Unfortunately, findings to date are not promising, on methodologies either to arrest or to cure the blight. In most of the Majjia Valley, however, the water table is sufficiently high to avoid the stressful conditions normally associated with onset of the blight. And in another promising response, the independent nurseries are now focusing increasingly on native and fruit-bearing tree species.[136]

Deforestation is one of the many factors leading to extremely high rates of soil erosion. In 1990, the regions of Latin America and the Caribbean, Asia and the Pacific, and Africa lost 7.4, 3.9, and 4.1 million hectares of forest cover, respectively. In relative terms, Latin America and the Pacific region lost 0.8% of their total forest cover that year, Asia and the Pacific 1.2%, and Africa 0.7%.[137]

While land clearing for both agriculture and cattle grazing are seen as major contributors to these rates of deforestation, it must not be forgotten that logging industries also play a substantial role. Extracting less than 10% of the most valuable timber in a given area can result in the destruction of one-half of the remaining stock, including immature trees. Repeated logging prior to the time of natural recovery can make regeneration virtually impossible.[138] In the Dominican Republic, a rural development program initiated by a local Catholic bishop is having success in reversing the seemingly uncontrollable cycle of deforestation and erosion.

BOX 7

Plan Sierra



CARIBBEAN

DOMINICAN REPUBLIC

Many would not consider Plan Sierra a fully successful rural development project. It has only moderate grassroots support and its sustainability, both ecologically and socially, remains questionable. Nevertheless, given the scale of the area's environmental problems and the institutional constraints within which the project operates, Plan Sierra contains more attributes of success than failure. Its achievements are most easily seen by comparison with the ecological devastation of watersheds only 100 kilometers away, in neighboring Haiti.

The northern slope of the central mountain range in the Dominican Republic, the Cordillera Central, encompasses 1,780 square kilometers and provides a home for 110,000 people. The area forms the most important watershed in the country, contributing 90% of the flow of the Yaque del Norte, the principal river in the Dominican Republic. The region was heavily forested and relatively lightly populated until the mid-1900s, when growth in demand for timber led to the establishment of sawmills.

Employment provided by the timber industry attracted settlers, many of whom had been displaced by the sugarcane industry in the lowlands, and few of whom had any knowledge of mountain agriculture techniques. But the timber industry rapidly overharvested the forest. In 1967, excessive logging throughout the Dominican Republic led to legislation closing sawmills and severely restricting timber harvest. By then the damage had been done. Much of the remaining forest in the watershed has now been cleared under the pressure of shifting agriculture. Fields can be worked for only one or two seasons before the soil's low nutrient content and erosion losses force abandonment. Three-fifths of the watershed land, stripped of its trees, has been claimed by wealthy ranchers, who use it for cattle grazing.

Apart from the impacts of the environmental degradation on the local population, the watershed of the Yaque del Norte has been the focus of projects to develop hydropower and increase water storage for irrigation. High sedimentation rates are rapidly cutting short the lives of these projects. The obvious costs of the deteriorating environment and the declining standard of living of the rural poor led a local Church official to propose a rural development plan to the government in 1977. With support of the government and the Church, but with little local partici-

pation, Plan Sierra began in March 1979. It has been funded by the government of the Dominican Republic, with contributions from the Ford and Kellogg Foundations and from the Swedish and German governments. Plan Sierra is attempting to implement programs of reforestation, sustainable agriculture, improved health care, education, and transportation.

The project planners opted for a decentralized approach by creating 34 regional units (later reduced to 9) with local field staff, and it encouraged the establishment of some 50 Local Development Councils to provide an avenue for public input. Plan Sierra, though initially a governmental body, became an independent civil association in 1983. In its first seven years, Plan Sierra:

- Promoted the planting of 5,000 hectares of coffee and nearly 10,000 hectares of pines and other trees;
- Established nine rural clinics and trained and equipped 100 mid-wives and 100 health care workers;
- Fostered educational programs in soil conservation, reforestation, and health;
- Developed an active women's program;
- Established a training center for hillside agriculture; and
- Trained more than 3,000 farmers in soil conservation, minimum tillage, the use of legumes as green manure and mulch, composting, polyculture and agroforestry techniques, and the conservation of genetic diversity.

The difficulties Plan Sierra faces, however, are as apparent as its successes. Efforts to find sustainable solutions for the small farmer have been only partly successful, and the growth of coffee cultivation is not helping achieve food self-sufficiency, although the crop does reduce erosion when grown in the agroforestry designs promoted by Plan Sierra. Reforestation efforts are hindered by the 1967 legislation outlawing sawmills, thereby minimizing the potential economic benefits of tree planting. However, a recent agreement with the government will allow some timber harvesting under careful management plans. Most significantly, the extremely inequitable distribution of land severely constrains Plan Sierra—the poorest 50% of families control only 5% of the land in the project area, while the wealthiest 11% control 66%. Much of the erosion originates on grazing lands owned by large landholders who see no economic benefit in reforestation.

Faced with immediate needs to improve the plight of the poor and to establish a legitimate presence, and constrained by the external pressures just described, Plan Sierra has placed greater initial emphasis on human well-being than conservation. The ultimate success of Plan Sierra rests on the ability to discover and promote ecologically sustainable systems of land use.



A. Vargas

Plan Sierra is a wide ranging program which involves many different components of sustainable development. The experimental farm shown here promotes sustainable agricultural production.

Any renewable resource can withstand some harvest without a decline in productivity over time, but when harvest exceeds production, yield is reduced. Once land is deforested or overgrazed, it often cannot be returned to its previous level of productivity even by lowering the level of harvest.

One of the most immediate costs of the loss of vegetative cover is the impact on energy supplies. In developing countries, on average 70% of the people depend on wood to meet their household energy needs. About 100 million people live in situations of acute fuelwood scarcity, and 1.5 billion are cutting wood faster than it is growing back.[139] Half of the world's timber consumption is for cooking food and heating homes in Southern countries.[140] Fuelwood scarcity also leads to indirect losses of soil productivity, since an estimated 400 million tons of dung are burned each year in lieu of fuelwood.

The loss of vegetative and forest cover has another, more serious impact: it is one of the primary causes of species extinction. According to a recent study by the World Conservation Monitoring Center, nearly 12% of mammals, 11% of birds, 4% of fish and 4% of reptiles are threatened.[141] Species extinction may not occur immediately following the reduction of a particular habitat type. As a result, by the time the problem is visible, it may already be too late to do much about it.

The cumulative effects of many detrimental land-use activities in arid regions has been the transformation of stable productive systems into unproductive ones. Increased erosion, the loss of vegetative cover, and declining soil fertility are mutually reinforcing, creating desert-like conditions in areas that once could sustain moderate levels of resource use. Nearly one-third of the world's land surface is threatened by desertification. Most significantly, much of sub-Saharan Africa is well advanced down that path. The process can be halted only by addressing the many problems that contribute to its creation. But whereas the shift to a desert-like system can be achieved merely by letting too many cattle graze on a common pasture, the shift back to a stable productive state is more difficult.

Over-reliance on Chemicals

Pesticide use in developing countries rivals large dams as an example of the environmental costs of inappropriate technology purchased with development funds. Through the encouragement of aid agencies and the MDBs, "packages" of high-yielding crops that require specific and timely applications of fertilizer, irrigation water and pesticides have long been promoted in developing countries. Where credit is available to farmers to buy new seeds, fertilizers and other inputs, and in regions where irrigation can reliably be supplied, these crops make an important contribution in boosting yields to keep pace with growing populations. However, where these conditions are not met, the yield increases have been less impressive.

Pesticide use in the South is growing rapidly as manufacturers from the industrialized countries search for new markets. Developing countries provide attractive opportunities for this industry because pesticide use is largely unregulated and is often subsidized. With the adoption of high input agricultural technologies, many countries have mounted what some call the "pesticide treadmill," where more and more chemicals must be applied as pests develop resistance. In many cases, this pesticide dependence results in the net gains from pesticide use ultimately being captured not by farmers, but by the pesticide industry.[142] Moreover, the damage to human health from pesticide misuse is significant. The World Health Organization estimates that millions of people in developing countries are poisoned annually by pesticides.[143]

The growing reliance on pesticides is yielding a net decline in resource productivity. As insect pests evolve a resistance to these chemicals, the economic and human costs of pest control escalate. In the United States, crop losses to insects doubled between the 1940s and the 1970s, to 13%, despite a twelve-fold increase in pesticide use.[144] Newly introduced pesticides can produce gains in crop yields for a few years before serious resistance problems arise. Thus, during the typical five-year development project, the applications generally appear to contribute to the project's success. When pest problems return, however, often exacerbated by the chemicals' tendency to be more effective against natural enemies of crop pests than against the pests themselves, apparently successful projects may fail. The cotton industries in Mexico and the Sudan, for example, collapsed in the late 1960s and 1970s, respectively, when pests developed immunity to insecticides.[145]

The case of rice in Southeast Asia is illustrative. Rice is the staple food for 60% of the world's population and it accounts for at least one-quarter of the diet of 90% of the world's poor. Nearly 100 species of insects, plus a number of viral diseases, can affect rice production. Beginning in the 1950s, pesticide use in rice cultivation was encouraged in much of Southeast Asia. In the Philippines, the government treated private fields for free between 1954 and 1977. As a result, the percentage of irrigated farms using pesticides skyrocketed from 3% in 1954 to over 95% in 1984. Following the introduction of Green Revolution, rice in the 1960s, pest problems increased substantially, and many previously insignificant pests, including the brown planthopper, attained epidemic populations. Despite efforts by the Interna-

tional Rice Research Institute (IRRI) to develop suitable chemical control methods, the brown planthopper was considered the most serious rice pest in Asia by the late 1970s.[146]

Application of pesticides so reduced the populations of predators of the brown planthopper that the insect was freed from any natural control. Scientists then found that the planthopper could be controlled by reduced pesticide use, synchronous planting and the use of fallow periods. IRRI scientists added to these methods the use of "trap crops," planted in advance of the true crop in order to concentrate planthoppers where they could be killed with relatively small amounts of pesticide. An effective pest control strategy, based on these control methods, and developed with input from farmers, was eventually disseminated using a "bottom-up" extension system.

This became the Integrated Pest Management (IPM) approach. The goal is to control specific pests with a primary reliance on natural processes, providing a sustainable alternative to widespread use of chemical pesticides. Rather than attempting to eliminate the pests, IPM aims to maintain their numbers below the threshold of serious economic damage. Development of IPM programs is often expensive; the programs require labor intensive counting of pests in the field; and their proper functioning often requires complex measurements and timing that many have feared uneducated farmers would not accept. But with proper extension techniques, many small producers are successfully carrying out IPM techniques.[147]

During the past fifteen years IPM has spread throughout the world. Its use in the Philippines and Southeast Asia for rice farming has boosted net profits significantly.[148] A detailed survey of progress toward sustainable agriculture prepared by the UNDP for the Earth Summit in 1992 contains dozens of case studies of successful projects.[149] The Food and Agriculture Organization of the U.N. officially recognized sustainability as an issue in the late 1980s, and a conference held in 1991 produced FAO Conference Resolution 2/91 calling for FAO to integrate sustainability criteria into all of its programs.[150] Chapter 14 of Agenda 21 requires all countries to establish, no later than 1999:

> . . . operational and interactive networks among farmers, researchers and extension services to promote and develop integrated pest management.

The FAO concludes that classroom training sessions and media campaigns are ineffective in establishing successful, functioning IPM programs. In Indonesia, where IPM is considered to be successful, the following elements are present:

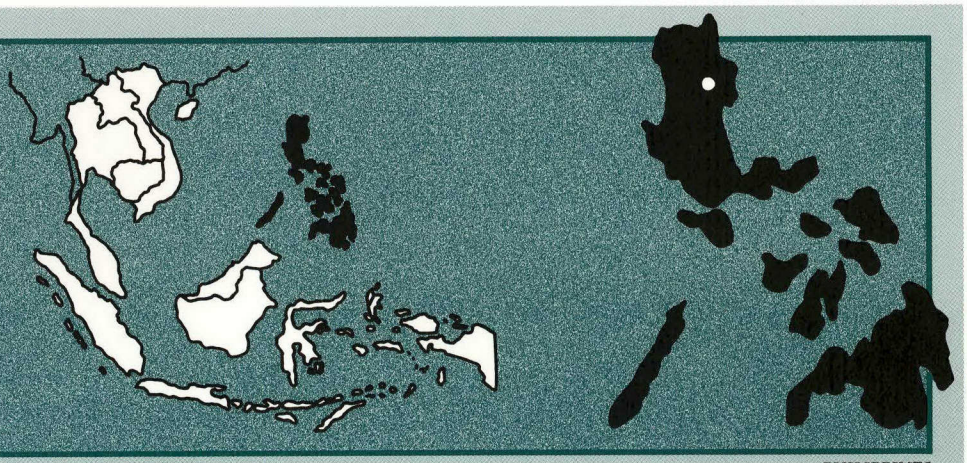
- Farmers participate in a training process involving the use of simple techniques to study the ecology of pests and predators on their farms;
- Farmers and extension workers, side-by-side, conduct tests and simulations that help build confidence both in themselves and the program; and
- Official government policies support IPM programs.

The FAO is currently involved in the expansion of IPM in Asia. In Vietnam, more than 23,000 farmers, representing most of the provinces in the country, have been trained in IPM. In India, central government pesticide subsidies worth about $30 million have been reduced, and a 10% "making polluters pay" excise tax on pesticides has been established. In some countries, such as Thailand, introducing IPM is proving to be more difficult, due to the strong influence of more than 300 chemical companies and a high level of agrochemical production. Similarly, resistance is found in China due to a lack of government support.

An International IPM Facility is in the planning stages, which would be an autonomous entity hosted by a donor agency, to coordinate international IPM-related efforts at national and local levels.[151]

BOX 8

PRRM Organic Farming Initiative



SOUTHEAST ASIA PHILIPPINES

Danilo is a rice farmer from the village of San Felipe in Nueva Ecija Province in the Philippines, one of the 70 members of Kalikasan (which means "nature"), a farmers' group from six towns in that province whose members are engaged in chemical-free farming. His one-hectare farm yields the same volume as when he was using conventional farming methods, but he saves P7000 (about $260) per crop by not buying chemicals, while the soil is improving steadily.

Kalikasan was formed in 1989 after a series of workshops on organic farming, integrated pest management, low-input rice production, and alternative trading and marketing. The workshops were sponsored by the Philippine Rural Reconstruction Movement (PRRM), an NGO advocating sustainable development. Each farmer in the group has established a demonstration commercial farm, to rehabilitate lands long exposed to intensive chemical inputs. Among the techniques being used are:

- Planting earlier so that harvesting occurs before pest populations are at their peak;
- Making a natural pesticide out of native chili and makabuhay plants;
- Spacing rice seedlings to allow sunlight to penetrate the soil more easily;
- Raising ducks to feed on the golden snail that eats young rice plants (as well as to produce eggs); and
- Using composted organic waste as fertilizer.

In addition, Kalikasan's new cooperative marketing approaches helped the members receive more income for their crops than most farmers in the region, during the first two seasons in 1993 and 1994. As a result, Danilo was able to build a new concrete house and to purchase additional household essentials from the increased income.[152]



Keeping Options Open

Many of the adverse environmental and social impacts of inappropriate development projects and misguided policies are readily observed and have immediate consequences for people's well-being. Other impacts, however, such as species extinction and declining genetic diversity, may not affect people's livelihoods for some time. It is both inequitable and unrealistic to expect that these long-term aspects of sustainability will be addressed at the expense of the immediate needs of poor people. Yet it is imperative that solutions be developed to meet immediate needs that are compatible with long-term sustainability.

Some observers believe that more than any other aspect of environmental deterioration, species extinction represents the ultimate betrayal of future generations. In the words of Aldo Leopold, "To keep every cog and wheel is the first precaution of intelligent tinkering."[153] The rate of species extinction is now hundreds of times higher than the natural rate of extinction, an increase due largely to human causes. While this loss poses an ethical challenge to present generations, it is also an economic one. We can only guess at the opportunity cost of species loss, but no doubt it is large. Extinction imposes both immediate and longer-term economic costs on agriculture, fishing, pharmaceuticals and tourism, and will directly affect the livelihoods of people dependent upon the subsistence use of wild products. The disappearance of just one species of plant or animal possessing genes useful in improvement of an agricultural crop may represent the loss of billions of dollars. The benefits of a remnant stand of perennial corn found in Mexico has been, in fact, worth several billion dollars per year.[154]

Human intrusion is usually viewed as incompatible with the preservation of genetic resources and ecosystems. Most conservationists therefore, especially in Northern countries, put a high priority on setting aside examples of all important habitat types in national parks or other land protection designations. Following this model, many developing countries have established protected areas of biological importance. In the last decade, this view has been modified by necessity, as it has become clear that even when parks are established and enforcement is provided, they can protect only a small fraction of biological diversity. It has become equally obvious that the Northern model is inappropriate in countries where denying people the use of large tracts of land is to deny them survival. More pragmatically, parks cannot survive where enforcement is not assured, and where land empty of a settled population is attractive to the rapid influx of landless people.

In this context, a framework for the protection of species and ecosystems has emerged that is more compatible with sustainable development. Many reserves can be located in areas with low potential for agriculture, where the benefits of preservation vastly exceed those of developing the land. Moreover, the preservation of biodiversity can often be as important in meeting the immediate needs of people as it is in providing long-term sustainability. The needs of the Kuna people in Panama, for example, can be met only if their ecosystem is preserved.

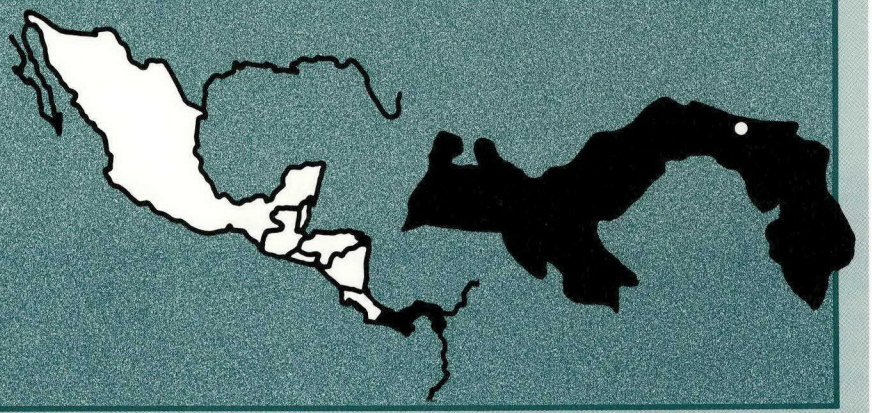
Biosphere Reserves, like other similar areas known as Integrated Conservation Development Projects (ICDPs), are designed to fulfill the dual needs of development and conservation. Conceptually, a biosphere reserve consists of three parts: 1) a core area of undisturbed natural ecosystems; 2) surrounding this there would be a buffer zone supporting experimental biological research, gathering of non-timber products, and other low impact activities practiced by local communities; 3) this, in turn, would be surrounded by an area of indefinite boundaries, where people live and work, and where sustainable agriculture and timber management, and related activities, are practiced. The reserve is to be devoted to research into sustainable development options for the local communities, with the results disseminated broadly. As is demonstrated above in the Kuna Comarca, however, this neat theoretical design may not fit reality as the residents see it.

The first biosphere reserves were named in 1976. Most of those established in the first 10 years of the program were set up around existing national parks, causing some confusion about how the goals of the reserves differ from those of national parks.

The record of biosphere reserves and ICDPs has been spotty at best. However, some examples seem promising, and studies have concluded that despite their problems, they can be valuable tools for biodiversity conservation.[156] One promising example is the Mananara-Nord Biosphere Reserve, launched in 1989 on the northeast coast of Madagascar. It is helping simultaneously to improve the economic situation of the local people, and to equip them to successfully manage the natural resources of their environment. By promoting a

BOX 9

The Kuna Comarca and PEMASKY



CENTRAL AMERICA PANAMA

The Kuna are one of the few indigenous groups in the Americas which has survived with their culture largely intact. The Kuna people, who once occupied a large portion of the Isthmus of Panama, retreated with the advance of the Europeans to some 60 villages scattered among the San Blas Islands lining a 200-kilometer stretch of the Caribbean coast of Panama. Under Panamanian law, the Kuna have sovereign rights over the islands and nearly 300,000 hectares of mainland forest (the Comarca).

The Kuna people depend on marine resources for most of their protein and on the terrestrial portion of the Comarca for forest products, including wood, game and medicinal plants. A small portion of the mainland is used for agriculture, but the coastal zone has been maintained predominantly as virgin forest. The importance of protecting the coastal watershed is firmly established in the local culture. The Kuna have traditionally established protected areas of virgin forest, "spirit sanctuaries," in which only certain trees may be cut and no farming is allowed.

The Kuna are not isolated from the "developed" world. They are one of the indigenous groups most exposed to formal schooling, and have adopted certain Western practices as they see fit. A tourism industry exists on the San Blas Islands but it is under Kuna control, with hotels owned and managed by the Kuna. The General Kuna Congress has ultimate authority within the society, but decisions are made primarily through town meetings; a strong sense of community responsibility is found throughout the area.

In 1969, construction began on a branch road of the Pan-American Highway providing access to the Comarca. In the mid-1970s the road was continued through the Comarca to the Caribbean coast as part of a national plan to encourage development of the coastal region. The Kuna recognized that the road would bring substantial benefits, but they also feared the seemingly inevitable influx of peasant farmers in its wake. To establish a presence at the boundary of the Comarca, a small group of volunteers moved to Nusagandi, where the road entered the reserve, and attempted to establish an agricultural colony. After six years of failure, the Kuna and technical staff from CATIE (Centro Agronomico Tropical de Investigación y Ensenanza), concluded that the land was unsuited to agriculture.

In order to prevent forest degradation by encroaching farmers, the Kuna decided to formally designate the area as a protected area, and by mid-1983, plans for a 60,000 hectare park or reserve at Nusagandi were well advanced. But since the exact nature, legal status and purpose of the reserve were still somewhat unclear, the plans proceeded intermittently. By the end of 1983, the Kuna and their advisers made another major decision to create the Kuna Wildlands Project—PEMASKY (Proyecto de Estudio para el Manejo de Area Silvestre de Kuna Yala) which was the engine that produced the major accomplishments of the next decade. Funding and technical assistance were made available from the Inter-American Foundation, WWF-US, the Smithsonian Tropical Research Institute and CATIE.

PEMASKY is a Kuna enterprise. The Kuna staff are in charge of management of the entire project. They built a dormitory, a cafeteria, and other buildings at Nusagandi. Kuna topographers and volunteers demarcated more than 150 kilometers of the boundaries of the reserve. Forest protection is provided by Kuna rangers. In the mid-1990's they received funding from the International Tropical Timber Organization for studies of timber species in the area.

In the 1980's, the Kuna applied to the Panamanian government to have the 60,000-hectare "core natural area" at Nusagandi, plus 90,000 hectares of key forest and marine areas, nominated to UNESCO as "the Biosphere Comarca" under the Biosphere Reserve and World Heritage Site programs. The proposal got bogged down, and the Kuna have since lost interest in gaining this particular designation. The concept of "Biosphere Reserve" is a foreign one, and implies a land use priority which is backwards from their point of view. For the Kuna, the "core zone" is the coast and the islands where their villages and their agricultural areas are located; the "buffer zone" to them is the natural forest area that protects them from invasion.

More recently, while the Kuna are still protecting their forest, the financial and management structures of PEMASKY began to erode, and in 1995 the Kuna were evaluating what changes and improvements were necessary. Funding was scarce in 1995, and the project was operating with a skeleton staff.[155]



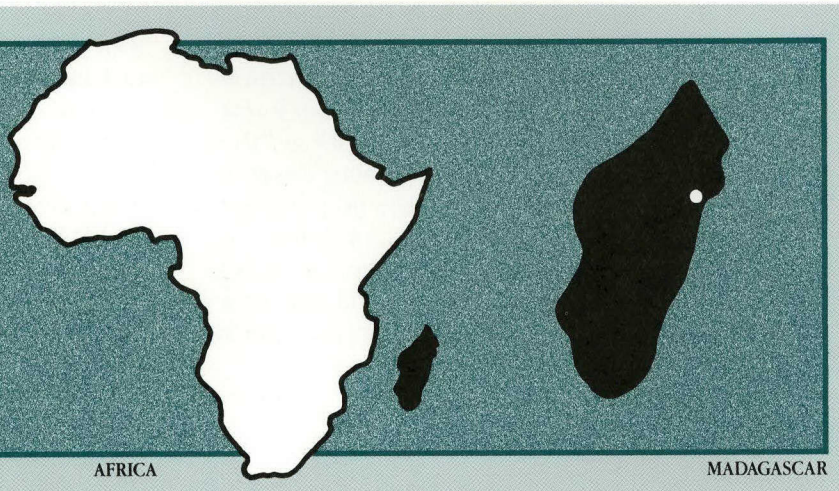
B. Houseal

The Kuna Indians operate their own ecotourism and scientific research programs, preserving their cultural integrity and protecting the biological diversity of the rainforest shown here.

supportive partnership between regional and local government agencies and the people, the project is able to address local needs for increased rice yields, diversification into small-scale stock rearing, and improved access to health care and education. As for conservation results, it is reported that only three years after project implementation began, natural forest clearing was reduced by 50%. This is improving the protection of the area's soils, water and other natural resources, and should boost the chances for survival of the aye-aye lemurs, who compete for scarce land and food with the local farmers.[157]

BOX 10

The Mananara-Nord Reserve



AFRICA MADAGASCAR

This project in Madagascar combines 24,000 hectares of national park areas with 116,000 hectares of surrounding development areas. It was established with the goals of improving the socio-economic conditions of the local farmers and other residents, protecting the aye-aye lemurs and institutionalizing a comprehensive natural resource management plan. Components include:

- Increased rice production and yields: Success in raising yields is expected to help convince local farmers to abandon the clearing and burning of remaining rainforest. This method of preparing fields for planting was used until recently in more than 60% of local rice production.
- Diversification into small-scale stock rearing: Prices from the sale of cloves, coffee, and vanilla (the three primary sources of income) are unstable and agricultural production methods are laborious and expensive. Diversification is one step towards building greater financial security.
- Improved health care and access to health services: There is a particular need to combat mortality from malaria, diarrhoeal diseases and bilharzia.
- Financial support for education: The aim is to decrease the financial costs incurred by parents for the primary schools.

An Advisory Council of government ministry representatives evaluates the project and its activities annually, provides overall direction, and ensures that the project coincides with national development policies. There is also a Programming Committee (composed of project staff, government technicians, economists and local community representatives) which meets every three months to integrate regional objectives.

Development is being used here as a conservation tool. Improving the economic situation of the farmers is leading to their increased willingness to better manage natural resources. Local government agencies are reportedly involving the communities in many of the project's management decisions. This factor is expected to raise farmers' participation level, and promote feelings of personal connection with the project.

After three years it was observed that natural forest clearing was reduced by 50%. In considering future directions, project managers will need to continually evaluate the benefits accruing to the area residents, as well as their perceptions about its results, in order to prevent friction over use of the core preservation area. Next project objectives include increasing the scale of activities and analyzing whether or not the benefits are sustainable.[158]



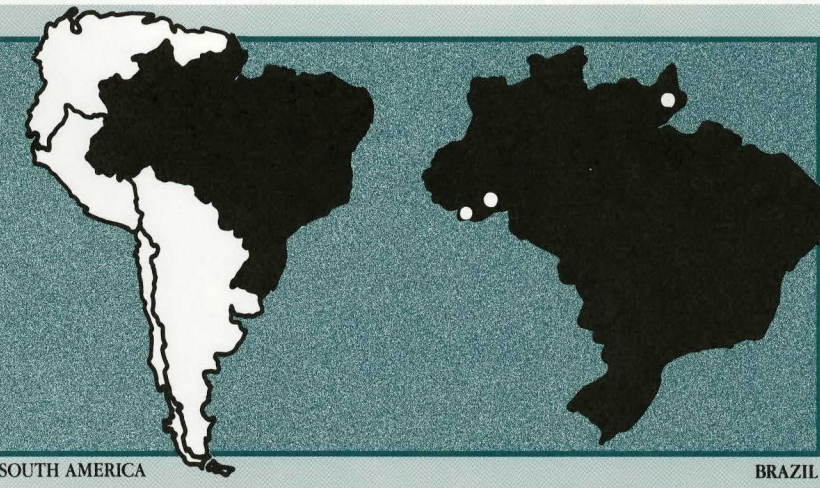
Miguel Clusener-Godt/UNESCO

Terracing promotes more sustainable rice production and increases yield.

There are other important examples of combining protection of the natural resource base with economic development that principally benefits the local inhabitants. In Brazil, as in many other countries, the value of much of the standing rain forest exceeds the value of the land for agriculture or grazing. More than 1 million people living in the Amazon forest meet their subsistence and commodity needs through small-scale agriculture, hunting, fishing and harvesting products such as rubber and Brazil nuts in the natural forest. These activities are not only economically rewarding relative to alternative land uses, they also protect genetic resources. This situation led to the development of "extractive reserves." Although the concept was developed for the Brazilian Amazon, it could be applied in many different countries.

BOX 11

Extractive Reserves in Brazil



SOUTH AMERICA BRAZIL

The Brazilian Amazon contains roughly 20% of the world's plant and animal species. This biotically rich area of Brazil produces many non-timber forest products ranging from rubber and Brazil nuts to fibers, fruits and even butterflies.

The proposal to create "extractive reserves" was first articulated by rural labor leader Chico Mendes in a 1985 national meeting of rubber tappers (seringueiros). But it wasn't until 1987 that the government issued regulations to permit the designation of federal land as Extractive Settlements. Under the rules, traditional rubber-tapper communities can be granted long-term (up to 30 years) renewable land use contracts, with rights for exclusive use, but the title to the land remains legally with the government. The families live on widely separated tracts of forest, and maintain gardens, small fields and domestic animals, as well as harvest non-timber forest products and hunt wild game. A conservation and management plan for each reserve is to be mutually agreed upon by the local rubber tappers' organizations and the relevant government agencies.[159]

Between January and March 1990, Brazil's former President Sarney signed decrees establishing four extractive reserves with a total of 2.2 million hectares.

While the cash input per family for a traditional extractive homestead is low, the return is also low. However, the return per day of family labor is still higher than the prevailing daily wages in the region.

Unfortunately, seringueiros do not have a large market for their commodities. Small-scale local marketing is generally successful, but only a few products are recognized nationally or internationally. Fruits such as acai (pronounced "ah-sah-eé") go rancid only two days after being harvested, making long transports futile. Education of consumers unfamiliar with exotic fruits; local understanding of international quality, quantity and timeliness demands; and more secure methods of processing and shipment are keys to expanding international markets for extractive reserve products, and higher profit margins.

Extractive reserves will only become viable over the longer term if, in addition to improved markets, they are able to supply education and health-care to the resident families. So far these services remain out of reach, except where NGOs have invested in plot projects.[160]

The World Bank and Inter-American Development Bank endorse extractive reserves, which were included as an important component of the Pilot Program on Brazilian Forests. This was an initiative

launched by the G-7 leaders at their 1990 Economic Summit in Houston.[161] Plans for the Pilot Program included both the legal and physical demarcation of extractive reserves, as well as new transportation and marketing initiatives. Unfortunately, in spite of a model NGO planning process, the program languished as the G-7 governments failed to deliver on their promises to donate significant funding, and the World Bank and Brazilian authorities haggled for years over the terms of the arrangement. Funding for the 1990 Pilot Program finally began to flow in 1995.[162]



Stephan Schwartzman

Rubber tappers plant and manage dozens of species in a diversified garden for home consumption which complements their commercial production of nuts, fruits, and latex.

Although most examples of projects like those cited above, combining economic benefits for local people with preservation of biological resources, arise from grassroots efforts, several bilateral and multilateral funded projects are doing this too. The Asian Development Bank (ADB) is providing loans and expertise for two such projects. The first is Mangrove Rehabilitation and Management in Sulawesi, Indonesia. There, a national strategy is being formulated to conserve and manage mangroves that are being degraded due to increasing pressures on the adjacent land. The project is improving the coastal environment and reducing poverty among coastal communities.[163] The second, a Biodiversity Conservation Project in Indonesia, is aimed at protecting tropical forest areas that are rich in biological diversity. It involves the creation of a management framework for sustainable development of 32,000 hectares in Ruteng and 146,000 in Siberut, two of seven biogeographically distinct regions in Indonesia, and the creation of buffer zones in adjacent areas.

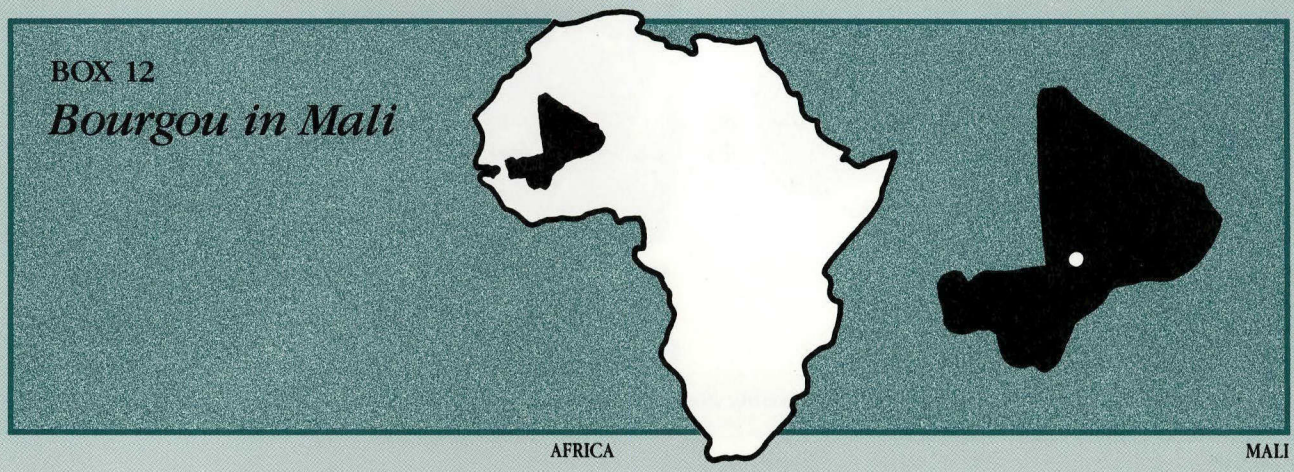
Protecting biodiversity has become an explicit objective for the US Agency for International Development

(USAID). As a result of federal legislation requiring USAID's country development strategies to protect biodiversity, the agency spent $5 million in 1987 for 21 conservation initiatives, $12 million in 1988, and $72 million in 1991, and $90 million in 1992. The United Nations Environment Program (UNEP) reported that in 1991, $228 million was available worldwide for biodiversity projects, $170 million from bilateral sources, but only $58 million from multilateral sources, of which $43 million came from IDA and IBRD sources.[164]

By 1995, the amount of funds devoted to biodiversity had greatly increased, with $108 million committed from the GEF, IDA and IBRD alone.[165] Among the notable examples of bilateral donors were Australia and Norway, whose contributions to the United Nations Sudano-Sahelian Office (UNSO) helped launch a project to regenerate 30,000 square kilometers of former grasslands, called bourgoutieres, in Mali.[166]

BOX 12

Bourgou in Mali



Echinochloa stagnina, more commonly referred to as bourgou among the people of Mali, is an aquatic grass important as a food source for humans, livestock, fish, birds and other wildlife. Bourgou also provides a protective shield against rice-eating fish (crucial for the rice farmers), is a breeding ground for edible fish, and provides shelter for many wildlife species. It is a source of income for local families during the flood season when it is sold as fodder. After the 17-year drought between 1968 and 1985, bourgou was on the verge of total collapse in the Niger Inner Delta. Without large expanses of bourgou grasslands along the river banks, the ecological balance and economic strategies of the region were eroding.

Under the guidance of the United Nations Development Program's Sudano-Sahelian Office, 30,000 square kilometers of former grasslands (called bourgoutieres) are being regenerated. The project involves a series of comprehensive measures to ensure the revival of this historically important region. UNSO representatives are working with people in the villages and towns near the bourgoutieres to establish management systems for preventing further degradation of the land.

Before embarking on the challenge of regeneration, discussions were held with the local people which successfully heightened their awareness of the problems caused by over-harvesting, and identified some of their priorities. Besides bourgou, the project has concentrated on tree planting and improving livestock health. The beginning phase of the project in 1982 included regeneration of 1,540 hectares of bourgou, as well as setting up stocks of veterinary medicines, and nurseries yielding 25-50,000 seedlings per year. Local support for the project has accounted for much of its success.

Bourgou is returning to be one of the most economically productive resources in the Inner Delta. Its value is partly derived from the strategy that is employed in its traditional use, which can only be sustained when the grasslands are plentiful and healthy. During the dry season the most productive animals are allowed to graze on a rotational schedule in the bourgoutieres. During the flood season, the grass is cut for fodder. In some areas, the regeneration of the bourgoutieres is so successful that rotational grazing seems to be sustainable once again.

In addition, healthier livestock are producing more milk, enhancing both the local diet, especially among women and children, and profits from sales. The overall improvement in health of the livestock, and in the condition of the bourgoutieres, has led some villagers to abandon a former practice of travelling with livestock to better grazing lands in the dry season.

By 1992, when 5,200 hectares of bourgou were successfully regenerated, a number of local residents began to create their own small bourgoutieres. Many villagers now feel that only those who contribute to the regeneration, maintenance and management of the bourgoutieres should benefit from them. This is transforming the traditional land tenure system, and introducing new complexities concerning the rights to use seasonally flooded grasslands. The UNSO's efforts to include traditionally nomadic populations in the project may further aggravate land use rights disagreements.[167]

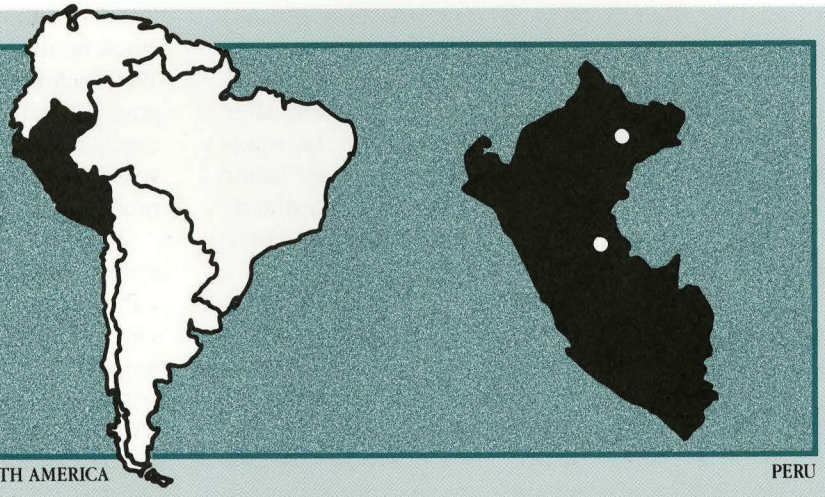


Successful regeneration of bourgou grass is increasing livestock, rice and fish production.

We are only beginning to take advantage of the many opportunities for reviving elements of traditional management systems that have enduring value, and to utilize them in new systems that take advantage of modern technical and scientific knowledge. The Integrated Family and Communal Gardening Project (HIFCO) in the Peruvian Amazon is employing indigenous land-management models in an effort to preserve the local ecosystem, enhance sustainable use of its resources and develop its natural and social components.

BOX 13

HIFCO Gardening Project



In 1937, construction began on the first road that would penetrate the lower Amazon of Peru. Since that time, scores of colonists, treasure hunters, traders, agri-business venturers and landless poor have made their way into the Peruvian Amazon. Their legacy was the clearing of 8.5 million hectares of rainforest, long-

term and perhaps permanent degradation of much of that land, and the victimization of indigenous cultures dependent on the rainforest.

In 1985, the Integrated Family and Communal Gardening project (HIFCO) was founded by a small community of Shipibo and Conibo indigenous people. Their guiding principles were that among the people of the rainforest there is enormous knowledge about the forest and how best to use its many products; that each of the different tribal groups can teach their knowledge to the others; and that the indigenous people are in the best position to foster the conservation, protection and sustainable development of the forest. HIFCO concentrates on rehabilitating land that has been deforested, usually for unsuccessful ranching or farming. The project relies on classroom instruction, vocational training and field demonstration to meet these ends. Instruction usually takes place in Spanish, a second language common to many different tribal groups, and incorporates ancestral customs, family units, spiritual beliefs and present-day needs. During the educational process, it is expected that instructors and students will learn from each other, resulting in the continual revision and evolution of the HIFCO curriculum.

The HIFCO farming system is based upon two highly-complementary land-management models—"raised beds" and "circular gardens"—which involve the intercropping of multiple species (polyculture); different harvest cycles managed simultaneously on the same plot (polycyclical planting); and the movement of crops across the plot over time between harvests (crop rotation). Each garden site is small and is surrounded by a large area of regenerating forest, which supplies mulch, fuelwood, shelter for small animals hunted for meat, and a myriad of nuts, fruits, and over time, medicinal plants. These methods were chosen as the most appropriate alternative farming models based on the region's agricultural and environmental constraints.

Promising results were achieved by the pilot project at San Pablo de Tushmo. Soil rehabilitation has had a 90% success rate through the HIFCO farming system. Soil tests found a 70% reduction in toxicity when compared to sites in the same area under conventional agricultural use. As a result, four new sites were created. Each site is managed autonomously by local indigenous federations under the auspices of the Interethnic Association for the Development of the Peruvian Amazon (AIDESEP) and by a three-person technical team including a technical advisor that has graduated from the HIFCO training course and received the title "HIFCO promoter." HIFCO's principles are:

- Use and manage natural resources rationally;
- Conduct sanitary lifestyles based upon the consumption of natural foods and medicines;
- Aid indigenous communities;
- Defend the rainforest habitat for the indigenous population because their subsistence depends upon it; and
- Promote the use of natural organic pesticides and fertilizers as alternatives to agrochemicals and synthesized fertilizers.[168]



Marijke Torfs

The HIFCO farming system is based on sustainable agricultural practices such as intercropping, crop rotation, and polycyclical planting in an effort to rehabilitate land that was previously deforested and degraded.

A tool that will become ever more important in efforts to balance development and environmental integrity is restoration ecology. As population growth slows and policies and institutions for the management of common resources mature, opportunities will arise to restore highly degraded ecosystems to something approaching their natural state. The Guanacaste National Park in Costa Rica is a pioneering example of the potential for restoration ecology, largely because of its success in combining repair of a seriously degraded ecosystem with improvement of the economic and social conditions of residents of the area. Through a working partnership between NGOs and the Government of Costa Rica, 110,000 hectares are on their way to full recovery.

BOX 14
Guanacaste Conservation Area



CENTRAL AMERICA

COSTA RICA

With nearly 25% of its territory protected in national parks and other kinds of wildland reserves, Costa Rica has one of the highest proportions of protected land in the Americas. The country's stable hundred year old democratic government, its urban-oriented population, relatively low population density, and the presence of active public and private conservation leaders and non-governmental organizations, have stimulated investment in conservation. Between 1986 and 1990, Costa Rica received foreign contributions of almost $50 million for conservation activities and the government itself invested millions more. Today, there is a strong national interest in reorganizing land use, so as to rationally decide which areas are suitable to dedicate to agriculture; to convert marginal farm and ranchland into wood production; and to develop a strong ecotourism industry.

The most damaged forest ecosystem in Costa Rica is not the rainforest but rather the lowland tropical dry forest. These woodlands once stretched along the Pacific Coast of Central America from Mexico to Panama, but now less than 2% of this area remains in natural forest. In 1986, the Costa Rican government, local NGOs and concerned scientists launched an effort to restore a portion of this forest large enough to conserve it as an intact ecosystem. The Guanacaste National Park Project began with 40,000 hectares of widely separated and heavily impacted national parks. Today the Guanacaste Conservation Area (GCA) encompasses 110,000 hectares. Throughout the area, the fragments of preserved habitats and populations are serving as seeds for the dry forest that is rapidly invading the now abandoned pastures, old fields, and marginal farmland, which had been subject to heavy hunting, burning, logging, ranching and farming for centuries.

Between 1986 and 1993, a total of about $26 million was raised through direct donations, conservation, research and education projects, debt-for-nature swaps and contracts for services. In addition to paying for most of the land and establishing full infrastructure for five biological stations and Costa Rican staff of 87, these funds have built a $16 million endowment fund to generate a substantial portion of the ongoing management budget for the GCA.

The biological restoration process has proven to be largely an administrative rather than a scientific task. The key challenge is to provide working conditions and equipment to support the GCA staff so they can do a thorough job of keeping anthropogenic fires and poachers out of the regrowing forest. The wild animals and wind do an excellent job of moving the plants into new areas; the fauna enter with the plants; and the soils—though often heavily impacted and eroded—support a biodiverse community. Livestock grazing was allowed in the area for several years as a

form of grass suppression until the fire control program could become effective. But grazing has now been discontinued because of livestock damage to seasonal watercourses; this decision was made in consultation with the local people.

"Complete" recovery of this forest will require 300-1,000 years, but a forest that appears intact will be present within 50-100 years. Today, even the most extremely deforested sites in the dry forest are sprinkled with a haze of shrubs and saplings. The rainforest pastures at the eastern end of the GCA, however, are proving to be much slower to begin recovery, largely because of the very slow seed flow into these pastures (there are almost no wind-dispersed trees in the rainforest); the comparatively harsher conditions for seedlings; and the lack of mycorrhizal associates for their roots in the rainforest pastures.

The Guanacaste Conservation Area (GCA) has been highly significant in both the conservation of tropical dry forest and in demonstrating that seriously degraded tropical areas can be restored if there are seed sources and they are administrated correctly. However, its long-term significance for the tropics is even more related to its socio-economic aspects. From its initiation, the GCA has been a joint collaboration of NGOs (local and international) and government, merging the permanence of the government with the flexibility and innovative possibilities of private enterprise. It operates under a local governing board made up of individuals who are employed either privately or by the government. The GCA has stressed intensive on-the-job training and specialization of staff. Virtually all management decisions and policies are determined at the site. The central national office has a facilitating role and sets the national conservation framework. The GCA is a key pilot project for the Costa Rican National System of Conservation Areas, which contains seven other conservation areas besides the GCA.

The GCA helps northwestern Costa Rica in a variety of ways. Of greatest long-term importance is education: all 4th, 5th and 6th grade students in the 22 grade schools bordering the GCA receive training in basic biology inside the GCA from the GCA staff of Costa Rican biologists. The $1.6 million annual operating budget of the GCA is spent almost entirely locally; 73% of the GCA staff come from the area within or immediately adjacent to the GCA—the remainder are Costa Ricans from other parts of the country. 40% of the GCA staff are women. The newly developing ecotourism and research programs are conducted entirely with local inhabitants trained on-site and in collaboration with neighbors involved in private enterprise. Finally, the GCA now offers full watershed protection to all of the major drainages in northeastern Costa Rica—water production for a major agricultural region and at least 100,000 inhabitants.

Beginning in 1989, the new Costa Rican National Biodiversity Institute (INBio) began the process of inventorying Costa Rica's biological resources with the GCA. The first parataxonomists—rural residents trained to carry out all of the biological tasks associated with biodiversity inventory—were trained in the GCA. INBio's biodiversity prospecting activities, which have attracted worldwide attention as one of the ways to use complex tropical forests without destroying them, have depended heavily on the administration, biological stations, researchers, and Costa Rican staff of the GCA for critical support and facilitation. Now, as full-blown computerization of the biodiversity information becomes integrated into tropical conservation, the INBio-GCA data base promises to provide the underpinnings for a major pilot project.

The GCA has been successful in setting a major ecosystem on track to full restoration. The critical next step is learning how to use the conserved biodiversity without destroying it.[169]

Similarly, a project funded by USAID in Niger restored the Guesselbodi National Forest after determining that the economic and social benefits of the natural forest exceeded those of plantation forestry at the site. The land had been largely deforested before the project began in 1981, and was characterized by rocky outcrops, overgrazed shrubs, eroded soil and marginal productivity. With the use of water-harvesting techniques and mulching, vegetation was re-established and excessive erosion curtailed. Natural forest management at Guesselbodi restored some plant species that had disappeared over thirty years before, and it provided the right conditions for grass to grow again on nearly 5,000 hectares. By 1986, the Guesselbodi had placed 1,500 hectares under the control of the community-based natural forest management plan; in 1993, there were over 56,000 hectares.[170] While these uses of natural resources are successfully meeting immediate human needs and generating revenue, their most significant attribute may be their role in preserving biodiversity.

Environmental Components of Success

Many of the principles that form the basis of ecologically and socially sustainable development are already known. Additional research will always be needed, especially on site specific applications and the development of new technologies, but considerable success can be achieved by incorporating known strategies.

One such strategy would involve maximizing the productivity of natural resources such as forests, rangelands, fisheries and agricultural soils by minimizing environmental stress. But instead, most of the world's economies are based on activities which "load" natural ecosystems with a smorgasbord of pollutants, and/or harvest resources at rates exceeding production. This has led to increased stress on many ecosystems, and a resulting decline in their productivity. The ultimate tolerances and resiliencies of the earth's ecosystems are unknown, but the crash of several major fisheries around the world in the early 1990s has indicated that the systems do have limits. Under these circumstances, and with human population growing at unprecedented rates, much greater use of the "precautionary principle" would be prudent. As yet, few governments or bilateral donors, and none of the MDBs, has embraced the precautionary approach as a matter of policy or practice, although the concept is evolving rapidly in international law.[171] Principle 15 of the Rio Declaration states:

> In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental damage.

BOX 15

The Precautionary Approach

The precautionary approach first emerged and has been most often applied in the context of marine pollution, but it has wide applicability. It arose from the recognition that past approaches to environmental protection failed—in part because of mistaken assumptions about how much pollution an ecosystem could absorb, or how high a level of harvest a resource could sustain over a long period of time. Most experts now agree that the "assimilative capacity" approach is inappropriate, at least when applied to toxic, persistent and bioaccumulative substances.

The precautionary approach has been enshrined in an increasing number of legal instruments and conference agreements or declarations.[172] United Nations General Assembly Resolution 44/225 (1991), for example, recognized the principle in recommending a moratorium on large-scale deep sea driftnets.

There are two key aspects of the precautionary approach: anticipation and prevention of potential adverse impacts; and taking necessary and appropriate measures to address existing adverse impacts.[173] In practice, application of the precautionary approach provides a guideline for:

- Taking positive actions to promote prevention of pollution;
- Utilizing available scientific information, with due

consideration for uncertainties and missing information, to predict the potential for environmental harm;
- Agreeing on progressive reductions of contaminants entering the environment, with the ultimate goal being zero emissions of toxic materials and the interim goal being attainable reductions of the most critical contaminants;
- Determining acceptable levels of nutrient inputs to the aquatic and marine environments; and
- Developing and implementing new clean technologies that eliminate the use and production of toxic substances.

The precautionary approach is not:

- A prescription for shutting down industries and other commercially profitable activities;
- A rejection of the application of scientific information to the decision making process; or
- A formula for "plugging" pipelines and redirecting toxic wastes into other parts of the environment or into stockpiles.[174]

Increasing Efficiency and Renewable Energy

Some of the most significant increases in efficiency lie within the energy sector, where developing countries account for 30% of global energy use.[175] Biomass provides nearly one-third of the total energy consumed in developing countries,[176] and in some countries it is even more significant. Estimates in 1990 showed biomass accounting for 74% of final energy consumption in Africa. Burkino Faso, Ethiopia, Tanzania and Uganda all surpassed this number, with biomass providing between 92 and 96% of energy used.[177] Due to the relatively "free" price and availability of biomass, primarily wood, it is the primary energy source among the rural poor. Increasing the efficiency with which it is used could lessen many problems associated with deforestation and desertification as well as improve the quality of life of wood users.

In addition to biomass consumption, the World Energy Conference estimates that developing countries will account for approximately 90% of the increase in world oil consumption from 1985 to 2020.[178] Using oil more efficiently would alleviate a portion of the debilitating balance of trade deficits that plague much of the developing world.

Despite these benefits, less than 1% of all international aid has been devoted to improve energy efficiency.[179] Moreover, relatively few development projects in housing, transportation, or urban services take advantage of the potential for efficiency gains.

The scarcity of energy efficiency projects in MDB development portfolios cannot be attributed to economic or technological shortcomings. When properly implemented, projects stressing energy efficiency can help not only the industrial sector, but also urban residents, workers and the rural poor.

Efficient wood and charcoal stoves can ease the workload of rural women and stretch the income of the urban poor, as well as reduce pressures on forests. "Improved" cookstoves have been one of the most widely heralded, yet ultimately disappointing, appropriate technologies for the developing world. Numerous designs developed in the early 1970s offered energy savings of 20 to 30% over the common open fire or traditional stoves, which utilize as little as 17% of the energy burned. With a few exceptions, however, attempts to increase efficiency through the introduction of new stoves have failed. As of 1984, for example, only 10% of the nearly 100 major woodstove projects in developing countries had survived for more than two years.[180] Failure can be traced to higher than anticipated costs, technical problems with design, incompatibility with cultural preferences and inadequate dissemination strategies.

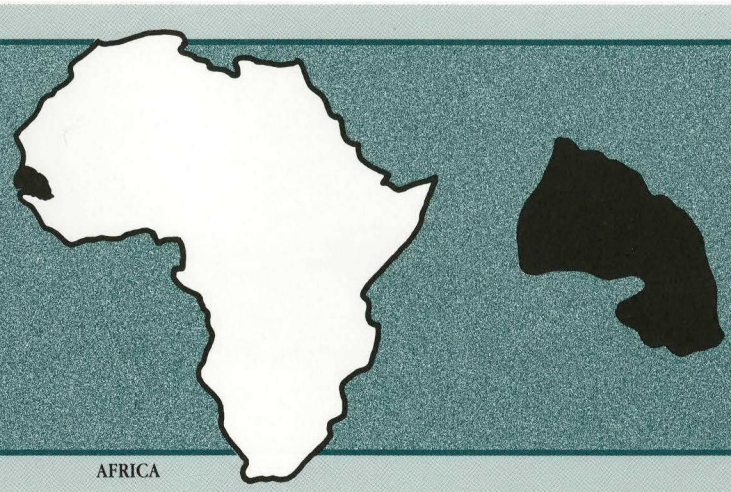
Several stove projects are doing better, however, including the ASTRA project in Karnataka, India, the CILSS/VITA projects in Burkina Faso, Mali, and Niger, and the charcoal stoves projects in Kenya and Senegal.

Use of renewable energy sources to generate electricity can be a profitable investment, but the start-up costs of the technology often limit the beneficiaries to the middle and upper class. This leaves much of the developing world, particularly in rural areas, without electricity services. However, rural villagers spend a considerable proportion of their income on candles and kerosene, thus in many cases they could be regular paying power customers if the services were available. Moreover, many villagers can afford passive solar technologies. The SO-BASEC energy program is a good example. In 1984, Enersol Associates was established as an international non-profit development organization to "improve the quality of life in rural areas of developing countries by fostering the use of solar energy for rural electrification." Today, its pilot project is bringing much more than energy to the Dominican Republic.

The photovoltaic technology and the revolving fund used by Enersol demonstrate that energy-efficient technology need not require initial capital investments that poor people cannot afford.

BOX 16

Efficient Stoves and South-South Technology Transfer



AFRICA SENEGAL

In the first edition of Bankrolling Successes we featured the Kenyan "jiko" stove. That project continues to be generally successful. Kenyan technology is being transferred to Senegal by Appropriate Technology International. However, adaptations have been necessary to fit local conditions, resulting in the "diambar" stove. A baseline study found that the standard-sized Kenyan stove is too small for most households in Senegal, which are often polygamous and tend to be large.

In the course of the Senegal project, some changes were also made in the design. First, the "diambar" stove substitutes groundnut shell ash for vermiculite in the cement mix that holds the liner in place, because vermiculite is not readily available locally. Second, a metal grate that fits below the combined ceramic liner/grate was added to extend the life of the ceramic insert. Although the additional metal grate adds to the cost of the stove, it allows the stove to be used even after the base of the liner has cracked.

The height of the diambar was increased in response to requests from users. Small metal hinges were added to hold the diambar's ceramic liner in place better. The diambar's handles were reshaped in a curve so that the stove would be easier to carry without sharp edges that could cut the users' hands.

After initially producing the bell-bottom "jiko," the Senegal project changed the metal cladding to a simpler conical shape with a separate base. This change simplifies fabrication while maintaining stability in use. It allows artisans to reduce the retail price of the stove and produce more stoves per day.

In Senegal, the liners made by one medium-scale commercial producer and several women's cottage industry groups are sold to metal artisans who assemble the stoves. The stoves are being sold by the metal artisans, as well as by professional traders, women's groups through "tontines" (revolving savings and credit groups) and part-time sales people. Advertisements for the stoves have been run on television and radio in Senegal. The stove has also been promoted through roadside signs and t-shirts. Meetings have been organized with women's groups to demonstrate the stove.[181]

In spite of the relative success of these efforts, elsewhere there are still considerable cultural barriers to widespread use of the various efficient stoves. Often users complain that the benefits of the new technologies do not compensate for loss of the family-oriented nature of a conventional fireplace cooking arrangement.



The Diambar stove features an increased height, curved handle and other improvements requested by women users.

BOX 17

Solar Power in the Dominican Republic



CARIBBEAN DOMINICAN REPUBLIC

The solar-based rural electrification concept (SOBASEC), developed by Enersol Associates, was launched in the Dominican Republic in 1985. SOBASEC combines photovoltaic technology, training, and locally-managed credit programs, to provide a reliable and sustainable energy source. The photovoltaic system is:

- Cost-effective—the typical 48-watt system provides six kilowatt hours of electricity per month, costs $600, pays for itself in less than five years and lasts 20 years;
- Appropriate for the needs of rural families—a 48-watt system provides power for five lights, a radio/cassette player, a television and a blender;
- Environmentally sound—it can generate power and light without emitting acid rain or greenhouse gases, using power lines, or building dams, mines or refineries;
- A source of jobs—directly (managers, technicians, creditors, trainers) and indirectly through new opportunities to work at night;
- One way to improve conditions at home—women and children no longer need to work by the dim light of kerosene lamps, making cooking, sewing and school homework easier;
- One way to improve conditions in the community—PV systems provide electricity that is necessary for holding nighttime classes, keeping stores and clinics open longer and pumping safe, potable water; and
- Replicable in other areas of Latin America and the Caribbean.

SO-BASEC relies upon the strength of several key institutions at the community level: the local rural development NGOs, community associations and solar electric service enterprises. The rural development NGOs are responsible for establishing the revolving fund and issuing loans to end-users. The community associations or "user groups" educate end-users about the availability of the technology and connect them with the local NGOs for loans. Finally, the solar electric service enterprises supply the PV hardware and provide system maintenance or repair as needed. Enersol provides the training and workshops for rural development professionals, community leaders and solar technicians year-round at its training site in Bella Vista. On average, local institutions can establish a sustainable solar-based rural electrification enterprise within three to five years after training begins.[182]

BOX 18

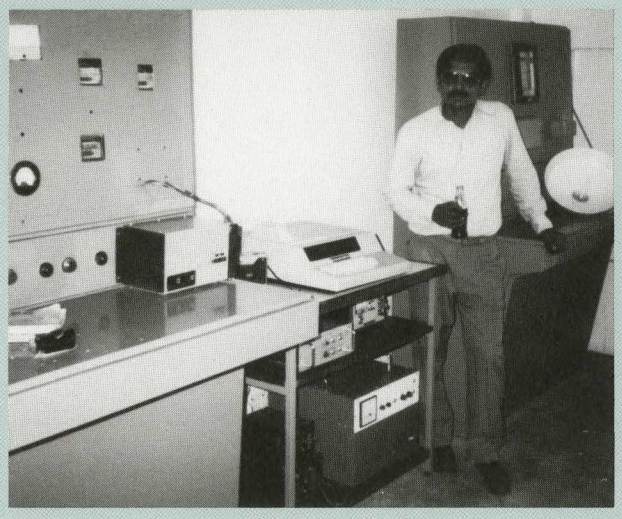
Some Energy Facts

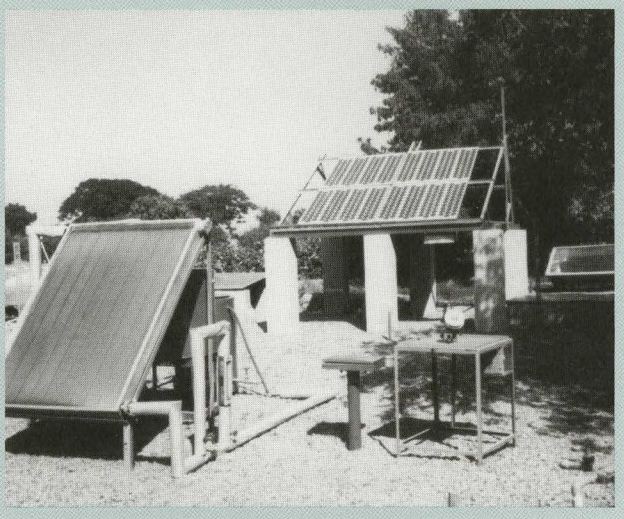
- Between 1985 and 1990, Brazil's National Electricity Conservation Program spent $20 million on more than 150 efficiency projects and programs, with private industry providing matching funds. This yielded electricity savings of $600 million, and $1.3 billion in reduced need for power plants and transmission lines.[183]
- Brazil could save $38 billion in new dam and power plant construction if it spent $8 billion on investments in more efficient industrial and commercial motors, efficient street lighting, and efficient indoor lighting and appliances. This would also help avoid the further destruction of forests.[184]
- About 600 small establishments in the Philippines use electric kilns. Replacing 25% of these with efficient liquefied petroleum gas (LPG) kilns would avoid the need for investing in 12 MW of generating capacity, saving 1,500 tons of oil annually.[185]
- More than 70% of Chile's 716,000 street lighting fixtures hold great potential for improved efficiency and lighting quality. Replacing 513,000 fixtures with more efficient lamps would result in energy savings worth 4.6 billion pesos (US$11.2 million) each year. These savings are equivalent to a generating capacity of almost 35 MW, and would reduce carbon dioxide emissions by 92,260 tons.[186]
- One retrofit program conducted by the Indian Rural Electrification Corporation reduced electricity consumption in 23,000 irrigation pumps by a quarter, and the improvements paid for themselves in less than six months.[187]





In Israel both rich and poor alike are required to have solar rooftop collectors.





Brent Blackwelder

A sophisticated computer system operates solar arrays in India.

As the demand for electrical energy continues to increase, several countries are developing alternatives to conventional generating systems. Thailand has established a new master plan for its electric power system, one that does not involve the construction of costly and inefficient power plants. The culmination of its work is known as a Demand Side Management (DSM) plan. DSM enables utility companies to operate the power system at the lowest economic and environmental cost, by changing the timing and amount of user demand. Through controlling and promoting the rational and efficient use of electricity, it is expected that Thailand's utility companies will be able to provide increased power services at a lower price and with less use of non-renewable energy sources.

The current breakdown of energy use by sector in Thailand is 50% industrial and 25% each for commercial and residential. DSM has the potential to bring savings to all three sectors.

DSM begins with an investigation of existing equipment and its efficiency (light bulbs, motors, heating/cooling systems and other major consumers of power), followed by cost/benefit and time of use analyses. Where it is found that DSM would be financially feasible—where the cost of saving one kilowatt through DSM is lower than installing one kilowatt in a new power plant—and would cause no negative impacts to the productivity or other objectives of consumers, DSM is the preferred option.

Thailand's DSM program will provide technical and financial assistance to users to improve the energy efficiency in existing buildings and construct more efficient new buildings, and will give incentives to manufacturers to produce more efficient electrical products. DSM will also promote public awareness of electricity savings. The funds necessary for investment in DSM will be recovered through the sales of the conserved electricity.[188]

Development banks are taking some steps in the direction of end-use energy efficiency. The Asian Development Bank's energy sector initiatives for the next six to seven years emphasize "enhancing the efficiency of production, transportation and end use of energy."[189] There is now a "special focus on DSM in the industrial, transportation and domestic sectors."[190] Moreover, an entire section of the initiatives document is devoted to energy efficiency and demand side management work.[191] Noting that positive shifts are taking place in the Asia region, particularly in China, Indonesia, Malaysia, Philippines and Thailand, the Asian Development Bank recently announced a decision to hire a full-time expert on demand side management and integrated resource planning, stating that these facets would become key parts of the energy department's revised mission.[192]

A recent analysis of the World Bank's energy portfolio of projects approved during the first six months of 1993, however, found only three energy efficiency or DSM projects.[193]

Among potentially renewable energy sources, hydropower has received substantial attention from the MDBs, but usually the focus has been on large scale projects which frequently result in net losses when environmental and human costs are considered. Hydropower can play a significant role in providing electricity if implemented in smaller-scale systems.[194]

Raising Productivity

Global generalizations about the potential for environmentally sustainable increases in crop, forest, and range production are of limited use. Asian countries, with 77% of their arable land under cultivation, face different problems than Latin American and African nations, where less than 25% is cultivated.[195] Many areas of Africa with a relatively equitable distribution of land can institute programs that would be of little value in Latin America, where most countries have extremely inequitable land tenure. These demographic and political realities are intertwined with the fundamental site specific ecological constraints of soils, water and climate. The Green Revolution in Asia, heavily dependent on irrigation, cannot be repeated in sub-Saharan Africa where irrigation projects face extreme water and financial constraints.

Nevertheless, two generalizations can be made about efforts to increase resource productivity. First, significant advances can be achieved in agricultural, forest and rangeland productivity in all developing countries at extremely low capital costs through soil conservation techniques, intercropping, agroforestry and organic fertilization. Second, even under the best circumstances, the low-cost strategies currently in use will not be sufficient to meet the needs of the world population expected by 2050. Thus a two track strategy is called for:

Research into new technologies for the rural poor is essential. Meanwhile, many examples can be cited of the large, untapped potential for sustainable increases in forest, range and agricultural productivity through low-cost changes in agricultural practices. The Majjia Valley windbreak project and Plan Sierra, profiled earlier, provide evidence of productivity gains through soil conservation and agroforestry. In the Guinope area of Honduras, the introduction of contouring and organic fertilizers increased crop yields by up to 400%.

BOX 19

Guinope Rural Development



Much of Central America is plagued by problems of declining soil fertility caused by soil erosion and the continual monocropping of maize. By the late 1970s, maize yields in the Guinope area of Honduras had declined substantially, largely as a result of the loss of much of the area's topsoil. The low productivity caused people to flee either to other arable land or to the capital, Tegucigalpa. Farmers who remained practiced migratory slash and burn farming.

In 1981, World Neighbors, with support from the Honduran Ministry of Natural Resources and a private Honduran group, the Association for the Coordination of Development Resources (ACORDE), began an agriculture development program in Guinope and three surrounding villages in an effort to end the cycle of declining productivity. With technical assistance from ACORDE, World Neighbors oriented the program toward simple technologies that could stem erosion and restore land fertility. The program introduced soil conservation practices such as contour and drainage ditches, contour grass barriers and rock walls, and taught fertilization methods involving the use of chicken manure, green manure (intercropping with leguminous plants), and some chemical fertilizers.

In the first year, the yields of several farmers adopting the techniques tripled or quadrupled. In the next five years, 40 other villages requested training in soil conservation practices. All agricultural production costs were borne by the farmer, and except for a small revolving fund used to buy and sell necessary equipment, the program made no expenditures for labor, equipment, or raw materials. By design the technologies promoted by the project were simple

and locally replicable, and no imported materials were required; nor was there any need for maintenance or replacement parts that were not locally and cheaply available. The new technologies were taught by village farmers who had already had success with the same technologies through hands-on activities, initially in small-scale experimental plots on other farmers' lands.

By the mid-eighties, crop yields of corn and beans had dramatically improved, yet malnutrition persisted, particularly among children. World Neighbors began to educate Guinope women in basic maternal and child nutrition, and in prenatal care. Gradually this training introduced reproductive health concepts, including the advantages of breastfeeding and birthspacing.[196] Women extension workers explained the Billings method, a natural family planning method widely promoted by the Catholic church. World Neighbors adopted the Billings method, due to its acceptance in this predominantly Catholic culture, as an entry point to discuss reducing births.[197]

Health extension workers encouraged the use of local plants and locally available protein supplements such as velvet beans and soybeans to improve overall nutrition. Health professionals were mainly used in a training capacity. In addition to instructing women in basic reproductive health, non-formal education from health extension workers focused on child growth monitoring with simple measurements and vaccinations.

The impact of the program was far-reaching. During the 1980s, 30 Honduran and 31 international groups from 12 different nations visited the program to learn from this example. By 1989, the program staff was able to phase out its financial and direct technical input to the area. Most of the extensionists have since joined integrated development programs of World Neighbors and other organizations elsewhere in Honduras. An ongoing process of on-farm experimentation with improved varieties of crops has been sustained in Guinope. The Pan-American Agricultural School nearby at Zamorano has used Guinope as a field site for its rural development classes. Women in the community continue to grow and sell agricultural products for income. Twelve of the extensionists who had been associated with the development program in Guinope have since formed a local environmental defense group that is seeking to protect the ecosystems in the area.[198]

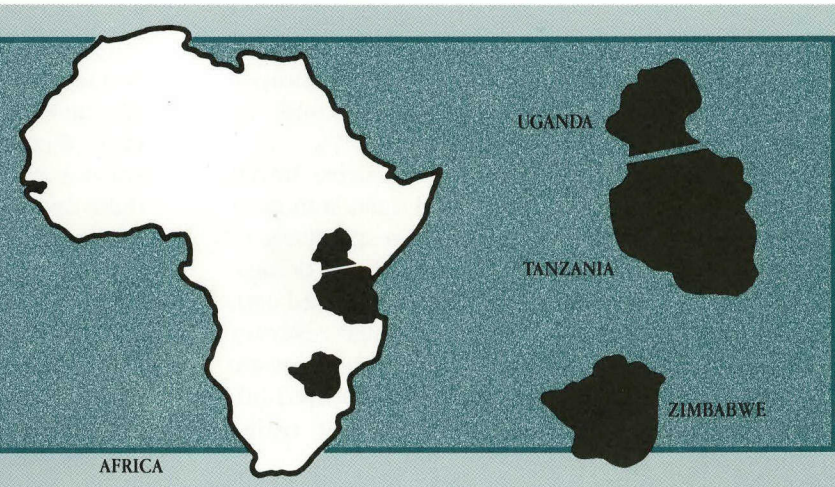


World Neighbors

Sustainable agriculture, involving contour cropping, green manure, and rock walls is integrated in this rural development program with child nutrition, reproductive health care, and environmental protection.

BOX 20

Appropriate Technology Oilseed Project



The Regional OILS Project, initiated by Appropriate Technology International (ATI), is an attempt by researchers, technicians and policy makers to solve several of Africa's problems at one time. OILS is established in 12 countries and is expanding into West Africa.

ATI's work in Tanzania and Zimbabwe began with the idea of helping small producers engage in oilseed processing, allowing them to add value to their sunflower crops. In many African countries imported oil and industrially produced bottled oil do not fully meet the demand in rural areas, due to limited transport and distribution facilities, and/or high prices. In contrast, village level enterprises, which are located near oilseed growers and rural markets, and which use a manual ram press—have virtually eliminated transport and container costs and require neither sophisticated management nor motorized equipment.

Success prompted ATI to create the Regional OILS Project to support similar development initiatives in other African countries. In Uganda, which imports 90% of its cooking oil, ATI started the U-PRESS project in January 1994. Within months, the project staff coordinated sales of 30 tons of improved planting seed, and involved private sector manufacturers and distributors in the enterprise of selling ram presses to farmers at harvest time. OILS helped U-PRESS design a manufacturing strategy, train Ugandan press manufacturers, orient field extension staff, start a credit system and present an introductory seminar to over 2,000 government and NGO leaders, farmers and local businesses in the U-PRESS zone of operations. To date more than 2,500 presses have been sold.

To promote small producers' participation in the oilseed subsector, OILS designs interventions at key points along the oilseed production-to-consumption chain—from promoting improved seed varieties to introducing a new processing technology, and from helping women entrepreneurs participate fully to facilitating private sector involvement in the sale of equipment and other inputs in isolated, cash-poor farming communities. The OILS strategy is multiplying regional impacts through a cost-effective, south-to-south exchange of oilseed industry experience and expertise. OILS impacts include:

- Sustainable rural income: By increasing the amount of oilseed enterprises and their productivity, the demand for oilseeds has quadrupled in areas with high concentrations of presses. In addition, in Tanzania, the estimated incremental gross income generated by the processing enterprises amounted to US$503 per press; note the significant increase over the World Bank's estimate of annual per capita income in Tanzania: US$140.
- Employment opportunities: As demand and profits grow, employment opportunities rise for those directly involved in the production process (such as oilseed growers and press operators) and for many more who are indirectly involved (such as makers of presses, repair personnel and transporters).
- Increased food security: Africans generally do not consume adequate amounts of dietary fats and oils; the annual per capita consumption of these products in tropical Africa is 5.1 kg., compared to over 20 kg. in industrialized countries. Researchers believe that for proper nutrition, current levels need to be 50-100% higher. Oils are important in the diet because they absorb vitamins A, D, K and E, control blood cholesterol and are utilized in cell structure and membranes. They are particularly important to children and women who are pregnant and lactating. Oils are higher in energy den-

sity than proteins and carbohydrates. The cold-pressed oil produced from ram presses is cheaper and of a higher quality than refined oils and fats sold in stores.

- Reduced foreign exchange expenditures: Initial assessments in Zambia, Kenya, and Uganda showed that less than 50%, 20%, and 10%, respectively, of the total oil consumed was being produced domestically. The remaining oil was being imported and, in order to pay for it, foreign exchange reserves had to be used. Increased reliance on domestic production decreases the need for imported oil, freeing scarce foreign exchange for other purposes.

Families and women benefit from OILS in a variety of ways:

- OILS makes specific efforts to improve the status of women in the participating African countries. Under the laws of many African nations, women are not allowed to own property, take out loans or make financial decisions. Women who purchase presses often must register them in their husbands' names. Women who want to enter the sector but are constrained by their inability to own presses or their lack of control over financial resources become service pressers. Service pressers grow or buy their own oilseed and process it using other people's machines, in return for a portion of the oil, typically 25%, or some or all of the seedcake that is produced.
- OILS incorporated women's financial concerns into the design of the machines, a relatively inexpensive model of a ram press. The BP-30 model in Tanzania costs US$150, considerably less than competing models. After its introduction in 1993 in Tanzania, one-fourth of press sales were to women, a sharp rise of 50% from the previous year's sales. OILS technicians also responded to the needs of women for a less physically demanding, easier to set up and maintain, machine.
- OILS places women in visible positions of responsibility, such as managers, teachers and press demonstrators. It has been observed that when both



Appropriate Technology International

Local processing of oilseed results in enhanced food security, new employment opportunities and increased rural income. Many women have built oil seed processing businesses.

men and women see women in these positions, barriers are broken. Men become more receptive to the idea of women owning presses, and women gain the confidence they need to voice their opinions and acquire access to the sector.

OILS still has many obstacles to overcome. The main hurdle is ensuring profitability at all levels, from manufacturing to retail. A second is to keep up with the demand for services by expanding the core teams of Africa-based experts, which means training trainers, coaching consultants and integrating interventions. Third is the on-going effort to assure that women, who anchor Africa's food production systems, are not left behind as this new rural industry develops. Another continuing challenge is to forge trusting partnerships that foster commercially sound efforts while expanding local control of oilseed processing. Finally, convincing investors to consider both small-scale and regional options rather than large-scale, national approaches is a struggle, given the government-to-government nature and size bias of most development programs.[199]

In Africa, a change in the technology used by women in oilseed production, and an improvement in the value added in the production process, is helping women improve their lives in both an economic and social context.

Farmers are often important sources of knowledge of sustainable techniques, developed over time and suited to the local terrain and conditions. Nevertheless, enhancing low-cost, sustainable agriculture sometimes involves the introduction of a technology, such as terracing, that is not used in one region, but has long been practiced by traditional farmers in other areas, or even in the same region in the past. Agroforestry, for example, is not a "new" technology, but rather is often a traditional practice that farmers may have abandoned due to outside influence, or inappropriate land tenure systems.

Farmers confronted with low-nutrient tropical forest soils have long opted for shifting cultivation, which is appropriate and relatively sustainable, if practiced in a sparsely populated zone, with long fallow periods. Where that has become impossible, one obvious response to declining nutrients would be to fertilize the soil; but this is a capital-intensive solution prohibitively costly for many farmers. Another approach is practiced in the southern part of Para State in Brazil, where the Cap people continue to practice traditional methods of soil enrichment and inter-cropping that allow them to use cleared plots for 11 years, with as little as a five-year fallow period.[200]

In regions unsuited to the transfer of western high-technology agriculture, development agencies should foster a "local knowledge" revolution where low-cost practical methods are exchanged among farmers' groups.[201]

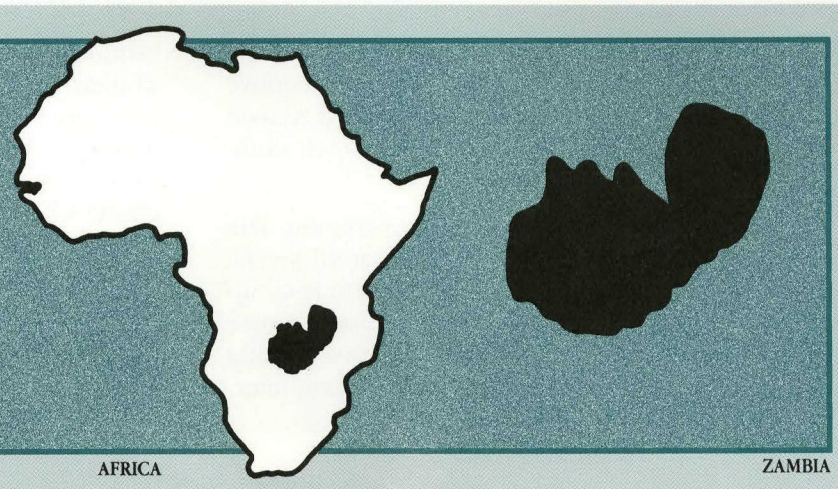
Similar to the case of agriculture is the production of livestock. Low-cost ranching of indigenous wildlife species may have a high potential for productivity, especially where the environment would have to be modified to meet the special needs of introduced domestic livestock. Until recently, development projects designed to enhance livestock productivity in Africa have been notably unsuccessful. It has been extremely difficult to develop range management techniques and livestock breeds that can cope with the climatic vagaries and disease problems of most arid African rangelands. Native species, adapted to local environmental conditions, can often use the rangeland more efficiently, yielding greater meat harvests with far less damage to the range. Game ranching, which is practiced for meat, trophy hunting, safaris and ecotourism, is now widespread in southern Africa. Some 50,000 South Africans are employed on game ranches that cover 10% of the country's area. Public acceptance of game ranching is quite high as it enhances employment, GNP, foreign exchange earnings and nature conservation alike.[202]

Although game ranching on large private estates can significantly lessen erosion and the potential for desertification, it produces little benefit for the people most in need of improved livelihoods. International funders are beginning to give greater attention to projects which provide the benefits of wild species management directly to poor rural communities. In this context, recognizing that conservation goals could only be met by addressing human needs, the National Parks and Wildlife Service in Zambia established the Administrative Management Design (ADMADE) for Game Management Areas (GMAs).

In Zimbabwe, the Communal Areas Management Program for Indigenous Resources (known as CAMPFIRE) has adopted a similar approach by fostering the development of natural resource management institutions in villages which are responsible for both management of wildlife and the use of revenues it generates.

BOX 21

ADMADE: Wildlands and Human Needs



AFRICA ZAMBIA

The Administrative Management Design Program for Game Management Areas (ADMADE), initiated in Zambia in 1979, aims to create a partnership in wildlife management between local communities and the National Parks and Wildlife Service (NPWS). The purpose is to reduce poaching of wildlife in and around the National Parks and Game Management Areas (GMAs), while contributing to the incomes of local people. ADMADE provides the administrative and financial mechanisms through which the government's community based approach to wildlife management is implemented. The program seeks to ensure that wildlife management takes place within the context of traditional cultural values and social structures.

In 1995 ADMADE was operational in 26 of the 34 GMAs that neighbor Zambia's protected areas. Each GMA establishes a Wildlife Management Authority (WMA). The WMA is the local level management institution responsible for wildlife management and the distribution of revenues within the GMA.

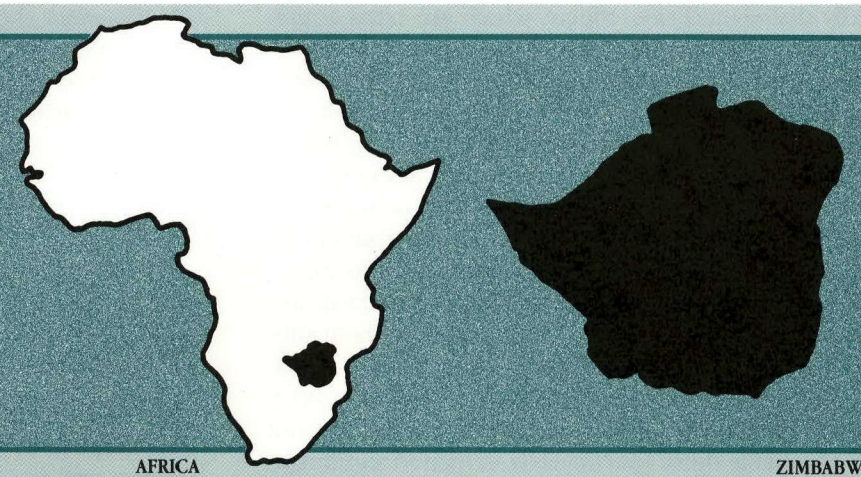
The WMA usually corresponds to the area in which one traditional chief has jurisdiction. The chief is chairperson of the WMA, which is also comprised of relevant local government technical officials and NPWS staff. Consequently, decisions regarding wildlife management and revenue use are all overseen by the traditional representative of the people, the chief. This has restored many of the traditional rights and authorities to the chief and has been instrumental in restoring the positive attitude towards wildlife which had been prevalent before local people were prevented from benefitting from wildlife during the colonial period.

Each GMA has its own unit of game scouts, consisting entirely of people from the local villages, providing much needed employment in these areas. By 1994, over 400 village game scouts had been trained and employed. Substantial funds are generated through the management of wildlife, with over 90% coming from safari hunting. In 1994 US$1,300,000 was returned to the GMAs on a "producer community" basis, ie. funds are returned to those areas in which they were raised. These funds are then used for local development purposes, such as the construction of schools or clinics and are used to pay the village game scouts. Further emphasis on and capital investment in walking tours and photographic safari options represent significant opportunities for increasing the revenue base of ADMADE.[203]

The potential benefits of low-cost, high-gain improvements in productivity must not be underestimated. But the most difficult problems in the quest for ecological sustainability of production will be encountered as productivity is extended beyond current limits. Time will eventually winnow out technologies that are sustainable from those that are not. Thus, it is imperative that the effort be made at the outset to improve the ratio of successes to failures. Even a brief glance at development disasters leads to the conclusion that modification of the environment to fit the needs of a production system is much less likely to be sustainable than modification of the production system to fit environmental constraints. It is easy to see why this is the case. Most significant environmental modifications, whether altering water availability through irrigation, nutrient composition through fertilization, or pest populations through insecticides, have a large potential for undesirable and

BOX 22

CAMPFIRE Program—Zimbabwe



AFRICA ZIMBABWE

The Communal Areas Management Program for Indigenous Resources (CAMPFIRE) Program in Zimbabwe aims to address both conservation and development needs by ensuring that the goals of each are mutually reinforcing. Through legislation adopted in 1982 it devolves ownership rights over wildlife, including the rights to revenues and other benefits, to the communities who live with the wildlife. This provides them with an incentive to conserve both wildlife and its habitat. The program is based upon two principles:

- In areas where there is severe competition for resources, the conservation of wildlife will only be achieved in the long run if it is an economically viable form of land use; and
- Those who are best placed to manage the resources are the people who live with them on a daily basis.

The program was first implemented in 1989 when two districts received authority to manage their wildlife. The success of the program in both conservation and development terms has led to it being adopted in 24 of the 56 districts in the country by 1995. While the legislation only allows for devolution of responsibility to the local district council, the CAMPFIRE guidelines require further devolution to the "producer community"—usually the village. At the village level, a CAMPFIRE management committee is democratically elected, which is responsible for ensuring that participatory decisions on resource management and financial expenditures are made.

Technical assistance and managerial support are provided to the communities by three NGOs, the Center for Applied Social Science Research (CASS), WWF and Zimbabwe Trust (ZimTrust), which work with the Department of National Parks and Wildlife Management (DNPWLM). The NGOs, local villagers, and donors shared the costs of implementation.

In 1994 the program generated over US$2 million, a considerable sum in a country where the average household cash income in rural areas is US$150. These funds are received directly by the CAMPFIRE committees on behalf of their communities. They are used to support development initiatives such as schools, clinics and grinding mills, or distributed as cash. Specific allocation of the revenue is decided at the local level, with priority for community development needs. In 1989, only one year after implementation, revenues to the Guruve district totaled $241,000. Of this amount, the Kanyurira ward received $34,000. It was decided that $15,000 would be used to build a health care facility and improve the local school; $144 cash would be given to each household; and $12,000 would remain in a management fund. Funds are also reinvested in the management of the resource base through the employment of local game guards and the development of wildlife management infrastructure, such as water sources for wildlife.

To date, revenues are generated from a wide range of activities, including:

- Hunting safaris, which account for 90% of revenues;
- Tourism, such as photographic or walking safaris; and
- Sale of skins and hides, river sand, crocodile eggs, firewood, trees, meat and rafting licenses.

CAMPFIRE has restored to local communities control over their own resources and futures and has enabled them to reassert their self-reliance. At the local level it has become a forum for a wide range of issues, including representation, economic participation and local governance. Villagers will decide in the future how much land should be allocated to agriculture and how much to wildlife. Part of their choice can now be based on the practical consideration of the revenue generated by each land use.[204]

broadly distributed side effects, which are often amplified by the scale of a particular project. In contrast, production systems can often be safely enhanced through relatively minor changes in species composition and management. The alley-cropping technique, involving the growth of food crops between pruned hedgerows of nitrogen-fixing trees, provides one method of modifying production systems with little risk to the environment.[205]

"High-tech" agriculture and forestry can also play a role in sustainable development, when the methods are integrated into existing production systems without substantial changes in surrounding ecosystems. For example, after decades of wasted effort to produce crop varieties for Africa requiring conditions that are not widely available there (particularly irrigation and fertilization), research is now producing crop varieties that have higher yields using lower inputs. In 1987, cassava varieties introduced in Niger were found to have reliable yields up to 300% higher than traditional ones.[206] In the past few years a significant portion of aid money has been directed toward improving and sustaining the production of cassava, which is the staple food of over 200 million people worldwide.

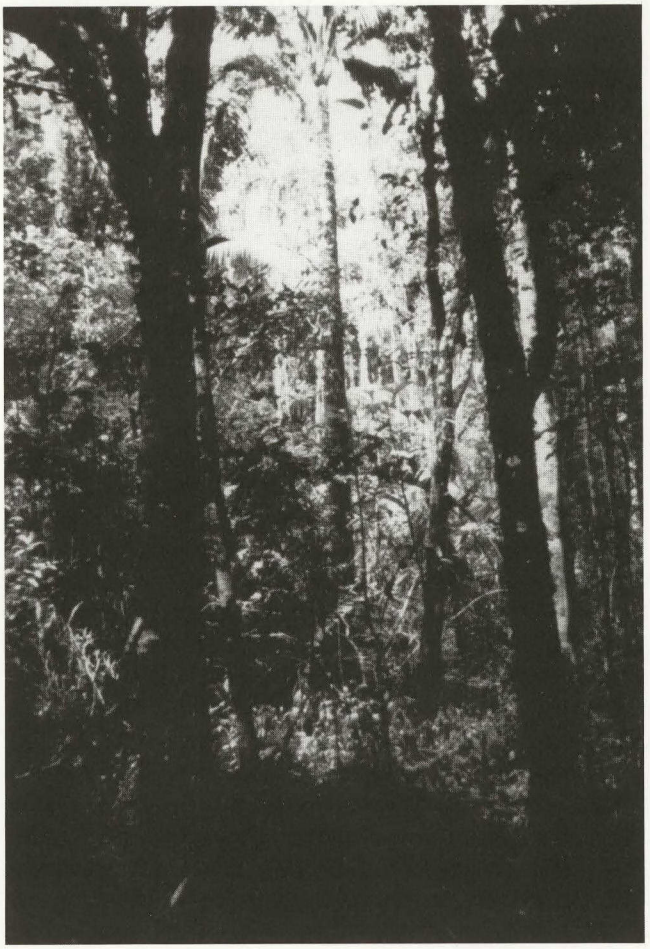
Similar advances are possible in plantation forestry, traditionally dominated by the use of non-native species like eucalyptus. One of the main constraints on the development of indigenous species for forestry in the tropics, apart from the general lack of research into their qualities and potential uses, has been poor seed viability and the difficulty of rooting seedlings. A series of British overseas aid projects in West Africa, begun in 1971, developed techniques for vegetative reproduction that allow the use of valuable indigenous species in plantation forestry.[207] Generally, tree farms that are derived from only a few clones experience more problems as a result of reduced genetic diversity than indigenous species, which are more resilient and less disruptive to the environment.

A few words must be said about biotechnology. It is easy to be disillusioned on the threshold of the biotechnology revolution in agriculture. The first products to be marketed, like Monsanto's genetically-engineered strain of rapeseed, that is resistant to that company's own herbicide Roundup, appear to be intended to increase the dependence of agriculture on chemical inputs.[208] Some experts caution that use of genetically-engineered micro-organisms can pose environmental and public health risks.[209] There also is the potential of widespread commercialization of genetically engineered seeds to displace indigenous varieties, thereby causing the loss of biodiversity as well as imposing higher economic costs on small farmers.[210] Still, biotechnology may provide benefits to developing countries if used in connection with modern pest management strategies, especially IPM. To meet the majority of peoples' needs in most developing countries, biotechnology should be pursued in ways that reinforce low-input, sustainable farming systems, rather than high-cost, high-yield systems dependent on chemicals, energy and irrigation.

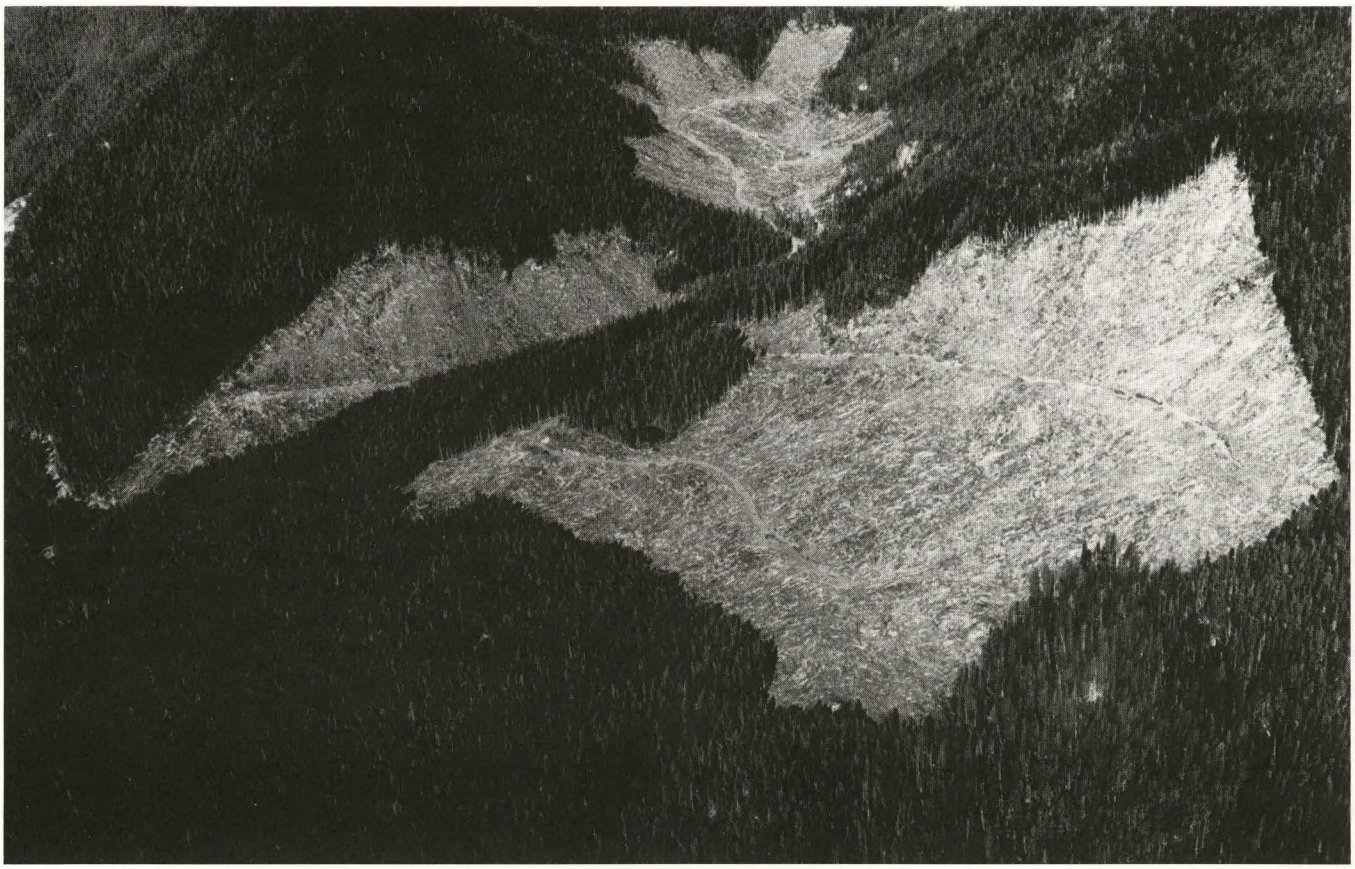
Sustainable Forest Management

It is no secret that forests everywhere are in peril. In spite of many years of action plans, discussion of appropriate principles and significant sums spent, the trends are mostly downward.

> Nowhere is the need for a transition to sustainable development more crucial than in the world's forests—and nowhere will triggering that transition be more challenging. In fact, even identifying "sustainable forestry" poses a quandary. Because for-



Even in some of the most deforested countries in the world some primary rainforest survives; one such example is the Mantadia National Park in Madagascar.



Connie Bransilver

This clearcut area in British Columbia is evidence that sustainable forest management is still a far off goal for most countries.

> ests are in constant flux, with natural stocks continually rising and falling even without any human intervention, it's hard to tell whether forestry practices touted as sustainable will actually live up to that billing over the long term.[211]

Too often there has been a focus on sustained timber yield for a limited period of time, which ignores species diversity, the long-term productivity of the forest ecosystem, watershed protection and the ultimate well-being of human and wildlife communities. In the tropics, governments own about 80% of the forests, which means that government policy—including its implementation and enforcement—is crucial in determining what happens there. More than four hundred million people live in humid tropical forest areas or depend directly on them.[212] In both tropical and temperate regions, government policies have led to deforestation and to utilization of the resource base on an unsustainable basis, often at below cost.[213]

There are a few steps that could substantially tip the balance in favor of forests, the values and communities they help support, and the prospect of sustainable development:

- Redefine the nature and terms of timber concessions so that concessionaires have greater incentives to protect the overall health of the forest over the longer-term;
- Increase and ensure direct involvement of NGOs and citizen-community groups in the design, implementation and monitoring of projects;
- Shift away from a narrow focus on timber production toward a much broader valuation and sustainable utilization of forests' full range of products and services;
- Take an integrated cross-sectoral approach, including reform of governmental policies, so that potentially effective projects are not undermined by policies or actions in another sector;
- Link forest product extraction and marketing to independent, third-party certification programs to monitor sustainability and enhance the potential for increased profits and market share;

- Make much greater use of community-based forestry, which ensures a better life for the people who live in and near them;[214]
- Agree on criteria that will enable governments, conservation organizations and donors to recognize and support "sustainable forestry"; and
- Create a permanent forest of adequate size and take the necessary legal, institutional and practical steps to protect and nourish it. If governments do not offer legal and practical guarantees that certain areas will remain under permanent forest cover, sustainable natural forest management practices will not be politically or economically feasible.[215]

Some projects that are on the right track are featured in this book, including the Kuna Comarca (Box 9), the Mananara-Nord Reserve (Box 10), the initiative on Extractive Reserves in Brazil (Box 11), the Agroforestry Outreach program in Haiti (Box 30), the Central Selva project in Peru (Box 35) and the Java Social Forestry Program (Box 31). Several other examples with positive features, funded in a variety of ways, are profiled in *Surviving the Cut,* including the Quintana Roo Ejidos project (Mexico), and the Yapo Forest project (Côte d'Ivoire).[216]

Until government policies are integrated across all sectors and conformed to the dictates of sustainability, it is difficult for individual projects to withstand the external forces that are arrayed against them. An example of a positive World Bank initiative on the policy side is its confidential 1993 report to the Government of Indonesia, warning that timber companies were cutting at least 50% more trees than could be sustained, and noting that because too little was being charged for forest concessions, the Government was contributing to deforestation and loss of the environmental values supplied by an intact forest, including watershed protection and biodiversity. The report estimates that more than $500 million each year was being foregone in revenues while an equal amount was being lost due to soil erosion and flooding. Recently the Government has announced that it would reduce the annual timber cut to the level recommended by the Bank and would increase the fees charged to concessionaires.[217]

Achieving Development Success

It is tempting to point to sustainable development projects like those described in this portfolio as examples of how all development should proceed. But consider the scale of the problem. With the exception of the cassava IPM research program (not a project in the standard sense), few of the projects described here affect more than several hundred thousand people. Many projects affect fewer than 10,000 people. Yet world population is expected to increase by at least 93 million annually until the year 2050. Can we truly expect the replication of small projects like these to meet the needs of significant numbers of people? The answer is a qualified yes, if coupled with several policy decisions that affect the scale of the effort and the framework in which decisions are made. The significant caveats include:

- If women- and family-oriented social investments are made, as proposed by NGOs and many governments, to follow up on the recommendations agreed at the Cairo International Conference on Population and Development, overall population growth should slow. This should result in less pressure on the Earth's carrying capacity and less stress on individual ecosystems.
- If substantially more financial resources are managed by organizations like the Grameen Bank that provide alternative approaches to poverty alleviation, and by NGOs carrying out smaller-scale development projects, the mix of types and scale of projects will be more balanced and more aid resources will be delivered at the community level.
- If the systems of accounting (of nations, international institutions and private firms) are revised to include loss of environmental assets when calculating costs, then governments will have more accurate information with which to make economic decisions.
- If, on the basis of green economics, governments revise tax and subsidy laws, and cost and benefit calculations, so as to incorporate into prices the full environmental costs of economic activities which impact on natural resources, then incentives will exist for sustainable decisions to be made by individuals and the private and public sectors, and efficient, clean technologies would compete on a level playing field with conventional ones.
- If the Bretton Woods Institutions and the regional MDBs fully take into account the global implications and impacts of their activities on the environment, by ensuring that their portfolios are fully supportive of international environmental treaties, such as biodiversity conservation and climate change, then the tendency of development projects to negate efforts to fulfill the treaties will be reversed.

Taking these steps in a concerted way would provide a solid underpinning for achieving sustainable development.

Appropriate Policies

Successful projects often depend on adaptation to unique circumstances and the charisma of committed individuals. Many are both time-consuming and expensive. By way of contrast, policy changes can have nationwide impact in a short time. Consider the following examples. In Ghana, maize production tripled between 1983 and 1984 after the price of the crop was tripled and the currency devalued. In 1984, Zambia increased the real price of maize by 12%, and the amount marketed rose by 55%.[218] Prior to independence in Zimbabwe, white farmers with preferential access to credit and preferential prices for their maize production achieved yields of 5 to 6 metric tons per hectare while the black communal farmers grew only 0.6 to 0.7 tons. The preferential treatment ended in 1980, and by 1985 average maize yields among black farmers had doubled.[219] In these examples, the increased yields may not have been achieved with sustainable agricultural practices, but the lesson is clear: small changes in government policies can have profound influences on development.

Sustainable development will not be achieved, except in isolated cases, without supporting policy reforms. Tax and credit policy, land reform, land-titling, commodity prices, tariffs, utility rates, social security programs, low-income housing programs, consumer food subsidies and labor legislation, each have at least as much effect on environmental conditions as environmental policy itself. In the 1980s, in nine developing countries in Asia, Africa and Latin America, for instance, subsidies for pesticide use ranged from 15 to 90% of full retail cost, with a median of 44%.[220] IPM techniques will not become established when limited government funds are used on subsidies for pesticides, instead of on research and extension to support IPM, since the newer techniques cannot compete with pesticide costs distorted by subsidies.[221]

Similarly, attempts at slowing deforestation or encouraging agroforestry will not succeed while forest and tax policies promote overharvesting of forest resources, and while agricultural policies encourage farmers to enter forested areas. In Brazil, generous tax and credit incentives once led to the conversion of millions of hectares of forest into cattle ranches; many of the ranches have since been abandoned and most of those remaining are only marginally profitable.[222] Most of these subsidies are now gone and this type of forest conversion has been greatly reduced.

Commodity prices and trade policies that depress farmers' profits reduce the demand for rural labor and lower agricultural land prices. As a result, the return on investments for land improvement and soil conservation is reduced, with consequent erosion and declining soil fertility.

The MDBs and the IMF could have an important role in encouraging developing countries to put in place policy frameworks more compatible with sustainable development. The critical influence of macro-economic policy and land tenure practices on prospects for environmentally sustainable development has not been overlooked by the World Bank. Beginning with its 1987 reorganization, which acknowledged the importance of environmental concerns, the Bank has examined policy interventions designed to influence environmental conditions nationwide. This work, still largely theoretical, could be critically important. Of course, financial institutions are not alone in needing to address the impacts of macro-economic policy on the sustainable development prospects of developing countries.

Policies of the industrial countries also need to change. Twenty of twenty-four industrialized countries had higher tariff barriers in 1992 on key Southern products than just a decade before.[223] Both tariff and non-tariff barriers prevent developing countries, with the possible exception of the newly industrialized economies, from competing equally in the market in manufactures, agriculture, technology and services. It is estimated that the lack of market opportunities amounts to a loss of $500 billion annually to the developing world, ten times what is received in foreign assistance.[224]

Though the importance of policy change is clear, the practicality often is not. Countries that have removed food or fuel price subsidies for consumers have faced riots by the urban population; and governments that attempted to secure equitable property rights for the poor have been overthrown by landed elites. Meanwhile, "conditional" assistance loans, which require policy changes by the borrower, may deflect domestic criticism of the government for instituting the changes, but raise thorny questions about the extent to which development assistance agencies should impinge upon sovereign rights. In the end, only with the right incentives and support will fundamental policy reforms be realistic goals.

The Bourgou Regeneration Project (Box 12) illustrates how land tenure conflicts may be overcome to successfully implement a development project. In this case it was the actual use of and responsibility for the land that brought about a philosophical transformation in regard to the land tenure system. Nevertheless, those involved recognize that this agricultural project cannot reach its full potential without addressing the needs of the nomadic population of the region. Planning for the next phase of the project involves doing just this.

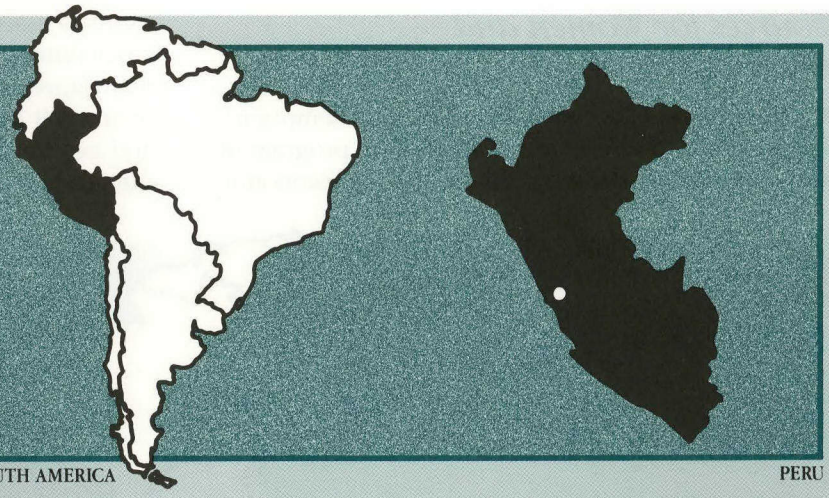
USAID's Rainfed Resources Development Project in the Philippines used 25-year land leases as an incentive to encourage farmers cultivating government land to adopt agroforestry. In one case, the project convinced a landowner to waive his claim to a portion of his land that was occupied by squatters, in return for the promise of seedlings and technical support to implement agroforestry on both his and the squatters' property.[225]

It is also crucial for the MDBs and other development agencies to ensure that their own policies and projects are aligned with global and regional environmental agreements, and they must consider the interactions between their development policies and predictable, physical environmental consequences of development decisions.[226] Global warming threatens to have significant impacts on agriculture and on coastline land-use patterns. Decreasing stratospheric ozone and increased acid rain have adverse consequences for both health and the environment. Degradation of forests, wetlands and commercially viable fisheries are already causing ecosystem collapse at a number of sites and economic losses whose repercussions will long be felt at the local, national, regional and global levels.

Development strategies that do not address these new environmental realities undercut sustainability. There is a huge potential for a portfolio of "mainstream" development projects, going well beyond the small GEF fund, that would be oriented toward assisting borrowing countries to comply with the Montreal Protocol on ozone depletion,[227] the Climate Change[228] and Biodiversity Conventions, the Basel Convention on hazardous wastes and a host of other global environmental and conservation agreements.[229] For example, until recently, the World Bank's strategy for the transportation sector has been to promote highways and auto use rather than mass transit, despite the associated social and environmental costs. The Bank is reconsidering the role of mass transit and rail in its portfolio, as well as other alternatives. In March 1994, it agreed to assist Lima, Peru in an innovative pilot program to promote greater bicycle usage in the crowded city.

BOX 23

Bicycles in Lima



SOUTH AMERICA PERU

As in many congested cities, the people of Lima, Peru face worsening traffic and increasing air and noise pollution. In March 1994, the World Bank approved a $150 million loan to improve Peru's transportation infrastructure, $3 million of which will be used for an innovative pilot program to promote greater bicycle usage in the capital city. The bicycle project involves construction of 51 kilometers of dedicated bicycle ways, and reconditioning of existing service roads to create 35 kilometers of bicycle lanes in the Lima-Callao industrial zone; establishment of a credit program to assist the poor in buying low-cost bicycles; provision of antitheft parking areas; and support for educational campaigns.

Currently, only 2% of workers in the pilot area bike to work. However, the potential for increasing this number is great because so many lower-income people are spending such a high percentage of their wages on transportation. It is estimated that of Lima's 6.5 million people, 63% are under 30 years old, and most are poor and deterred from using bicycles by cost and safety. By lowering the cost of bicycles (which are now an average of $150), and providing separate lanes for safety from dangerous traffic, the project will encourage use of bicycles as a fast, inexpensive and environmentally-sound way to get to work for more than 70% of the workers. Existing public transportation is inadequate and likely to remain that way for a long time, since new bus fleets or subway networks are prohibitively expensive. A socio-economic survey conducted during project preparation showed that 88% of the young workers would be willing to use a bicycle for commuting to work if safe routes and affordable vehicles were available.

The project's credit plan will allow people to borrow up to $100 for a bicycle, and many employers have agreed to oversee automatic salary deductions to ensure repayment. For most bicyclists, the monthly payments on the loan will average less than half their monthly bus expenses, and will be paid off in a year. Additionally, the Bank is trying to convince bicycle manufacturers to introduce lower-cost models. If the program succeeds, it is scheduled to be adapted to other suitable areas of Peru. Meanwhile, Peru is using the remainder of the loan to rehabilitate roads, to privatize and rehabilitate railways, and to rehabilitate the runways at Lima International Airport.[230]

Resources for Women and Family Planning

Any development success is destined to be temporary unless it is undertaken as part of a coherent program of health care, family planning, education and economic forms of assistance for women. Following the failures of early family planning efforts in the 1960s and 1970s, many governments and researchers argued that fertility would fall only as a consequence of successful social and economic development. Although the fundamental importance of this process is beyond question, recent

BOX 24

PROFAMILIA in Colombia



COLOMBIA

In 1965, Colombia's birth rate was one of the highest in the world, leading to a total fertility rate of 6.6 births per woman and a population of 18 million. In recognition that without policy measures and education the nation's population would rise to over 56 million in the year 2000, the Colombian president became the first Latin American leader to sign a United Nations declaration on population. With the support of the government, PROFAMILIA (Colombian Family Welfare Association) was founded in 1965 to provide family planning and health services to all Colombians. Since its inception, the population growth rate has been cut in half (to 2% in 1992) and approximately 4 to 5 million unwanted pregnancies have been avoided. By 1993, 65% of couples of reproductive age were practicing family planning and the total fertility rate was just 2.9 births per woman.

In honor of its groundbreaking efforts, PROFAMILIA received the United Nations Population Award in 1988 for:

- Its innovation in radio promotion, voluntary sterilization services for men and women, community-based distribution of contraceptives, and a social marketing program;
- Achieving comprehensive rural and urban coverage, with 4,000 posts serving 75% of the population, and 12,000 distribution points, which include pharmacies and supermarkets;
- The inexpensive price of condoms and other con-



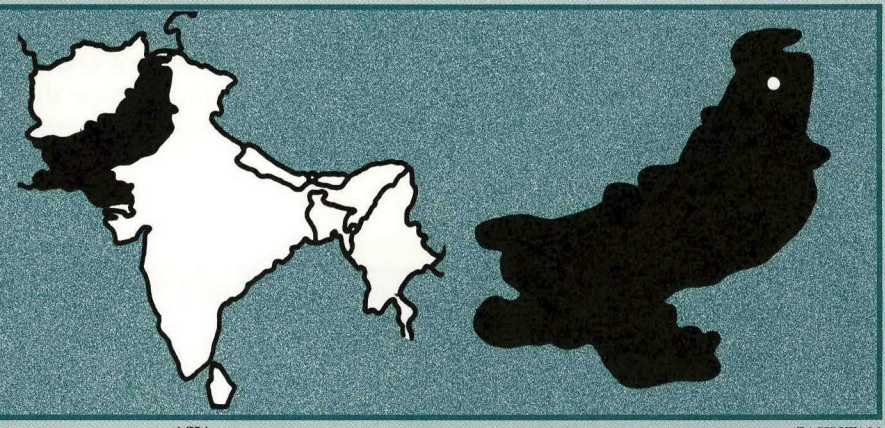
A. Isaza

PROFAMILIA has earned a successful record by combining reproductive health care, child nutrition programs and voluntary family planning.

traceptives, with the annual cost of family planning protection per couple kept to around five dollars;
- Setting up 8 clinics exclusively for men, with comprehensive educational materials and surgical procedures provided;
- Establishing teenage centers, where boys and girls 13 to 19 years old are provided personalized information on reproductive health and are trained to serve as promoters in their schools and communities; and
- Providing legal services to help deal with discrimination, domestic violence and child support.[232]

BOX 25

Pakistan's Male Involvement Project



ASIA PAKISTAN

In Pakistan, it was found that 43% of husbands disapproved of family planning, while an even larger percentage were perceived by their wives to disapprove; and that husbands were the dominant decision-makers in the families. These factors played a part in the high total fertility rate of Pakistan (6.6 births per woman in 1985). As a result, an innovative initiative, the Family Planning with Male Involvement Project, was implemented in 1988 in the culturally conservative town of Mardan (population: 270,000). By using male fieldworkers to target husbands with information and services, the project is breaking down the myth of male resistance to family planning.

At the end of the first quarter, 13,000 condoms were distributed, a number which far exceeded the intended target for the entire year. In the second phase of the project, Female Community Educators were added to target the wives. By 1993, only five years into the project, 28,122 "couple years" of protection (a standard measure for contraceptive use) were provided and more than 1,200 men and women had been referred for voluntary surgical contraception. The project features:

- Promotion of male and female participation and a wide range of family planning methods;
- Implementation of the men's program by an established all-male organization, the Urban Community Development Council;
- Diverse Council membership, including political and religious leaders, teachers, social workers, merchants and farmers;
- Incorporation of the Islamic point of view on family planning;
- Close contact between managers and fieldworkers; and
- Community education programs, whereby 200 Community Educators (male and female) form 40 working teams to provide information, distribute contraceptives and make referrals.[233]

Although Pakistan's overall poor record on family planning is not comparable to the progress made in countries such as Bangladesh and Indonesia, this project is an example of one way forward. Its relatively small scale, however, means it will not affect national fertility figures unless there are national policy changes that incorporate the lessons learned in this project.

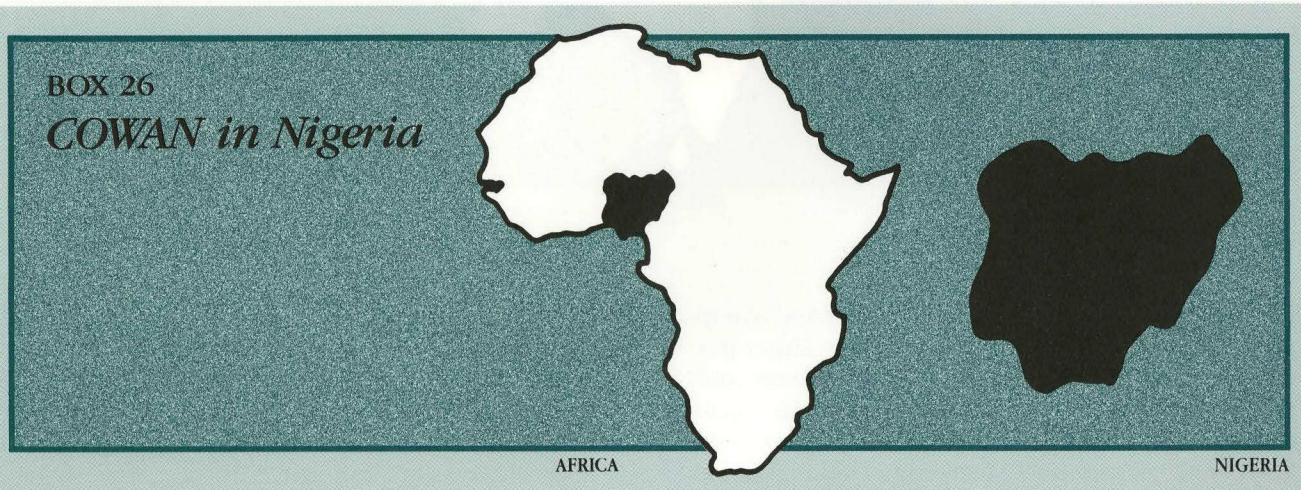
progress indicates that with support from governments and religious groups and with greater cooperation between public and private sectors, family planning, combined with programs focusing on health, literacy and access to economic opportunities for women, can significantly reduce family size. Contributing to their success is the understanding that family planning is not a woman's issue only, but rather a matter of responsibility on the part of both men and women.

Given the latest projections for an increase in the human population by the year 2025 to about 8.5 billion people, every effort needs to be made to slow the rate of increase.[231] According to the United Nations Population Fund (UNFPA), the fastest growth is occurring in Africa, at 2.9% per year. Issued on the eve of the U.N. Conference on Population and Development in Cairo, UNFPA's 1994 Annual Report concluded that enabling women to control their fertility is the key to sustainable economic development; and the prerequisite for that is to improve the overall status of women by promoting their education and providing a wide range of health services.

While family planning and health care services for women certainly aid in improving women's living standards, they by no means define the whole breadth of what are called women-in-development (WID) programs. WID encompasses all programs which seek to improve the socio-economic conditions and political power of women, provide equitable access to resources and promote the inclusion of women in policy planning and implementation. Historically, women have been left

BOX 26

COWAN in Nigeria



The Country Women's Association of Nigeria (COWAN) is an NGO that works to advance the position of rural women in agriculture, food processing, crafts, marketing and homemaking. The organization began in 1982 and has grown to include over 600 COWAN cooperative societies, with a membership of over 18,000 poor families.

COWAN empowers women to work in food production and other kinds of economic development in several regions of Nigeria. To achieve this, COWAN works to raise awareness of women's roles, and provides financial credit and access to modern technology, health care and family-planning services. Credit is used to establish small farms and food processing businesses and finance community development projects. The credit system is based on traditional structures of group saving and lending in Yoruba society, thus reflecting and incorporating cultural patterns and values. COWAN also makes small-scale rural technology available to women, who normally do not have access to it because of high cost and lack of spare parts. COWAN works with women to assess their plans and needs; meets with local machine fabricators to discuss future needs; and provides training workshops to rural women about tool use and maintenance. Throughout the process, the women decide their own needs, and begin to control their own means of production.

Integrated health and family planning services are also provided by COWAN. A system of revolving credit loans for payment of doctors' fees helps ensure that women receive medical care. COWAN also provides volunteer nurses and traditional birth attendants with information about basic nutrition, exercise and proper work schedules for pregnant women; conducts monthly nutrition classes for pregnant and nursing mothers; and trains elderly rural women as providers of contraceptives and information about their proper use.[237]

out of most development projects because they were neither land holders nor formal economic decisionmakers. The importance of women's work was overlooked and undervalued. This narrow perspective left out the important role women play in the management of families and natural resources, particularly in Africa, where most agriculture, and wood and water collection is done by women.[234]

Traditional inequalities have been reinforced over the years by the conventional approach to development assistance. There are inequalities in wages, job training and educational opportunities; in access to land, credit, extension services and political power; and in the control of finances and decision-making. In all of these areas, however, women now appear to be gaining. There are ever-increasing numbers of women in wage-labor; they are becoming managers, technicians and professionals; and they are establishing businesses and moving into the formal economic sector. In addition, they are political leaders, and are gaining respect as income-earners and heads of households.

Despite these advances, there are still significant gaps between men and women, between urban and rural women, and between richer and poorer women. Providing a more equitable distribution of and access to resources, breaking down socio-economic and political constraints, abolishing "glass ceilings" and, in general, empowering women will help close these gaps. To accomplish this, development planners must acknowledge women as an important economic force, and assistance must be tailored to this reality. Women need to be fully involved in the development, implementation and evaluation of programs that affect their livelihoods and environments.

Solving the prevailing problems of poverty and access to resources, in concert with providing family planning and health care services, will allow people to make different choices about their family size. In particular, it will curb women's dependence on men and reduce their feeling of powerlessness.

However, barriers still hinder their participation, especially at such influential organizations as the World Bank and the IMF. Perhaps one of the reasons why many development projects have been gender biased is the absence of women at the policy-making level, and their relatively low numbers in project development and implementation positions. Historically it has been difficult for women to gain access to such posts where they could apply their knowledge to policy making. According to a UN analysis, women are rarely found in high positions in finance ministries, central banks or foreign trade departments, and are grossly under-represented in economic decision-making.[235] Very few women serve as Executive Directors or in other top level positions at the World Bank, the regional MDBs or the IMF.

Due to the lack of access to high-level positions, women have been climbing a long ladder, originating at the grassroots, to get to the top.[236] In Nigeria, the Country Women's Association has been on this journey since 1982 (See Box 26). In other parts of Africa, the OILS project has had some success in improving the position of women (See Box 20). In the Dominican Republic, the Enersol solar-based rural electrification project is incorporating women in every stage of implementation, from project planning to system installation (See Box 17), and is catching the eye of the Asia Alternative Energy Unit (ASTER) of the World Bank.

Encouraging Public Participation

Until recently, MDBs, bilateral agencies and national governments often ignored the best sources of information as they designed and implemented both rural and urban development projects: local people, the affected communities and concerned NGOs. It is now generally understood that projects not tailored to fit both the needs of the people involved and the constraints of the local environment have little chance of success. Those implemented without grassroots support may achieve short-term goals, but fail in the long run. Although effective public participation may not guarantee success, it is one of the most important factors.[238] As noted above, (see pp. 9-10) the MDBs have lately recognized the importance of public participation, and are embarking on some promising new initiatives.[239] The World Bank's Participatory Development Learning Group analyzed a number of recent case studies where participation has proved to be valuable; this helped convince the Board of Executive Directors recently to approve a Participation Action Plan. In 1995, the operations departments of the Bank are preparing action plans tailored to each region, which will challenge staff to include the participation of local people as "standard operating procedure" in Bank lending.

The projects that are most likely to be sustainable are those that have involved local residents from the outset and that have fostered the establishment of grassroots support. Public participation is a theme that permeates all of the case studies in this portfolio. For example, the effort of the Kuna people to protect the Comarca has been largely a grassroots project from its beginning (Box 9); in the Guinope rural development project in Honduras (Box 19), grassroots organizations, formed as part of the extension process, are ensuring that project achievements are not lost when funding ends. Similarly, the Peace Corps in Zaire developed an effective program for tilapia aquaculture that fostered the formation of local groups of fish farmers. These groups assumed the role of the extension workers when the Peace Corps volunteers left.

BOX 27

Participation Experience at the World Bank

- Since 1982 the Bank has supported a participatory project of the National Irrigation Administration in the Philippines that involves handing over operation and maintenance responsibility to community-level irrigation associations, originally proposed by these local entities. The Bank has found impressive results in increased yields, decreased costs, and more widespread and sustained benefits.
- In Mexico the Bank is funding Municipal Solidarity Funds in four states with the aim to increase the capacity of municipal governments to respond to local development needs. After each community



World Bank

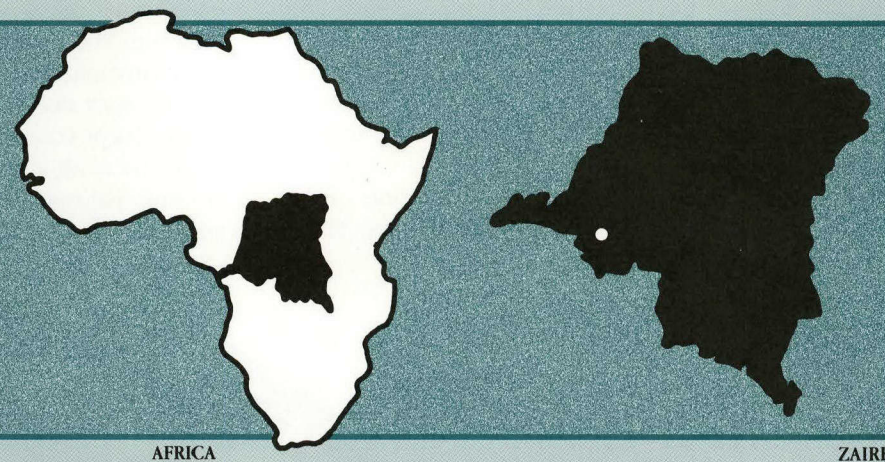
New World Bank President James Wolfensohn has pledged greater Bank efforts to meet directly with citizens groups and people affected by projects. Here he is practicing what he preaches on a 1995 trip to Uganda.

identifies priority projects, a solidarity committee is formed to manage the work. One goal is to "benefit the largest number of least favored residents" and give priority to basic needs such as water supply, sanitation, education and electrification.

- Identification and design of the Matruh Natural Resource Management project in Egypt was done in collaboration with Bedouin communities, university researchers, and representatives of both central and local government. Community groups were formed, representing sub-tribes, with each preparing and monitoring implementation of a Community Action Plan.
- The Women's Enterprise Management Training Outreach Program (WEMTOP) of the Bank's Economic Development Institute (EDI) has a pilot phase in India which aims to enhance the income and self-reliance of landless women by training intermediary NGOs to deliver follow-up services. NGOs with experience in micro-enterprise participated actively in the design of the program. This grassroots approach is a departure from usual EDI practice and the staff are learning many lessons about innovative mechanisms that reach disadvantaged women.[240]

BOX 28

Zaire Fish Culture Project



Between 1975 and 1991 over 20,000 Zairian farmers learned modern techniques for raising a plankton feeding fish known as the Nile tilapia (*Oreochromis niloticus*). More than 300 Peace Corps volunteers participated in this development effort dubbed "The Family Fish Culture Project" which was designed to increase badly-needed food supplies and to provide a means of generating income in rural areas of Zaire where fish culture was technically feasible.[241]

The most important underlying goal of this 16-year project was to support, with locally available resources, independent fish farmers who were capable of both managing their own fish farming operations and solving marketing and related problems. It was apparent to project developers from the beginning that the farmers would receive little or no assistance from the Zairian Government, so the message that extension workers delivered was that self-reliance was the only road to successful fish farming.

The methodology used to achieve this goal was known as the "six-year model," which involved a succession of three Peace Corps volunteer assignments for two years each, totaling six years of village-based extension services for each particular post. Each volunteer had responsibility for a specific set of activities and objectives that would bring the farmers up to a certain level of proficiency in two years, finally achieving "autonomy" after the third volunteer closed the post. For example, during the first two years after opening a new post, a volunteer would concentrate primarily on fundamentals such as site selection and pond construction. The second volunteer, during years three and four, would introduce more complex subjects and teach the farmers biological concepts such as carrying capacity and fish nutrition, and also some economics, all within a local context. During years five and six, the more advanced farmers would be managing multiple pond systems. Thus, the type of extension activities would be focused on economics, marketing, integrating fish farming with other agricultural activities, and instilling a sense of leadership among the advanced farmers so they would have the

skills to assist the less advanced. Throughout the six years, the farmers had several opportunities to participate in training activities.

During the 1980s, Peace Corps volunteers and USAID staff made special efforts to train a small cadre of Zairian extension agents who would manage regional training centers and conduct training in the villages. Because it was unrealistic to expect these agents to replace each and every volunteer, they were trained to manage activities at the regional level. Over the years, as their extension and technical skills improved, this uniquely dedicated group of people made valuable contributions to the project and they deserve much of the credit for its success. The Zairian staff of the Family Fish Culture Project continued to maintain contact with the farmers as the posts became autonomous, through correspondence and attendance at fish farmer meetings on a quarterly or semi-annual basis. Unlike most public servants in the country, these extension agents were greeted warmly by farmers and their visits to villages were greatly appreciated.

The issue of sustainability is always one of the greatest concerns of any development worker. There are many examples of development projects that failed because the new activities ceased once the expatriate project managers left the country. This phenomenon was tested in the case of the Zaire Family Fish Culture Project, in the Bandundu Region. Because of its long and consistent history of fish culture, this region had succeeded in establishing, by the late eighties, a large number of autonomous posts, i.e. posts no longer run by expatriate personnel. It was understood that fish culture activities at these posts continued, but there was no established system to monitor them. To address this issue and to evaluate the degree of sustainability at these independent centers, project managers decided to make a special effort to study the autonomous posts. As part of this new effort, extension agents tried to understand what made a farmer continue or abandon fish farming. The agents did not rely solely on farmers for this information, but witnessed harvests and conducted spot visits to farmers' ponds on short notice. Peace Corps volunteer leaders also participated in the effort to evaluate the autonomous posts, generally finding that many farmers were advancing their techniques and expanding their operations. However they



H. Rea

Aquaculture can produce greater economic return per hectare, on a sustainable basis, than slash and burn agriculture.

also found that in some cases the farmer's work had regressed.

This endeavor to understand the development of the autonomous posts led to a promising new Peace Corps project known as the Integrated Agriculture Project. It was designed to teach advanced fish farmers at autonomous posts to integrate their livestock and crop farming activities with their fish ponds, allowing a more efficient means of on-farm recycling of nutrients. Activities focused on vegetable gardening, small livestock and poultry production, field crops, tree planting and fruit production. This new intensive agricultural system offered an excellent alternative to the common slash and burn practice further enhanced fish culture productivity.

The Fish Culture Project's long history and the budding new Integrated Agriculture Project came to an abrupt end in September 1991, at least officially, when military and civil unrest broke out in several major cities including Kinshasa, Zaire's capital. This resulted in the evacuation of nearly all foreigners including diplomats, development workers and business leaders. Even missionaries retreated from the country for several months. All Peace Corps volunteers left the country and have not returned as of 1995.

Little is known about events in the interior of the country for several years. Even during the best of times, communication with the interior was difficult. The Zairian currency became totally useless due to skyrocketing inflation, leaving a barter system as the only means of conducting business in much of the country. In spite of this adversity, it is believed that many of the farmers who participated for four to six years in the project are managing to support their families mainly from their fish culture operations. When the situation in Zaire improves, a case study of how the farmers of Bandundu Region have fared since 1991 would yield important lessons about sustainability.[242]

Local participation helps to ensure that projects address people's real needs and helps the successful ones become institutionalized. Many projects have floundered because they have tried to solve problems that were critical to the planners, but not in fact, to the local people. The Mananara-Nord Biosphere Reserve, for instance, succeeded because it asked the peasants to identify their needs, which were then incorporated into the project plan (See Box 10). Similarly, the Guinope rural development project meets farmers' needs for increased agricultural yields (See Box 19).

In the Peten region of Guatemala, USAID has helped fund a national NGO to carry out innovative village-level programs in sustainable agriculture and agroforestry.

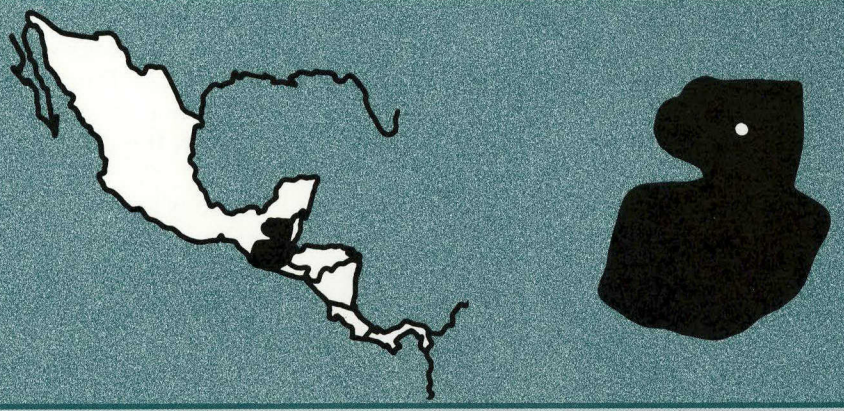
In Haiti, numerous efforts over several decades to control erosion fell short because they did not provide appropriate incentives, such as profit to farmers from contouring or tree planting. The Haiti Agroforestry Outreach Project ensured that these incentives were built into the project.

Another promising approach to social forestry has been developed over the past ten years by the Ford Foundation and non-governmental organizations in Indonesia. Like many other social forestry projects, the Java project encourages local participation in decision-making, building on each layer of success to tackle increasingly more difficult tasks. Although far from an unbridled success story, in part because of the difficult political constraints in the country, the Java Social Forestry Program has led to reduced hostility between farmers and the State Forest Corporation while achieving a number of concrete benefits. While we are not without reservations about the project's results, we are including it here not only because it illustrates some of the components that increase the likelihood of success, but also because it explains the frequent need for national level policy changes to establish a sound overall context for development.

The citizenry that should be involved in planning and carrying out development projects extends beyond the communities immediately affected. PVOs, NGOs, farmers' organizations, cooperatives, schools, universities and private entrepreneurs all constitute important sources of expertise and information that can be useful—and are often essential—during project planning, implementation and evaluation. For example, NGOs in a number of developing countries have established conservation data centers (CDCs) that identify and monitor the status of critical ecosystems. CDCs, by virtue of their proximity to the resources, knowledgeable staff and focused goals, are fast becoming some of the most authoritative sources of conservation information.

BOX 29

Proyecto Centro Maya



CENTRAL AMERICA

GUATEMALA

Proyecto Centro Maya is located in the Peten region of Guatemala, whose tropical forests contain a wide diversity of plant and animal life. In the Northern Peten the local residents extract chicle latex to make chewing gum, pepper and xate (an ornamental plant pronounced "shatay") without destroying the forest. At present, the Peten is losing more than 40,000 hectares per year, mostly to slash and burn cultivation.

This project has two main objectives: to improve living conditions of the local population; and to improve use and management of the soil and other natural resources so that agriculture and forestry are carried out on an economically and ecologically sustainable basis. Progress toward these goals has been achieved through a program of participatory farmer education taught by Centro Maya staff, which integrates the results found by research teams with the farmers' daily work routines.

Their bottom-up approach begins with a land capacity diagnosis to determine which production strategies would be most effective. The Centro Maya staff covers the entire spectrum of skills needed to maintain farms over the long term, including specialists in soil, local crops, livestock, forestry and the anthropology of the Mayan culture. With this holistic approach, agriculture, livestock and forestry projects are carried out in conjunction with ongoing education and outreach, so that individual farmers can turn to the Centro Maya support staff for answers to whatever sort of question they have. The relationship with Centro Maya has resulted in the farmers achieving greater diversification of crop production; reforestation of degraded land; and conservation of local biodiversity; all as part of what is termed a Land Use Management System (LUMS).

Centro Maya staff have recently been investigating the beneficial uses of velvet beans, a nitrogen-fixing plant that helps control weeds, thereby avoiding use of chemical fertilizers and herbicides, and also reducing labor. Velvet beans are a type of "green manure"; they protect the land from erosion, hold moisture in the ground, and add organic material to the soil.

Another current project is to research a symbiotic relationship between cattle and the forest. The goal is to determine which trees can be successfully grown in cattle-grazing areas. Developing a method for raising cattle which is less harmful to forests is crucial to the Peten, where slashing and burning of forests still is a primary method of clearing land for cattle grazing.[243]

Rather than establishing their own equivalent systems, donors and national governments should tap into these sources in their project planning.

Increased public participation is proving to be the best way to bring more information to bear on the planning process. If the most important hallmark of successful development were speed, regardless of the other results, then public involvement, with its greater up-front investment in preparation time, could be viewed as a hindrance or even a threat. But of course velocity of implementation is not the goal. And for longer-term development success, public participation is critical to solving the complex questions surrounding how to help people make a difference in their own lives. This is as true in urban as in rural areas, as the next section demonstrates.

BOX 30

Agroforestry Outreach in Haiti



CENTRAL AMERICA HAITI

Haiti, with a per capita gross national product of $278 and an average rural annual income of less than $100, is the poorest nation in the western hemisphere. Life expectancy is 54 years, and only one-quarter of the people are literate. Even with the 1986 overthrow of the Duvalier regime, and the first democratic elections, Haiti has not been able to emerge from the grips of a failed economy and a devastated environment. The turmoil of the overthrow and return of the Aristide administration, and particularly the U.S. led economic embargo, set back many development goals.

Many of Haiti's environmental problems can be traced to deforestation. In 1950, four-fifths of Haiti was forested. By the late 1980s, forests covered less than 8% of the country. Seventy-two percent of the energy demand in Haiti is supplied by fuelwood and charcoal. In 1985, a deficit of 3 million cubic meters existed between the estimated annual production and consumption of wood. Declining soil productivity and erosion have led to stagnation in agricultural productivity.

Most forestry and soil conservation projects have been unsuccessful for several reasons. For one, according to Haitian law, tree-owners must pay a 5¢ tax to the state before cutting a tree, and the proceeds are to be used to finance state nurseries to supply farmers with free seedlings. In practice, however, many forestry officers were collecting $1 to $5 a tree and the money never reached state-run nurseries. Thus, the seedlings did not materialize and farmers lacked incentives for reforestation.

In 1981, the U.S. Agency for International Development funded an $8 million Agroforestry Outreach Project (AOP) to promote trees as a cash crop. The project design grew directly from lessons of the limited successes and failures of 19 previous erosion control projects in Haiti. In general, peasants had been urged to plant trees or dig contour terraces on hillsides through direct payments or "food for work" programs, but the projects did not create an environment in which the trees or contours would be maintained.

AOP initiated a tree-growing program that was to be profitable for the peasants. Largely because of a lack of commitment by the Duvalier government, funds for the project were distributed to three private groups: CARE; the Pan American Development Foundation (PADF), which acted as an umbrella organization for more than 170 smaller Haitian and U.S. religious non-governmental organizations; and Operation Double Harvest (ODH), which was involved primarily in nursery production and tree-farming operations. One of the most innovative aspects of this project has been the use of PADF as an intermediary NGO to support the activities of a large number of smaller groups. This way AID is able to avoid the administrative costs of dealing with many small NGOs, while the small organizations avoid the bureaucratic requirements of AID's loan and grant regulations.

The PADF and CARE projects were implemented through local residents who received training in agroforestry extension. These extension agents gave farmers free seedlings and information on options for integrating trees into their farms. After planting, the agents followed up with visits to provide information about the care and management of the seedlings and trees. To stimulate demand, the extension agents pointed out the economic benefits of planting trees, and stressed that the farmers had complete control over what species to plant, where to plant them, and when to harvest. The tree harvest tax was still present, but the economic benefit of the trees exceeded

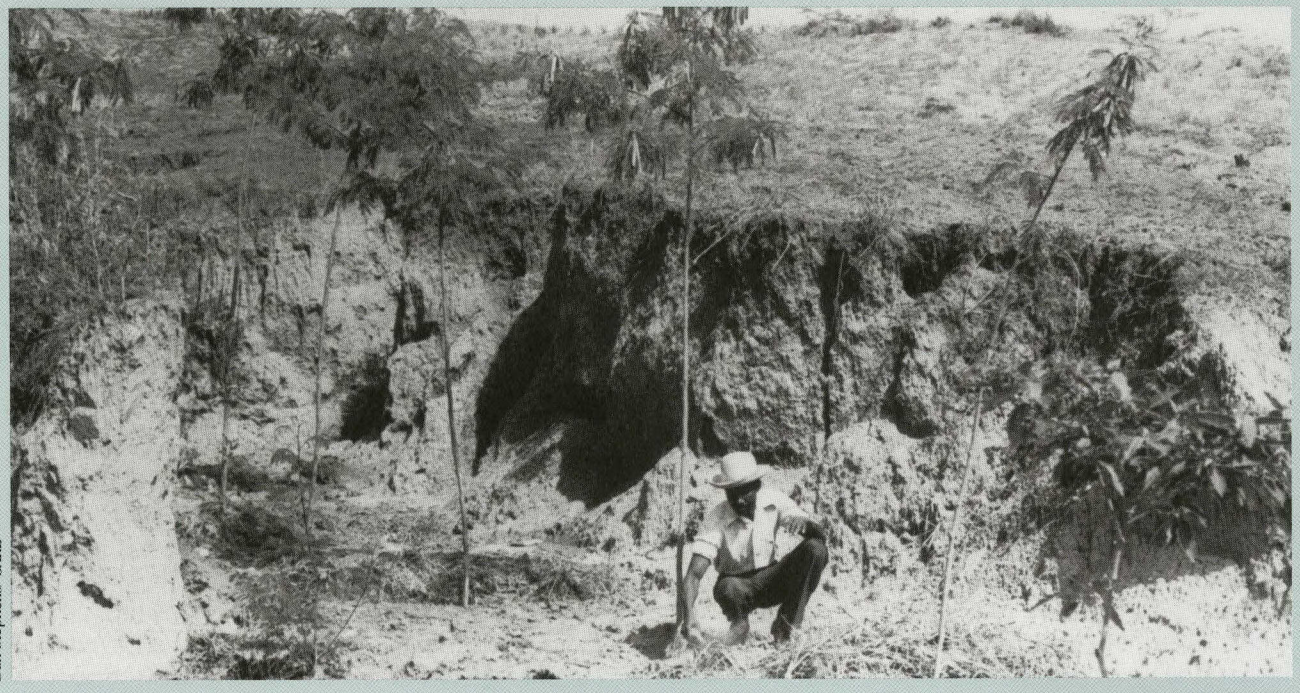
the tax, especially when the trees cost the farmers nothing.

Trees were produced in regional nurseries supported by CARE, PADF, and ODH. By 1986, 39 nurseries supported by CARE and PADF were in operation, producing more than 5 million seedlings per year; approximately 110,000 farmers had planted more than 25 million seedlings, with a survival rate of 50%. The combined rate of return for the CARE and PADF projects was almost 16% annually over a 20-year period. The cost per surviving tree was only 63¢ to 75¢, less than a quarter of the planner's original estimates.

The project proved to be flexible in response to needs for increased efficiency. Central nurseries have given way to smaller ones run by NGOs, and initial tree maintenance subsidy payments of 5¢ per tree per year for the first two years were quickly terminated when farmer response showed they were unnecessary. Tree species composition changed from the use of five exotics in the first year to the use of 40 varied species in 1986, including 19 indigenous species which account for 38% of PADF production. The composition was altered largely in response to farmers' preferences for familiar species and for trees that provided a mix of products rather than just fuelwood.

Tree planting has diversified farm production, increased farmers' incomes through the sale of wood and tree products, buffered them from droughts that can decimate annual crops, and allowed the sustainable use of marginal land. Soil erosion has been reduced and the fertility and moisture of the remaining soil has been increased. But while the project surpassed its planting goals and it possessed several features of ecological sustainability, its institutional sustainability still needed to be tested. Funds supporting seedling production from central nurseries ended in 1989. With the withdrawal of direct support for nursery production, CARE began subsidizing private tree production for sale on the market.

Findings showed that small-scale nurseries were primarily an economic activity undertaken by women, producing between 300 and 5,000 trees annually per site. In 1991, CARE found that even its subsidies for these private nurseries were not needed. As the support was phased out a large percentage of the small nurseries continued to operate, responding solely to public demand for trees. But in 1992 and 1993, political turmoil and the economic embargo destroyed much of the progress made over the past years. Project personnel were no longer able to visit the participants, as fuel for travel and donor funding shrank, and farmers were forced to cut and burn project trees to survive. It is hoped that renewed donor interest will enable the program to regain its former vigor, as the political situation settles and civil society functions once more.[244]



Dan Stephens/ CARE

Haiti is the most environmentally degraded country in the Caribbean. The erosion shown here underscores the urgency of reforestation.

BOX 31

Java Social Forestry Program



SOUTHEAST ASIA INDONESIA

In Indonesia, as elsewhere in Southeast Asia, forest resources have increasingly been used to generate export revenues and employment for a rapidly growing population. On the island of Java these demands are particularly acute. Recent low oil prices have increased the country's reliance on non-oil exports such as timber, and the island's population (over 100 million people) is growing at more than 2% per year.

The State Forestry Corporation (SFC), a semi-autonomous unit of the Ministry of Forestry, has the task of managing Java's 2 million hectares of production forest land. Most of this has been managed as plantations for teak, mahogany, pine or other species. There has been a high level of conflict between the SFC and local people, which occasionally has erupted into violence. Policing forest boundaries has not prevented people from entering state forests for food, fuelwood and fodder; nor has the practice of allowing farmers to plant annual crops for two years on recently reforested land provided sufficient incentive to be viable either for the farmers or for reforestation.

Beginning in 1984, Ford Foundation staff in Indonesia began working with SFC officials and representatives from other public and private agencies to discuss new forestry strategies. A workshop that brought together forestry officials, university scientists and Ford Foundation staff generated interest in a cooperative effort to find practical solutions through a phased program of research and pilot projects. The program proposed by the workshop was endorsed by the Forestry Ministry, which agreed to the creation of a national Social Forestry Working Group in late 1984. That Group's mandate was to explore ecologically and socially sound forest management practices. It commissioned 12 case studies of how the SFC might change its procedures to better meet the needs of poor farmers while ensuring the success of reforestation and minimizing conflict with villagers. Researchers lived in each of the 12 research sites in West and Central Java for about seven months, collecting data on forest exploitation patterns in each village.

In 1986, 13 social forestry pilot projects were begun under the direction of the Working Group, focusing on fostering village-level farmer organizations that could work with SFC officials in decisions about local forest management. The agroforestry systems employed were designed to generate greater and longer-lasting benefits for the farmers. For instance, commercial tree species were spaced more widely to allow more space for annual crops and additional harvests before the tree canopy closed. Farmers were encouraged to incorporate fruit, fuelwood, and fodder trees into the agroforestry systems on state forest lands. Equally important, the pilot projects were staffed by personnel specially trained in community organization by Yayasan Bina Swadaya (YBS), a prominent Indonesian NGO, which has helped to increase participation in decision-making by the farmers. For the past eight years, YBS has played a central role in the program, working with local communities.

The Ford Foundation carried out an evaluation of the project in late 1991, which recommended a number of important policy and program changes. These were accepted in principle by the SFC:

- To increase the participation of forest farmer organizations in planning and implementation, and to provide whatever additional training was needed in order to accomplish this;
- To shift program focus to meeting the needs of the

poorest members of the forest farmer organizations; and
- To develop agroforestry models that provide greater and longer-term benefits to farmers.

By 1993, however, it became apparent that these recommendations had not been fully put into practice. The partnership between the SFC, NGOs and research institutions needed strengthening and a more focused, site-specific field approach was necessary. Ford Foundation supported additional field staff presence by Yayasan Bina Swadaya, in each of Java's three provinces. YBS has developed partnerships with specific NGOs and local SFC staff in the three targeted areas. Plans are underway to work with forest-farmer groups in what will be a bottom up process, which emphasizes participation in project planning as well as in management of specific sites.

By the end of 1993, the Java Social Forestry Program included the participation of 4,279 farmer groups (93,607 households) covering 36,269 hectares of forest lands. Modification of the agroforestry design, inclusion of horticultural species and relaxation of prohibitions against certain cash crops have increased the volume and diversity of products available to farmers. In many areas, a better relationship between the SFC field staff and villagers has resulted in more cooperation in forest protection.

Yet along with these successes, there continue to be problems. Despite modifications of the standard plantation design, farmers are still not satisfied with their share of the benefits. This is especially true after the third year of rotation as the tree canopy closes. Efforts to find economically viable shade-tolerant species for farmers to cultivate have not been fully successful and the SFC has been unwilling to consider sharing a portion of timber harvests with participating farmers. Rapid expansion of the program has led to declines in the quality of implementation and has outpaced the process of developing adequate numbers of community-minded SFC field staff.

In 1993 the SFC determined that the Java Social Forestry Working Group, as structured, was not performing effectively, due to personnel changes in member institutions and a lack of initiative from within the SFC. A smaller, more focused management committee was constituted, which will visit the field sites several times a year and act as a bridge between field activities and national planning processes in Jakarta. Priority is being placed on assuring the participation of forest farmers in site management decisions such as primary timber species selection, tree spacing and timberstand management, as well as the choice of annual and perennial crops.

The Java Social Forestry Program has passed its tenth year, entering perhaps the most challenging phase, that of scaling up to cover more forest communities. Already well institutionalized and benefiting thousands of forest farmer households in its present form, the program is exploring fundamental changes in planning and administration.

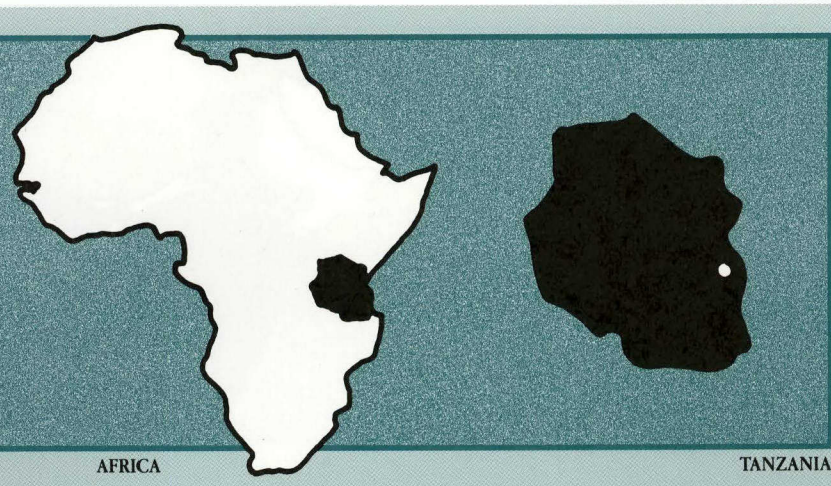
The Ford Foundation has provided more than $2 million to the SFC, Yayasan Bina Swadaya, Bogor Agricultural University and various consultants during the past ten years. It has facilitated the continuing development of the Social Forestry Working Group, which has played an important role in obtaining consensus on the new approaches. Although one should not claim this project as an unqualified success, nevertheless, given the difficult political and economic context in which it has had to operate, it has had positive impacts. As a result of the project, Indonesian NGOs and social science researchers have gained valuable access to the bureaucracy, have learned how it works and thus are better able to influence its decisions. SFC staff have come to appreciate both the constructive role that can be played by NGOs, and the possibility of a cooperative rather than law enforcement approach to resolving conflicts with communities. The Project's existence has opened up valuable political space for dialogue and consideration of different approaches, and it has had some demonstrably positive economic impacts on its participants.[245]

Innovative Urban Projects

Effective management systems play a key role in achieving sustainable development and protection of the urban environment. The rapid influx of urban dwellers is overwhelming existing city services and management plans, and draining financial resources, as well as destroying the environment. Two aspects of this rapid urbanization deserve notice. First, the degradation of the urban environment most severely impacts the poor, who are particularly vulnerable to deteriorating conditions. And second, one's level of wealth significantly correlates with one's perception of the nature of environmental problems: Richer urban communities may be most concerned about "conventional" air and water pollution; while poorer communities that lack basic sanitation are more concerned about the lack of drinking water and sewage services and the hazards of

BOX 32

Sustainable Urban Strategies in Dar-Es-Salaam



AFRICA TANZANIA

Dar-es-Salaam, the industrial, commercial and governmental center of Tanzania, is one of the fastest growing cities in sub-Saharan Africa. Its estimated population of 2.3 million grows at an annual rate of 8%. Despite the establishment of thousands of new enterprises each year, economic growth is severely inhibited due to deteriorating environmental conditions and the simultaneous breakdown of the city's infrastructure and institutional planning system.

With the population increasing so rapidly, the need for housing has far exceeded the city's ability to supply it. Three-quarters of all housing units have been erected illegally in areas that had been reserved for agricultural use, schools, clinics, etc. This unplanned sprawl has not been accompanied by extended service networks, leaving the new settlements without access to clean water, power or solid waste collection. Though 1,420 tons of solid waste are being generated daily, until recently, less than 3% was actually collected. The remaining waste has been either dumped in open spaces, causing flooding and groundwater pollution, or burned, releasing toxic gases and dioxins into the atmosphere. Congestion has grown within the new settlements, as well as on the roads and pathways, for along with the rise in population has come a rise in the number of vehicle owners. The slow pace of traffic is a major contributor to the increase in air pollution. Additionally, since less than 25% of the city's roads are paved, the dust stirred up by vehicular traffic increases respiratory disease.

Another urgent unmet need has been an adequate liquid waste removal and treatment system. The city's deteriorating 130 kilometers of sewers can service less than 5% of the population. Domestic and industrial wastes threaten off-shore fisheries, contaminate water supplies, and damage marine ecosystems.

In 1992, the UNDP, working in conjunction with the government of Tanzania, funded an environmental planning and management program to provide the necessary services for the growing city, and reduce exposure to environmental hazards.

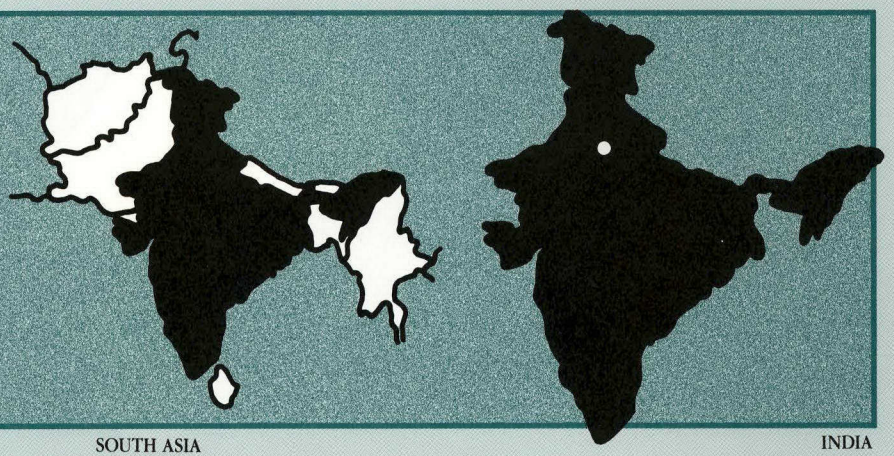
The first phase of the project involved a series of five workshops, each attended by the entire City Council and an average of 150 participants. At the workshops, the participants identified their main complaints and established a preliminary management system to be facilitated by Working Groups. People who were incorporated into the process gained a broad appreciation for the project, including both government officials and the public. The Working Groups have been moderately successful in mobilizing general public cooperation and resources. Waste collection has increased to about 15% of the amount generated daily and a new sanitary landfill is in operation.

A pilot project to support a community-based labor-intensive initiative to provide surface drainage has begun at the Hanna Nassif Settlement. Women comprise 60% of the Community Development Committee (CDC) that was elected to oversee the project. The CDC also established "Community Construction Contracting" procedures that are intended to maximize local employment and generate income for the region.

With each new phase of the development plan, the city is expanding its capacity to absorb the growing population and minister to its needs. The Working Groups provide environmental data, analyze the costs and benefits of alternative methods, facilitate capital investment and create institutional linkages. However, their most important impact must be neither overlooked nor undervalued: They help prepare the city and its management to be self-sustaining. By 1993, the government of Tanzania was gaining confidence that future environmental and natural resource crises in Dar-es-Salaam could be resolved; thus it was already preparing to replicate the program elsewhere.[249]

BOX 33

Tara Paper Unit



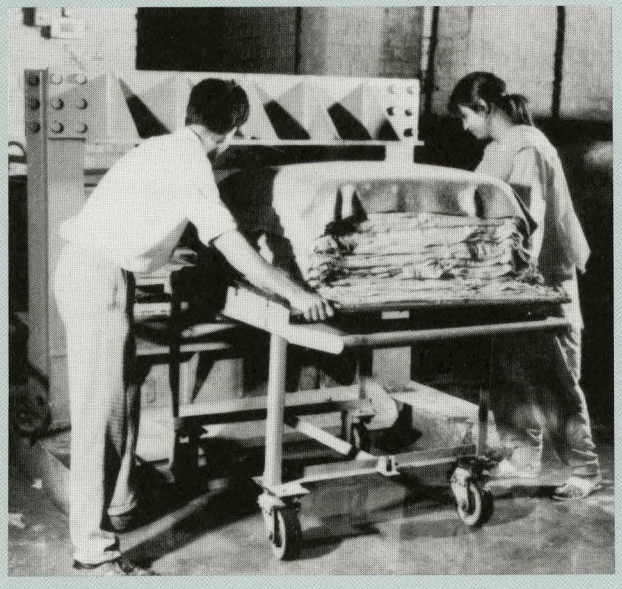
SOUTH ASIA

INDIA

The total production of handmade paper in India is 7,000 tons per year, valued at some US$2.5 million. Production capacity is four times this amount, but poor product quality from most units has led to a greatly reduced demand. The Society for Technology and Action for Rural Advancement (TARA) operates a paper factory which produces hand-made, recycled paper in South Delhi. The paper unit was set up in 1988 as a research center. Over the next three years, its product sales expanded rapidly and by 1991 it had become a commercially viable business. The Tara Unit now produces five tons of hand-made paper per month, working a single shift. Product quality is high and there is normally about a three-month backlog of orders.

The products range from writing paper and printing cardstock to paper for automotive filters and construction materials. Because of its high quality, TARA paper is used for printing books, periodicals, invitations and wedding cards, specialized stationary and by artists. Certain types of TARA paper can even be used in copying machines and laser printers.

The TARA Unit employs some forty people directly, thirty-five of whom are women from neighboring villages. Indirectly, TARA creates another forty jobs: "upstream," some fifteen workers collect and prepare the raw materials; "downstream," more than twenty people add value to the paper by converting it into various finished products.



Development Alternatives

A hydraulic press is used to squeeze out excess water from the sheets, improving the physical properties of the paper.



Development Alternatives

The wet paper is transferred onto a cloth/felt sheet, building up a stack of interleaved sheets.

TARA's original scientific, social and environmental objectives were to:

- Develop useful and marketable products from the cellulose wastes of industry and agriculture;
- Create sustainable livelihoods, particularly for women; and
- Minimize pollution and conserve water and energy.

It has largely accomplished all of these objectives. It uses cotton rags and paper collected by Delhi's rag pickers, agricultural residues such as wheat stalks and rice straw, and prolific weeds such as Sisbania. It uses no wood-based materials. Careful research has led to great savings in the use of water and energy in the plant. The effluent of the plant can be used directly for horticulture.

TARA plans to expand this unit and to establish similar paper facilities throughout the country as turnkey projects for entrepreneurs who want to make hand-made recycled paper. The unit now in operation requires about $60,000 in capital investment, 30,000 liters of water per day and 40 kilowatts of installed power. TARA calculated that an economically optimal unit would be roughly three times as large.

In comparison with a large scale paper mill, the TARA unit has many environmental, social and even economic advantages:

Cost of creating a job	= 1/10
Capital investment per kilogram of paper	= 1/3
Energy consumption per kilogram of paper	= 1/4
Water consumption per kilogram of paper	= 1/2

Hand-made, recycled paper is not necessarily inexpensive. Writing paper and thin cards can be made more economically by large mills, particularly since they get their raw materials at a highly subsidized price from government. Thicker cards and boards are, however, made more cheaply by hand.

The secret of TARA's success lies in the detailed scientific research carried out by its laboratory and in the pragmatic design of its technology. The TARA laboratory is now able to tailor-make virtually any kind of paper specified by a client. It is also developing new types of paper, using new raw materials, including wastes from industry and agriculture.

This project is demonstrating that the cycle of paper production, from biomass cultivation and waste collection to end-product use, can create jobs at low cost; reduce pollution at no cost at all; and help communities meet basic needs, through the additional purchasing power created. A special success of the TARA paper unit has been the establishment of mutually beneficial partnerships with industry for recovering and recycling wastes in a profitable manner.[250]

unsafe waste disposal. There is a multitude of pressing problems in the urban environment, including air, energy, health, housing, noise, sanitation, transportation, waste and water.[246]

Outdated, single-sector, planning and management policies are ineffective in solving these interrelated problems. Given the rapid growth of "mega-cities" in developing countries, there is an urgent need for development assistance to focus on the urban environment as a whole. One program specifically created to find sustainable solutions to the conflicts between urban population growth and environmental degradation is the Metropolitan Environmental Improvement Program (MEIP). Assisted by UNDP and executed by the World Bank, MEIP is coordinating city work programs in Beijing, Bombay, Colombo, Jakarta, Kathmandu and Metro Manila. Technical working groups are overseeing the strengthening of institutions to address the cross-sectoral nature of environmental issues, and the preparation and supervision of priority projects for investment.[247]

An environmental network formed by government agencies, environmental professionals, the private sector, NGOs, communities, academia and the public media is involved in MEIP-led planning and investment preparation. The cooperation stimulated by this program has reduced duplication of resources and activities. It allows the main efforts to be focused on achieving the goals of the projects. In particular, community environmental management systems, waste minimization and clean technology programs in industry can only result from cooperation. Demonstration projects in water resource recovery, public sanitation, community upgrading and greening are involving the population in environmental self-management. By linking these efforts to the overall management project, it is hoped that the pressures on municipal institutions will be lessened.

One further focus of MEIP's efforts is evaluation of investment results. Collaboration with the World Bank is producing feasibility and post-project studies for high priority environmental investments in solid, toxic and hazardous waste management. The World Bank will uti-

lize a similar scheme when examining future industrial pollution investment projects.[248]

A program funded by the UNDP in Dar-es-Salaam, Tanzania is expanding the capacity of the city to absorb the growing population and to administer needed services. Participants in community meetings gather to discuss and define problems in their own terms and to seek community-based, labor-intensive solutions. Through this process of broad participation, the understanding and cooperation that is needed to address environmental problems and to make informed decisions is established.

Another innovative program, the Tara Paper Unit in New Delhi, India, is an example of a small-scale, locally developed technology that meets urban employment and economic objectives in an environmentally sound manner.

Where steps are not taken to improve outdated planning and management systems, the environment and local residents can be placed in a precarious situation. This continues to be the case in Sao Paulo, Brazil where a major water supply reservoir is under threat from industrial pollution, deforestation, siltation and the rapidly increasing illegal settlements that crop up along the shore. The Billings Reservoir supplies water for 1.3 million people in the metropolitan area, but for years has been labeled the "black pit" of Sao Paulo. The Inter-American Development Bank (IDB) has committed $4 billion to clean up the river and water system, but until recently, lack of administrative infrastructure, adequate laws or enforcement on the part of local, state and federal officials, prevented projects from being completed.

In Sao Paulo, public pressure can be an important vehicle for reform. Scientists, lawyers, environmentalists and the press have campaigned for years to create the political will in the metropolitan government to protect their water source. Their campaign is appropriately called "Billings, I want You Alive!"

Flexible Methods of Implementation

It is the nature of large institutions to be inflexible. It is the nature of development projects to respond best to an open, adaptive, atmosphere which adjusts to local conditions and constraints. Herein lies one of the more pervasive controversies in the development field. In many cases, MDBs and bilateral aid agencies have undertaken projects on a scale that prevents adaptive response to local conditions. PVOs, that is, private charitable groups, generally undertake small projects that can be modified to match specific community needs.

BOX 34

National Environmental Funds

Speaking at the first "Global Forum on Environmental Funds" which convened in Santa Cruz, Bolivia from May 30th to June 2nd, 1994, the Bolivian Secretary of Planning, Alfonso Kreidler, stated: "Our indigenous people, farmers, and city dwellers understand their own problems and how to address them; that is why the government should evaluate the best mechanisms to channel money to solve problems of poverty, marginalization and destruction of the environment, and degradation of natural resources."

National Environmental Funds (NEFs) provide such an alternative mechanism, through which local solutions to environmental problems can be designed and funded. NEFs are in existence in over twenty countries.[251] In some cases, they are the only source of funding for local environmental activities. While all

are unique in structure and scope, they share several common traits:

- Each NEF is administered by a board of directors that represents a broad spectrum of sectors and interests in society.
- NEFs accept funds from a variety of sources, both public and private (to reduce undue political influence of any single source) and make grants to local beneficiaries according to the magnitude of the problem and the capacity of the applicant organization to address it.
- Every NEF tries to be transparent in its operations, by simplifying the grant application process, and reporting openly on its financial management and project evaluation process, and by employing small but multi-disciplinary staffs.

An important outcome of the meeting in Bolivia was the creation of a set of recommendations for NEFs already functioning and for those yet to be created. The plan includes recommendations on the following steps:[252]

- Fines owed to the government for environmental pollution and fees for use of natural resources could usefully be channeled into NEFs rather than to general state budgets.
- NEFs can serve as catalysts to involve the private sector in addressing environmental problems. They can also create and support forums through which democratic resolutions to environmental controversies can be debated.
- NEFs should take action to assure that affected local communities are involved in projects from beginning to end. This usually would include site visits and community meetings, and special arrangements for accommodating grant applications from rural community groups which may be less sophisticated in proposal preparation than urban-based groups.
- NEFs can assure donor confidence by avoiding bureaucracy and politicization, hiring respected asset management firms, and providing regular evidence of progress.[253]

TABLE 1. An Overview of National Environmental Funds

Country and Name of Fund	Funds Committed ($ millions)	Date of Commitment	Source of Funding	Governance
Bhutan				
Bhutan Trust for Environmental	10.0	1992	GEF	Gov/local
Conservation	1.0	1992	Dutch	NGO/WWF/UNDP
	1.0	1991	WWF	
	0.6	1992	Norway	
Total	**12.6**			
Philippines				
Foundation for the Philippine	25.4	1990	USAID debt swap	Gov/NGO
Environment		1991	Bank of Tokyo debt swap	NGO majority
		1992	USAID debt swap	
Jamaica				
Jamaica Parks Trust Fund	0.6	1991	AID & PR	Gov/NGO
			Cons'vn Trust, TNC	NGO majority
	0.1		Eagle Commercial Bank	
Total	**0.7**			
Colombia				
Ecofondo	46.0	12/92	EA1	Gov/NGO
	12.0	1993	Canada	NGO majority
	0.5		AID/IUCN/TNC/WWF	
Total	**58.5**			

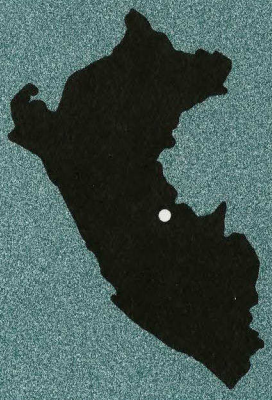
Source: Dillenbeck, Mark. "National Environmental Funds: A New Mechanism for Conservation Finance." In *Parks*, Vol. 14, No. 2, 1994, p. 45.

BOX 35

Central Selva



SOUTH AMERICA



PERU

The Central Selva project deserves to be considered a provisional success, in part because its current format is vastly superior to the initial concept. Moreover, even during implementation it has undergone significant changes to meet local development needs. It provides one of the relatively few examples of flexibility in large aid projects in response to unacceptable environmental and social impacts.

The project was originally proposed by Peru to the U.S. Agency for International Development (USAID) as a rural development project for the Palcazu Valley in the Central Selva region of the Peruvian Amazon. The emphasis was on routing a spur road from the Marginal Highway to open the forested valley to agricultural development. The proposed project largely ignored the fate of some 3,500 Yánesha indigenous



B. Simone

In the Yanesha project, timber is harvested in strips, which have widths comparable to clearings caused by natural treefall. Soil is protected, thus fostering forest regrowth.

people living in the lower valley. The Peruvian government projected that 100,000 settlers would colonize the valley.

The original project also ignored the tremendous biodiversity of the region. Tropical forests cover approximately 85% of the lower valley, while the 500,000 acre upper watershed supports at least 1,000 species of trees. Moreover, the initial design assumed that the lower valley would be suitable for agriculture. Instead, agricultural potential has been found to be negligible due to very high rainfall, steep terrain, and acidic, infertile soils that are highly susceptible to erosion.

Faced with strong opposition expressed by supporters of Indian rights, and after reviewing information from field assessments on the expected environmental impacts, and an independent classification of land-use capability, USAID partially revised the project concept. The new emphasis was on sustainable forestry, based on a forest management plan, and the five-year project began in 1982. (While the project funding was approved for extension in 1987 for an additional three years, it was terminated in 1988, due to the deteriorating political situation in Peru. Nevertheless, the project continued without official financial support.)

By 1987, USAID had recognized that the valley could not support extensive agriculture, but they still retained a significant component of high- and medium-input farming from the initial project design. As evidence of the fragile nature of the lands in the Palcazu mounted, the project staff in Peru deemphasized the agricultural aspects except to support low-input farming technologies within existing communities. The staff then focused the project on the establishment of sustainable forestry practices. Because of the novel nature of the project, it is now most appropriately viewed as a pilot for research and development of ways to use the high jungle sustainably. The methods developed could prove useful throughout South America, particularly in the Amazon.

A key feature of the reformulated project was the commercial testing of "strip-cut" technology for harvesting tropical timber. The strip-cuts simulate the natural gap process of forest regeneration. Each strip-cut is 30-40 meters wide, about the size of a forest clearing formed by natural treefall. Length is determined by logistics and topography, ranging from 100 to 400 meters. This ecological forest management system requires that sequential strips not be cut next to each other, but rather 3-5 strips are skipped in a cutting sequence. The effect of this approach is to maintain forest structure in the wide spaces between the sequential strip-cuts.

Detailed annual monitoring of forest regeneration on strip-cuts indicates that this method promotes excellent natural regrowth of hundreds of native tree species. Though most of the tree regeneration is from seeds, about 15% of the tree species sprout from stumps. The timely use of silvicultural treatments to favor particular trees and maintain vigorous growth rates suggests that the projected 40-year rotation of strip-cuts should be attainable.

The Yánesha Forestry Cooperative was established in 1986 to coordinate production forestry among the separate native communities and to run a centralized wood processing facility. The cooperative is comprised entirely of Yánesha members, who manage the designated production forests, harvest the timber on strip-cuts, process the timber for sawn wood, preserved poles or charcoal, and market the forest products locally, nationally and internationally. In addition to the significant economic benefits of local control over processing and marketing, the cooperative has played an important role in a revival of the Yánesha communities' commitment to maintaining their cultural heritage.

The strip-cut technique of forest management appears to be a robust and ecologically sound model for the sustainable production of timber from species-rich tropical forests. One of the serious constraints to wider applicability of the Palcazú model is finding processing techniques and markets for smaller dimension trees, such as posts and poles. So far, the Peruvian government has respected the integrity of the Yánesha native communities against pressures from extractive loggers and agricultural colonists. The fact that the Yánesha Forestry Cooperative has survived political turmoil, and the lack of major external aid during several years, is a tribute to the resiliency and commitment of the Yánesha people.

The complementary creation of the Yáneshanachaga-Chemillén National Park (1,230 square kilometers), two land protection zones (San Matiás and San Carlos ranges), and a Communal Forest Reserve that forms a buffer between the national park and the Yánesha native communities, has been essential to the conservation of biodiversity over a 3,500 meter elevational gradient in the Palcazú watershed. Maintenance of tropical forests in the lower valley through sustainable production of timber also helps conserve the remarkable biodiversity of the Central Selva.[254]

While several PVO projects, especially recent agroforestry efforts, have been strikingly successful, their small scale means the benefits reach relatively few people. On the other hand, while many MDB and bilateral aid projects potentially could improve the well-being of a more significant number of people, critics maintain that many of the projects have been notably less successful, and in some cases harmful.

The solution is not to simply channel all aid money through PVOs (although it is clear that a much greater percentage could usefully go through them). This is because many aspects of development, including the need for basic policy reforms, industrial sector development and construction of urban sanitation and water supplies, are beyond the scope of PVOs and local groups. On the other hand, in some areas, such as agroforestry, where community-based participation is a prerequisite for success, and micro-scale administration of projects is critical, PVOs have a comparative advantage.

This leads to the conclusion that both bilateral and multilateral institutions could make greater use of "onlending" (organizing large loans to financial intermediaries which make smaller loans to project "retailers"), and productively channel more funds through PVOs, local NGOs or farmers' cooperatives. There are many new ideas being put forward by NGOs and PVOs for programs that are adapted to their particular strengths. One of these is the initiative for creating national environmental funds.

Flexibility in implementation is not easy to build into large projects, because of financial and institutional inertia. But it is often essential for success. USAID's Haiti Agroforestry Outreach Project (Box 30) funded field studies of farming communities during the design stage and included a two-year applied research component during project implementation to promote adaptability. Even more difficult, USAID completely reoriented the goals of Peru's Central Selva project in mid-preparation, after flaws in the original concept were revealed. This project was transformed from a sure disaster into a pilot project that may guide development throughout Latin America.

Project design is best thought of as a continuum, extending from early planning and into implementation, periodically refining the original design based on extensive feedback from the beneficiaries, others affected by the project, and knowledgeable NGOs. The launching of small pilot projects can give the affected people and other project participants a sense of progress even though consultations and design work on the full-scale program may seem to be long and tedious. Such tests also permit early evaluation of the potential effectiveness of new technologies and extension methodologies.

Substantial time horizons should be built into certain kinds of projects which depend on long startup phases, such as agroforestry where it may take three or four years for species testing, nursery establishment and training programs for extensionists to mature. Full-scale field work may not even begin within the term of a typical five-year project. A series of pilot projects followed by phased implementation as the project is scaled up may be more appropriate.

Effective Extension

The very best technologies and management systems are useless unless they can be disseminated to those who can benefit from them. Successful extension meth-

BOX 36

Small Organic Farming in Chile



Unlike farmers in much of the developing world who inherited techniques of sustainable agriculture from their ancestors, many Chileans do not have an extensive knowledge of farming techniques suitable for small holdings. Indigenous cultures were largely displaced by settlers who, prior to land reform, occupied

large holdings and often used capital-intensive plantation systems. Small holders who finally obtained plots of land lacked knowledge of options for sustainable management, and the growing population of urban poor made little effort to use what land was available in the vicinity of the cities because of its low fertility.

Seeking to fill this information gap, the Centro de Educación y Tecnología (CET), a non-governmental organization, was founded in 1981 by four Chileans active in development programs. The goal of CET, which receives partial funding from the Inter-American Foundation, is to give impoverished farmers information about sustainable agriculture alternatives.

The project began with the establishment of an experimental farm close to Santiago. The farm demonstrates intensive family gardening techniques appropriate for subsistence use by both urban and rural poor, and it also yields techniques applicable to farmers with larger land holdings.

With the encouragement of CET and other Chilean non-governmental groups, professors and students from several universities established the Comisión de Investigación en Agricultura Alternativa (CIAL). The group developed an initial research program, primarily in organic agriculture, centered on agricultural techniques applicable to the specific social conditions faced by the small farmer. CIAL now is involved in some 75 research programs, and two universities near Santiago offer courses in alternative agriculture.

Three demonstration farms have been established and more than 10,000 people visit them annually. Farmers interested in learning the techniques of sustainable agriculture live at one of the farms for variable periods of time, to practice the techniques hands-on. After training, they act as extension agents in their own communities. Between 600 and 700 farmers, extension agents, and community leaders work briefly at the farms each year, and the methods are believed to reach some 3,000 additional farmers annually. Follow-up research in rural areas reveals that many farmers adopt and modify the CET design according to local practices and resources.

The farming design taught by CET is based on adapting cropping patterns and management techniques practiced locally. The farms feature highly diversified crops, including vegetables, fruits, and grains as well as animal husbandry. Nitrogen-fixing plants are encouraged in rotations and in association with other crops; manure is applied as fertilizer, and extensive composting provides a primary nutrient source.

CET and CIAL have developed crop rotation schemes that enhance soil fertility and that effectively deal with many insect pest problems. Under optimal conditions, four raised beds, each measuring 28 square meters, can produce a monthly vegetable harvest of 83 kilograms, providing a substantial gain in protein, vitamins A and C, and calcium for family subsistence. Even if the yields obtained by farmers are only half as good, these plots can provide a surplus of 4 to 12 kilograms per month over the subsistence needs of a family of five.

CET has placed equal emphasis on appropriate technologies, self-help efforts, and social organization. The program has fostered the development of grassroots associations of farmers. These organizations have also become active in community projects, including home construction, using designs promoted by CET based on locally available and inexpensive materials that are designed to withstand earthquakes. The project's success stems from its enhancement of local practices, its focus on adaptive use of several technologies rather than a single "best" technology, and its grassroots training efforts.[255]

odologies vary widely. The Oilseed project publishes the *Oil Press* as one way to get up-to date information to the participants (Box 20). The Guinope rural development project relied considerably on local Honduran farmers to provide hands-on training in neighbors' fields (Box 19). An organic farming project for smallholders in Chile brings farmers to central demonstration farms for training.

Technical methodologies like the Zairian fish culture (Box 28) or rice IPM projects (Box 8) may need outside experts as extension agents for as long as four to eight years, whereas the African OILS (Box 20), Guinope rural development (Box 19) and Chilean organic farming (above) projects rapidly train farmers as extension agents.

A View Toward The Future

The authors have no doubt that "sustainable development" as defined in this portfolio is an achievable goal. Appropriate policies, technologies and methodologies that form the basis of sound development are known, and, as shown in this report, creative approaches to achieve improvement in quality of life are being designed and implemented by local communities around the world. To conclude our study, we would like to challenge the international financial institutions and national governments to provide the support these initiatives need for broad replication. In order to facilitate this process, dramatic reform of policies and operations, of governments and international institutions alike, is of the utmost urgency. The increasing gap between rich and poor, and the rapidly changing global economy, require a thorough reevaluation of the roles of government and the international financial institutions in meeting development demand.

The economic gains from international development presently are being spread disproportionately. Although worldwide per capita income has more than tripled in the past fifty years, inequalities are growing. Between 1960 and 1991 the share of world income of the richest 20% of the world's people grew from 70% to 85%, while the shares for the other quintiles fell. The poorest 20% of the world's population declined from a 2.3% share of world income to only 1.4%.[256]

The amount of private capital moving to developing countries has surged in the last few years, increasing from $20 billion in 1986 to $180 billion in 1994. These huge private transactions dwarf the approximately $20 billion of World Bank annual lending. The private sector is taking over the funding of large scale projects, and is increasing its influence on the economic policies of many developing countries. This growth in private sector financing is challenging the current function of the MDBs, but it also provides an opportunity for these institutions to assume a dramatically different role—to develop and support sustainable development alternatives which are unlikely to be funded by private capital.

Investments in social sector development, and onlending to smaller scale development credit agencies, could become the primary role of the MDBs and could make them more effective in achieving their goal of alleviating poverty. But for any development assistance to be successful, it should be based on a clear understanding of how to develop management and technical capacity in the target countries to meet basic needs, rather than funnelling services and products from the consulting and manufacturing firms of the industrialized nations.[257]

In this book we have listed a number of basic precepts we believe underlie successful development: public participation, transparency and accountability; integration of full social and environmental costs into national income accounting as well as into project planning and evaluation; utilization of appropriate technologies, and local resources and skills whenever possible; and increasing the access of women to productive resources. Most of these are now generally agreed upon among all development agencies, but there is often a substantial gap between rhetoric and reality when it comes to programs on the ground. While it is always much more difficult to implement these precepts in the real world of power politics and corruption, against the competition of conventional development projects, the authors believe there can be little likelihood of success without them.

The MDBs are not yet adequately geared up to function as conduits or facilitators for sustainable development initiatives, but in the 1990s we have seen serious efforts on the part of these institutions to respond to the concerns of affected peoples and NGOs (see pages 4-5). Nevertheless, further progress is still needed, particularly to deal with the relentless "pressure to lend." Incentives which reward staff for insisting on compliance with public participation, consideration of alternatives, and other environmental and social procedures and loan conditions would make a big difference.

During the 1995 Economic Summit meeting in Halifax, the G-7 government leaders took some positive steps to enhance the MDBs' contribution to sustainable development. They urged the institutions to "make sustainable development a central goal of their policies and programs, to follow participatory strategies and support governmental reforms that assure transparency and public accountability, a stable rule of law, and an active civil society." They also expressed their intention to promote their reform proposals by working together with the wider international community in all appropriate organizations.

The projects and approaches profiled in this portfolio demonstrate the reality and variety of potential solutions, as well as some of the crucial components of success. While we believe we have identified a group of

successful projects, we have to acknowledge the risks inherent in labeling any project as "successful." None of the projects cited here can be considered an unqualified success, and in some cases, projects have been included that have been beset by a larger context of constraints, which thus far have not been overcome. The Java Social Forestry Project (box 31), the Brazil Extractive Reserve Initiative (Box 11) and the Haitian Agroforestry Outreach Project (Box 30) fall into this category. Yet these projects have, in fact, had substantial positive impacts both on the lives of people directly affected and on the larger social structures under which they presently operate. Even imperfect projects often contain seeds of hope.

This portfolio is intended to continue a dialogue, started years ago, with the MDBs and development assistance agencies about development objectives and the alternatives available for achieving them, as well as about ultimate constituencies and how best to enlist them in the development process. If any of the projects and concepts profiled here provide inspiration, that would be welcome.

Notes

1. Included in the term "MDBs" for the purposes of this book are the World Bank, Inter-American Development Bank, Asian Development Bank, African Development Bank and the European Bank for Reconstruction and Development. Although a number of other entities might be characterized as multilateral development banks, such as the European Investment Bank, the International Fund for Agricultural Development (IFAD) and the new North-American Development Bank (NADBANK), they are beyond the scope of this book. The term "international financial institution" would include the International Monetary Fund (IMF) and the Bank for International Settlements along with the MDBs. The term "Bretton Woods Institutions" refers to the World Bank and the IMF, which were founded at Bretton Woods, New Hampshire in 1944. Since a world trade organization was planned at the same Bretton Woods conference, the new WTO will probably also be included in this term in the future.

2. Scwartzman, 1986.

3. See, for example, *Making Development Sustainable*, The World Bank, 1994.

4. World Commission on Environment and Development, *Our Common Future*, 1987, p 43.

5. Daly, 1992.

6. Of course, these are not the only factors influencing the positive or negative progress of a development project. Many external factors have both direct and indirect impacts, which a particular project has to deal with. These include national fiscal and monetary policy; the international economic context; political instability and real or perceived political threats; political and commercial corruption; the structure of trade, production and the workforce; and religion and culture (as both positive vehicles and obstacles).

7. Each of these is described in more detail later in the book.

8. Sukhomajri Watershed Restoration (India), Sian Ka'an Biosphere Reserve (Mexico), Ladakh Rural Development (India), Central Visayas Regional Project (Philippines), and Family Planning (Zimbabwe). In evaluating both old and new case studies we used a matrix that includes the questions listed above.

9. For more information on critiques of MDBs' past performance and on new developments at the MDBs to promote citizen involvement and transparency, see Appendix.

10. Observers now agree that the aid figures discussed at the Earth Summit were unsubstantiated and unrealistically high, both in terms of the costs of fulfillment of Agenda 21 agreements and the likely contributions from aid donors. But at the time aid seemed to be an acceptable quid pro quo when industrialized countries were perceived to be asking the South to forego traditional, energy intensive development. Except for the Global Environment Facility, there has been little progress in meeting the financial commitments made in Rio. At one of the recent sessions of the UN Commission on Sustainable Development (CSD), "participants reiterated the need for increased efforts to implement all financial commitments made at UNCED, including the need to bring ODA levels in line with the 0.7% target, as reaffirmed in Agenda 21, as soon as possible." (See Chairman's Summary of the High Level Segment.) An Ad Hoc Working Group on Finance, established by the CSD, met in New York from February 28-March 4, 1994 to attempt to reach an agreement on ODA commitments; and see "Report of the Meeting on Financial Issues of Agenda 21," Commission on Sustainable Development, March 4, 1994. But these efforts were not successful. In the 1995 CSD meeting, the emphasis had switched from raising official development assistance to seeking out "innovative" sources of funds such as user fees on international airline tickets.

11. The Consortium for Action to Protect the Earth (CAPE), comprised of the Environmental Defense Fund, Friends of the Earth, National Wildlife Federation, Natural Resources Defense Council and the National Audubon Society, actively monitored all of the preparatory sessions for Rio and participated at the Earth Summit. Now called Earth Summit Watch, this consortium has organized Roundtable discussions at each annual session of the CSD on key issues; and has published a number of policy documents, including "Four in '94: Assessing National Actions to Implement Agenda 21," 1994. See generally, "In the Aftermath of the Earth Summit: Responsible Global Action for the 21st Century," Eine Welt (Foundation for Peace and Democracy), Bonn 1993; *The Journal of Environment and Development*, University of California, Summer 1992, a special issue on following up on the Earth Summit; J. Speth, "A Post-Rio Compact," *Foreign Policy*, Fall 1992, pp. 145-161; G. Serrano, "Pay Now, Not Later: Essays on Environment and Development," Philippine Rural Reconstruction Movement 1994, an illuminating series of essays that covers the Earth Summit, the collapse of socialism in Eastern Europe and the challenge of achieving sustainable development at the local level; "Voices From Africa: Sustainable Development," United Nations Non-Governmental Liaison Service (NGLS), 1994, which contains 13 articles by authors from a variety of backgrounds, each expressing his or her vision of the challenge of sustainable development from an African perspective.

12. The Philippines is the most notable example, but many of the national councils and commissions include NGOs. In the U.S., for example, one co-chairperson is from the World Resources Institute, the other from Dow Chemical Corporation; four other environmental organizations are members, as are representatives from a wide range of private sector constituencies. The Natural Resources Defense Council, the World Resources Institute and the Earth Council published a Directory of National Commissions on Sustainable Development, listing all of the national entities created as of May, 1994.

13. See *Partnerships in Practice*, the report of "Partnerships for Change," an international conference held in Manchester, UK in Sept. 1993, where local level sustainability efforts from all over the world were highlighted; the newsletter "Community Sustainability Exchange" is available for subscription from the Community Sustainability Resource Institute, P.O. Box 113, Takoma Park, MD 20913, USA, tel. 301-588-7227; see also, *Sustainable Cities—Concepts and Strategies for Eco-City Development* ed. by Lois Arkin, Richard Crenshaw and Bob Walter, Eco-Home Media, Los Angeles, CA. 1992.

14. This serves the new senior-level Interagency Committee on Sustainable Development. The core members of this body are UNEP, UNDP, FAO, UNESCO, WHO, WMO, ILO, IAEA and the World Bank. It reports to the Commission on Sustainable Development.

15. At the 1994 annual meeting of the Economic and Social Council (ECOSOC) U.N. Secretary General Boutrous Boutrous-Ghali presented this Agenda. The then-President of the World Bank and the Chairman of the International Monetary Fund also addressed the meeting and answered questions from ECOSOC members about their policies. A number of developing country representatives asked Lewis Preston (former World Bank President) and Michel Camdessus (Managing Director of the IMF) tough questions about the way in which structural adjustment is imposed on their countries. The Bank and the Fund have always maintained that they answer to their own boards of directors not to the U.N., but theoretically they are connected to the U.N. system. Both in the 1994 ECOSOC forum and at several meetings of the CSD, countries are beginning to ask for substantive annual reviews of the policies and performance of the Bretton Woods Institutions by the U.N.

16. Substantive discussions about how to deal with land-based sources of marine pollution, the collapse of key fisheries and straddling fish stocks are underway. And recently a special series of meetings produced development strategies for small island nations, which are especially vulnerable to the effects of global climate change.

17. Communique of the Heads of State and Government, G-7 Economic Summit, Halifax, Nova Scotia, June 17, 1995 (see especially paras. 26, 29); See also "Report of the Meeting on Financial Issues of Agenda 21," Kuala Lumpur, Malaysia, February 2-4, 1994, p. 4.

18. See "Multilateral Development: Status of World Bank Reforms," General Accounting Office, June 1994, which contains an analysis of World Bank institutional reforms, the U.S. role in the reform process, and how the U.S. evaluates World Bank loan proposals.

19. In practice there are sometimes arguments over how to classify a project, which determines how detailed the assessment must be. Also, some Bank staff resist the principle that alternatives to a proposal must be analyzed in sufficient detail for serious comparison with the original proposal. (See World Bank Operational Directive 4.01 on Environmental Assessment.) The environmental assessment procedures vary somewhat in each MDB, but the essential framework is similar.

20. Comparison of the annual reports of the MDBs over the last ten years indicates the large changes in goals and performance. Spending for population, health and nutrition increased from an average of $103 million during 1981-84 to $1,307 million during 1991-94. World Bank investments in education were $2,068 million in 1993. The World Bank's 1993 World Development Report focused on the health sector, and the Bank convened a Conference on Overcoming Global Hunger.

21. World Bank, *Economywide Policies and Environment*, p. 6.; World Bank, *Making Development Sustainable*, p. 4.

22. See Resolution 93-10 and Resolution IDA 93-6, which created an Independent Inspection Panel. This was an initiative proposed by NGOs, which gained the support of many donor countries during 1993 and was accepted by the Board of Executive Directors late in the year. Three Inspection Panel members were chosen and began work in September of 1994. Guidelines for preparing a complaint are available from the World Bank, through the Inspection Panel. NGOs have prepared "A Citizens' Guide to the World Bank Inspection Panel," which is available from the Bank Information Center in Washington, DC.

23. Among other limitations, the Board Resolution which created the Inspection Panel requires that a complaint filed with the Panel cannot be investigated until the Panel first goes to the Board of Executive Directors with a Recommendation to Investigate and receives approval. See Lori Udall's testimony before the House Subcommittee on International Development, Finance, Trade and Monetary Policy of the Committee on Banking, Finance and Urban Affairs, June 21, 1994. This testimony, presented on behalf of the International Rivers Network, Friends of the Earth, Bank Information Center, Environmental Defense Fund, Greenpeace and the Sierra Club, details the deficiencies in the New Appeals Mechanism. See also "Inspecting the Inspection Panel," *Bankcheck Quarterly*, No. 8, June 1994, p. 3.

24. See World Bank Press Release, "World Bank and Nepal to Develop Energy Alternatives to Arun Project," August 7, 1995. News Release no. 96/S008.

25. President Sato made this promise in his private meeting with NGOs at the 1994 ADB Annual Meeting held in Nice, France. A Working Paper on the "Establishment of an Inspection Function" was considered at the Board meeting on October 4, 1994, following up on this commitment.

26. As of August 1995, the independent experts have yet to be approved by the Board of the IDB. The Office of the Secretary is acting as the Secretariat for the Independent Investigation Mechanism. Ferdinand, C., Office of the Secretary, IDB, Washington, DC, personal communication, August 1995.

27. *The World Bank Policy on Disclosure of Information*, p. 3. Bank Procedure 17.50, Disclosure of Operational Information, was agreed to by the Board on August 26, 1993. It states that there "is a presumption in favor of disclosure in the absence of a compelling reason not to disclose." See "A Citizens' Guide to the World Bank's Information Policy," Bank Information Center, 1994, for a manual on how to use the new information policy.

28. Also, for a critical analysis, and a number of case studies of non-compliance with the revised Information Policy, see Lori Udall's testimony before the House Subcommittee on International Development, Finance, Trade and Monetary Policy of the Committee on Banking, Finance and Urban Affairs, June 21, 1994.

29. See Asian Development Bank's Policy Paper "Confidentiality and Disclosure of Information," adopted at ADB Board

meeting September 8, 1994. Information is generally available through ADB offices in the borrowing countries or via the Internet.

30. See Inter-American Development Bank's Policy on Disclosure of Information, September 28, 1994.

31. The Asian Development bank recognizes that development is not just about policies, technical assistance and institutional capacity building. It also acknowledges that economic growth alone is not a valid measure of sustainable and equitable development. Recently the Bank transformed its strategic objectives to incorporate these new ideas. The results are unique frameworks for social dimensions and environmental assessment. In 1993, the ADB published a "Guide of Incorporation of Social Dimensions in Bank Operations." It gives detailed information on incorporating social dimensions in macro and sector operations; project preparation and processing; and implementation and post-evaluation. Emphasizing the role of public participation in all aspects of development, the ADB sees the need for affected groups (both those who lose and gain), policy makers, and resource holders to cooperate. They give substantial weight to the involvement of local non-governmental organizations in order to effectively reach the grassroots. This policy is not yet fully implemented.

32. During the debate on resettlement held by the World Bank's Executive Directors on May 3, 1994, the Dutch and U.S. Directors called for the social assessment guidelines to be made official Bank policy. (See "Resettlement and Development," Statement of the U.S. Executive Director, May 3, 1994, p. 3.)

33. Following the model of the Wapenhans Report each of the MDBs has undertaken serious reviews of the quality of its portfolios. (See "Effective Implementation: Key to Development Impact," Willi Wapenhans, 1992). Wapenhans found that the rate of unsatisfactory projects funded by the World Bank had risen to 37.5% in 1992. In general these reviews revealed that the pressure to lend was overwhelming other factors, and that staff were rewarded for the volume of money lent rather than for ensuring compliance with environmental, social or other conditions, or development success. This was termed the "approval culture" at the ADB, whose new President promised, in a private meeting with NGOs at the 1994 Annual Meeting, to change staff incentives to reward development quality. (See "Report of the Task Force on Improving Project Quality," Gunther Shulz, 1994). World Bank President James Wolfensohn has likewise promised to make project quality a paramount objective for staff.

34. Fairman, 1993; Reed, 1991 and 1993. Also, see testimony of Donald Goldberg before the Subcommittee on International Development, Finance, Trade and Monetary Policy of the House Committee on Banking, Finance and Urban Affairs, April 14, 1994. See also the series of policy letters written by the Environmental Defense Fund and other partner groups, compiled by Korinna Horta, which are on file at Friends of the Earth. See also I. Bowles and G. Prickett, "Reframing the Green Window: An Analysis of the GEF Pilot Phase Approach to Biodiversity and Global Warming and Recommendations for the Operational Phase," Conservation International and the Natural Resources Defense Council, 1994; and Testimony of David Reed, World Wildlife Fund, before the Subcommittee on International Development, Finance, Trade and Monetary Policy of the Committee on Banking, Finance and Urban Affairs, April 14, 1994.

35. GEF Independent Evaluation Panel, 1993, p. 42.

36. Wolf and Reed, 1994.

37. This figure is derived from the annual reports of the WB, IDB, ADB and AfDB.

38. The U.S. Congress has strongly supported this initiative. For example, Public Law 102-511 enacted on October 24, 1992 contained the following directive: "Sec. 60. (a)(1) The United States Executive Director of the Fund shall use the voice and vote of the United States to urge the Fund, in consultation with the Bank, to continue to develop an economic methodology to measure the level of military spending by each developing country . . . (c) The United States Executive Director of the Fund shall use the voice and vote of the United States to urge the Fund . . . to include in every article IV consultation with a developing country an analysis of the level of military spending by the developing country in the immediately preceding calendar year. . . ." Note that the 1989 Report of the Schmidt Commission, *Facing One World*, called on the OECD countries to give special consideration to countries that emphasize poverty-reduction programs and spend less than 2% of their GNP on the military.

39. Also see "IMF to Lend Up to $17.8 billion to Mexico," in *IMF Survey*, February 6, 1995, p. 33; and "Drawing Lessons from the Mexican Crisis: The Role of the IMF," 25th Washington Conference of the Council of the Americas, Washington, May 1995.

40. Environmental and other citizens' organizations have voiced concern about GATT's failure to take into account environmental factors and have criticized the secrecy of many GATT panels and proceedings. These concerns have been carried forward to the newly created World Trade Organization. See, for example, the Testimony of Andrea Durbin, Friends of the Earth Trade Coordinator, before Subcommittee on Trade of the Committee on Ways and Means, "The Environmental Implications of the Final Agreement of the GATT," February 2, 1994; Testimony of Alex Hittle, Friends of the Earth International Coordinator, before the Subcommittee on Economic Policy, Trade and Environment of the Committee on Foreign Affairs, "The Environmental Implications of the Uruguay Round of GATT," March 8, 1994. See also the Testimony of Andrea Durbin before the House Ways and Means Subcommittee on Trade, on the North American Free Trade Agreement (NAFTA) and the Environmental Side Agreement, September 21, 1993; Testimony of Cam Duncan before the Committee on Foreign Relations, U.S. Senate, on NAFTA and Environmental Side Accord, 27 October 1993; Testimony of Barbara Dudley, Executive Director, Greenpeace US, before the Merchant Marine and Fisheries Committee, U.S. House of Representatives, on NAFTA and the Environmental side Accord, 10 November 1993; Testimony of Rodrigo Prudencio, Trade Specialist, National Wildlife Federation, before the Subcommittee on Trade of the House Ways and Means Committee and the Subcommittee on Rules and Organization of the House Rules Committee, on Extension of "Fast-Track" Negotiating Authority, May 11, 1995; Testimony of Lynn Greenwalt, Vice-President of the National Wildlife Federation, before the Subcommittee on International Trade of the Senate Finance Committee on Environmental Reforms of the Generalized System of Trade Preferences, June 20, 1994; Testimony of Jay Hair,

President of the National Wildlife Federation, before the Committee on Merchant Marine and Fisheries, on NAFTA and Environmental Concerns, November 10, 1993; Testimony of Stewart Hudson, International Trade Coordinator for the National Wildlife Federation, before the Subcommittee on International Trade of the Senate Finance Committee, September 16, 1992. Although environmental organizations disagreed about whether passage of NAFTA was a good idea, they did agree on the importance of including environmental concerns in trade regimes; improving the rules used to settle disputes; and enhancing the participation by citizens' organizations in the bodies created by the trade regimes.

41. Goldsmith, 1994; Daly, 1992; James Goldsmith argues that only elites in both the North and South will ultimately benefit from the new GATT and WTO; *The Ecologist* reported in November 1993 on a study by the OECD and World Bank that projected a decline in GDP of Sub-Saharan African countries of 0.2 and 0.5% as a result of GATT. See "Cakes and Caviar? The Dunkel Draft and Third World Agriculture," *The Ecologist*, Vol. 23, No. 6, November/December 1993, p. 220.

42. According to a story in *Trade Week* citing the UNECA Report, "Africa Seeks to Offset GATT's Impact," November 2, 1994, African trade ministers, officials from international organizations and representatives from the U.S., European Union, and Japan met in Tunis to discuss ways of offsetting GATT's adverse impact on Africa, the first such meeting on this subject. "The African countries' interests were not taken into consideration during the Uruguay Round negotiations and its results were imposed on us. We must now try to adapt ourselves at a lesser cost," said UNECA Executive Secretary Layashi Yaker. "If the African countries do nothing to adapt themselves, Africa might be the big and probably the only loser in the post-Uruguay Round," said Tunisian Economy Minister Sadok Rabeh. See the recent report by UNCTAD, *Trade and Development Report,* 1994, which likewise concludes that poorer countries will be disadvantaged by some aspects of GATT, because it will erode the value of preferential tariffs that presently benefit those countries (such as the Lomé Convention for African countries) while raising the costs of importing some technology and food. The UNCTAD report notes that high tariffs will remain in the developed countries on certain politically sensitive items produced by developing countries, such as textiles and clothing in the U.S. Moreover, according to the report, GATT will prevent many developing countries from using some of the measures employed successfully in East Asia, such as export incentives, import controls and restrictions on foreign investment. See also "Trade Policies, Structural Adjustment and Economic Reform," UNCTAD, March 25, 1994. An OXFAM study calculated that continental Africa will actually lose about $2.6 billion a year, (cited in article by Kevin Watkins, *Guardian Weekly,* 26 December 1993).

43. The Commission, co-chaired by former U.S. Federal Reserve Chairman Paul Volcker, is a private group made up of 44 finance and development experts from around the world, which released its report on July 21, 1994. Among its main recommendations were that the staffs of the World Bank and IMF be reduced substantially; that the overlap between their activities be curtailed; and that they focus on a narrower range of activities.

44. Childers and Urquhart, 1994; The authors are especially critical of the IMF, stating that "For most developing countries the experience [of structural adjustment] has been disastrous." The report states that IMF structural adjustment policies often undo the work of the U.N. system in public health and education, noting that "In fact, all the original intentions of the IMF in assisting member U.N. countries have long disappeared." Regarding the World Bank, the report contends that while it claims intellectual leadership, too often it follows "the succeeding waves of new development panaceas that arrive in developing countries in Northern briefcases." It also criticizes the size of World Bank loans, stating ". . . despite many years of urging by competent authorities for far more small scale lending, the world Bank has been wedded to giantism."

45. "50 years ago, at Bretton Woods, visionary leaders began to build the institutions that provided our nations with two generations of freedom and prosperity. They based their efforts on two great and abiding principles—democracy and open markets. As we approach the threshold of the 21st century, we are conscious of our responsibility to renew and revitalize these institutions and to take on the challenge of integrating the newly emerging market democracies across the globe. To carry out this responsibility, we have agreed that, in Halifax next year, we will focus on two questions: (1) how can we assure that the global economy of the 21st century will provide sustainable development with good prosperity and well-being of the peoples of our nations and the world . . ." and "(2) What framework of institutions will be required to meet these challenges in the 21st century? How can we adapt existing institutions and build new institutions to ensure the future prosperity and security of our people?" (*Naples Summit Communique,* Para. 3, p. 1). In the section of the Communiqué dedicated to the environment, the G-7 stated: "We urge the multilateral development banks to continue making progress in promoting local participation and incorporating environmental considerations into their programs." (Para. 2, p. 4). The section on Developing Countries states: "we call on the World Bank as well as the regional development banks to strengthen their efforts to reinforce private capital flows to the developing world while providing growing resources for health, education, family policies and environmental protection. (Para. 2, p. 5).

46. At Halifax, the G-7 leaders issued a Communique, which called for a number of improvements in World Bank/IMF coordination to prevent global economic crises (paras. 16-22); urged the multilateral institutions to safeguard the environment and promote sustainable development, including transparency, public participation and accountability (paras. 24-27, 31-33); recognized the deepening problem resulting from the growth in multilateral debt (including IMF) owed by the poorest nations (para. 29); called for a number of organizational reforms among the international financial institutions and the U.N. to reduce duplication and increase coordination, cost effectiveness and efficiency (paras. 35-38). For example, the G-7 stated that "the activities of the International Finance Corporation (IFC) . . . must be more strongly integrated into the World Bank Group." (Background Document, p. 13) They "encourage[d] the IMF to establish its own independent evaluation unit." (Background Document, p. 12) They suggested that "op-

erations would be improved if [World Bank and IMF] joint missions and program preparation were the norm." (Background Document, p. 12). Progress on these proposals is to be reviewed at the next Economic Summit in Paris, in 1996.

47. The Paris Club is the principal forum for renegotiating payments on official bilateral debt. It is an informal grouping of almost exclusively industrialized creditor nations that meets collectively once a month or more often if necessary. It is supported by a secretariat provided by the French Treasury, headed by a chairman. Decisions on principles for rescheduling debts are made by consensus among the member creditors.

48. See Helleiner, in press; see also World Bank, *World Debt Tables, 1992-93,* Vol. I, especially "Appendix II, The Evolution of Official Debt Restructuring,"; Payer, 1991. At the 1995 G-7 Summit in Halifax, the leaders urged "the full and constructive implementation of the Naples terms" for debt relief for the very poorest countries. (*Communique*, para. 29.) This is the strongest position yet taken by the G-7 on debt relief, since it calls for 2/3 reduction of the debt of the lowest income nations. But this formula would not help another category—the severely indebted middle income countries.

49. Khor, 1994, p.4; Regarding external debt and debt servicing, Martin Khor uses U.N. data to demonstrate the huge drain on Southern resources during the past thirty years: "Due to the rapid accumulation of foreign debts, Southern countries increased their annual interest payments tenfold from US $2.5 billion in 1970 to $25.7 billion in 1979, and within two years it doubled again to $51 billion in 1981. In the period 1970 to 1982 a total of $239 billion of interest was paid out by the Southern countries on their external debt . . . Total interest payments in the period 1980-92 were $771.3 billion."

50. George, 1991 and 1992; Adams, 1991; Nectoux, 1987, pp. 75-90; Friends of the Earth, *Plunder in Ghana's Rainforest for Illegal Profit*, 1992, especially Chapter 2, "Ghana and the Structural Adjustment Program."

51. Porter and Ganapin, 1988, p. 24; Broad and Cavanaugh, 1993, pp. 53-54.

52. See Helleiner, in press, p. 11; For African nations south of the Sahara, the percentage of debt that is owed to the IMF and World Bank has risen to 22.4% in 1993, from 9% in 1980 and 15.5% in 1986.

53. *Ibid.*, pp. 29-33. Note that the "Report of the Meeting on Financial Issues of Agenda 21," Kuala Lumpur, Malaysia, February 2-4, 1994, addresses these debts: "Initiatives such as the IDA Debt Reduction Facility and the International Monetary Fund's (IMF's) debt and debt service reduction facilities should be encouraged and extended." pp. 4-5.

54. The very interesting history of net negative transfers involving the Bank and its borrowers is well documented in Rich, 1994.

55. This is the group representing the industrialized nations which currently has 25 member nations.

56. Organization for Economic Cooperation and Development, 1994, p. 7.

57. "Naples Terms," which were agreed at the 1994 Summit by the G-7, call upon bilateral lenders 1) to accept up to a 67% reduction in the debt owed to them by the most severely-indebted, low-income countries; and 2) to use a "stock of debt" approach, which means to reduce the amount owed on *all* of the borrower's debts, not just those that have currently come due. The "Naples Terms" were adopted by the Paris Club of official lenders in December, 1994.

58. Helleiner, in press, p. 29. The G-7 finally made a breakthrough on multilateral debt in 1995, when it "recognize[d] that some of the poorest countries have substantial multilateral debt burdens." The leaders urged the World Bank and IMF "to develop a comprehensive approach to assist countries with multilateral debt problems, through the flexible implementation of existing instruments and new mechanisms where necessary . . . [and] better use of all existing World Bank and IMF resources." *G-7 Economic Summit Communique,* Halifax, 1995, para. 29.

59. Watkins, 1993.

60. At the 1993 G-7 Economic Summit, Friends of the Earth and the Environmental Defense Fund released a proposal for large reduction in the debt owed by the poorest countries in Africa to the World Bank and IMF. Their proposal was to use half of the two institutions' accumulated profits and reserves, approximately $10 billion from the World Bank and $20 billion from the IMF's gold reserves. This general concept was first put forward by Oxfam and a number of non-governmental organizations, such as Christian Aid in the UK, have strongly supported it. Thus far, although the proposal now has been endorsed by NGOs around the world, there has been no official response from the Bretton Woods organizations; but the UK endorsed the concept just prior to the annual meeting of the World Bank and IMF in 1994.

61. This is also one potential source of revenue for the National Environmental Funds discussed below. (See Box 35) A mechanism similar to this was developed by the U.S. government in the Enterprise for the Americas Initiative, which gave rise to several national environmental funds that are now up and running.

62. Khor, 1994, p. 2; Using United Nations data, Khor calculates that the price index of non-fuel primary commodities exported by developing countries fell sharply between 1980 and 1993 in comparison to the prices of developed country exports: ". . . on average, whilst in 1980, 100 units of a Southern country commodity export could buy 100 units of manufactured product imported from the North, the same 100 units of commodity export could only pay for 48 units of the same imported manufactured product in 1992. There is thus a loss of real income amounting to 52 units of imports for every 100 units of exports." Khor cites a paper prepared by the UNCED Preparatory Committee Secretariat on "terms of trade" that analyzes the devastating effects on Southern income: "The UNCED paper examines the impact of unfavorable terms of trade on two groups of countries: Sub-Saharan Africa and middle-income highly-indebted countries. . . . In the four years 1986-89, Sub-Saharan Africa suffered a total $55.0 billion of income losses due to terms-of-trade decline, equivalent to 15-16% of GDP. . . . For 15 middle-income highly-indebted countries in the study (Argentina, Bolivia, Brazil, Chile, Colombia, Cote d'Ivoire, Ecuador, Mexico, Morocco, Nigeria, Peru, Philippines, Uruguay, Venezuela and Yugoslavia), . . . in 1981-89, the total income losses due to terms of trade decline were $247.3 billion. . . . The UNCED paper also calculates net financial

transfers from the 15 highly indebted countries, arising from investments, debt repayment and aid flows. In 1989 there was a net transfer from these countries of $35 billion, equivalent to 4.4% of GDP. When added to the income loss from terms of trade of $45.1 billion in the same year, the total loss was $80.1 billion, or 10% of the GDP."

63. Ibid. p. 4.

64. Barnet and Cavanagh, 1994; Bernstein, 1992, p. 52; Kolko, 1988; Shaiken, 1988, p. 41. See also the discussion in the UNDP *Human Development Report*, 1992.

65. Tolan, 1990, p. 19; Cavanagh, 1992, pp. 68-75.

66. World Resources Institute, 1994-1995.

67. Ibid.

68. Greenpeace, 1994, p. 25

69. Colborne, 1993, p. 9-11; National Wildlife Federation, 1994.

70. Damayanti, J., quoted in Panos Institute, 1987.

71. Matthews, 1994, p. E1171.

72. In 1994 the World Bank created a $2 million "Fund For Innovative Approaches in Human and Social Development" to carry out participatory project activities (using a 50-50 match with the regional operations departments of the Bank). This replaced the Participation Fund of $350,000, which was drawn down very rapidly.

73. *Report of the Participatory Development Learning Group*, World Bank, 1994, p. 1. The Learning Group met for more than three years, during which it studied selected projects, commissioned papers and held two workshops to which selected NGOs and governments were invited. At the second workshop in May 1994 the Bank invited non-Bank participants to write a response to the draft action plan. NGOs accepted the offer and Nancy Alexander of Bread for the World Institute authored the response, with assistance from a team comprised of: Marcos Arruda (NGO Working Group on the World Bank), Robert Chambers (Institute for Development Studies, Sussex), Kamal Malhotra (Community Aid Abroad), Abiy Hailu (Christian Aid), and Peter Oakley (Save the Children, Colombia). When the NGO response was considered by Bank management, some of its recommendations were accepted and incorporated into the Bank's action plan.

74. World Bank Operations Policy Department, *The World Bank and Participation*, 1994.

75. In the aftermath of the December 1993 Overcoming World Hunger Conference, the World Bank contributed $2 million to the Grameen Trust in 1994, signaling its change in view.

76. The IDA 10 Agreement requested Bank Management to "explore whether it is useful and feasible to establish a small projects facility to focus on environmental initiatives and on outreach to groups, such as NGOs and microenterprises." The new microcredit initiative was personally sponsored by the Vice-President for Sustainable Development, Ismail Serageldin, stemming from a Bank paper prepared following the 1993 Hunger Conference: "Deepening the World Bank's Strategy for Reducing Hunger and Poverty: Report of the Learning Group on Participatory Development," 1994. In June 1995, the World Bank launched a multi-donor fund to support local microcredit institutions, called the Consultative Group to Assist the Poorest. The purpose of the new fund is both to provide finance and to study the successes and failures of different methods used by microlenders in various countries. The Bank has contributed $30 million to the fund; a number of bilateral and other multilateral donors have added their own contributions, or transferred existing microcredit programs to the fund, in the amount of $170 million more. Thus it has the potential to become a significant center of innovation and research on microcredit. The funding mechanism will give matching grants to intermediary microfinance NGOs, which will provide credit to the very poor. NGOs will not be on the Consultative Group of donors, but they will be consulted by the Group. There also will be a policy group to advise the secretariat on which NGOs will be represented. NGOs hope this initiative will have an influence on the mainstream lending portfolios of the international financial institutions.

77. Ahmed, 1985.

78. Hossain, 1992.

79. Bangladesh Institute for Development Studies, 1992.

80. Schuler, 1994.

81. Yanovitch, L., Foundation for International Community Assistance, Washington, DC, personal communication, August 1995.

82. Centro de Apoyo a la Microempresa, 1992; Chemonics International Inc., 1993.

83. Solow, 1994; Real d' Azua, C., Accounting for the Environment, Washington, DC, personal communication, August 1995.

84. Markandya and Pearce, 1988; Pearce and Warford, 1993; Pearce, D., 1993.

85. National Resources Defense Council and Environmental Defense Fund, 1994.

86. Warford, 1987; Repetto, 1988a.

87. Ahmad, El Serafy and Lutz, 1989; Lutz, 1993.

88. World Bank, *Valuing the Environment*, 1994.

89. World Bank, *Economywide Policies and the Environment*, 1994. Although concluding that "adjustment programs, especially the market liberalizing elements, are usually good for the environment," (p. viii), it acknowledges that economywide reforms sometimes cause unforeseen environmental harm. Typical examples of environmental damage caused by "imperfections" in such adjustment programs are "policy distortions, market failures and institutional constraints." (p. 4). Unfortunately, there are rather a lot of those in the real world.

90. A recent paper by the World Bank acknowledges that most project appraisals don't include a user cost for resource depletion, and assign a zero default value for using up natural capital. See J. von Amsberg, "Project Evaluation and the Depletion of Natural Capital: An Application of the Sustainability Principle," *Environment Department Working Paper No. 56,* 1993.

91. See remarks of R. Repetto at the conference on Valuing the Environment, *Proceedings of the First Annual International Conference on Environmentally Sustainable Development*, 1994, p. 65; Cruz and Repetto, 1991.

92. GNP is the value of all final goods and services produced in the economy in a given time period.

93. Repetto, 1993.

94. World Bank, *Monitoring Environmental Progress*, 1995.

95. The Human Development Report, published annually by UNDP, provides an alternative view to that put forward by the World Bank's various annual reports. It also includes statistics that put a human face on development, and provides details on

military expenditures for each country. The 1994 report proposed a global agreement that each nation would cut 3% per year in future military spending with the proceeds to be dedicated to social spending.

96. UNICEF, 1994.

97. Also see Herman Daly's Farewell Lecture to the World Bank, *Proceedings of the First Annual International Conference on Environmentally Sustainable Development,* 1993, p. 141.

98. United Nations, 1993; Bartlemus, Lutz and Van Tongeren, 1994, pp. 155-184.

99. Agenda 21, Chapter 8; M. Munasinghe, Environmental Economics and Sustainable Development, 1993.

100. There is an Inter-Secretariat Working Group on National Accounts that includes the Commission of the European Communities (through Eurostat), IMF, OECD, the U.N. (through DESIPA), the Economic Community for Europe and the World Bank.

101. These criteria are derived from a forthcoming book by Greenpeace, *Toward Clean Production: A Greenpeace Manual for Activists*, which will be released in 1995.

102. The 13th Consultative Meeting of the London Dumping Convention in 1990 adopted Resolution LDC40(13), which calls for clean production measures in the context of preventing marine pollution, including raw material selection, product substitution and use of clean production technologies.

103. Ibid, (2a).

104. See "Framework document on the preparation of technical guidelines for the environmentally sound management of wastes subject to the Basel Convention," prepared by UNEP. Guidance to parties on how to achieve clean production suggests waste prevention strategies, including "waste prevention audits [which] should be promoted to qualitatively and quantitatively identify hazardous inputs, wastes and products and the corresponding cleaner production techniques." UNEP/CHW/WG.4/1/6, Annex A. The First and Second Conferences of the Parties (COP) to the Basel Convention further elaborated the obligations of parties. Decision I/17 of the first COP requests all parties to "cooperate in developing cleaner production technologies and cleaner products which will lead to the reduction and, as far as practicable, the elimination of the generation of hazardous wastes." Decision II/25 of the Second COP asks states to facilitate and cooperate in the transfer of Clean Production technologies and to promote cleaner production and waste minimization workshops, and requests the Secretariat of the Basel Convention to "promote the development and adoption of cleaner production methods and new low-waste technologies leading to the reduction of the generation of hazardous wastes," by:

- Identification of waste streams that are suitable for Cleaner Production approaches;
- Identification of policy instruments that may promote improved waste minimization at the national level;
- Promotion of Cleaner Production through a more comprehensive United Nations mechanism;
- Provision of printed material on Cleaner Production, including policy issues, and organization of training courses and workshops;
- Information exchange and technology assessments concerning Cleaner Production techniques; and
- Mobilization of resources for cleaner production activities.

105. UNEP Ministerial Meeting on Cleaner Production, October 27, 1992.

106. An Intergovernmental Forum on Chemical Safety (IFCS) involving UN and other agencies has been established to follow up government implementation of the chemical risk reduction programs of Agenda 21. One hundred and fourteen governments joined the IFCS at the founding meeting in April, 1994.

107. The Protocol to the Barcelona Convention commits its Mediterranean member states to progressively eliminate by the year 2005 organophosphorus compounds that are hazardous to human health and the environment. Member states have also committed to "ensure that products containing organophosphorus compounds shall not be used in their territory unless they have been authorized and unless it has been proved that there is: no direct effect on human and animal health; and, no unacceptable impact on the environment." This amounts to the parties committing to a phased program to achieve Clean Production in agriculture, since most of the pesticides used in the region at present are organophosphorus compounds.

108. This information is drawn from the forthcoming publication, *Toward Clean Production: A Greenpeace Manual for Activists*, which will be released in 1995.

109. Spalding, H., Greenpeace International, Washington, DC, personal communication, November 1994.

110. Greenpeace International, 1994a.

111. Feshbeck and Friendly, 1992.

112. McElfish and Pendergrass, 1993.

113. Related to the concept of environmental debt is that of "environmental space." In the Netherlands there has been an illuminating post-Rio examination by the Government, prompted by Friends of the Earth-Netherlands, of the amount of "ecological space" being occupied by the nation as a whole. This was calculated on the basis of the consumption of natural resources and population of the Netherlands, compared to that of other people and species on the earth. In that analysis, the equation put forward for sustainability is:

Population × Per Capita Consumption < Environmental Space

In other words, the world's total consumption (per capita consumption multiplied by population) of resources such as energy, water, wood, farmlands and non-renewable resources, must be kept below the amount of available environmental space on the planet. The analysis shows that the actual "environmental space" currently "occupied" (i.e. depended upon) by the Netherlands is several times greater than the geographical size of the country. Since by definition it would be physically impossible for all the world's people to occupy more than their share of "environmental space," this analysis graphically illustrates the concept of over-consumption by the wealthy compared to the under-consumption by the poor.

Moreover, for the Netherlands to reduce its relatively high consumption of resources and thus its high per-capita use of ecological space, sufficiently for it to "fit" within its borders, significant changes would be required in areas such as transportation, energy use and food consumption. Similar studies are underway in Norway, Germany and the U.S., where Friends of the Earth affiliates and other organizations have put forward analyses, critiques and recommendations for changes in eco-

nomic incentives that influence consumption patterns. See, for example, Hittle, 1994. This paper applies the Dutch methodology and comes to similar conclusions. Hittle's paper was presented at a roundtable discussion during the meeting of the Commission on Sustainable Development in May 1994. See also Hille, 1994, whose paper also was presented at a roundtable during the CSD meeting in May 1994.

114. Freeman and Fricke, 1983; Chew, 1988.

115. Harrison, 1987, p. 75.

116. Chapin, 1988.

117. Matthews, 1994, p. E1171.

118. World Resources Institute, 1986, p. 44.

119. Crosson, 1987, p. 123.

120. Brown, Kane and Roodman, 1993.

121. Food and Agriculture Organization of the United Nations, 1981.

122. Brown and Roodman, 1993.

123. World Resources Institute, 1992-1993, p. 118.

124. Field, 1993, p. 50.

125. World Resources Institute, 1986, p. 53.

126. U.S. Agency for International Development, 1987a, p. 8.

127. Brown and Kane, 1994.

128. Brown, and Kane, 1994.

129. Worldwatch Institute, 1994, p. 182.

130. Pimentel et al., 1987.

131. Warford, 1987, p. 4.

132. Warford, 1987, p. 5.

133. Brown and Kane, 1994, p. 150.

134. Postel and Heise, 1990, p. 36.

135. Warford, 1987; Repetto, 1987, p. 172.

136. Harrison, 1987, pp. 179-184; Kramer, J.M., CARE, New York, NY, personal communication, July 1988; Rorison and Dennison, 1987; Burke, M., CARE, Georgia, personal communication, December 1993.

137. Food and Agriculture Organization of the United Nations, 1990, Paper 112.

138. World Conservation Monitoring Center, 1992, p. 266.

139. Miller et al., 1986.

140. Lenssen and Malm, *State of the World*, 1995.

141. World Conservation Monitoring Center, 1992, p. 236.

142. Dinham, 1993; Murray and Hoppin, 1990.

143. Greenpeace, 1994, p. 15; Shiva, 1991; Wright, 1990.

144. Hansen, 1987, p. 22.

145. Ibid., p. 103.

146. Ibid., p. 137.

147. Rola and Pingal, 1993.

148. Ibid. See also Hansen, 1987, pp. 131-160. In 1985, Indonesia paid an 85% subsidy on pesticides, at an annual cost of $120 million. After observing the effectiveness of IPM, 57 pesticides were banned in 1987 and the subsidy was cut to 55%.

149. UNDP, *Benefits of Diversity: An Incentive Toward Sustainable Agriculture,* 1992.

150. Hansen-Kuhn, 1993.

151. Kenmore, P., FAO Regional Program Representative, Asia, personal communication, June, 1994. See also a memorandum from the Committee on Agricultural Sustainability for Developing Countries, "Proposed International IPM Facility: Update" (July 18, 1994), on file at Friends of the Earth).

152. Extracted from "Asian and Pacific Success Stories" in *Social Development*, United Nations Economic and Social Commission for Asia and the Pacific, September 1994; Gani Serrano, President of PRRM, Manila, Philippines, personal communication, November 1994.

153. Leopold, 1966, p. 190.

154. World Commission on Environment and Development, 1987, p. 155.

155. Breslin and Chapin, 1984; Houseal, B., The Nature Conservancy, Washington, DC, personal communication 1988; Chapin, M., Center for the Support of Native Lands, Arlington, VA, personal communication, July 1995.

156. Brandon and Wells, 1993.

157. Ramangason, 1993.

158. The Mananara-Nord Biosphere Reserve is financed by the United Nations Development Program and supported by UNESCO. See Ramangason, 1993.

159. Schwartzman, 1992.

160. Schwartzman, S., Environmental Defense Fund, Washington, DC, personal communication, August 1995.

161. For a critical analysis of the Brazil Pilot Program, see Barnes, 1994; Friends of the Earth International, 1993; and Friends of the Earth International, 1991.

162. Ibid.

163. Lohani, B.N., Asian Development Bank, Manila, Philippines, personal communication, April 1994.

164. World Conservation Monitoring Center, 1992; *Biodiversity Conservation and Sustainable Use*, 1994.

165. Scura, L., World Bank Environment Department, Washington, DC, personal communication, August 1995.

166. Edwards, S., United Nations Development Program/ United Nations Sudano-Sahelian Office, personal communication, May 1994.

167. United Nations Sudano-Sahelian Office, 1990, 1993.

168. Cabarle, B., World Resources Institute, Washington, DC, personal communication, October 1993.

169. Allen, 1988; Janzen, 1988; Sun, 1988; Reid et al, 1993; Janzen et al, 1993; Janzen, 1992, in Calypso Log; and Janzen, 1992, in *Earth Summit Times.*

170. Erdmann, 1993, p. 22.

171. Hay, 1992, pp. 303-318.

172. Examples of international or regional bodies that have voiced support for the precautionary approach in one context or another include: The Convention for the Protection of the Northeast Atlantic, Paris (1992); the London Convention 1972 (1991 Resolution and 1993 Waste Assessment Framework); Agenda 21, UNCED, Rio de Janeiro, June 1992; Framework Convention on Climate Change, Rio de Janeiro, June 1992; the Bamako Convention (1991); the Barcelona Convention (1991); the UNEP Governing Council (1989); the Bergen Declaration, (1990); North Sea Ministers' Conference (1987 and 1990); Paris Commission (1989); and the Nordic Council (1989).

173. For examples of how this approach is being applied in practice, see Greenpeace International, "A Precautionary Approach to Fisheries," March 1994; Greenpeace International, 1994c.

174. Ibid; Greenpeace International paper submitted to Montreal Meeting of Experts.

175. Swartzendruber, 1992, p. 26.

176. U.S. Congress, 1992, p. 25.

177. Swartzendruber, 1992, p. 10.

178. U.S. Congress, 1992, p. 17.

179. In this context, it is pertinent that the World Bank recently approved a $1.3 billion package for 15 coal fired electrical generating plants in India, ignoring internal studies showing the enormous potential for demand-side management and investments in conservation and efficiency in India. According to the U.S. Environmental Protection Agency, the need for much of the capacity to be provided by the loan could be obviated through such techniques. The ADB decided not to cofinance the package because it is not the least-cost option.

180. Manibog, 1984.

181. Hyman, 1993.

182. Enersol, 1993/1994.

183. Lenssen, *State of the World*, 1993.

184. Also see Geller, H. *Efficient Electricity Use: A Development Strategy for Brazil.* American Council for an Energy Efficient Economy, Washington, DC. 1991.

185. Cherniack et al; 1993.

186. McDonald, 1993.

187. Lenssen, *State of the World*, 1993.

188. Kraft-Oliver, T., IIEC Asia, personal communication, June 1994; Cherniak and du Pont, 1991.

189. Asian Development Bank, *Bank Policy Initiatives for the Energy Sector,* February 1994, p. 1.

190. Ibid, p. 10.

191. In 1992 about 30% of ADB lending was for efficiency and DSM. During a previous 21-year period, the ADB provided only about $32 million for 76 technical assistance grants for studies, institutional strengthening, conferences and seminars on these subjects. It published "Energy End-Use" in 1993 and "Environmental Considerations in Energy Development" in 1991. The Bank's new approach is to "(i) encourage utilities to incorporate into their energy planning models the key elements of integrated resource planning (IRP), (ii) organize in the utilities an adequately staffed DSM group to plan and undertake DSM activities, (iii) support such groups with appropriate training programs, and (iv) to use the Bank's TA [technical assistance] resources to prepare DSM master plans and components to be included in projects to be funded by the Bank." (Ibid., p. 15).

192. This was announced to NGOs attending the ADB Annual Meeting in Nice in May 1994, by the head of the Energy Department.

193. National Resources Defense Council and Environmental Defense Fund, 1994.

194. This was essentially the choice facing the World Bank and Asian Development Bank in Nepal, where the government wanted to build the Arun III dam, whereas citizens groups proposed an alternative based on mini-hydro investments. The Arun Dam case was brought to the World Bank's Independent Inspection Panel in 1994 and has since been cancelled. See also Deudney, 1981, pp. 20-25, which analyzes the benefits of harnessing smaller-scale hydropower for village electrification in developing countries.

195. These percentages were extrapolated from FAO statistics by FoE staff.

196. Bigs, G., World Neighbors Headquarters, Oklahoma City, Oklahoma, personal communication, August 1995.

197. Dagen, M., Regional Program Coordinator, World Neighbors, Tegucigalpa, Honduras, personal communication, August 1995.

198. Bunch, 1987, 1988; King-Dagen and Garay, 1993.

199. Appropriate Technology International, 1992, 1993a, 1993b, 1994; Drake Swift, S., ATI, Washington, DC, personal communication, August 1995.

200. Hecht, S., University of California, Los Angeles, personal communication, May 1988.

201. See the variety of recent case studies in UNDP, *Benefits of Diversity,* 1994, and Hansen, *FAO at the Crossroads,* 1993.

202. Bothma, J. du P., Center for Wildlife Research, University of Pretoria, South Africa, personal communication, May 1994.

203. Mwenya et al., 1988; Rihoy and Steiner, 1995; Rihoy, E., Africa Resources Trust, Zimbabwe, personal communication, July 1995; Mwenya, 1990; Lewis and Carter, 1993; Tilley, P., World Wildlife Fund—Zambia, personal communication, June 1994.

204. United States Agency for International Development, 1993; Erdmann, 1993; Bond, 1993; Rihoy, E., Africa Resources Trust, Zimbabwe, personal communication, July 1995.

205. Also see *Agroforestry for Improved Land Use*, International Center for Research in Agroforestry, Nairobi, Kenya, March 1993.

206. World Resources Institute, 1987, p. 227.

207. Overseas Development Administration, 1985.

208. Gladwell, 1988.

209. Kareiva and Parker, 1994; Rissler and Mellon, 1993.

210. The first Conference of Parties to the Biodiversity Convention, in the Bahamas in November 1994, discussed the negotiation of a protocol on biotechnology and biosafety, evidence of the widespread international concern.

211. Johnson and Cabarle, 1993, p. vii. This book analyzes past forest-management failures and outlines sound approaches toward more sustainable and equitable practices.

212. Colchester, 1992.

213. Repetto, 1988b.

214. Many of the most sustainable projects in natural forest management are based on community control, although this is not a guaranteed path to success given the varying capabilities of communities, the remoteness of many forest areas from markets, and the fact that land claims of dwellers often are not recognized by governments. Johnson and Cabarle 1993, p. 57; Pearl et al., 1991; Poffenberger, 1990.

215. Johnson and Cabarle, 1993, p. viii.

216. Ibid, pp. 28-35. Each of these projects also has significant problems, but we believe they merit attention because of their relative success in difficult policy and political environments.

217. International Herald Tribune, September 22, 1994. Representatives from WALHI, an Indonesian NGO, will be included on the official body that resolves disputes between logging companies and communities or farmers whose lands are logged.

218. The World Bank, 1986, pp. 94-95.

219. Ibid, pp. 87-97; World Resources Institute, 1987, p. 227.

220. Warford, 1987, p. 20.

221. Hansen-Kuhn, 1993.

222. Repetto, 1988b, pp. 24-30.

223. UNDP, 1992, p. 62.

224. United Nations Development Program, 1992, p. 48.

225. Chew, 1988.

226. Its Operational Manual Statement No. 2.36 issued May

1984 states that the World Bank "will not finance projects that contravene any international environmental agreement to which the member country concerned is a party."

227. See Kretzmann, 1994, for a critique of the World Bank's record in making ozone-friendly loans the past three years.

228. See Natural Resources Defense Council and Environmental Defense Fund, 1994, and Greenpeace International, 1994b, for a critique of the Bank's energy portfolio during the past few years.

229. The World Bank's Environment Department proposes to study the projected extra costs, if any, for borrowing countries to comply with these treaties as compared to more traditional development projects. This research program is called "Global Overlays."

230. The World Bank, *World Bank News*, 24 March 1994; Cook, W., Institute for Transportation and Development Policy, New York City, NY, personal communication, August 1995.

231. United Nations Fund for Population Activities, 1994.

232. Population Reference Bureau, Fact Sheet, "PROFAMILIA: Colombian Family Welfare Association," 1993.

233. Population Reference Bureau, Fact Sheet, "Pakistan: Family Planning with Male Involvement Project of Mardan," 1993.

234. The World Bank calculates that almost half its projects now include specific components aimed at empowering women, and states that in 1993 it committed about $2 billion for education, much of it focused on keeping girls in school. During the past five years the Bank has become one of the larger funders of family planning and reproductive health services.

235. United Nations, *The World's Women: Trends and Statistics,* 1994.

236. See "Women and Economic Policy: Issues of Focus and Gender—Perspectives on Women and Development," *OXFAM Journal*, Vol. 1, No. 3, October 1993.

237. People's Forum Bangkok Case Studies, 1991 (on file at Friends of the Earth).

238. It must be understood that there can never be "enough" public participation or consultation. No matter how hard one tries to accommodate all requests, it will in many cases be impossible to meet with all the groups who should have a role in a development process. Even in the most advanced democracies, there are always complaints about not getting information on time, and not being sufficiently involved in the process of planning or decision-making. But while it is the nature of humans to complain and to want more opportunities to participate, that is evidence of how important it is to them. Although it is not going to satisfy everyone, a serious process for public participation and consultation is essential; even though it may never be enough, every little bit helps.

239. The World Bank's Operations Evaluation Division (OED) reviews a percentage of completed projects to study whether they were successful and, if not, to draw lessons from the failures. OED has focused attention on the absence of participation as a key factor in undermining success. See Annual Review of Evaluation Results, 1992 and 1993, Agriculture Sector Review, 1993; and the World Development Report, 1994, particularly the section on infrastructure.

240. See World Bank Operations Policy Department, 1994, pp. 16-18.

241. Yields from fish aquaculture can be impressive. Arnold Newman estimates that on a per hectare basis, (though most ponds would be only 0.04 hectare in size) fish aquaculture can yield about 8,800 pounds of fish worth almost US$8,000 per year under optimal conditions. This far exceeds returns from slash and burn agriculture. (See Arnold Newman, *The Tropical Rainforest*, Facts on File, New York, NY, 1990.) Auburn University's International Center for Aquaculture is promoting small farmer aquaculture enterprise on the basis of success already achieved in several projects, including in several African countries. (Bryan Duncan, International Center for Aquaculture, Auburn University, personal communication July, 1995.)

242. Thsieja, M., Director of the "Program Nationale de Pisciculture Familiale" and Mazulu Mayanga Yanga, Regional Coordinator, personal communication, 1993.

243. Ruano, S., Technical Director of Proyecto Centro Maya, Gautemala, personal communication, September 1994; Landac, J., Rodale Institute, Kutztown, PA, personal communication, August 1995.

244. Conway, 1987; Maguire, 1986; U.S. Agency for International Development, 1987b; Winterbottom and Hazlewood, 1987; Burke, M., CARE, Georgia, personal communication, December 1993.

245. Ford Foundation, 1988; Seymour, F., World Wide Fund for Nature, Washington, DC, personal communication, August 1995; Fay, C., Ford Foundation, Jakarta, Indonesia, personal communication, 1994. See also Seymour, 1990 and 1991.

246. Leitmann, 1993, p. 4.

247. Coronel, L.V., World Bank, Washington, DC, personal communication, December 1993.

248. The World Bank Environment Department, Spring 1994.

249. United Nations Development Program, Dar es Salaam Project Achievement Report, 1993.

250. Khosla, A., Development Alternatives, New Delhi, personal communication, October 1994.

251. These countries include: Belize, Bhutan, Bolivia, Brazil, Chile, Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Indonesia, Jamaica, Mexico, Panama, Papua New Guinea, Peru, Philippines, Poland, Sri Lanka and Uganda. Twenty countries were represented at the forum.

252. International Union for Conservation of Nature, 1994.

253. The International Union for Conservation of Nature (IUCN), or the World Conservation Union, has been a key proponent of these funds. Many NGOs have been involved in their creation; Dillenbeck, M., IUCN, Washington, DC, personal communication, August 1995.

254. Brown, S., Chemonics International Inc., Washington, DC, personal communication, May 1988; Gow, 1987; Keipi, C., Inter-American Development Bank, Washington, DC, personal communication, May 1988; McCaffrey, D., The Nature Conservancy, Washington, DC, personal communication, May 1988; Hartshorn and Pariona, personal communication, December 1993; Hartshorn, Simeone and Tosi, Jr., 1987; Hartshorn 1989; Hartshorn and Pariona, 1993; and Stocks and Hartshorn, 1993.

255. Altieri and Sands, 1987, p. 40-47.

256. *Human Development Report,* 1994.

257. By contrast, at present, very little development funding supports local capacity building. According to calculations in the 1994 *Human Development Report,* about 90% of the $12 billion spent annually on technical assistance pays for foreign expertise. Bruce Rich has analyzed the percentage of MDB funding that is allocated to procurement contracts for multinational firms based in the most industrialized countries. See Rich, 1994.

Bibliography

Adams, P. *Odious Debts: Loose Lending, Corruption, and the Third World's Environmental Legacy*. Canada: Probe International, 1991.

Agenda 21. United Nations Conference on Environment and Development. Rio de Janeiro, Brazil, 1992.

Ahamad, Y, S. El Serafy and E. Lutz. *Environmental Accounting for Sustainable Development*. Washington, DC: World Bank, 1989.

Ahmed, Mahbub. *Status, Perception, Awareness and Marital Adjustment of Rural Women: The Role of the Grameen Bank*. Dhaka, Bangladesh: Grameen Bank, 1985.

Allen, W. H. "Biocultural Restoration of A Tropical Forest," in *Bioscience*, No. 38(3), 1988, pp. 156-161.

Altieri, M. and M. Sands. "Self-reliance and the Small Organic Farm in Chile," in *Experiences in Success*. Kutztown, PA: Rodale International, 1987, pp. 40-47.

Appropriate Technology International. *The Regional OILS Project: Developing a Rural Oilseed Processing Industry in Africa*. Washington, DC, 1993a.

———. "Catalyst," in *ATI Bulletin*, No. 24, Washington, DC, August 1992.

———. *Oilseed Press*, Vol. 1, Washington, DC, September 1993b.

———. *Oilseed Press*, Vol. 2, Washintgon, DC, January 1994.

Asian Development Bank. *Bank Policy Initiatives for the Energy Sector*. Manila, Philippines, February 1994.

———. Office of the Environment. *Environmental Assessment Requirements and Environmental Review Procedures of the Asian Development Bank*. Manila, Philippines, March 1993.

———. Social Dimensions Unit, "Guidelines for Incorporation of Social Dimensions in Bank Operations," Manila, Philippines, October 1993.

Bangladesh Institute for Development Studies. "Proposal for Funding Grameen Bank Replication Project." Dhaka, Bangladesh: Grameen Bank, 1992.

Bank Information Center. *A Citizens' Guide to the World Bank Inspection Panel*. Washington, DC, 1994.

———. *Considering the Hidrovia: A Preliminary Report on the Status of the Proposed Paraguay/Paraná Waterway Project*. Washington, DC, March 1994.

———. *Funding Ecological and Social Destruction: The World Bank and International Monetary Fund*. Washington, DC, 1989.

Barnes, J. *Promises, Promises! A Review: G-7 Economic Summit Declarations on Environment and Development*. Washington, DC: Friends of the Earth International, 1994.

Barnet, R. and J. Cavanagh. *Global Dreams: Imperial Corporations and the New World Order*. New York, NY: Simon & Schuster, 1994.

Bartlemus, P., E. Lutz, and J. van Tongeren. "Environmental Accounting: An Operational Perspective." Paper Presented at the World Bank Conference on Valuing the Environment. *Proceedings of the First Annual International Conference on Environmentally Sustainable Development*, 1994.

Bédi, E. *Possibilities of Combined Heat and Power Production in Slovakia*. Bratislava, Slovakia: Foundation for Alternative Energy, August 1994.

Bernstein, A. "The Global Economy: Who Gets Hurt," in *Business Week*, August 10, 1992. p. 52.

Biodiversity Conservation and Sustainable Use: USAID Program Overview. Washington, DC: Environment and Natural Resources Information Center, November 1994.

Bond, I. "The Economics of Wildlife and Landuse in Zimbabwe: An Examination of Current Knowledge and Issues." *World Wildlife Fund Multi-species Animal Production Systems Project, Project Paper No. 36*, Harare, Zimbabwe.

Bowles, I. and G. Prickett. *Reframing the Green Window: An Analysis of the GEF Pilot Phase Approach to Biodiversity and Global Warming and Recommendations for the Operational Phase*. Washington, DC: Conservation International and the Natural Resources Defense Council, 1994.

Brandon, M. and K. Wells. *Parks and People: Linking Protected Areas Management with Local Communities*. Washington, DC: World Bank, World Wildlife Fund and the U.S. Agency for International Development, 1993.

Breslin, P. and M. Chapin. "Conservation Kuna-Style," in *Grassroots Development*, Vol. 8 No.(2), 1984, pp. 26-35.

Broad, R. and J. Cavanagh. *Plundering Paradise: The Struggle for the Environment in the Philippines*. Berkeley, CA: University of California Press, 1993.

Brown, L. and H. Kane. *Full House*. Washington, DC: Worldwatch Institute, 1994.

Brown, L., L. Kane, and D. Roodman. *Vital Signs*. Washington, DC: Worldwatch Institute, 1993.

Buhl, C. *A Citizens' Guide to the Multilateral Development Banks and Indigenous Peoples*. Washington, DC: Bank Information Center, 1994.

Bunch, R. *Guinope: An Integrated Development Program in Honduras*. Oklahoma City, OK: World Neighbors, 1987.

———. "Case Study of the Guinope Integrated Development Program." Presented at the International Institute for Environment and Development Conference on Sustainable Development. London, U.K., 1988.

Cabarle, B. "Ecofarming in the Peruvian Amazon: The Integrated Family and Communal Gardening Project (HIFCO)." Paper presented at the Liz Claiborne/Art Orenberg Foundation's Community-Based Conservation Workshop, Airlee, VA, October 1993.

CAPE 2000. *Four in '94: Assessing National Actions to Implement Agenda 21*. Washington, DC: Natural Resources Defense Council, 1994.

Cavanagh, J. et. al. *Trading Freedom: How Free Trade Affects our Lives, Work, and Environment*. Washington, DC: Food

First and the Institute for Policy Studies, 1992.

Cavanagh, J., S. Anderson, and J. Pike. *World Bank and IMF Policies Hurt Workers At Home and Abroad*. Washington, DC: Institute for Policy Studies, 1994.

Centro de Apoyo a la Microempresa (CAM). *Impact Evaluation for Village Banks*. El Salvador, May 1992.

Chapin, M. "The Seduction of Models: Chinampa Agriculture in Mexico," in *Grassroots Development*. Vol. 12 No.(1), 1988, pp. 8-17.

Chemonics International Inc./Daniel Carr & Associates. *CAM/FINCA Mid-Term Evaluation: Socio-Economic Survey*. Washington, DC: Daniel Carr & Associates, July 1993.

Cherniak et al. *E-Notes*. Washington, DC: International Institute for Energy Conservation, October-December 1993.

Cherniak, M. J. and P. du Pont. *Demand-Side Management for Thailand's Electric Power System*. Bangkok, Thailand: International Institute for Energy Conservation, Bangkok, 1991.

Chew, S.T. *Agroforestry Projects for Small Farmers: A Project Manager's Reference*. Aid Evaluation Special Study. Washington, DC: U.S. Agency for International Development, April 1988.

Childers, E. and B. Urquhart. *Renewing the United Nations System*. Uppsala, Sweden: Dag Hammerskjold Foundation, 1994.

Colborne, T. "Global Implications of Great Lakes Wildlife Research," in *Global Pesticide Campaigner*, Vol. 3, No. 1, Feb. 1993, pp. 9-11.

Colchester, M. "Forest Peoples and Sustainable Forest Management." Paper presented at World Resources Institute Colloquium on Sustainability in Natural Tropical Forest Management, Washington, DC, March 21-22, 1992.

Conway, F.J. "Case Study: The Agroforestry Outreach Project in Haiti." Paper presented at the International Institute for Environment and Development Conference on Sustainable Development, London, U.K., 1988.

Crosson, P. "Agricultural Development—Looking To the Future," in *Sustainable Development of the Biosphere*. W.C. Clark and R.E. Munn, eds., Cambridge, U.K.: Cambridge University Press, 1987.

Cruz, W. and R. Repetto. *Accounts Overdue: Natural Resource Depreciation in Costa Rica*. Washington, DC: World Resources Institute, 1991.

———. *The Environmental Effects of Stabilization and Structural Adjustment Programs: The Philippines Case*. Washington, DC: World Resources Institute, 1992.

Daly, H. "Free Trade, Sustainable Development and Growth: Some Serious Contradictions," in *Network '92*. Geneva, Switzerland: Center for Our Common Future, 1992.

de Janvry, A. and S. Hecht. *Reporte de la Evaluación de los Primeros Cinco Años del Plan Sierra*. San José de las Matas, Dominican Republic, 1984.

Deudney, D. *Rivers of Energy: The Hydropower Potential*. Worldwatch Paper No. 44. Washington, DC: Worldwatch Institute, June 1981.

Dinham, B. *The Pesticide Hazard*. London, U.K.: Zed Books, 1993.

Doyle, J. *Altered Harvest*. New York, NY: Viking Press, 1985.

Eine Welt (Foundation for Peace and Democracy). *In the Aftermath of the Earth Summit: Responsible Global Action for the 21st Century*. Bonn, Germany, 1993.

Enersol, *Enersol News*, Somerville, MA: Winter 1993/1994.

Erdmann, T. K. *An Analysis of 10 African Natural Resource Management Practices. Technical Paper #8*. Washington, DC: Office of Analysis, Research and Technical Support, Bureau for Africa, USAID, October 1993.

Fairman, D. *Restructuring the Global Environment Facility: Issues and Options for GEF Stakeholders*. Cambridge, MA: Harvard Center for International Affairs, 1993.

Feshbeck, M. and A. Friendly. *Ecocide in the U.S.S.R.: Health and Nature Under Siege*. New York, NY: Basic Books, 1992.

Field, T., "Wood-Starved and Footsore," in *American Forests*, Vol. 99. July/Aug. 1993, pp. 49-52.

Food and Agriculture Organization of the United Nations. *Agriculture: Toward 2000*. Rome, Italy, 1981.

———. *Forest Resources Assessment 1990*. Paper 112, Rome, Italy, 1990.

———. *Empowering the Rural Poor: FAO Experiences in Participatory Rural Development*. Rome, Italy, 1992.

———. *Special Action Plan on People's Participation in Rural Development*. Rome, Italy, 1992.

Ford Foundation. *Field Report: Java Social Forestry Program*. Jakarta, Indonesia, April-May 1988.

Freeman, P.H. and T.B. Fricke. "Traditional Agriculture in Sahelia: A Successful Way To Live," in *The Ecologist*, Vol.13(6), 1983, pp. 208-212.

Friends of the Earth/UK. *Plunder in Ghana's Rainforest for Illegal Profit*. London, U.K., 1992.

Friends of the Earth/International. *Mind the Gap*. Sao Paulo, Brazil, 1991.

———, *Sound Public Policies for the Amazon Region: Harmonizing Public Policies with the Objectives of the Pilot Program for the Brazilian Rainforests*. Sao Paulo, Brazil, 1993.

George, S. *The Debt Boomerang: How Third World Debt Harms Us All*. London, U.K.: Pluto Press, 1992.

———. *Faith and Credit*. Boulder, CO: Westview Press, 1994.

———. *A Fate Worse Than Debt: The World Financial Crisis and the Poor*. New York, NY: Grove/Atlantic Inc., 1987.

Gladwell, M. "Monsanto Working To Develop Plant That Resists Firm's Own Herbicide," in *Washington Post*, 17 May, 1988.

Global Environment Facility. *Quarterly Operational Report*. August 1994.

Global Environment Facility Independent Evaluation Panel. "Interim Report of the Independent Evaluation Panel." Washington, DC, August 26, 1993.

Global Exchange. *Fifty Years Is Enough: The Case Against the World Bank and the International Monetary Fund*. K. Danaher, ed. Boston, MA: South End Press, 1994.

Global 2000 and Greenpeace. *The Slovakian Nuclear Power Plant Mochavce, Documentation for Opinion-Leaders*. Washington, DC, June 1994.

Global 2000, Greenpeace and the Natural Resources Defense Council. *Important Questions and Answers About The Slovak Nuclear Power Plant Mochavce*. Washington, DC, November 1994.

Goldemberg, J. et al. *Energy for Development*. Washington, DC: World Resources Institute, 1987a.

———. *Energy for a Sustainable World*. Washington, DC: World Resources Institute, 1987b.

Goldemberg et al, in *Ambio*, Vol. 14, No. 4-5.

Goldsmith, J. *The Trap*. New York, NY: Macmillan Press, 1994.

Gow, D. "Peru: The Central Selva Resource Management Project," in *DESFIL Newsletter*. Vol. (1) 2, 1987, pp. 18-19.

Gradwohl, J. and R. Greenberg. *Saving The Tropical Forests*. Washington, DC: Smithsonian Institution, 1988.

Greenpeace. *Thirty Years After Silent Spring: The Poisoning Continues*. Washington, DC, 1994.

Greenpeace International. *Energy Wasted: The World Bank, Climate Change and Unsustainable Energy Lending*. Amsterdam, Netherlands, 1994a.

———. *Poland: The Green Tiger of Europe: The Only Way Forward*. Amsterdam, Netherlands, 1994b.

———. "The Precautionary Approach in the Context of Land-Based Sources of Marine Pollution," Paper presented to a Meeting of Experts on Control of Marine Pollution from Land-Based Sources. Montreal, Canada, 6-10 June, 1994c.

———. "A Precautionary Approach to Fisheries." Amsterdam, Netherlands, March 1994d.

———. "The Precautionary Principle and Implementation of UNCED Within IMO," Paper prepared for the 35th session of the Marine Environment Protection Committee of the International Maritime Committee. London, U.K., 7-11 March, 1994e.

———. *Toward Clean Production: A Greenpeace Manual for Activists*. Amsterdam, Netherlands, 1995.

Group of 7. *Economic Summit Communique*. Halifax, Nova Scotia, Canada. 1995.

Hancock, G. *Lords of Poverty*. New York, NY: Atlantic Monthly Press, 1989.

Hansen, M. *Alternatives to Pesticides in Developing Countries, Institute for Consumer Policy Research*. Mount Vernon, NY: Consumers Union, 1987.

———. "FAO at the Crossroads," Consumer Policy Institute, Consumers Union and Pesticide Action Network, 1993.

Hansen-Kuhn, K. *Structural Adjustment in Central America: The Case of Costa Rica*. Washington, DC: Development GAP, June 1993.

Harrison, P. *The Greening of Africa*. Middlesex, U.K.: Penguin Books, 1987.

Hartshorn, G., R. Simeone, and J. Tosi, Jr., "Sustained Yield Management of Tropical Forests: A Synopsis of the Palcazu Development Project In the Central Selva of the Peruvian Amazon," in *Management of the Forests of Tropical America: Prospects and Technologies*. J. Figueroa, F. Wadsworth and S. Branham, eds. Rio Piedras, Puerto Rico: IITF, 1987, pp. 235-243.

Hartshorn, G., "Application of Gap Theory To Tropical Forest Management: Natural Regeneration Of Trees On the Palcazu Demonstration Strips," in *Ecology*. Vol. 70, 1989, pp. 567-569.

Hartshorn, G. and W. Pariona, "Ecologically Sustainable Forestry Management in the Peruvian Amazon," in *Perspectives on Biodiversity: Case Studies of Genetic Resources Conservation and Development*, C. Potter and J. Cohen., eds. Washington, DC: American Assoc. for the Advancement of Science, 1993, pp. 151-166.

Hay, E. *The Precautionary Principle in Environmental Law and Policy: Institutionalizing Caution*. IV Georgetown International Environmental Law Review, Washington, DC, 1992.

Hayward, J.A., "Issues In Research and Extension," in *Sustainability Issues in Agricultural Development*. T.J. Davis and I.A. Schirmer, eds. Washington, DC: The World Bank, 1987, pp. 143-160.

Helleiner, G.K. "External Debt and External Finance for Sub-Saharan Africa: The Continuing Problem," in *Poverty, Prosperity and the World Economy: Essays in Memory of Sidney Dell*. G.K. Helleiner, ed. New York, NY: MacMillan, in press.

Hille, J. *Sustainable Consumption and Environmental Shares: Conceptual Framework for a Norwegian Study*. Norwegian Forum for Environment and Development and The Project for an Alternative Future, 1994.

Hittle, A. *The Dutch Challenge*. Washington, DC: Friends of the Earth/US, May 1994.

———. *Banco Mundial: Guia para salir del laberinto*. Washington, DC: Friends of the Earth/US, 1993.

Hossain, M. *Empowering Rural Women: Impact of Grameen Bank in Bangladesh*. Dhaka, Bangladesh: Grameen Bank, 1992.

Hyman, E. L. *Midterm Evaluation of the ATI/USAID Technology Transfer Project in Senegal*. Washington, DC: Appropriate Technology International, 1993.

International Labour Office. *Towards Social Adjustment: Labour Market Issues in Structural Adjustment*. G. Standing and V. Tokman, eds. Geneva, Switzerland, 1991.

International Union for the Conservation of Nature. *Summary Report of Global Forum on Environmental Funds, Santa Cruz, Bolivia, May 30-June 2, 1994*. Washington, DC.

Janzen, D.H. "A Dry Tropical Forest Ecosystem Restored," in *Earth Summit Times*, p. 28 and *NY Daily News*, p. 1, April 1, 1992.

———. "On Conserving Costa Rica's Tropical Forests," in *Calypso Log*. Cousteau Foundation, Vol. 19 No. (4), 1992, pp. 14-15.

———. "Tropical Ecological and Biocultural Restoration," in *Science* Vol. 239, 1988, pp. 243-244.

Janzen, D.H., W. Hallwachs, J. Jimenez, and R. Gamez. "The Role of the Parataxonimists, Inventory Managers and Taxonimists in Costa Rica's Biodiversity Inventory," in *Biodiversity Prospecting*, W.V. Reid, et al., eds. Washington, DC: World Resources Institute, 1993, pp. 223-254.

Johnson, N. and B. Cabarle. *Surviving the Cut: Natural Forest Management in the Humid Tropics*. Washington, DC: World Resources Institute, 1993.

Journal of Environment and Development, Berkeley, CA: University of California Press, Summer 1992.

Kareiva, P. and I. Parker. *Environmental Risks of Genetically Enginered Organisms and Key Regulatory Issues*. An Independent Report Prepared for Greenpeace International. Departments of Zoology and Botany, University of Washington, Seattle, WA and Greenpeace International, Amsterdam, Natherlands, November, 1994.

Khor, Martin. *South/North Resource Flows and Their Implications for Sustainable Development*. Kuala Lampur, Malaysia: Third World Network, 1994.

King-Dagen, M.D., E. Miriam, and A.M. Garay. "Local People and Resources As Catalysts To Improve Maternal and Child Health." Paper presented at the Society for International Development's Forum on Grassroots Development, Fort Collins, CO, 27-30 September, 1993.

Kolko, J. *Restructuring the World Economy*. New York, NY: Pantheon Press, 1988.

Kretzmann, S. *Money To Burn: The World Bank, Chemical Companies and Ozone Depletion*. Amsterdam, Netherlands: Greenpeace International, 1994.

Leitmann, J. *Rapid Urban Environmental Assessment: Lessons from Cities in the Developing World*. Vol. 1. Washington, DC: The World Bank, 1993.

Leopold, A. *A Sand County Almanac*. New York, NY: Ballantine Books, 1966.

Lewis, D. and N. Carter. *Voices from Africa: Local Perspectives on Conservation*. Washington, DC: World Wildlife Fund, 1993.

Lutz, E. *Toward Improved Accounting for the Environment*. Washington, DC: World Bank, 1993.

McElfish, J. and J. Pendergrass. *Reauthorizing Superfund: Lessons from the States*. Research Brief No. 2. Washington, DC: Environmental Law Institute, December 1993.

Maguire, R. "Standing Tall: Balanced Development in Haiti," in *Grassroots Development*. Vol. 10 No. (2), 1986, pp. 8-11.

Manibog, F. "Improved Cooking Stoves In Developing Countries: Problems and Opportunities," in *Annual Review of Energy*. Vol. 9, 1994, pp. 199-227.

Markandya, A. and D. Pearce. *Environmental Considerations and the Choice of the Discount Rate in Developing Countries*. Environment Department Working Paper No. 3. Washington, DC: World Bank, 1988.

Matthews, J. *Congressional Record*. 103rd Congress, 1994. p. E1171.

McDonald, S., in *E-Notes*. Washington, DC: International Institute for Energy Conservation, October-December 1993.

Milieudefensie (Friends of the Earth). *Action Plan Sustainable Netherlands*. Amsterdam, Netherlands, September 1993.

Miller, A.S., I.M. Mintzer, and S.H. Hogland. *Growing Power: Bioenergy for Development and Industry*. Washington, DC: World Resources Institute, 1986.

Miranda, K. and T. Mundozo. "Public Policy and the Environment," in *Finance and Development*. Vol. 28, No. 2, June 1991.

Morse, B. and T. Berger. *Sardar Sarovar: The Report of the Independent Review*. Washington, DC: Resource Futures International, Inc., 1992.

Munasinghe, M. *Environmental Economics and Sustainable Development*. Washington, DC: World Bank, 1993.

Murray, D.L. and P. Hoppin. *Pesticides, Nontraditional Agriculture and Social Equity*. San Francisco, CA: Global Pesticide Campaign, Pesticide Action Network. October 1990.

Mwenya, A.N. *ADMADE: Policy, Background and Future*. Washington, DC: United States Agency for International Development and World Wildlife Fund, 1990.

Mwenya, A., G. Kaweche, and D. Lewis. *The Administration Management Design for Game Management Areas in Zambia*. Lusaka, Zambia: Government Printers, 1988.

National Wildlife Federation. *Fertility on the Brink: The Legacy of the Chemical Age*. Washington, DC, 1994.

National Resources Defense Council and Environmental Defense Fund. *Power Failure: A Review of the World Bank's Implementation of its New Energy Policy*. Washington, DC, 1994.

Natural Resources Defense Council, the World Resources Institute and the Earth Council. *Directory of National Commissions on Sustainable Development*. Washington, DC, May 1994.

Nectoux, F. *A Hardwood Story: Europe's Involvement In the Tropical Timber Trade*. Harlow, U.K.: Longman Publishing Group, 1987.

Organization for Economic Cooperation and Development. *Progress Report on Implementing Agenda 21*. Presented to the United Nations Commission on Sustainable Development, May 16-27, 1994.

Otto, J. "Creating a Small Scale Edible Oils Industry," in *Africa Technology Forum*. Vol. 6, No. 3, 1993.

Overseas Development Administration. "Forest Research: British Overseas Aid 1976-1982," in *Overseas Research Publication*. No. 27, London, U.K., 1985.

Oxfam. "Women and Economic Policy: Issues of Focus and Gender—Perspectives on Women and Development," in *OXFAM Journal*. Vol. 1, No. 3, October 1993.

Oxfam UK and Ireland. *Structural Adjustment and Inequality in Latin America: How IMF and World Bank Policies Have Failed the Poor*. September 1994.

Page, D. "Growing Hope In Santiago's Urban Organic Gardens," in *Grassroots Development*. Vol. 10 No. 2, 1986, pp. 38-44.

Panos Institute. *Toward Sustainable Development*. London, U.K.: Panos Publications Ltd., 1987.

Payer, C. *Lent and Loss: Foreign Credit and Third World Development*. London, U.K.: Zed Books, 1991.

Peace Corps. *Case Study: Zaire Fish Culture Project*. Washington, DC, 1987.

Pearce, D. and J. Warford. *World Without End: Economics, Environment, and Sustainable Development*. Oxford, U.K.: Oxford University Press, 1993.

Pearce, D. *Blueprint 3: Measuring Sustainable Development*. London, U.K.: Earthscan Publications, 1993.

Pearl, M. et al. *Views from the Forest: Natural Forest Management Initiatives in Latin America*. Washington, DC: World Wide Fund for Nature-U.S., 1991.

People's Forum Bangkok. *International Forum Case Studies: Water*. Bangkok, Thailand, October 8-17, 1991.

———. *International Forum Case Studies: Agriculture*. Bangkok, Thailand, October 8-17, 1991.

Pimentel, D. et al. "World Agriculture and Soil Erosion," in *Bioscience*. Vol. 37, No. 4, 1987, pp. 277-283.

Plan Sierra. *Resumen Sobre El Plan Sierra*. San José de las Matas, Dominican Republic, 1986.

Plant, R. *Labour Standards and Structural Adjustment*. Geneva, Switzerland: International Labour Office, 1994.

Poffenberger, M. *Keepers of the Forest: Land Management Alternatives in Southeast Asia*. West Hartford, CT: Kumarian Press, 1990.

Population Reference Bureau Fact Sheet. *Profamilia: Colombian Family Welfare Association*. Washington, DC, March 1993.

———. *Pakistan: Family Planning with Male Involvement*

Project of Mardan. Washington, DC, November 1993.

Porter, G. and D. Ganapin, Jr. *Resources, Population, and the Philippines' Future: A Case Study*. World Resources Institute Paper #4. Washington, DC: World Resources Institute, October 1988.

Postel, S. and L. Heise. *Reforesting The Earth*. World Watch Paper 83, Washington, DC: Worldwatch Institute, April 1988.

Proceedings of an International Symposium. *IMF and World Bank in the 21st Century: The Future of the Bretton Woods Institutions*. Wuppertal, Germany, June 17-18, 1994.

Proceedings of the First Annual International Conference on Environmentally Sustainable Development. Sept. 30-Oct. 1, 1993, World Bank, Washington, DC.

Ramangason, G. S. "The Mananara-Nord Biosphere Reserve," in *Nature & Resources*. Vol. 29, 1993, pp. 1-4.

Reed, D. ed. *The Global Environment Facility: Sharing Responsibility for the Biosphere*. Washington, DC: World Wide Fund for Nature International, Vol. I, 1991 and Vol. II, 1993.

Reid, W.V. et al. *Biodiversity Prospecting*. Washington, DC: World Resources Institute, 1993.

Repetto, R., "Managing Natural Resources For Sustainability," in *Sustainability Issues in Agricultural Development*. T.J. Davis and I.A. Schirmer, eds. Washington, DC: World Bank, 1987, pp. 167-169.

———. *Economic Policy Reform for Natural Resource Conservation*. World Bank Environment Department Working Paper No. 4. Washington, DC, 1988a.

———. *The Forest for the Trees?*. Washington, DC: World Resources Institute, 1988b.

———. *Wasting Assets*. Washington, DC: World Resources Institute, 1993.

Rich, B. *Mortgaging the Earth: The World Bank, Environmental Impoverishment and the Crisis of Development*. Boston, MA: Beacon Press, 1994.

Rihoy, E. and A. Steiner. *The Commons Without the Tragedy?: Strategies for Community Based Natural Resource Management in Southern Africa*. Lilongne, Malawi: SADC Wildlife Technical Coordination Unit, March 1995.

Rissler, J. and M. Mellon. *Perils Amidst the Promise: Ecological Risks of Transgenic Crops in a Global Market*. Washington, DC: Union of Concerned Scientists, December, 1993.

Rola, A. C. and P. Pingal. *Pesticides, Rice Productivity and Farmers' Wealth: An Economic Assessment*. Washington, DC: World Resources Institute and International Rice Research Institute, 1993.

Rorison, K.M. and S.E. Dennison. *Majjia Valley Windbreak Project Evaluation*. Niamey, Niger: CARE International, 1987.

Schuler, S.R. and S.M. Hashemi "Rural Credit Programs, Women's Empowerment, and Use of Contraception in Rural Bangladesh," in *Studies in Family Planning*, 1994.

Schwartzman, S. *Bankrolling Disasters*. Washington, DC: Sierra Club, 1986.

———. "Social Movements and Natural Resource Conservation in the Brazilian Amazon," in *Rainforest Harvest: Sustainable Strategies for Saving the Tropical Forests*. London, UK: Friends of the Earth, 1992.

Serrano, G. *Pay Now, Not Later: Essays on Environment and Development*. Manila, Philippines: Philippine Rural Reconstruction Movement, 1994.

Seymour, F. and D. Rutherford. "Contractual Agreements in Asian Social Forestry Programs." Paper prepared for the First Annual Meeting of the International Association for the Study of Common Property, Developing Sustainability on the Commons, September 27-30, 1990, Durham, NC, Duke University.

Seymour, F. "Social Forestry on Public Lands in Indonesia: A Blurring of Ends and Means?." Paper prepared for the seminar Social Forestry: Innovations in International Forestry Management Practices, February 11, 1991, Washington, DC, The Paul H. Nitze School of Advanced International Studies, The John Hopkins University.

Shaiken, H. "High Tech Goes Third World," in *Technology Review*. January 1988, p. 41.

Shiva, V. *The Violence of the Green Revolution: Third World Agriculture, Ecology and Politics*. Kuala Lampur, Malaysia: Third World Network, 1991.

Solow, R. "On the Intergenerational Allocation of Natural Resources," in *Scandinavian Journal of Economics*. Vol. 88, 1986.

Speth, J. "A Post-Rio Compact," in *Foreign Policy*. Fall 1992.

Stocks, A. and G. Hartshorn. "The Palcazu Project: Forest Management and Native Yanesha Communities," in *Forestry*. Vol. 1, 1993, pp. 111-135.

Sun, M. "Costa Rica's Campaign For Conservation," in *Science*. Vol. 239, 1988, pp. 1366-1369.

Swartzendruber, J.F. *Conserving Biomass Energy in Sub-Saharan Africa: An Assessment of Experience*. Washington, DC: Office of Analysis, Research and Technical Support/ Food, Agriculture, and Resource Analysis, USAID, 1992.

The Ecologist. "Cakes and Caviar? The Dunkel Draft and Third World Agriculture." Vol. 23, No. 6, November/December 1993.

———. "The Uruguay Round: Gunboat Diplomacy by Another Name." Vol. 20, No. 6, November/December 1990.

Third World Network. *The Social and Ecological Impact of Structural Adjustment Policies in India: A Dossier*. Kuala Lampur, Malaysia, March 1992.

Tolan, S. "The Border Boom: Hope and Heartbreak," in *New York Times Magazine*. July 1, 1990.

United Nations Development Programme. *Benefits of Diversity: An Incentive Toward Sustainable Agriculture*. New York, NY, 1992.

———. *Human Development Report 1992*. New York, NY, 1992.

———. *Human Development Report 1993*. New York, NY, 1993.

———. *Human Development Report 1994*. New York, NY, 1994.

———. *Project Achievement Report on Dar-es-Salaam Management*. New York, NY, 1993.

———. *The World's Women: Trends and Statistics*. New York, NY, 1994.

United Nations Development Programme and Office to Combat Desertification and Drought. "Bourgou Regeneration in the Niger Inner Delta, Mali." Summary of a text prepared by Daniel Stiles in cooperation with the Technical Support Division of UNSO. 1993.

———. *Lakes of Grass: Regenerating Bourgou in the Inner Delta of the Niger River.* 1990.

United Nations Economic and Social Council, E/CN.17/1993/L.5/Rev.1,23, 1993.

United Nations Fund for Population Activities. *1994 Annual Report.* New York, NY, 1994.

United Nations Non-Governmental Liaison Service. *Voices From Africa: Sustainable Development.* New York, NY, 1994.

United Nations Statistical Division. *Integrated Environmental and Economic Accounting.* New York, NY, 1993.

UNCTAD. *Trade and Development Report.* Geneva, Switzerland, 1994.

UNICEF. *The Progress of Nations.* New York, NY, 1994.

U.S. Agency for International Development. *Plan for Supporting Natural Resources Management in Sub-Saharan Africa.* Office of Technical Resources, Bureau for Africa. Washington, DC: USAID, 1987a.

———. *Special Report: The Environment.* Washington, DC: Office of Publications, USAID, 1987b.

U.S. Agency for International Development, Office of Analysis, Research and Technical Support, Bureau for Africa. *Towards a Sustainable Future for Africa,* Technical Paper #5, April 1993.

U.S. Congress, Office of Technology Assessment. *Fueling Development: Energy Technologies for Developing Countries.* OTA-E-516. Washington, DC: U.S. Government Printing Office, 1992.

Von Amsberg, J. *Project Evaluation and the Depletion of Natural Capital: An Application of the Sustainability Principle.* Working Paper No. 56. Washington, DC: World Bank, 1993.

Wapenhans, W. *Report of the Portfolio Management Task Force.* Washington, DC: The World Bank, July 1992.

Warford, J. "Environment, Growth and Development." Paper Prepared for the Development Committee, World Bank, 1987.

———. *The Evolution of Environmental Concerns in Adjustment Lending: A Review.* World Bank Environmental Working Paper No. 65. Washington, DC: The World Bank, 1994.

Watkins, K. *Africa, Make or Break: Action for Recovery.* Oxford, U.K.: Oxfam Publications, 1993.

Wigg, D. *Quiet Revolutionaries—A Look at a Campaign by Agricultural Scientists To Fight Hunger . . . How the Much Neglected Cassava Could Help.* World Bank Development Essays No. 2. Washington, DC: World Bank, 1993.

Winterbottom, R. and P. T. Hazlewood. "Agroforestry and Sustainable Development: Making the Connection," in *Ambio.* Vol. 16, No. 2-3, 1987, pp. 100-110.

Wolf, A. and D. Reed. *Incremental Cost Analysis in Addressing Global Environmental Problems.* Washington, DC: World Wide Fund for Nature International, June 1994.

World Bank. *Adjustment in Africa: Lessons From Country Case Studies.* I. Husain and R. Faruquee, eds. Washington, DC, 1994a.

———. *Adjustment in Africa: Reforms, Results, and the Road Ahead.* Oxford University Press, 1994b.

———. *Deepening the World Bank's Strategy for Reducing Hunger and Poverty: Report of the Learning Group on Participatory Development.* Washington, DC, 1994c.

———. *Economywide Policies and the Environment: Emerging Lessons from Experience.* Washington, DC, 1994d.

———. *Financing Adjustment with Growth in Sub-Saharan Africa 1986-1990.* Washington, DC, 1986.

———. *IDA: Investing in the Future.* Washington, DC, 1993a.

———. *Making Development Sustainable: The World Bank Group and the Environment.* Washington, DC, 1994e.

———. *Monitoring Environmental Programs.* Washington, DC, 1995.

———. *Social Indicators of Development.* Baltimore and London: The Johns Hopkins University Press, 1994f.

———. *Toward Environmental Strategies for Cities.* Paper No. 18, Washington, DC, 1994g.

———. *Valuing the Environment, Proceedings of the First Annual International Conference on Environmentally Sustainable Development.* Washington, DC, 1994h.

———. *The World Bank Annual Report 1992.* Washington, DC, 1992.

———. *The World Bank Annual Report 1993.* Washington, DC, 1993b.

———. *The World Bank Policy on Disclosure of Information.* Washington, DC, March 1994i.

World Bank Environment Department. "Bank-Executed MEIP Program at Work in Asian Region," in *Environment Bulletin.* Spring 1994.

———. *Resettlement and Development: The Bankwide Review of Projects Involving Involuntary Resettlement 1986-1993.* Washington, DC, 1994.

World Bank Operations Evaluation Department. *The World Bank and Participation.* 1994.

World Bank. *World Bank News.* 24 March 1994.

World Commission on Environment and Development. *Our Common Future.* Oxford, U.K.: Oxford University Press, 1987.

World Conservation Monitoring Center. *Global Biodiversity: Status of Earth's Living Resources.* New York, NY: Chapman and Hall, 1992.

World Resources Institute. *World Resources 1986.* New York, NY: Basic Books Inc., 1986.

———. *World Resources 1987.* New York, NY: Basic Books Inc., 1987.

———. *World Resources 1992-1993.* Oxford, U.K.: Oxford University Press, 1992.

———. *World Resources 1994-1995,* Oxford, U.K.: Oxford University Press, 1994.

Worldwatch Institute. *State of the World 1993.* New York, NY: W.W. Norton & Company, Inc., 1993.

———. *State of the World 1994.* New York, NY: W.W. Norton & Company, Inc., 1994.

Wright, A. *The Death of Ramon Gonzalez: The Modern Agricultural Dilemma.* Austin, TX: University of Texas Press, 1990.

Testimony Cited

Blackwelder, B. and J. Barnes, Statement on behalf of Friends of the Earth before the House Appropriations Subcommittee

on Foreign Operations concerning the World Bank, IMF, Asian Development Bank, Export-Import Bank, UNEP and other UN Agencies, EBRD, and AID. March 1, 1993.

———, Statement on behalf of Friends of the Earth before the House Appropriations Subcommittee on Foreign Operations, Washington, D.C. April 25, 1994.

Dudley, B., Statement on behalf of Greenpeace to the House Committee on Merchant Marine and Fisheries, "NAFTA and the Environmental Side Accord." November 10, 1993.

Duncan, C., Statement on behalf of Greenpeace to the Committee on Foreign Relations of the U.S. Senate, "NAFTA and the Environmental Side Accord." October 27, 1993.

Durbin, A., Statement on behalf of Friends of the Earth to the Subcommittee on Trade of the House Committee on Ways and Means, "The North American Free Trade Agreement (NAFTA) and the Environmental Side Agreement." September 21, 1993.

———, Statement on behalf of Friends of the Earth to the Subcommittee on Trade of the House Committee on Ways and Means, "The Environmental Implications of the Final Agreement of the GATT." February 2, 1994.

Goldberg, D., Statement before the Subcommittee on International Development, Finance, Trade and Monetary Policy of the House Committee on Banking, Finance and Urban Affairs. April 14, 1994.

Greenwalt, L., Statement on behalf of the National Wildlife Federation before the Subcommittee on International Trade of the Senate Finance Committee, "Environmental Reforms of the Generalized System of Trade Preferences." June 20, 1994.

Hair, J., Statement on behalf of the National Wildlife Federation to the House Committee on Merchant Marine and Fisheries, "NAFTA and Environmental Concerns." November 10, 1993.

Hittle, A., Statement on behalf of Friends of the Earth to the Subcommittee on Economic Policy, Trade and Environment of the House Committee on Foreign Affairs, "The Environmental Implications of the Uruguay Round of GATT." March 8, 1994.

Hudson, S., Statement on behalf of the National Wildlife Federation to the Subcommittee on International Trade of the Senate Finance Committee. September 16, 1992.

Reed, D., Statement on behalf of Worldwide Fund for Nature International to the Subcommittee on International Development, Finance, Trade and Monetary Policy of the House Committee on Banking, Finance and Urban Affairs. April 14, 1994.

Udall, L., Statement on behalf of the Environmental Defense Fund concerning the Environmenal and Social Impacts of the International Development Association, before the Subcommittee on International Economic Policy, Trade, Oceans and Environment, Committee on Foreign Relations. U.S. Senate. May 27, 1993.

———. Testimony on behalf of the International Rivers Network, Friends of the Earth, Bank Information Center, Environmental Defense Fund, Greenpeace, and the Sierra Club before the Subcommittee on International Development, Finance, Trade and Monetary Policy of the House Committee on Banking, Finance and Urban Affairs. June 21, 1994.

APPENDIX

ORGANIZATIONAL ADDRESSES AND CONTACTS

New Developments in Lending Policy

International Lending and Development Organizations

World Bank
James Wolfensohn, President
1818 H St. NW
Washington, D.C. 20433
P: (202)477-1234
F: (202)477-6391
http://www-int.worldbank.org

Inter-American Development Bank
Enrique Iglesias, President
1300 New York Ave. NW
Washington, D.C. 20577
P: (202)623-1000
F: (202)623-3096
http://www.iadb.org

Asian Development Bank
Mitsuo Sato, President and Chairman of the Board
P.O. Box 789, 1099 Manila
Philippines
P: (632)711-3851
F: (632)741-7961
http://www.asiandev.bank.org

African Development Bank
01 B.P. 138
Abidjan 01, Ivory Coast
P: (225)32-07-11
F: (225)22-70-04

European Bank for Reconstruction and Development
Jacques de Larosiere, President
One Exchange Square
London EC2A 2EH
P: (44 1171)338-6372
F: (44-1-171)338-6100

Global Environment Facility (GEF)
Mohamed El-Ashri, Chief Executive Officer and Chairman
1818 H St. NW
Washington, D.C. 20433
P: (202)473-1053
F: (202)522-3240

United Nations Development Programme (UNDP)
Gustave Speth, Director
One United Nations Plaza
New York, N.Y. 10017
P: (212)906-5000
F: (212)906-5001
HQ@undp.org

United Nations Environment Programme (UNEP)
Elizabeth Dowdeswell, Executive Director
PO Box 30552
Nairobi
Kenya
P: (25 42)62-12-34
F: (25 42)22-68-90

UN NGO Liaison Service
Room 6015
866 United Nations Plaza
New York, New York 10017
P: (212)963-3125
F: (212)963-8712
NGLS@UNDP.ORG

Citizen Organizations with Information on Foreign Aid and Development Projects

Bank Information Center
2025 I St NW
Washington, D.C. 20006
P: (202)466-8191
F: (202)466-8189
bicusa@igc.apc.org

Provides documents on bank projects & helps citizens obtain information on projects and policy

Friends of the Earth U.S.
1025 Vermont Ave. NW.
Suite 300
Washington, D.C. 20005
P: (202)783-7400
F: (202)783-0444
foedc@igc.apc.org

Provides information on legislation affecting multilateral banks passed by the U.S. Congress

50 Years is Enough
1025 Vermont Ave. NW
Suite 300
Washington, D.C. 20005
P: (202)879-3187
F: (202)879-3186
wb50years@igc.apc.org

Provides information about performance of the World Bank and IMF and a platform for reform of lending policy

New Initiatives in Development Bank Lending

■ Policies on Access to Information

The World Bank has established Public Information Centers in its country representatives' offices and in Tokyo, Paris and Washington, DC. The Information Centers have copies of the Bank's Policy on Disclosure of Information. Requests may also be submitted through the Internet and a list of available documents is on the Internet.

World Bank Public Information Center
1776 G Street, NW
Washington, DC 20433
P: (202) 458-5454
F: (202) 522-1500
http://www-int.worldbank.org

The World Bank's private sector arm, the International Finance Corporation (IFC), has its own disclosure policy, which can be obtained through the Public Information Center or the IFC's Corporate Relations Unit by phone at (202) 473-7711 or fax at (202) 676-0365.

Similarly, the IDB approved an information policy making documents available to the public at the Bank's headquarters, its Special Office in Europe and its country offices. The ADB developed a revised information policy in 1994. Information requests can be sent via the Internet to the Manila office or in writing to the Washington, DC office.

IDB Public Information Center
1300 New York Avenue, NW
Washington, DC 20577
P: (202) 623-1397
F: (202) 623-1403

ADB North American Representative
1730 Pennsylvania Avenue, NW Suite 975
Washington, DC 20006
P: (202) 626-0050
F: (202) 626-0055

For information on how to use the World Bank's Information Policy contact the Bank Information Center and ask for a copy of the *Citizens' Guide to the Information Policy* (address and numbers listed under Citizen Organizations section).

■ Appeals Mechanisms

The World Bank has created an Independent Inspection Panel to hear complaints about projects. For detailed information on how the Panel works, contact the Bank's Public Information Center and ask for the Panel's Operating Procedures (address and numbers above). The ADB has announced its intention to create its own appeals mechanism, but no formal process exists to date. The IDB is in the process of creating an informal

appeals board of ten experts who will serve on an "on-call" basis.

For information on how to use the Inspection Panel contact the Bank Information Center and ask for a copy of the *Citizens' Guide to the Inspection Panel* (address and numbers listed under Citizen Organizations section).

■ Public Participation Policy

For information on the Public Participation Policy of the World Bank, and ways affected communities can have a voice, contact:

Nancy Alexander
Bread for the World Institute
1100 Wayne Avenue, Suite 1000
Silver Spring, MD 20910
P: (301) 608-2400
F: (301) 608-2401
bread@igc.apc.org

■ Asian Development Bank's Social Dimensions Unit

The ADB has established a Social Dimensions Unit with Social Dimensions Guidelines and has endorsed the concept of community acceptability for all projects. The ADB has agreed to change its project mix so that about half of all loans, measured both by volume and value directly address social and environmental issues.

National Wildlife Federation Membership & Publications Order Form

Source Key #506214

NATIONAL WILDLIFE MEMBERSHIP

❑ WORLD MEMBERSHIP $22.00
❑ ASSOCIATE MEMBERSHIP $16.00
❑ NATIONAL WILDLIFE *or* ❑ INTERNATIONAL WILDLIFE
❑ Also send me EnviroAction GR70F153

NATIONAL WILDLIFE CHILDREN'S MAGAZINES

❑ RANGER RICK $15.00 ❑ YOUR BIG BACKYARD $12.00

NATIONAL WILDLIFE PUBLICATIONS

❑ BANKROLLING SUCCESSES: A PORTFOLIO OF SUSTAINABLE DEVELOPMENT PROJECTS item #79934 Single copy $10.00/Multiples $8.00
❑ FERTILITY ON THE BRINK Item #79935 $15.00
❑ THE BACKYARD NATURALIST Item #19737 $6.95
❑ CONSERVATION DIRECTORY Item #79562 $20.00
❑ NWF ACTIVIST KIT Item #79957 $13.50
❑ GLOBAL WARMING: A PERSONAL GUIDE TO ACTION Item #79978 $2.00
❑ REDUCING THE RISK OF CHEMICAL DISASTER Item #79959 $7.00
❑ TRACKING ARCTIC OIL Item #79976 $6.00

Name_____
Address_____
City_____ State_____ Zip_____
In case we have a question about your order:
Daytime telephone: (_____)_____

ITEM NO.	QTY.	DESCRIPTION	PRICE EACH	AMOUNT

PUBLICATIONS SUBTOTAL $
Please add sales tax for items **shipped to** CO (3%), DC (6%), FL (6%), GA (6%), MD (5%), MI (6%), NC (6%), TX (6.25%), VT (5%), or VA (4.5%) $
Shipping and Handling. See chart below. $
MEMBERSHIP & MAGAZINES SUBTOTAL $
GRAND TOTAL $

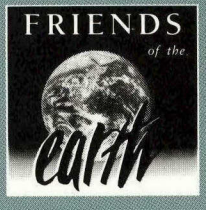
Please make checks payable to:
NATIONAL WILDLIFE FEDERATION®
1400 Sixteenth Street, N.W.
Washington, D.C. 20036-2266

SHIPPING & HANDLING

If your subtotal is:		If your subtotal is:		If your subtotal is:	
$15.00 and under	add $3.50	$30.01 to $55.00	add $6.50	$75.01 to $100.00	add $8.75
$15.01 to $30.00	add $5.25	$55.01 to $75.00	add $7.75	$100.01 and up	add $9.75



Working for the Nature of Tomorrow®
National Wildlife Federation
1400 Sixteenth Street, N.W.
Washington, D.C. 20036
Phone: 202-797-6800



Friends of the Earth
The Global Building
1025 Vermont Avenue, N.W., Suite 300
Washington, D.C. 20005
Phone: 202-783-7400

ISBN 0-913890-94-4

FILE COPY

CORRESPONDENCE MANAGEMENT FOR THE PRESIDENT'S OFFICE

CHORUS

URGENT

External Correspondence Profile

High Priority

***Reference #:* EXC-04874**

please copy to Sven

For Action: Ismail Serageldin
VPU: ESD Room #: S-7031 Telephone: 34502

Log Date: 12/05/95 09:23:53 AM
Status: **Open**
Response Date:

CORRESPONDENCE DESCRIPTION:

From: **Robert Blake, Chairman, Cttee. on Agricultural Sustainabiltiy for Developing Countries, DC**
To: Mr. Wolfensohn
Dated: 12/04/95
Topic: **December 13 meeting** - topics for discussion

ACTION INSTRUCTIONS:

***Due Date:* 12/14/95**

Per my EXP

3. Please prepare a response for Mr. Wolfensohn's signature according to the following instructions:

a) Send the letter for Mr. Wolfensohn's signature back to Maree in E1227, together with the copy of the pink Log Sheet and incoming letter;

b) Include two (2) copies of the response letter attaching a copy of the Log Sheet and the incoming letter which should show the bccs, drafter's ID and EXC log number (these copies will be stamped " (signed) JAMES D. WOLFENSOHN ";

c) Once the letter is signed you will be called by staff from EXC to pick up the signed letter together with one "stamped" copy showing the bccs.

d) VP Units are responsible for distribution of the original signed letter and the copies.

Josi

SPECIAL INSTRUCTIONS:

None

INFORMATION COPIES:

Please return to:
Maree Aniba, EXC, E1227, 84138

DECLASSIFIED
JAN 10 2025
WBG ARCHIVES

COMMITTEE ON AGRICULTURAL SUSTAINABILITY FOR DEVELOPING COUNTRIES
A Coalition of Organizations Concerned about Agricultural Development

1709 New York Avenue, N.W., Washington, D.C. 20006 Telephone: 202-638-6300
Facsimile: 202-638-0036 Telex: 64414 WRIWASH Direct Dial: (202) 662-3486

December 4, 1995

Urgent
Re paper on LT
Wolfensohn's
purpose we
agreed
12/

Personal

Mr. James Wolfensohn
President
The World Bank
1818 H Street, NW
Washington, DC 20433

Dear Mr. Wolfensohn,

I and the group from our Committee on Agricultural Sustainability for Developing Countries are very much looking forward to our meeting with you on December 13. In preparation for that meeting, I want to give you a sense of the one area where we will be seeking concrete results: we would like to come away from the meeting with a commitment that the World Bank will issue an updated statement of its position on global food security. A year or so ago, two Bank economists, Ingco and Mitchell, put out a paper on the subject which from the point of view of many in the agricultural and NGO communities was inappropriate and incomplete in its analysis. When we brought our views on this paper to Lew Preston's attention, he agreed that this paper did not represent the Bank's position. And when it was printed, the paper bore the usual disclaimer that it reflected the authors' views and not necessarily those of the Bank. Then on October 27, 1994 your Agricultural and Natural Resources Director, Alexander McCalla, gave an excellent speech on global food security at the Sir John Crawford Lecture, designed to put forward a more realistic view of the critical variables and issues. Alex's speech, I understand, was to have been given the President's endorsement as being a statement consistent with the Bank's views and policies. This process was interrupted by Lew Preston's illness and death. In my judgement it may be that too much time has passed and too many elements have been added to the picture to now use the McCalla speech only as a vehicle for expressing the Bank's views on food security. That being said, I think most of the data needed for a Bank statement are already in the McCalla speech and could be used to produce a statement quickly.

What we will urge you to do at our meeting is to have the Bank release such a policy statement in the first months of 1996, which is the year of the World Food Summit. I am convinced that such a Bank statement should emphasize not just what must be done on the technological, research and policy side to achieve food security, but also what must be done in terms of education, outreach to farmers, rural credit, etc. -- **and** what the World Bank can and will do to help in these regards.

Africare, Aga Khan Foundation, AIARD, Appropriate Technology International, Bread For The World Institute, Canadian Hunger Foundation, CARE, Catholic Relief Services, Centre for Science and Environment, CIFAD, Consumer Policy Institute, COSECHA, The Crawford Fund, Environmental Defense Fund, Environmental and Energy Study Institute, Freedom from Hunger, Friends of the Earth, Garden Club of America, Global Tomorrow Coalition, Heifer Project International, The Henry A. Wallace Institute, InterAction, Institute for Research on Public Policy, International Institute for Environment & Development, International Institute for Rural Reconstruction, National Association of State Universities and Land-Grant Colleges, National Audubon Society, National Wildlife Federation, Natural Resources Defense Council, Overseas Development Council, OXFAM America, PACT, Pakistan Institute for Environment and Development, Pesticide Action Network, Planned Parenthood Federation of America, Population Action International, Rodale Institute, Save the Children, Sierra Club, TechnoServe, United Methodist Committee on Relief, VITA, Winrock International, World Learning, World Neighbors, World Resources Institute, World Vision Relief and Development Inc., Worldwatch Institute, WorldWIDE Network, World Wildlife Fund.

Printed on Recycled Paper

This does not mean, however, that the Bank should stop there. In our view the food security problem requires a much more multi-disciplinary approach than the Bank has embarked on to date. For example, unless a team contains a hydrologist who understands what is happening with water tables in major food-producing regions and of the coming reductions in irrigation water supplies when aquifers are depleted, the projections will not reflect reality. Unless there is an agronomist on the team, one who specifically understands the limits of available crop varieties to effectively use more fertilizer, this dominant influence on food production trends will be omitted from the projections. A projection team should also include a meteorologist, one who can help interpret the possible effects of, or at least the uncertainties associated with, the continuing buildup in greenhouse gases. With carryover stocks at the lowest level in history and with grain prices rising, there is a need to act quickly. One approach to filling this vital information gap would be to establish an interdisciplinary projection team in the Bank, perhaps under the Vice President for Environmentally Sustainable Development, a part of the Bank that necessarily deals with a broader range of issues.

As you said in your speech to the Bank's Board, development is a complex and difficult business. Complexities must be faced and articulated. Earlier Bank statements on food security and agricultural development tend to pass over or minimize these latter elements. A clear and comprehensive Bank statement could, we believe, have an important impact, inside the Bank and out.

Our Committee is working on another "high level" approach to global food security, one which we hope will promote greater understanding of and new level of consensus on the complex dimensions of this problem. We are looking at how we can bring together a small group of very senior people from various parts of the world -- persons with high name recognition -- to put together a short statement about food security prospects and what must be done to promote them. Our present thinking, which I am discussing with M.S. Swaminathan and others, is to have a number of leading institutions like the World Bank and others who support international development become in someway partners in this enterprise. We will continue to consult with your colleagues at every stage of this venture

Returning to our December 13 meeting, at your staff's request, we have suggested topics likely to come up. I don't anticipate other specific requests to you for action. But with NGOs, you never know for sure. We look forward with pleasure and anticipation to our meeting with you.

Sincerely,

Robert O. Blake
Chairman

The World Bank
Washington, D.C. 20433
U.S.A

Office of the President

December 5, 1995

Ambassador Robert O. Blake
Chairman
Committee on Agricultural Sustainability for
Developing Countries
1709 New York Avenue NW
Washington. DC 20006

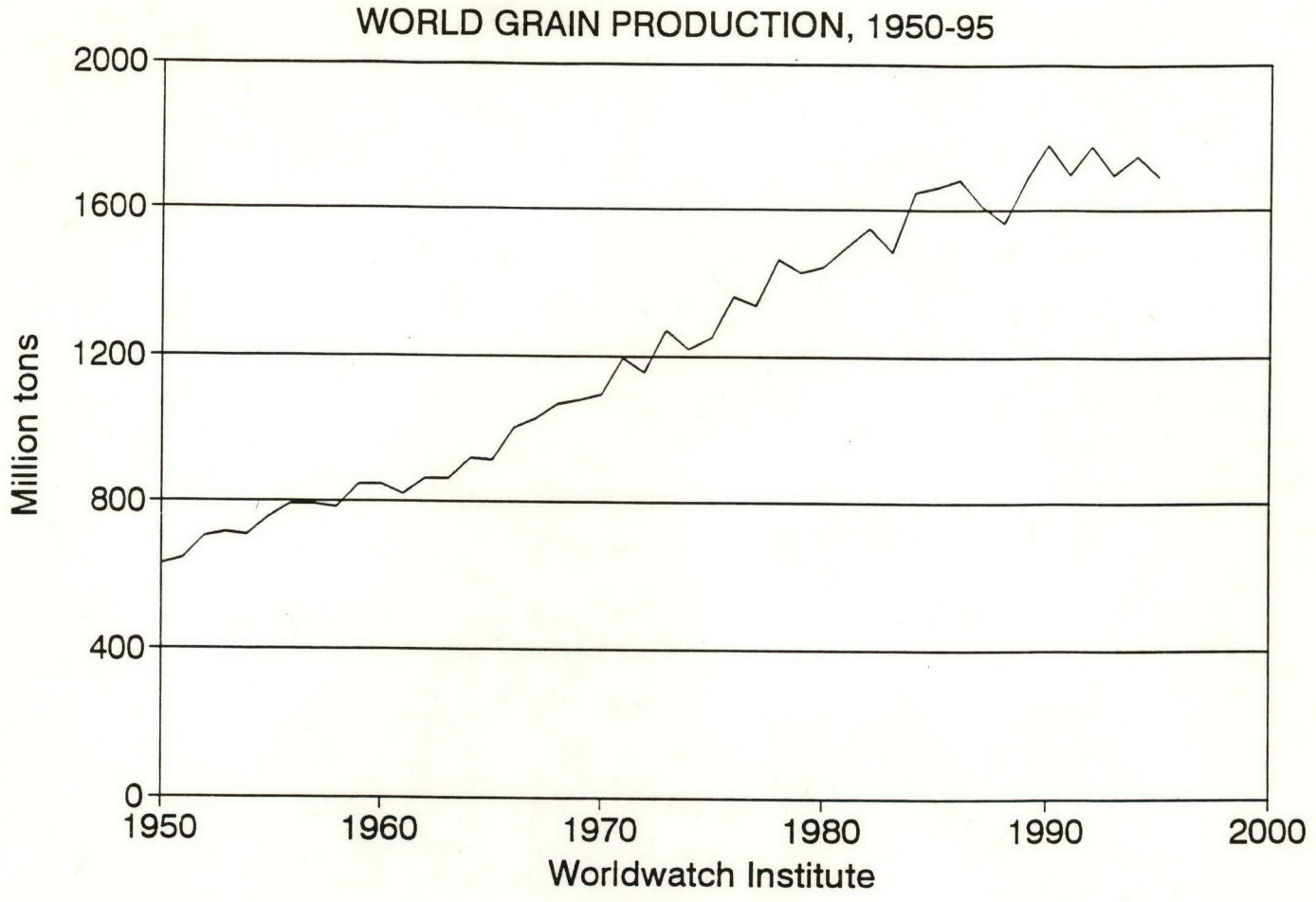
Dear Ambassador Blake:

Thank you for your letter addressed to Mr. Wolfensohn.

I will bring it to his attention and ensure that you get a response as soon as possible.

Sincerely,

Maree T. Aniba
Executive Assistant



Josie

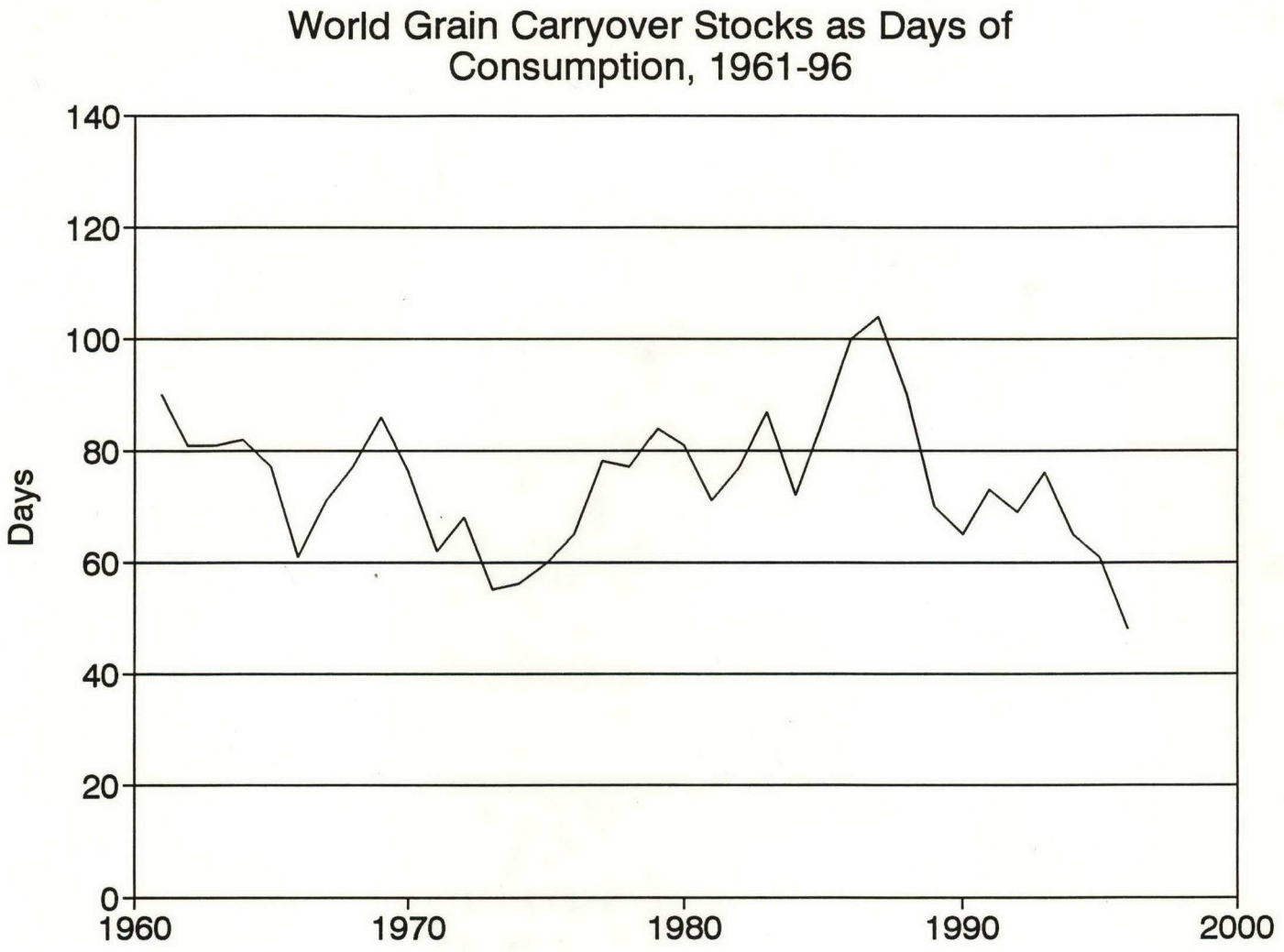
Does this

mean anything to you?

R

Mike - For Agricultural NGO Meeting allies

Year	World Total (million tons)	Per Person (kg.)
1950	631	247
1951	645	249
1952	704	267
1953	717	268
1954	709	260
1955	759	273
1956	794	280
1957	794	271
1958	784	288
1959	849	278
1960	847	279
1961	822	267
1962	864	276
1963	865	270
1964	921	281
1965	917	274
1966	1,005	294
1967	1,029	295
1968	1,069	301
1969	1,078	297
1970	1,096	296
1971	1,194	316
1972	1,156	299
1973	1,272	323
1974	1,220	304
1975	1,250	306
1976	1,363	328
1977	1,337	316
1978	1,467	341
1979	1,428	326
1980	1,447	325
1981	1,499	331
1982	1,550	336
1983	1,486	317
1984	1,649	346
1985	1,664	343
1986	1,683	341
1987	1,612	321
1988	1,564	306
1989	1,685	324
1990	1,780	336
1991	1,696	315
1992	1,776	316
1993	1,697	305
1994	1,747	308
1995	1,691	293


World Grain Carryover Stocks as Days of Consumption, 1961-96
Days
140
120
100
80
60
40
20
0
1960
1970
1980
1990
2000

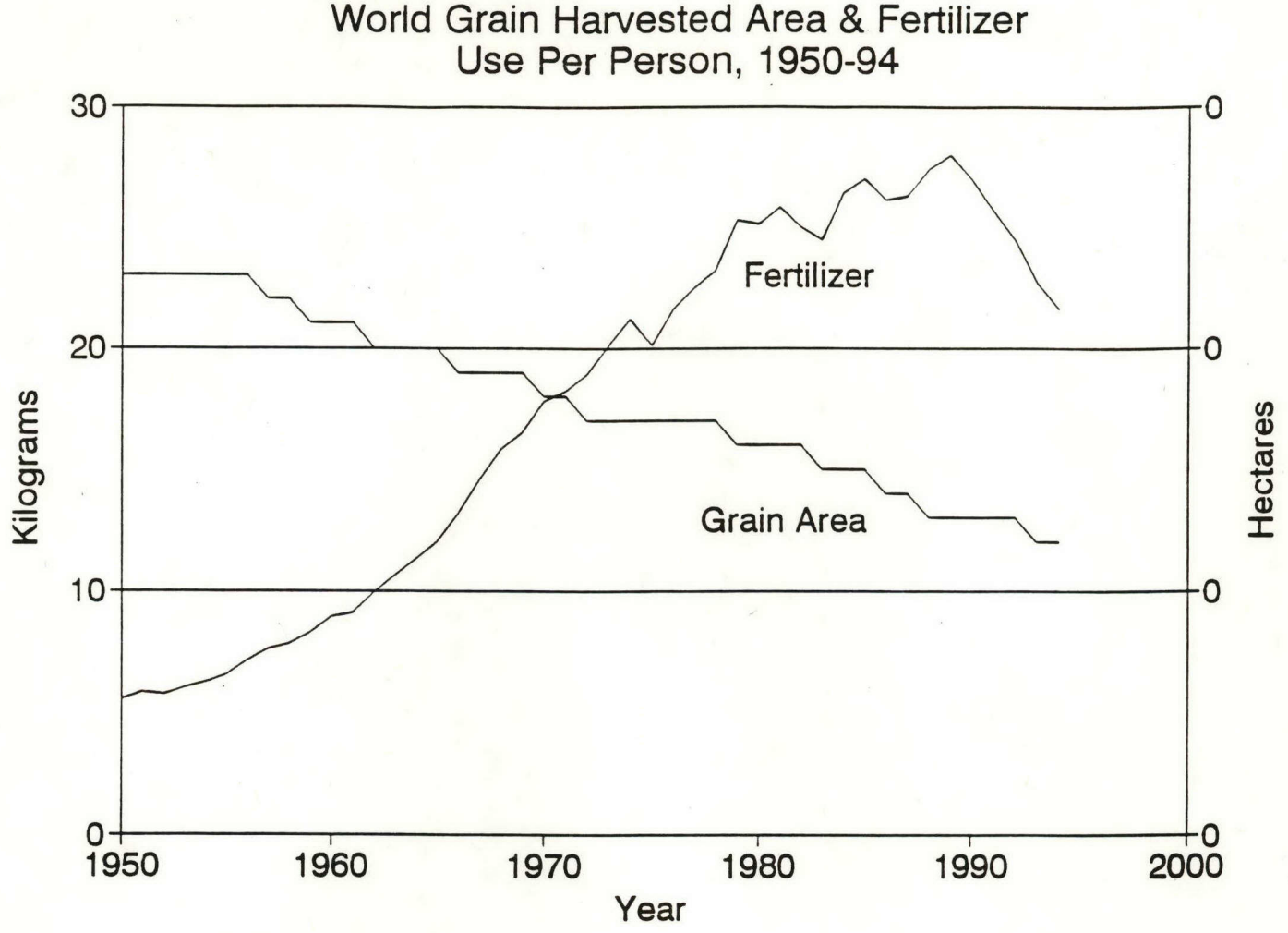
World Grain Carryover Stocks, Quantity and as Days of Consumption, 1961-96

Year	Quantity (million tons)	Consumption (days)
1961	203	90
1962	182	81
1963	190	81
1964	193	82
1965	194	77
1966	159	61
1967	190	71
1968	213	77
1969	244	86
1970	228	76
1971	193	62
1972	217	68
1973	180	55
1974	192	56
1975	200	60
1976	220	65
1977	280	78
1978	278	77
1979	328	84
1980	315	81
1981	288	71
1982	309	77
1983	357	87
1984	304	72
1985	366	85
1986	434	100
1987	465	104
1988	409	90
1989	316	70
1990	301	65
1991	342	73
1992	317	69
1993	351	76
1994	313	65
1995	296	61
1996 (est)	229	48

Note: Data are for year when new harvest begins.

Source: U.S. Department of Agriculture, "World Grain Situation and Outlook" (unpublished printout), Washington, D.C., November 1994.

See Worldwatch publication Vital Signs 1995 and State of the World 1995 for further information.


World Grain Harvested Area & Fertilizer Use Per Person, 1950-94
30
20
10
0
0
0
0
0
Kilograms
Hectares
Fertilizer
Grain Area
1950
1960
1970
1980
1990
2000
Year

World Grain Area Harvested Area, Total and Per Person, 1950-94

YEAR	AREA	PER PERSON
	mil hec	hectares
1950	587	0.23
1951	589	0.23
1952	609	0.23
1953	619	0.23
1954	627	0.23
1955	639	0.23
1956	648	0.23
1957	644	0.22
1958	646	0.22
1959	635	0.21
1960	639	0.21
1961	635	0.21
1962	641	0.2
1963	648	0.2
1964	657	0.2
1965	653	0.2
1966	7655	0.19
1967	665	0.19
1968	670	0.19
1969	672	0.19
1970	663	0.18
1971	672	0.18
1972	661	0.17
1973	688	0.17
1974	691	0.17
1975	708	0.17
1976	717	0.17
1977	714	0.17
1978	713	0.17
1979	711	0.16
1980	722	0.16
1981	732	0.16
1982	716	0.16
1983	706	0.15
1984	710	0.15
1985	715	0.15
1986	709	0.14
1987	685	0.14
1988	686	0.13
1989	694	0.13
1990	693	0.13
1991	686	0.13
1992	687	0.13
1993	677	0.12
1994	676	0.12

SOURCE: Grain data from U.S. Department of Agriculture, "World Grain Database (unpublished printouts)(Washington, D.C.: 1992). Population data from U.S. Bureau of the Census, private communication, November 1993; Population Reference Bureau, "Population Data Sheet," (Washington, D.C., various years). Fertilizer data from U.N. Food and Agriculture Organization, "Fertilizer Yearbook" (Rome: various years); Intl Fertilizer Ind. Assoc.; Worldwatch Institute.

Fertilizer Use, World Total and Per Capita, 1950-93

Year	Total (million tons)	Per Person (kilograms)
1950	14	5.5
1951	15	5.8
1952	15	5.7
1953	16	6.0
1954	17	6.2
1955	18	6.5
1956	20	7.1
1957	22	7.6
1958	23	7.8
1959	25	8.3
1960	27	8.9
1961	28	9.1
1962	31	9.9
1963	34	10.6
1964	37	11.3
1965	40	12.0
1966	45	13.2
1967	51	14.6
1968	56	15.8
1969	60	16.5
1970	66	17.8
1971	69	18.2
1972	73	18.9
1973	79	20.1
1974	85	21.2
1975	82	20.1
1976	90	21.6
1977	95	22.5
1978	100	23.2
1979	111	25.3
1980	112	25.1
1981	117	25.8
1982	115	25.0
1983	115	24.5
1984	126	26.4
1985	131	27.0
1986	129	26.1
1987	132	26.3
1988	140	27.4
1989	146	28.0
1990	143	27.0
1991	138	25.7
1992	134	24.5
1993	126	22.7
1994	121	21.6

Source: U.N. Food and Agriculture Organization (FAO), Fertilizer Yearbook (Rome: various years); International Fertilizer Industry Assoc.; Worldwatch Institute; population numbers from Population Reference Bureau, Population Data Sheet, (Washington , D.C., various years).

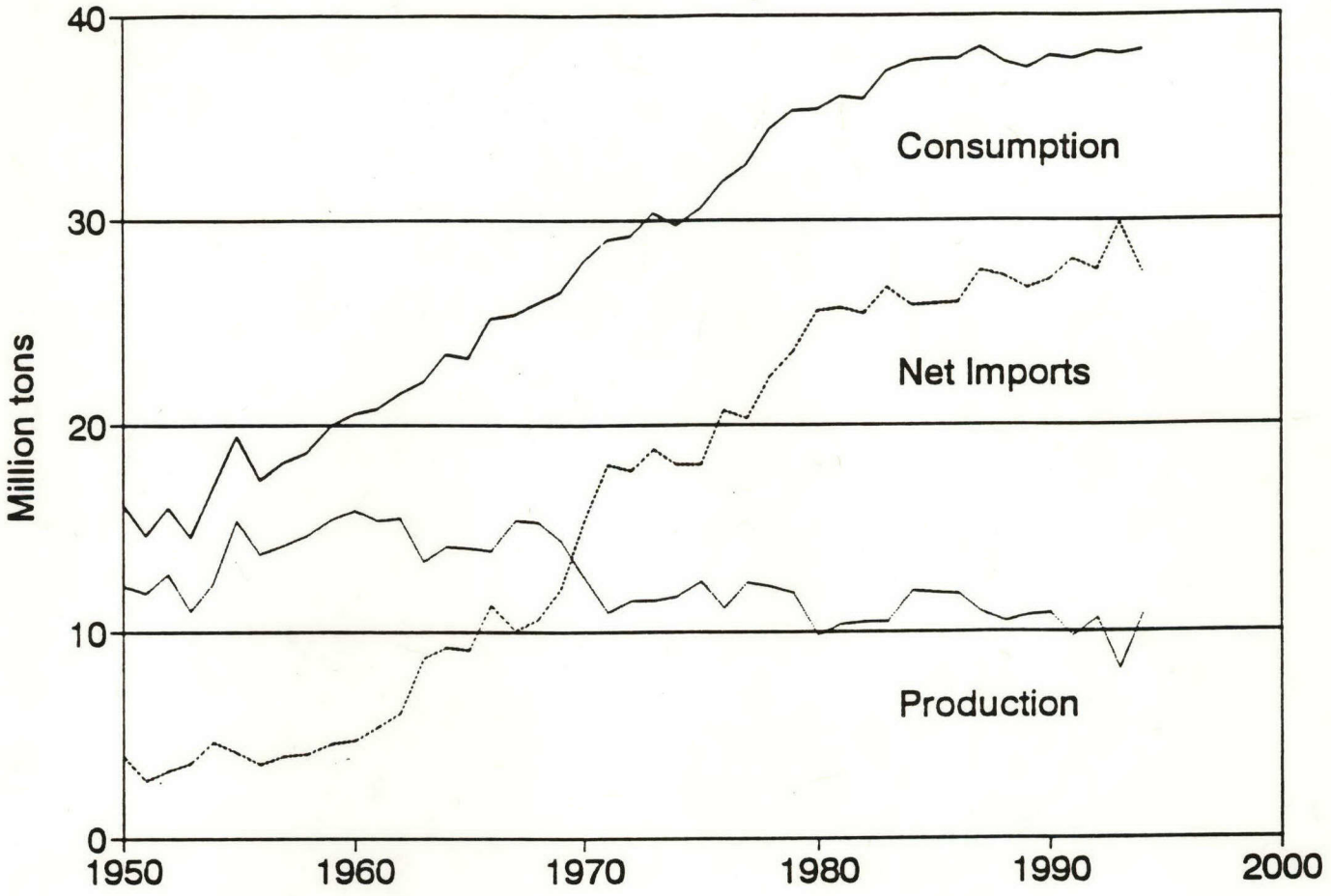
See Worldwatch publication Vital Signs 1995 for further information.

CHINA: GRAIN PRODUCTION, 1990-95

Grain	1990	1991	1992	1993	1994	1995
	(million metric tons)					
Wheat	98	96	102	106	99	100
Rice (milled)	132	129	130	124	123	124
Coarse grains	111	112	108	117	113	122
TOTALS	341	337	340	347	335	346

(World Bank projections, 1990-95 = + 30 million tons)

Japan: Grain Production, Consumption, and Imports, 1950-94



The World Bank
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

1818 H Street N.W.
Washington, D.C. 20433
U.S.A.

(202) 477-1234
Cable Address: INTBAFRAD
Cable Address: INDEVAS

December 11, 1995

Mr. Robert Blake
Chairman
Committee on Agricultural Sustainability for Developing Countries
1709 New York Avenue, N.W.
Washington, D.C. 20006

Dear Bob,

Re: NGO/Bank Meeting

This is to confirm the meeting of you and your colleagues with Mr. Wolfensohn on Wednesday, December 13. The meeting will be held in E-1227 (The President's Conference Room) from 2:00-3:30 p.m.

We have sent the list of attendees to Security which will facilitate their entering the Bank's E Building entrance (701 19th Street, N.W.) on Wednesday.

I look forward to the meeting.

Sincerely,

Alexander McCalla
Director
Agriculture and Natural Resources Department

To: Josie Bassinette
Encl: ① A revised list of participants
② A short bio each of new attendees.
3 pages

cc: Josie Bassinette (EXC)

LIST OF THOSE ATTENDING DECEMBER 13, 1995 MTG.
WITH WORLD BANK PRESIDENT JAMES WOLFENSOHN
(as of 12/11/95)

Bebbington, Tony (International Institute for Environment and Development, IIED)
Beckman, David (Bread for the World Institute)
Brown, Lester (WorldWatch Institute)
Elswick, Linda (World Sustainable Agriculture Association)
Green, Douglas (Catholic Relief Services)
Haberern, John (Rodale Institute)
Porter, Gareth (Environmental & Energy Study Institute)
Scherr, Jacob (National Resources Defense Council)
Shiras, Peter (InterAction)
Williams, Larry (Sierra Club)
Yudelman, Montague (World Wildlife Fund)

Robert O. Blake (Committee on Agricultural Sustainability for Developing Countries)
Nikhil Dehejia (Committee on Agricultural Sustainability for Developing Countries)

Linda Elswick

The World Sustainable Agriculture Association (WSAA) is a coalition of international organizations and individuals largely from the developing countries sharing the goal of a more sustainable agriculture throughout the world. It has a strong bent towards organic agriculture. Linda Elswick is the Assistant Director at WSAA's Washington, D.C. office.

Douglas Greene

Catholic Relief Services (CRS) is one of the United States' largest purveyors of food aid and also has a major program for agricultural development in a number of developing countries. CRS, with strong backing of the U.S. Conference of Catholic Bishops, is a major player with Congress and has been an ally of the World Bank on funding. Douglas Greene, currently the Deputy Director of the Office of Project Resource Management, has been the CRS Country Representative in both Haiti and Cameroon.

THE COMMITTEE AGENDA: PROMOTING FOOD SECURITY THROUGH SUSTAINABLE AGRICULTURE

The Committee on Agricultural Sustainability for Developing Countries is a growing coalition of organizations dedicated to promoting equitable, environmentally sound agriculture in developing countries. As a basic article of faith, we believe that all of us share a moral obligation as well as a real practical duty to fight hunger and poverty. We see our efforts to promote agricultural sustainability as part of that fight. We view efforts to make agriculture sustainable as a means of achieving key development goals: alleviating rural poverty, stimulating broad economic development, and contributing to food security in rapidly growing developing countries. In every possible way we seek broader opportunities and better lives for developing country farmers -- women as well as men -- and their communities.

We believe that achieving these goals will require a major reorientation of both national and international development priorities. It will also mean major shifts in the policies, programs and priorities of international development and research organizations. Changes have to be made by the farmers and developing country governments themselves. But organizations like ours can help by supporting farmers and by stimulating effective action by governments and development agencies. This is our Committee's central focus.

We are spurred on by the recognition that in an increasing number of countries, failure to make agriculture sustainable at a much higher level of production could lead to immense human suffering and widespread economic and political dislocation in just a few decades. This is already happening in parts of Africa, and must not be allowed to spread. Time is running out.

Just as the need for help from outside partners is becoming more urgent, the will of countries like our own to work collaboratively with the developing countries to head off the need for emergency assistance seems to be diminishing. Stubborn facts are ignored. Our Committee and its allies work not only to sound the alarm bell, but also to articulate how our own government and the international agencies in which the United States plays a leadership role can most realistically act.

Our Committee seeks to promote five objectives. These objectives were chosen to fill gaps not filled by other organizations because they lack either the time, the special knowledge of agriculture, or the interest to work in these areas.

First, we seek to raise the consciousness of leaders in the United States and in the international development and scientific agencies about the need to support direct action to defeat hunger. We stress not only the humanitarian and moral reasons to fight for food security but also the tough national interests involved. Meeting this challenge in an era of acute development and compassion fatigue is both difficult and time-consuming. But we do not shrink from it.

Second, we are committed to promoting more -- and more effective -- action by the major international development organizations to make agriculture in developing countries sustainable. We pressure the World Bank, the Inter-American Development Bank, and the US Agency for International Development. Solely by the strength of their resources and influence, they can have a major impact (for good or for bad) on agricultural sustainability. Our Committee is the only organization we know of with the time and the resources to focus in detail on the agricultural development programs of their agencies.

Third, we concentrate on promoting the productivity and equity aspects of sustainable agricultural development. Dangerously little attention is paid to the most basic aspect of agricultural development: promotion of methods of achieving environmentally sound agricultural production for small farmers. We actively promote all that can help farmers make their production sustainable, from integrated pest management and better soil nutrient management to cost-effective and labor-effective water management.

Fourth, we promote the oldest and most proven -- and paradoxically the "newest" -- form of agricultural development: the *farmer first* participatory approach. It is the farmer and his or her family that make the final decision as to what to farm and how. Some of our members have made real contributions in helping farmers adapt to today's more difficult production requirements. Now they and we are promoting better (and often new) ways for all who are committed to agricultural development to work with the farmers and their organizations. We strongly advocate a shift from general support of farmer participation to practical programs that help institutions and organizations work effectively with farmers to define, then promote, farmers' interests and objectives.

Fifth, we concentrate much of our Committee's efforts on the support and modernization of international agricultural research, and particularly the work of the international agricultural research centers, many operating under the aegis of the Consultative Group on International Agricultural Research. The need for centers to continue their work producing ever-sturdier and more productive food plants assumes new gravity as food security concerns grow. The lead time between research initiation and practical results is often 10 to 15 years, while the need for more cost-effective and labor-effective means to manage soil and water sustainably is urgent today. US universities also have an important contribution to make in these efforts. Paradoxically, just as more and better agricultural research results are needed, research institutions face diminishing financial support. So we fight for them.

The Committee pursues its work in these four areas in many ways: through analysis and criticism of selected agricultural development projects; through meetings with senior officials in the international development agencies; through testimony before Congress and meetings with its members; through visits to the international agricultural research centers and communications with their officers; through participation in action-oriented efforts on agricultural development, poverty, and hunger alleviation; and through speeches and other presentations to persuade the wavering or the uncommitted.

The Committee was formed in 1987. We are a coalition of organizations -- mostly US-based environmental, development, population, religious, and women's groups -- joined by experts on agricultural development who participate in their personal capacity. We came together to mobilize a broader national and international constituency in support of food security through sustainable agriculture. We gather strength from the breadth of our members' views, and from their commitment to a common purpose. We have a growing number of associate members based outside the United States, and we hope to recruit more. Further, we seek to work collaboratively with all kinds of organizations and people in other countries that share our goals.

COMMITTEE ON AGRICULTURAL SUSTAINABILITY FOR DEVELOPING COUNTRIES

Robert O. Blake, Chairman
Nikhil Dehejia, Program Coordinator
Ramona Felts-Wonders, Assistant to the Chairman

November 1995

COMMITTEE MEMBERS

ORGANIZATION	REPRESENTATIVE
Africare	MacDonald Homer, Jeffrey Gray
*Aga Khan Foundation	Hans Peterson, Igbal Noor Ali
Appropriate Technology International	Andrew Maguire, Valeria Budinich, Robert Esposito
Association for International Agriculture & Rural Reconstruction	David Bathrick
Bread for the World Institute	David Beckman, Nancy Alexander, Kathy Selvaggio
*Partners in Rural Development	Bruce Moore
CARE	Marianne Leach, Marshall Burke
Catholic Relief Services	Tom Remington
*Centre for Science and Environment	Anil Agarwal
Consumer Policy Institute	Michael Hansen
Cornell Institute for Food, Agriculture, & Development	Norman Uphoff
*COSECHA	Roland Bunch
*The Crawford Fund for International Agricultural Research	Derek Tribe
Environmental Defense Fund	Fred Krupp, Bruce Rich, Deborah Moore
Environmental & Energy Study Institute	Gareth Porter
Freedom from Hunger	Christopher Dunford
Friends of the Earth	Corinna Gilfillan
Garden Club of America	Nancy Biglane
Global Tomorrow Coalition	Donald Lesh
Heifer Project International	Jo Luck
InterAction	Julia Taft, Peter Shiras
*International Institute for Environment & Development	Jules Pretty
*Institute for Research on Public Policy	David Runnalls
*Intl. Institute of Rural Reconstruction	John T. Rigby, Eric Blitz

National Association of State Universities and Land Grant Colleges	Virginia Hammell
National Audubon Society	Maureen Hinkle
National Wildlife Federation	Barbara Bramble
Natural Resources Defense Council	Jacob Scherr, Justin Ward
Overseas Development Council	John Sewell
OXFAM America	Robert Buchanan, James Arena-Derosa
PACT	Leslie Mitchel
*Pakistan Institute for Environment, Development and Action Research	Akmal Hussain
Pesticide Action Network	Monica Moore
Planned Parenthood Federation of America	Karen Rindge
Population Action International	Robert Engleman
Rodale Institute	John Haberern, John Landeck
Save the Children	Jim Kunder
Sierra Club	Larry Williams
TechnoServe	Edward Bullard
United Methodist Committee on Relief	Ginena Dulley Wills
Volunteers in Technical Assistance (VITA)	Henry Norman
The Wallace Institute	Garth Youngberg, Neill Schaller
Winrock International	Robert Thompson, Michael Rock, Richard Cobb
World Learning Inc.	Diana Myers
World Neighbors	Jethro Pettit
World Resources Institute	Robert Repetto, Thomas Fox
World Vision Relief & Development	Paul Faeth, Ann Thrupp
WorldWatch Institute	Andrew Natsios
WorldWIDE Network	Lester Brown, Gary Gardner
World Wildlife Fund	Frances Seymour

* Associate Member (outside the United States)

202-6380036 WORLD RESOURCES 498 P05 DEC 01 '95 14:18

COMMITTEE ADVISORS

ADVISOR	AFFILIATION
Miguel Altieri	University of California, Berkeley
Sheldon Annis	Boston University
Chuck Benbrook	Benbrook Associates
Robert Berg	International Development Conference
Richard Bissell	The American University, Washington, DC
Nyle Brady	
David Challinor	National Zoological Park
Robert Chambers	University of Sussex
Gordon Conway	University of Sussex
R. Kent Crookston	University of Minnesota
Chad Dobson	Bank Information Center
Walter Falcon	Institute for International Studies, Stanford University
Susan Fletcher	Congressional Research Service
Cornelia Flora	Iowa State University
Tom Forster	NGO Working Group
Charles Francis	Department of Agronomy, University of Nebraska
Peter Freeman	
Stephen Gliessman	University of California, Santa Cruz
Arturo Gomez-Pompa	University of California, Riverside
Grace Goodell	SAIS, Johns Hopkins University
Gretchen Hall	Friends Committee on National Legislation
Richard Harwood	Dept. of Agronomy, Michigan State University
Robert Havener	Acting Director General, CIAT
Susanna Hecht	Graduate School of Architecture and Urban Planning, UCLA
Walter Hill	Tuskegee University
David Hopper	Haldor Topsoe, Washington, DC
Theodore Hullar	University of California, Davis
Peter Kenmore	Food and Agriculture Organization, Manila
Ruttan Lal	Dept. of Agronomy, Ohio State University
Uma Lele	The World Bank
Jeff Leonard	Global Environment Facility
Joanne Logan	Dept. of Plant and Soil Science, University of Tennessee
Peter Matlon	West African Rice Development Association
Robert McNamara	Global Coalition for Africa
John Mellor	John Mellor Associates

Rosamond Naylor	Institute for International Studies, Stanford University
Robert Paarlberg	Harvard Center for International Affairs
Theodore Panayotou	Harvard Institute for International Development
Walter Parham	
David Pimentel	Department of Entomology, Cornell University
John Pino	
Donald Plucknett	
Sandra Postel	Global Water Policy Project
Robert Rhoades	Department of Anthropology, University of Georgia
Vernon Ruttan	Department of Agriculture and Applied Economics, University of Minnesota
Pedro Sanchez	ICRAF, Nairobi, Kenya
John Sanders	Department of Agricultural Economics Purdue University
Susan G. Schram	CIESIN, Washington, DC
G. Edward Schuh	Humphrey School of Public Policy, University of Minnesota
David Shear	IM&D Group, Washington, DC
Ralph H. Smuckler	
Helen Vukasin	Natural Farming Network, Zimbabwe
Ray Weil	Department of Agronomy, University of Maryland
Joseph Wheeler	
Montague Yudelman	World Wildlife Fund

Robert O. Blake
2211 King Place, N.W.
Washington, DC 20007

Current Position

1987-Present Chairman, Committee on Agricultural Sustainability for the Developing Countries (a coalition of national organizations working with the U.S. Government and international development organizations on how to feed the world in a sustainable way)

Born

Los Angeles, California, April 7, 1921

Education

Public Schools and High School, Whittier, California
AB, Stanford University, 1943. Phi Beta Kappa, Graduated with Honors
MA, School of Advanced International Studies, Washington, DC
Russian Institute, Columbia University, 1949-1950

Professional Career

1981-Present	Senior Fellow, The World Resources Institute
1977-1981	Senior Fellow, International Institute for Environment and Development
	Chairman, Tropical Forestry Working Group
1977-1979	Member, then US Chairman, U.S.-Panama Joint Commission on the Environment
1976-1977	Senior Advisor to the Administrator, Environmental Protection Agency
1973-1976	Deputy Assistant Secretary, then Acting Assistant Secretary of State for International Organizations
1970-1973	US Ambassador to the Republic of Mali
1968-1970	Minister, US Embassy, Paris, France
1967-1968	Advanced Training, Washington, DC

1964-1967	Deputy Chief of Mission, then long-time Charge d'Affaires, US Embassy, Kinshasa, Zaire
1961-1964	Senior Advisor on Soviet and Middle Eastern Affairs, US Mission to the United Nations, New York
1960-1961	Student, US Naval War College, Newport, Rhode Island
1957-1960	Chief, Political Section, US Embassy, Tunis, Tunisia
1954-1957	Chief, Soviet Desk, US Department of State, Washington
1952-1954	Political Officer, US Embassy, Tokyo, Japan
1950-1952	Political Officer, US Embassy, Moscow, USSR
1949-1950	Student, Russian Institute, Columbia University
1949	Russian Language Training, Department of State
1947-1949	Political Officer, US Embassy, Managua, Nicaragua

Military Service

1943-1946	Officer, United States Navy -- Service in the Caribbean and then in the Pacific

Professional Boards and Offices

Board of Trustees, Environmental and Energy Study Institute (congressional environmental caucus)

Board of Trustees, World Resources Institute

Board of Trustees, Natural Resources Defense Council

Member, Council on Foreign Relations

Member, Council, Maine Coast Heritage Trust

Previous Boards

Board of Trustees, Nature Conservancy

Board of Trustees, League of Conservation Voters

Board of Trustees, Wallace Institute for Alternative Agriculture

Board of Trustees, The Wilderness Society

Advisory Council, School of Advanced International Studies

BIOGRAPHICAL INFORMATION ON THOSE ATTENDING DECEMBER 13, 1995 MEETING WITH WORLD BANK PRESIDENT JAMES WOLFENSOHN

Tony Bebbington

The **International Institute for Environment & Development** (IIED) is a London-based group working very closely with NGOs, particularly in Africa and Asia. It was founded by the noted economist, Barbara Ward. Maurice Strong and Ambassador Blake were long-time board members. Bebbington, a Britisher, is one of their senior field people. IIED has a strong program both in analyzing agricultural development and in promoting participatory development.

David Beckman

Bread for the World Institute is a Washington, D.C.-based coalition of protestant religious groups, heavily involved among other things in promoting poverty-oriented rural (and urban) development. It has pushed the World Bank hard to reduce its earlier emphasis on structural adjustment, to expand its participatory efforts, and to decentralize operations. Bread for the World Institute has also loyally lobbied in Congress for IDA. David Beckman worked for the World Bank from 1977 to 1991 before becoming Bread for the World Institute's President. Beckman, an ordained Lutheran minister, is one of the World Bank's strongest and best informed defenders.

Barbara Bramble

The **National Wildlife Federation** (NWF) is the largest U.S. environmental NGO. It has many activities. But the one of greatest interest to the World Bank is its international program. NWF has pushed hard for the World Bank and the Global Environment Facility to step up its environmentally-oriented lending, including to agriculture. NWF flirted with, but did not join the "50 Years is Enough Campaign." Barbara Bramble is one of Washington, D.C.'s most active and most able environmental lobbyists. She is well informed about and generally well disposed to the World Bank.

Lester Brown

The **WorldWatch Institute** is an environmental think tank and publisher. It publishes the annual State of the World, a monthly magazine, and numerous studies and books -- all on international environmental problems. Sustainable agriculture is one of its principal points of focus. Formerly at the Department of Agriculture, Lester Brown, an agricultural economist, is WorldWatch's President and founder. His estimates of global food security are very pessimistic. At present he is particularly concerned that China will begin running huge food deficits and by its magnitude of its grain purchases cause global prices to rise dangerously.

John Haberern

Rodale Institute is one of the United States' leading (and largest) advocates and developers of sustainable agricultural technologies. It is a research organization and major publisher on agricultural subjects. Rodale has a growing international program, focusing at this stage on experimental work in support of small farmers in Senegal. John Haberern is Rodale's President and works from Rodale's large experimental station in Pennsylvania's rich farmland north and west of Philadelphia. Rodale has a senior person seconded to Alexander McCalla's staff.

Gareth Porter

The **Environment and Energy Study Institute** (EESI) is an environmental think tank located in Washington, D.C. near Capitol Hill. It seeks in particular to influence the Congress. It was associated with Congress' environmental caucus until caucuses were abolished. EESI has a strong program in international environmental affairs of which Gareth Porter, a political scientist, is the director. Porter has worked hard to convince the Congress to give more support to IDA.

Jacob Scherr

The **National Resources Defense Council** (NRDC) is one of the environmental movement's strongest and most active legal and scientific advocacy groups. It has active programs both on American agricultural legislation and on global sustainable agriculture. NRDC has in the past been both critical of some aspects of the World Bank's operations and a strong supporter of the World Bank in Congress. NRDC has one of the most active and effective voices on Capitol Hill. Jacob Scherr, who has been the head of NRDC's international programs for many years, knows the World Bank well.

Peter Shiras

InterAction is a coalition, representing U.S. private voluntary organizations. It is first and foremost a lobbying organization and a strong supporter of foreign assistance given through NGOs and supported by the U.S. Agency for International Development and the World Bank. InterAction is a strong participant in the work of Ambassador Blake's Committee, helping to bring more attention to the problems of global food security and agricultural sustainability. Peter Shiras, InterAction's Director of Government Relations and Public Outreach, is most involved in its work with Congress.

Larry Williams

The **Sierra Club** is one of the U.S.' largest and most active environmental organizations. Some of its semi-autonomous chapters have taken strong stands against the World Bank, but the national organization has long been a supporter, while at times criticizing various aspects of the World Bank's operations. The Sierra Club opposed NAFTA. The "club" has strong influence on Democratic members of Congress. Larry Williams is the long-time director of the Sierra Club's international program. He has worked with the World Bank for years and has been helpful in Ambassador Blake's efforts to lobby the Congress on behalf of the World Bank.

Montague Yudelman

The **World Wildlife Fund** (WWF), at one time almost entirely focused on animals and biodiversity, now has a growing program on development, including sustainable agriculture. Montague Yudelman, a senior fellow at WWF, is a South African by birth and was for many years Bob McNamara's Director of Agricultural Development. He was the principal author of the report of the high-level panel that Ambassador Blake put together in 1993-1994 which advocated stronger financial support for the Consultative Group on International Agricultural Research (CGIAR).

Questions Posed by the Committee on Agricultural Sustainability in Developing Countries

The Committee has presented a list of five potential question for the December 13, 1995 meeting. They are given below together with material potentially relevant for your response.

***QUESTION 1/*: What is your thinking on how the World Bank should reorder its resources in the light of growing food scarcity - particularly, but not exclusively in Sub-Saharan Africa - and the likelihood of rising food price?**

Regarding growing food scarcity:

- Despite recent declines in agricultural lending, both in actual and relative terms, the agriculture portfolio remains one of the largest in the Bank. Project costs associated with lending in 1994 total about $10.8 billion.

- Focusing on agricultural production is not enough - improving the productivity of small holder farmers in an environmentally sustainable way, contributes to three critical Bank objectives - poverty reduction, food security, and improved natural resource management.

- With the possible exception of forestry, all of our portfolio contributes to meeting food needs, especially research and extension, irrigation and drainage, credit and natural resource management.

- The Bank places high priority on research and technology development in its lending program and through the support for the CGIAR. It has created a special unit, ESDAR, to foster linkages between Bank lending and the CGIAR. Half of all the agriculture projects in the porfolio contain research components, and these account for about 36% of total agricultural project costs.

- There is no internal limit to Bank investment in agriculture. It is driven by country priorities and internal priorities of our country departments. We are constantly searching for high payoff, good performing operations.

- We have in the past had some difficulty with loan performance in agriculture, particularly in credit and integrated rural development. We are phasing out poorly performing operations and are determined to continue improving the performance of the portfolio

Regarding food prices:

- We are very aware that grain prices have risen sharply since early 1995 (by nearly 50%). Furthermore, recent analysis suggests prices may stay high for up to 18 months. This will put stress on low income, food importing developing countries. World grain stocks are expected to fall to the lowest level on record. The stock-to-use ratio is expected to fall to 13% by June 1996, below the previous lowest figure of 15% set in 1972. We are monitoring these developments carefully along with the IMF, World Food Program and FAO, and have released information about programs available to help countries counter the negative impacts.

- The more difficult question relates to long-run food supplies and prices. Some, such as Lester Brown who will likely attend the meeting, argue that current price rises are a harbinger of a reversal in the century-long trend of declining real grain prices, portending food shortages in the next century.

- More traditional projections such as by FAO, IFPRI and some Bank analysts see the long-run supply situation as less alarming, at least until 2010 or even 2020. All agree this will require maintaining or increasing investment in research, and that there will be pockets of hunger, particularly in sub-Saharan African and South Asia. Mr. McCalla's analysis in the Sir John Crawford lecture, (Tab 9) is more sobering, and suggests that meeting food needs by 2025 will be difficult to achieve without a concerted effort to sustainably raise agricultural productivity.

Note: Mr. Blake may ask whether the Bank should issue a position statement on long-run Food Security because currently there is confusion as to the Bank's position.

The Background is as follows:

- In November 1993, two Bank staff members, Mitchell and Ingro, produced an analysis entitled The World Food Outlook (frequently referred to by its concluding sentence ("Malthus must wait"). This was quite optimistic about food supplies until 2010. In addition to the usual Bank disclaimer that this analysis did not express the opinion of the Bank, Michael Bruno wrote a foreword, cautioning the reader to recognize the difficulty in making projections. Nevertheless the work is often quoted as the Bank's view;

- In Alex McCalla's Sir John Crawford Lecture (October 1994)- Agriculture and Food Needs to 2025: Why We Should be Concerned, a somewhat more constrained food outlook is indicated. It had been proposed that this address be reissued as a Bank document, with a forward by Mr. Preston saying it was generally consistent with the Bank's position. This process was interrupted by Mr. Preston's illness and death. ***We may offer to issue a statement along the lines of the now widely accepted position taken by Alex McCalla.***

QUESTION 2/: With the need for expanded agricultural research (in such areas as irrigation and water resources management) and in light of decreasing support from USAID, UNDP, and some other donors for the CGIAR, will the World Bank be able to make up the difference? If not, how do you think this growing gap can be filled?

- The CIGAR has always been a high priority for the Bank. We have consistently provided up to 15% of total resource needs, supported the CGIAR Secretariat, and provided leadership through Chairmanship of the CGIAR.

- In 1996, the Bank's contribution for the CGIAR will approach $45 million plus some $5 million for the Secretariat.

- When Mr. Serageldin became Chair of the CGIAR in January 1994, the CGIAR's funding was declining. Forecasts were for it to fall from about $243 million in 1992 to $220 in 1994.

- Under the leadership of Mr. Serageldin, that situation was reversed for 1994. For 1996, the CGIAR approved research agenda is likely to be fully funded at $300 million.

- In 1994 and 1995 the Bank provided an additional $20 million in a 2 for 1 challenge. It succeeded in mobilizing nearly $40 million extra.

- There can be no question of the Bank's commitment to the CGIAR. But, it is neither desirable nor possible for the Bank to permanently make up for declining funds from other sources. The 15% commitment is appropiate in that it provides a stable base of funding without putting us in a dominant position.

- New donors have been found and many existing donors have increased their contribution. Many more developing countries now belong and more are possible. Interactions with the private sector are also being explored. We will continue to provide vigorous leadership and strong support to the priorities of the system. We will urge others to join us and help fill the funding gap.

Question 3/: In view of the dangerous and widespread long time mining of African soils and its impact on African food security, the African region of the World Bank is proposing a major investment by the Bank or by the GEF in building up African soil productivity. What is your view of this program?

- Soil degradation is a world-wide problem. In Sub-Saharan Africa, declining soil fertility has already reduced potential agricultural production by 10% and this negative trend is accelerating.

- The Bank has strongly supported agricultural research, extension and natural resource management projects in Sub-saharan Africa, as well as a number of policy initiatives

designed to remove subsidies and taxes that distort agricultural prices and the profitability of farming.

- Nevertheless, for many small and poor farmers locked in a cycle of having to raise their families while coping with very limited capital, risks associated with rainfall, temperature, and pests, the mining of soils is going on unabated in many areas.

- In response, the Africa region together with AGR, has taken the leadership in initiating a collaborative program designed to foster partnerships and investment directed at making a significant impact on the issues of soil productivity decline.

- To get the process underway quickly, an interim Advisory Group of key agencies, African and donor representatives is in the process of being formed. The African region will also designate a staffmember to act as secretary to the Advisory Group. An Action Plan for the initiative is currently being prepared. ***You may like to indicate your support for the Initiative.***

QUESTION 4/: Its our view that experience shows in many countries, properly supported community and farmer's group can successfully make the link between farmers and the new technologies and plants that will allow them to increase crop productivity. What kind of a role would you like to see NGO's, like those represented here today, play in supporting and working with the Bank in this regard?

- First there is rapidly mounting evidence that the projects and programs that involve the intended beneficiaries from the very beginning, i.e., in dentification, design, management and evaluation, greatly improves the long-run viability of projects.

- The Bank is firmly committed to participatory and decentralized approaches.

- The role of NGO's is absolutely critical, a) at the local level in helping the community analyze its needs and organize to form partnership with external agencies, b) at the regional and national level to articulate grass roots views to provincial/state and national governments and provide important guidance to policy formulation, and c) at the international level to consistently and constructively advise and if necessary cajole the Bank on critical issues in this very complex area.

- The Bank is transforming itself from a production focused and relatively closed institution, into an institution committed to sustainable development in partnership with others. In no small way this is because of constructive but some times critical interactions with reform minded organizations. *We appreciate and need your support.*

QUESTION 5:/ We strongly approve your proposals to decentralize Bank operations. What time table do you have in mind?

Mr. Wolfensohn will have to provide the answer to this question.

Key Issues and Challenges

What is the situation today?
What are the challenges?

RURAL POPULATION AND POVERTY

- The population of developing countries is primarily rural (60% of total), for whom agriculture is the primary source of income. While by the year 2000, approximately 44% of the population of developing countries will reside in urban areas, up from 22% in 1960 and 31% in 1980, the majority of the poor will remain rural residents.

- Poverty is most prevalent in rural areas where 70% the world's 1.1 billion poor live. Some 69% of rural poor lack access to water, 75% lack access to sanitation and 60% lack access to health care.

- ***Policies and investments that raise the productivity of poor rural people and increase their incomes are crucial to achieving growth with equity.***

FOOD OUTLOOK

- Population growth is eroding food production increases in the developing world. Despite food production increases of 39% during the 1980's, per capita food production increased by only 13%. Moreover, for 33 countries in Sub-Saharan Africa, food production has lagged behind population growth. As a consequence, child malnutrition, now affecting 184 million, will fall by only 29 million by 2020. But in Sub-Saharan Africa, the number of malnourished children will rise by 14 million given current trends.

- Real prices of major cereals have been on a downward trend for many years, a result of rapid technical change in food production, coupled with a lack purchasing power by much of the world's poor. But, despite this long-term trend, global cereal stocks in 1995 are forecast to decline for the second consecutive year to 13% of the world's annual grain consumption, the lowest on record. Grain prices have risen nearly 50% in 1995. (See Tab 10).

- ***Food security is critical for many poor countries. A more productive smallholder agriculture is crucial if there is to be an improvement in food security and in the level of malnutrition in poor countries. More cost-effective, targeted food consumption programs will be required to deal with the short-term problem of global shortages and higher, more volatile prices.***

NATURAL RESOURCE PRESSURES

- Agriculture consumes 90% of all water utilized in developing countries. Slightly more than 31% of Asian agriculture is irrigated, accounting for more than 40% of the global consumption of fresh water each year. In India, especially, agriculture consumes 93% of all renewable water supplies. Inter-sectoral competition for water is acute.

- Globally, about 18% of forest land, 21% of pastures and 37% of cropland is degraded. The greatest damage to crop and pasture land is in Africa. The rate of forest loss continues at 1% per year; the worst rate of loss being in Asia.

- ***Farmers are the custodians of most of the world's arable land. Natural resource conservation cannot be tackled effectively without paying more attention to the profitability of farming and the incentives for land improvement and water management.***

AGRICULTURAL GROWTH

- With the closing of the land frontier, agricultural production increases in developing countries now depend almost entirely on increasing yields. Moreover, in the two most populated countries, India and China, the area planted to food crops will decrease. Therefore agricultural productivity improvement based on sustained investment in research is critical.

- In low income countries (excluding China and India), the share of agriculture in GDP rose, on average, from 31% in 1970 to 37% in 1993. In China, agriculture's share fell from 34% to 19%. In India the fall was from 45% to 31%. For the poorest countries agriculture remains a large and vital sector.

- External assistance to agriculture, after fluctuating around $11 billion yearly during 1980 -1985, peaked at about $12 billion in real terms in 1986 and has declined steadily since. By 1992, assistance had dropped 42% to $7 billion in constant 1985 prices. In 1992 the concessional component of external assistance to agriculture represented 70% of the total. Preliminary data for 1994 point to a further decline in multilateral commitments for agricultural development.

Development strategies to reduce rural poverty, improve food security and better manage natural resources cannot succeed unless improving the productivity and profitability of smallholder farms are at their core. The attached Vision Statement lays out the Bank's strategy for achieving this.

Lending Trends and Causes

Why has Bank lending for agriculture declined?
What are the prospects for increased lending in the future?

TRENDS IN AGRICULTURAL LENDING

- Lending has declined from $5.4 billion (constant 1992 $) in 1980-86 to an average of $3.3 billion (nominal $) for the period 1993-95. This represents a fall from about 30% of Bank lending to 15%.
- In the 1970's, 1980 the dominant lending was for credit, livestock, integrated rural development, and irrigation and drainage. Only irrigation and drainage remains an important lending activity today.
- In recent years, lending has declined sharply in LAC, SAS and AFR. It has increased in EAP and ECA.
- The number of projects has declined more slowly than lending volume, indicating a decrease in the average size of loans.

Summary of the Portfolio for the 1990s.

Subsector	Average No. of Projects/Year (FY90-95)						Lending ($million)		
	AFR	EAP	ECA	LAC	MNA	SAS	Avg. Annual FY90-94	FY95	Est. FY96
Sector Loan	9	3	2	4	2	2	1642.42	994.40	1092.4
Fishing	0	0	0	0	0	1	32.32	9.00	50
Irrigation & Drainage	1	3	0	2	1	3	931.96	781.90	1081.5
Livestock	1	0	0	0	0	0	12.66	0.00	0
Agro-Industry	1	0	0	0	0	0	144.82	92.00	410
Perennial Crops	1	1	0	0	0	0	131.78	0.00	0
Research & Extension	4	0	0	1	1	0	180.82	347.60	86.4
Forestry	1	1	0	1	1	1	300.78	113.00	74
Other [1]	1	1	1	1	0	0	310.72	311.40	137.8
TOTAL	**17**	**8**	**4**	**8**	**5**	**7**	**3688.28**	**2649.30**	**2932.1**

REASONS FOR THE DECLINE IN LENDING

- curtailment of lending for poorly performing multi-sectoral area-development and integrated rural development projects,

- a drop in rural credit operations owing to weak financial sector policies and a poor enabling environment for private sector sub-borrowers in many countries.

- reduction in commodity focused investments by government departments and agricultural parastatals,

- reduction in large-scale irrigation/drainage investments. Current emphasis is on rehabilitation and small scale projects.

- generally reduced lending to all sectors in countries experiencing profound macro-economic instability (e.g.,. Brazil FY91-93),

- non-agricultural, rural lending for infrastructure, education, health is increasingly not being captured in the agricultural data set, particularly following the 1987 reorganization,

- emphasis on smaller, more focused investments in agriculture, principally to support private sector activities or to strengthen essential government services.

Regional Variations

- **EAP**: the increase in agriculture lending since FY87-89 is due to expansion of agricultural lending to China and Vietnam. Also, changes in the composition of the portfolio were minimal compared to adjustments introduced in other regions.

- **SAS**: the lower level of agricultural lending since FY91 is mainly a reflection of a still inadequate policy environment for agriculture in India, Pakistan and Bangladesh.. Government priorities in the region have shifted from agriculture towards urban development and environmental protection.

- **MNA**: Being natural resource constrained, the MNA agriculture program has been comparatively small. Much of the Bank's lending to improve the management of water has been (and will continue to be) recorded against non-agricultural lending.

- **ECA:** Weak project design and implementation capacity in all but the "Visegrad" countries, coupled with inadequacies in the agricultural policy environment and the generally unstable macro-economic environment, has discouraged agricultural investment.

AFR and LAC: the reasons for reduced agricultural lending in both regions in the 1980s and 1990s are strikingly similar: (a) political and economic instability of major borrowers, (b) heavy adjustment lending in the late 80s early 1990s, tended to "crowd-out" investment lending, and (c) agricultural sector lending shifted towards smaller, more focused investments in government technical services rather than support for parastatals, export/industrial crop production, and for rural financial intermediation.

PORTFOLIO PERFORMANCE

- OED ratings for projects in the agriculture sector show around 65% as having an overall satisfactory performance. While projects generally managed to achieve their physical goals, many were judged unlikely to be able to maintain their benefits.

- While the number of agriculture sector projects with an overall satisfactory rating has typically lagged behind other sectors, by 6 to14 percentage points, there has been an encouraging trend in recent years toward the average for all sectors.

- Reasons for the relatively poor performance have been that many projects have been obliged to use a public production model within an environment of unstable commodity markets, and adverse macro-economic, and price policies. In recent years, following the period of structural adjustment, an encouraging trend has been far greater private sector involvement and local participation, particularly through decentralization.

Future Lending Prospects

For FY96, projections are for lending to be $2.9 billion, about the same as in FY95. The pipeline for FY97 -98 suggests a substantial increase, but such estimates usually over-estimate actual lending. ***More important than the volume of lending is the number of projects. This will not increase unless more staff resources are allocated to the sector. Strong commitment and action on the part of senior Bank management will be needed if the increased urgency that must be given to raising agricultural productivity in an environment of ever increasing pressure on the natural resource base is to be effectively tackled.***

New Directions and Approaches

What needs to be changed?
How is this to be accomplished?

Sharpening Sector Policies and Strategies

While Bank support and commitment should remain strong in some of the traditional areas of lending, ***new approaches are needed to improve the cost-effectiveness and development impact. Important initiatives are;***

Rural Development : No country that has discriminated against the rural sector in its policies has achieved significant rural poverty reduction. When problems with the integrated rural development projects were recognized in the mid-1980s, the Bank greatly reduced its lending for rural development. However, no new approach was forthcoming, leaving a significant void in our instruments for tackling rural poverty. ***A new approach is being developed based on fiscal and administrative decentralization and participation***. It builds on a systematic review of innovative project designs which emerged after the failure of the Bank's integrated rural development initiative, such as Social and Municipal Funds. It also incorporates experience of countries with broader approaches to decentralization of rural development such as the FUMAC program in Northeast Brazil in which community based programs are administered by special municipal councils.

Rural Finance: The rural economy is characterized by high risk, often low population density, and demand for very small financial transactions with relatively high fixed costs. Despite strong demand from governments for Bank support for rural credit, lending has been constrained by the lack of efficient rural financial institutions. To address this, ***approaches being recommended for Bank operations include; positive on-lending interest rates, emphasis on savings growth, timely loan repayments, efficient credit delivery mechanisms, and incentives to staff and clients.*** The Bank's rural finance lending is projected to reach about $900 mill0ion in FY96, a significant increase over previous years. Most of the FY96 lending would reach countries in transition where stabilization of the economy, reforms in trade policy, and elimination of subsidies and price controls should generate a vigorous supply response of the private farming sector. Specialized training is being provided for staff on best practices in rural finance, and a best practice paper is to be issued in FY96.

Transition Economies: Only a modest 8.5% of the Bank's lending to ECA has been to support agricultural transition. Another 14% of lending has been in the form of

rehabilitation loans with substantial components for importing fertilizer, pesticides, veterinary medicines, and seeds. ***However, the approach should be rural, not agricultural.*** The agricultural focus is appropriate in the early transition, but once the institutions to support growth are in place, the focus should shift to integrating rural people and activities into the economy as a whole. Much of Eastern and Central Europe is ready to move to the third stage. The sequence should be 1) sector work to achieve consensus on agricultural reform; 2) policy lending and projects to implement reform and build the institutions of a market economy in agriculture; and 3) investment in rural roads, water supply and utilities, transport, communications, education, and health..

Food Security: Close to 800 million people suffer from chronic under-nutrition in developing countries. Even more are at risk of hunger due to crop failures, fluctuations in domestic and international prices, and political conflicts. Most of these people are concentrated in South Asia and Sub Saharan Africa. Young children, women and the elderly are frequently those most hit by the devastating consequences of hunger. Past approaches to hunger and food security focused primarily on food availability. ***New approaches need to focus more on food availability, access and utilization. Community and governmental institutions need to be strengthened to develop early-warning systems, and to establish food-security strategies and emergency preparedness action plans.***

Focus More on Sustainable Production Systems

The capacity to maintain the productivity of soils, quality and quantity of water, forests and biodiversity balance is precarious in many countries. While most governments recognize the need for action, many lack both the policy and regulatory framework to create the right incentive environment, as well as the investment support and instruments to effectively tackle the issues. ***The increase in food production required to feed future generations will have to come primarily through increased crop yields, rather than an expansion in cropped area.*** This cannot be done sustainably through excessive reliance on external inputs, especially fertilizers and pesticides, as in the past. ***A more sustainable form of agriculture has to be promoted.*** New approaches being applied are as follows;

Soil Productivity: In many parts of the world, widespread soil degradation is undermining the capacity of countries to sustain food production in line with population increase, and is diminishing the development impact of adjustment and investments. ***The Bank has initiated a collaborative process and is taking leadership in helping to mobilize resources and to leverage the policy, technical and social changes necessary to make a significant impact on this urgent problem***, particularly as it relates to Sub-Saharan Africa.

Forests: Since the UNCED conference in Rio and the issuance of the Bank's new Forest Policy in 1991, the Bank's forestry activities have focused on achieving policy reforms

and investments that seek to balance environmental conservation with production, and make forestry institutions more responsive to the needs of people in frontier areas. ***New types of Bank interventions in forestry are;***

- Russia: A Forest Policy Review has been completed, which *inter alia* recommends conservation measures for the boreal forests, the worlds largest, land-based carbon sink.

- In Eastern Europe, projects have been designed to restore forests damaged by air pollution, to develop more environmentally friendly harvesting systems and to promote forest biodiversity.

- China forestry: Community managed tree planting schemes and forest enterprises have been supported together with biodiversity protection and institutional reforms.

- India forestry: State by State investment projects are being developed involving smallholder treeplanting, horticulture and joint forest management.

- Moist tropical forests: Management plans and policies for conservation and sustainable development of rain forests have been developed for Brazil, Indonesia, Lao-PDR, Papua New Guinea, Philippines and the Congo Basin.

Fisheries: Marine fish stocks are in a serious state of decline, with 70% of commercial fish species fished up to or beyond sustainable limits. The rapid growth of aquaculture is compensating to some extent for declining marine fish catches. But environmental, health and economic constraints to aquaculture will mean that the world will continue to depend primarily of marine fisheries. Over 1 billion people, most of them poor, rely on fish and shellfish as a principal source of animal protein. The growing imbalance between supply and demand is also leading to an increasing number of major fishing disputes. ***The Bank has played a lead role in coordinating Donor collaboration on fishery research and development, but does not have the in-house capacity to effectively address the important policy, institutional and technological issues confronting world fisheries.***

Technology Development: The Bank has been a strong supporter of agricultural research and technology development through the CGIAR and through support for national programs. Technological change is the main engine of agricultural growth and governments have a critical role to play in the support of agricultural research and technological change. The Bank has played a key role in stemming the financial crisis of the CGIAR which will be fully funded at $300 million for 1996, with the Bank's contribution returning to its normal 15% level of the total. However, expenditures on national agricultural research have fallen in Africa and LAC. The situation is particularly acute in Africa where expenditure per researcher has dropped sharply, resulting in declining real salaries and a severe squeeze on operating costs. Donors now

support over half of total research budgets in Africa. ***Approaches to be strengthened in our lending operations are to***;

- promote institutional reforms and changes in behavior that will give greater power to the voice of farmers in setting research agendas, and the promotion of more diversity through new partnerships with universities and the private sector,

- promote innovative long-term financing of agricultural research through private-public sector partnerships,

- promote more efficient management of public-sector research through competitive mechanisms, improved incentive structures and better human resource management,

- use the policy dialogue fora that we have with governments to ensure that agricultural research is given the importance warranted by its contribution to food security, poverty alleviation and natural resource conservation.

Extension Services: The Bank has invested about $3B in agricultural extension over the last two decades, which is more than all other donors combined. For the future, farming will become increasingly more knowledge intensive as increased production needs to come from finite land and water resources. Environmentally sustainable technologies such as Integrated Pest Management or Watershed Management require higher levels of farmer technical understanding, community participation and organizational management. ***New approaches focus on:***

- a broader distribution of responsibilities, to achieve more farmer and private sector involvement in extension services.

- increased farmer participation in the design, implementation, funding, and evaluation of extension programs, to increase accountability and responsiveness.

- a more cross-sectoral approach to rural information as a means to empower the rural poor, particularly women, who constitute a major share of the agricultural labor force.

Manage Water Resources More Comprehensively

The Bank has a new Water Policy Paper to guide staff in dealing with water issues in a cross-sectoral and comprehensive way. New approaches being applied are:

- **water management under scarcity**, in Jordan, Egypt, the Middle East, South India and North China;
- **improvement of water allocation** through tradable water rights and markets in Peru and Mexico;

- **reuse of wastewater and water quality** in many parts of the world including Pakistan, northwest India, and the Aral Sea countries;
- **decentralization and improved cost-sharing through user participation** in irrigation and drainage management in a number of countries, e.g., Mexico, Turkey, Egypt, India and Pakistan;

Critical Partnerships

Who are our main partners and what are the synergies?
What opportunities exist for expanding partnerships?

To be cost-effective, it is crucial that the comparative advantage of the Bank *vis a vis* other agencies be fully realized, and that the synergies of establishing collaborative partnerships be fully exploited. ***Examples of the many important partnerships include;***

FAO*:** The long-standing "cooperative programme" (CP) between the Bank and FAO provides some 53 staff years/per year of support to the Bank for agricultural project preparation through FAO's Investment Center (a multi-disciplinary pool of 100 agricultural professionals). Bank annual cost-sharing contribution is US$ 9.7 million (75%). ***Future directions: collaboration is being strengthened to draw upon the broad range of FAO's capacities, while still retaining significant FAO Investment Center support for agricultural project preparation. Examples of this include joint programs to restore soil productivity particularly in Africa, on irrigation and water development, forestry, integrated pest management (IPM), and food security in chronically food deficit (mainly African) countries.

UNDP: Strong partnerships between the Bank and UNDP exist at the individual project level, through regional programs, e.g., on water issues, as well as for global programs e.g., on forestry. The Bank's execution of UNDP funding for the international agricultural research centers has also provided an effective mechanism for the Bank and UNDP to support specific research programs, beyond the core support provided through the Bank's role in supporting the CGIAR. **New areas** of partnership are;

- ***Global Water Partnership*:** Announced at the 1995 Stockholm Water Conference by UNDP and the World Bank, developing countries and the international community are to meet in early December, 1995 to frame the partnership. ***Purpose***: i) to integrate programs at the regional and national levels to enhance efficiency, ii) capacity building to help improve governance relating to water, iii) investment to promote innovative approaches to dealing with competing water uses, and iv) share learning experiences.

- ***IPM Facility*:** Launched in July 1995, the IPM facility is co-sponsored by the World Bank, FAO, UNDP and UNEP. ***Purpose:*** To assist in the identification and preparation of investments to promote the widescale uptake of integrated pest management approaches. Chemical control of agricultural pests has dominated the scene. IPM offers an environmentally friendly and economic means for both well-off and poor farmers to control pests.

Forestry Advisors Group: This group, which comprises forestry advisers from a variety of institutions, provides a forum for strengthening linkages between bilateral and multilateral activities supporting forestry. The Bank also assists the work of the ***Commission for Sustainable Development (CSD)*** through its active participation on a steering group comprising UNDP, FAO, ITTO, UNEP. Its purpose is to advise the Intergovernmental Panel on Forestry (IPF).

CGIAR: The Bank has been a strong supporter of the international agricultural research system in terms of funding, and through the leadership provided through the Chair and professional collaboration between staff of the Bank and scientific staff of the various Centers. Increasingly, this strong association is also leading to partnerships being forged through Bank lending between the CGIAR Centers and National Agricultural Research Systems. The contribution of the Bank's partnership with the CGIAR has been of tremendous value to agriculture development throughout the developing world, and is central to the Bank's strategy for achieving the sustainable growth in agricultural productivity needed to meet the world's food needs.

Agricultural Research Collaboration: An Agricultural Research and Extension Group was created in 1994 reporting directly to the Vice-President (ESD). ***Purpose***: The group works in close collaboration with AGR and the CGIAR Secretariat, as well as with several donors, led by France and the US. The partnership arrangement has been successful in facilitating synergies between multilateral and bilateral activities in support of agricultural research. This has been achieved through secondment of staff and a variety of other collaborative arrangements.

The International Program for Technology Research in Irrigation and Drainage (IPTRID) Because of serious and long-term under-funding of irrigation research, a partnership was established in 1991, with the International Commission on Irrigation and Drainage (ICID), to assist countries formulate, implement, monitor and mobilize financing for pilot projects that test the viability of technologies and best practice prior to large scale irrigation investments. IPTRID, which is hosted by the Bank, has assisted in preparing 30 project proposals. Ten projects, valued at some $60 million, are being implemented.

Food Security Monitoring. The Agriculture and Natural Resources Department has organized a task force consisting of technical staff from the World Food Program, the Food and Agriculture Organization of the United Nations, the International Monetary Fund and the World Bank to monitor recent increases in world prices and to coordinate responses to cushion their impact on food security in vulnerable countries. (See Tab 10).

NGO Collaboration: A wide variety of Bank-NGO collaborative arrangements are emerging in the agriculture, rural and natural resources sector as the Bank's new policy

of transparency and openness encourages discussion on the many common areas of interest which the Bank has with NGOs. Notable examples of such are on IPM, where experts coming from NGOs are being invited to participate on the Advisory Panel for the IPM Facility, as Peer Reviewers of Bank work proposing new approaches to biodiversity conservation in agriculture, and in the area of pesticide use, collaborating with the Bank to provide technical options for assisting countries phase out the use of Methyl Bromide, a pesticide likely to be banned under the Montreal Protocol.

The Next Twelve Months

How are the directions of change to accomplished?
What is the link between the various activities planned?

Upcoming Events and their Linkages. A dynamic series of events are planned for the next 12 months to revamp support for strengthening agricultural productivity, rural development and natural resource management. ***The strategic focus is to forge a consensus of approach and urgency*** in the Bank, among the international community, with developing country governments and with the civil society. The following planned events have been crafted to achieve this outcome:

Core Training. Agriculture and rural development can make a powerful contribution to three pressing global issues: poverty reduction, food security and sustainable natural resource management. Development of rural sectors must therefore be one of the main strategies of the World Bank. To achieve this will require not only a strong cadre of highly trained professionals in economic, financial, technical and social disciplines, but a staff with broad and commonly shared knowledge of new and emerging Bank strategies, policy options and their technological and social linkages. ***Central to plans for the coming twelve months is the launching of a core training program, focusing on the acquisition of Bank-specific skills by staff, an improved understanding of major sector issues and mastery of linkages between policy, institutions, environment, incentives, culture, infrastructure and technologies.***. The goal is to expose all sector staff to the core training over a three year period.

Water Resources Seminar: December 11-13, 1995*:* This seminar, which is held annually, brings together Bank staff, borrowers, donor representatives and other regional lending organizations. ***Purpose:*** This year, an important ***outcome will be the sharing of experiences among task managers and technical experts on how to implement water resource projects within the framework of the Bank's new Water Policy.***

Agriculture Symposium, January 9-10, 1996. This annual symposium which is intended primarily for all Bank staff in the agriculture and natural resources sector, also attracts strong representation from the NGO and US bilateral aid community. ***Purpose***: To provide a forum for Bank professionals to intermingle and discuss topical issues relevant to their work. This year ***the focus and training opportunity provided by the Symposium will be on achieving sustainable agricultural systems***, in line with the special focus that needs to be given to raising agricultural productivity along with targeted programs to alleviate poverty and malnutrition.

EPCOT '96: Gardening for Food Around the World. April 19-June 2, 1996. This will be the Bank's most ambitious effort to raise the level of understanding among the general public of what the Bank is striving to achieve through its development support for agriculture, rural development and natural resource management. ***Purpose;*** the partnership with EPCOT provides a unique and powerful opportunity to inform the general public of the vital role and activities of the World Bank and of the CGIAR in supporting the conservation of natural resources and development of sustainable agricultural production systems in the developing world. Through the richness of the displays that the Disney-World Bank partnership can provide, ***some two million visitors (33% international) will have the opportunity to discover indigenous farming systems and crops that have sustained populations for thousands of years. They will experience discoveries in science and the vital contributions of the Bank and the CGIAR*** support for agricultural research that have been crucial to bridging the ever increasing need for food, while protecting the environment and producing healthy food.

ESD Conference: (Washington , September 27-29, 1996). In 1996, the conference will focus on achieving agricultural growth and rural development with equity. ***Purpose:*** Coming immediately before the Bank's Annual Meeting, the conference and the various Associated Events being planned will provide a major forum for policy makers, leaders in agricultural development and analysis, distinguished scientists and NGOs to come together to discuss how the Bank, in partnership with other development agencies and the private sector, might better respond to the challenges of food security, poverty and gender equality. ***Through in-depth analysis from the ESD Conference, and the broad-based awareness of sustainable farming systems coming from the EPCOT '96 event, the groundwork would be laid for the World Food Summit which would be a major culminating event for the year.***

CGIAR: International Centers Week. (Washington, October 28-November 1, 1996) This will be an important meeting for the CGIAR and the Bank. With the funding crisis of the past stabilized, the attention will ***focus on research priority setting for the next five years.***

World Food Summit (FAO) (Rome, November 1996). As 1996 draws to a close, the culminating event will be the World Food Summit. The Bank is collaborating closely with FAO. in the prepration of some key papers. The ESD Conference and EPCOT '96 event will also contribute to raising global understanding. The Summit will seek to develop new approaches, policies and programs for addressing hunger, to increase popular awareness of the underlying causes of chronic hunger, its extent and possible solutions, ***and to secure a commitment from the leaders of the World Community to address the problem with renewed determination.***

A Strategic Vision for Rural, Agricultural, and Natural Resource Activities of the World Bank

June 1995



Agriculture & Natural Resources Department

FOREWORD

Building on the 1993 *Agricultural Sector Review*, this vision statement is the product of an iterative set of interactions between the Agriculture and Natural Resources Department and agricultural staff, and the broader community of Bank staff who are concerned with the rural sector. It reflects the convergence towards a consensus on the positive and critical role that the agricultural/rural sector will play in meeting the Bank's objectives of poverty reduction, food security, and improved natural resources management.

I believe we should look upon this as a working document that is subject to revision as we learn more about how to accomplish our objectives more effectively in the field.

Alex F. McCalla
Director
Agriculture and Natural Resources Department

CONTENTS

FOREWORD i

INTRODUCTION 1

THE GOAL OF THE WORLD BANK GROUP 1

THE CHALLENGES FOR WORLD AGRICULTURE AND THE NEED FOR A NEW APPROACH TO RURAL DEVELOPMENT 2

SOME LESSONS FROM EXPERIENCE 4

The Critical Importance of Policy and Institutions 5

Box 1: Discredited Policies... and Their Impact on Performance 6

TOWARDS A POSITIVE STRATEGY FOR THE RURAL, AGRICULTURAL, AND NATURAL RESOURCE SECTORS 8

REPOSITIONING THE BANK TO MEET THE CHALLENGE 9

The Bank's Instruments 10

Commitments to Existing Areas 11

Agricultural Policy Adjustment in Developing and Developed Countries 11

Technological Research for Rapid Growth of Agricultural Productivity and Sustained Improvement in the Management of Land, Water and Forestry 11

Information Services for Smallholder Families –Both Men and Women 12

Environmentally Sustainable Irrigation 12

Community-Based Natural Resource Management 13

Forestry and Agro-Forestry Development 13

Areas to be Strengthened 13

Sectoral Strategy Design and Implementation 13

Water, Land, and Natural Resource Management 14

Targeted Poverty Reduction 14

Bank Actors and Their Responsibilities 15

THE COLLECTIVE CHALLENGE 17

SELECTED REFERENCES 19

BACKGROUND 19

INTRODUCTION

Agricultural and rural development can make a powerful contribution to three pressing global issues: poverty reduction, food security, and sustainable natural resource management. Development of rural sectors must therefore be one of the main strategies of the World Bank.

This paper articulates the challenge to world agriculture, reviews what has been learned through experience, and presents a strategy for agricultural and rural development. It builds on the *Agricultural Sector Review* completed in 1993.*

THE GOAL OF THE WORLD BANK GROUP

The goal of the Bank is to help its borrowers reduce poverty and improve living standards through sustainable growth and investment in people. As Mr. Lewis Preston stated:

> Five major challenges are crucial to future progress:
>
> - Pursuing economic reforms that promote broad-based growth and reduce poverty.
> - Investing in people through expanded, more effective programs for education, health, nutrition, and family planning.
> - Protecting the environment so that growth and poverty reduction can be lasting and benefit tomorrow's generations as well as today's.
> - Stimulating the private sector so that countries can become more productive and create jobs.
> - Reorienting government so that the public sector can complement private-sector activity and efficiently undertake essential tasks.
>
> In assisting its member countries to meet these challenges, the Bank Group will need to build upon and enhance its two main roles: ***financial***–by continuing to mobilize and invest substantial resources for development; and ***advisory***–by distilling and disseminating its own cross-country experience and helping to connect clients with the

The goal of the Bank is to help its borrowers reduce poverty and improve living standards through sustainable growth and investment in people.

* See References for World Bank citations.

There is general agreement that world food supplies will have to double by 2025 because of continued population growth and increases in income.

best-available knowledge from other sources. (World Bank, 1994)

In keeping with this goal, the Bank articulated its strategy for reducing poverty and hunger in the *World Development Report 1990* and reiterated it in the recent paper *Implementing the World Bank Strategy for Reducing Poverty and Hunger* (Binswanger and Landell-Mills, 1995). This strategy involves:

- Promoting widely shared, employment-intensive growth
- Investing in human resources, with special emphasis on the poor, women, and children
- Supporting cost-effective, targeted interventions that increase the productivity of the poor, improve their environment, and mitigate the effects of poverty and hunger.

The *World Development Report 1992* articulated a strategy for environment and natural resource management. The Bank further elaborated this strategy in the policy papers *The Forest Sector* and *Water Resources Management*. These emphasized:

- Promoting policies and programs that have a win-win character because they promote both widely shared growth and environmental improvements.
- Placing special attention on environmental improvements for the poor that increase their productive capacities, health, and nutrition.
- Seeking the most cost-effective solutions, when conflicts between the objectives arise.

The staff and divisions of the Bank that deal primarily with rural concerns and natural resources are in a particularly exciting position to contribute to the goal of the Bank.

The Challenges For World Agriculture And The Need For A New Approach To Rural Development

There is general agreement that world food supplies will have to double by the year 2025 because of continued population growth and increases in income (McCalla, 1994). All analysis suggests needed production increases over the next 30 years of at least 2 percent per year. Unlike previous decades, when expanded land area and increased irrigated area played major roles in increasing agricultural production, most of the production increase in the future must come from biological yield increases. These will be based on modern genetics and on improved production management.

The production challenge alone is formidable. In developing countries, however, the agricultural and rural sectors must play a much broader role than just increasing food supplies.

Of the 720 million poor people identified in 38 poverty profiles compiled by the Bank, 75 percent live in rural areas.

First, in the poorest countries of the world, agriculture remains the most important sector for employment and income generation. Increased productivity in smallholder agriculture is a powerful engine of growth, income improvement, household food security, and poverty reduction.

Second, the numbers of rural poor still far exceed the numbers of urban poor and more of the poorest of the poor and the malnourished live in low-potential areas rather than in high-potential areas. Improving agricultural productivity in both low- and high-potential areas, therefore, has the multiple impacts of increasing production, reducing poverty, reducing malnutrition, and improving food security. Furthermore, for the growing numbers of urban poor, declining real food prices are a positive contribution to reducing their malnutrition and poverty.

Third, increasing yields per unit of land helps reduce pressure on fragile environments if environmentally sustainable methods are used. Agricultural production systems are the dominant users of water and arable land. The development of environmentally sustainable production systems is an indispensable component of any successful future strategy. In many countries, the lack of water of suitable quality at an affordable cost is a major constraint to increasing yields. Water available for agriculture faces increased competition from urban, industrial, and environmental demands.

Agriculture will continue to feed the world and provide a livelihood for about a billion rural poor people in developing countries. Agriculture is faced with formidable challenges, requiring major changes as the world moves from resource-intensive agriculture towards more knowledge-intensive agriculture. Consider the following points, which are supported by evidence accumulated from the experiences of the World Bank and others:

- Rapid technological change is essential to providing the basis for sustained agricultural and rural growth in developing countries and for doubling the world's food supply in the next 30 years.
- Poverty, hunger and malnutrition continue to be concentrated in rural areas throughout much of the developing world despite massive rural-urban migration. Of the 720 million poor people identified in 38 poverty profiles compiled by the Bank, 75 percent live in rural areas.

Maintaining and enhancing natural resources . . . is essential, not only for sustainable rural growth and poverty reduction, but also for their contribution to global common resources . . .

- No country that has discriminated against the rural sector in its policies has achieved significant rural poverty reduction through targeted programs.
- Rapid agricultural growth in the smallholder sector is one of the most powerful and cost-effective poverty reduction strategies available to countries. This has been amply demonstrated in Southeast Asia and to a lesser degree in South Asia.
- Rapid, employment-intensive agricultural growth greatly affects urban poverty by reducing the price of food and by increasing unskilled wages throughout the economy. Rural employment can be increased for men and women both on the farm and in the non-farm sector.
- Most agricultural and rural activities are private sector activities; therefore, appropriate incentives, efficient markets, and non-distorting policies are critical.
- Maintaining and enhancing natural resources-water, soils, range lands, forests, fisheries, and biosphere reserves-is essential, not only for the contribution to sustainable rural growth and poverty reduction, but also for the contributions to global common resources such as biodiversity.

As structural adjustment leads to macroeconomic stabilization and the resumption of growth, it is likely that lending opportunities in the agricultural sector will expand. Countries will find it necessary and feasible to deal with rural poverty and natural resource problems and to ensure national food security. At the same time, reforming sectoral policies will substantially increase the payoffs to private and public investment in the sector.

Some Lessons From Experience

Learning from Bank experience increases the chances for success in the future.

- There has often been a preference for the use of specific investment projects rather than the other instruments available to the Bank. Instead of analyzing and reforming incentive structures for farmers, entrepreneurs, community groups, local governments, and bureaucrats involved in agriculture and rural development, many projects attempted to address important institutional and technical issues directly, but the success of technical packages was often thwarted by the broader policy environment.
- Early Bank activities in agricultural and rural development made extensive use of parastatal organizations for activities where the

government has little comparative advantage. Once this approach was well established as ineffective, it took a long time to understand and focus the government's role in the sector on those activities where it must remain active and does have a comparative advantage.

- While subsidized and narrowly directed credit for agriculture has been abandoned, alternative strategies and approaches that target rural financial services for the rural poor have not been developed until recently.
- Since the frequent failures of integrated rural development projects were recognized in the mid-1980s, a new approach has not been developed for poverty-oriented rural development. Rural poverty reduction programs have been piecemeal and the corresponding lending minimal.
- The agricultural portfolio continues to focus most efforts in hunger reduction on activities affecting the production and supply of food. Within the Bank, individual divisions and task managers have experimented successfully with programs aimed at enhancing the food consumption of the rural and urban poor, but the effort has not been adopted on a Bank-wide basis. It further lacks sufficient coordination with health and nutrition interventions, where impressive portfolio growth has occurred.

Poor agricultural and rural development performance has retarded economic growth and increased both rural and urban poverty.

The Critical Importance of Policy and Institutions

Appropriate policies and institutions are critical to sustainable rural development. Some countries have discovered successful agricultural and rural development strategies and have benefited from staying with them. Others had to experience dramatic failures and to learn from their own and other's experience before ineffective policies were abandoned. Some stubbornly continue to cling to misguided prescriptions of the past, supported by political equilibrium that does not provide an adequate voice to large segments of the poor or rural populations. Severe external shocks and adverse policies of developed countries have often contributed to their poor performance. Poor agricultural and rural development performance has retarded economic growth and increased both rural and urban poverty.

The principal factor that distinguishes strong performers from poor performers has been the extent of rejection, rather than adoption, of policies and institutions that are deeply discredited today. The discredited policies often have adversely affected growth, the prospects of the poor, and the sustainable use and preservation of natural resources. The main examples are presented in the first half of Box 1.

Box 1: Discredited Policies...

1. Excessive taxation of the sector via indirect and direct policy measures
2. Urban bias in development expenditures
3. Compensatory direct protection of inefficient food sectors in the name of national food self-sufficiency
4. Compensatory credit, infrastructure, marketing and technical support that favored the rural elite relative to smallholder family farms
5. Neglect of the development, adaptation, and dissemination of productive and sustainable technologies and of improved natural resource management practices and a lack of client orientation and farmer participation
6. Adverse land and agrarian policies that reduced the access of the poor to land and encouraged subsidy-dependent large-scale commercial, state, or collective farms
7. Lack of attention to the building of domestic institutional capacity
8. Poor institutional and policy frameworks for the intersectoral and intrasectoral allocation of water and for construction, management, and cost recovery in irrigation and other rural infrastructure
9. Excessive reliance on costly, inefficient, and highly centralized parastatal organizations for marketing, trade, credit, service delivery, management of water, forests, and range resources, and for the construction and maintenance of rural infrastructure
10. Protectionist policies of OECD countries that aggravate the effects of the aforementioned policies

...and Their Impact on Performance

A few countries either did not use or abandoned many of the adverse policies early. These include Taiwan, Indonesia, Malaysia, Thailand and China, which have had spectacular successes in agricultural growth and rural poverty reduction. Their successes have been based on favorable policies, strong development institutions, and rapid technical change.

Other countries such as India, Mexico and Kenya, have discriminated substantially against agriculture through trade and price policy, but invested heavily in technology development and diffusion and provided other support to their smallholder sectors. These countries have had acceptable rural growth rates and some rural poverty reduction.

A third group of countries in the ECA region has developed a state-owned, subsidy-dependent, farm sector dominated by very large farms. Parastatal organizations dominate input supplies, credit, marketing, and services. The inability of these sectors to compete internationally or to supply the domestic population with food at an acceptable fiscal cost has contributed to the slow growth and eventual downfall of the regimes that put them in place.

A fourth group, including Brazil, Colombia and South Africa, has heavily subsidized their modernizing commercial farm sectors and experienced rapid agricultural "modernization." Their large scale commercial farm sectors are subsidy-dependent. In the biased development process these countries have prematurely evicted workers from their agricultural sectors, forcing them into rural and urban slums.

A final group of countries has discriminated especially heavily against the sector, failed to develop strong institutions, and neglected technology development and diffusion. They include many African countries and Argentina. They provided very little support to their farm sectors. Their agricultural sectors have failed. Results have been catastrophic for their rural poor and the natural resources that sustain them.

Agricultural growth is the engine without which rural welfare cannot improve.

Countries differ greatly in the extent to which they have implemented inappropriate policies and the extent to which they have been affected by the protectionist policies of developed countries. Depending on these factors, five broad paths of agricultural and rural development can be distinguished. The second half of Box 1 outlines these five broad paths.

A substantial decline in rural poverty has only occurred in the first group of countries. In all other countries there are many more rural poor today than there were 30 years ago. In many countries the number of rural poor has doubled or tripled. It is little comfort that the proportion of the population living in rural areas and the rural population living in poverty have both declined in the second group of countries that taxed modestly and provided for public investment. Even in this group the gains have been modest, and in the other three groups major problems have persisted.

Over the past 50 years, many countries in the last two groups have tried to solve their rural welfare and poverty problems by focusing on urban and industrial development, expecting these sectors to absorb the masses of the rural poor. Rarely have countries that pursued a heavily urban-biased strategy substantially reduced rural poverty. Urban industrialization is not a solution to rural poverty.

In many countries where poor rural populations have shifted to urban slums, urban poverty is seen today as a more severe problem than rural poverty was. This ignores the fact that the premature shedding of labor from commercial farm sectors or the failure to make alternative arrangements for rural labor forces (while expanding and modernizing smallholder sectors) is a root cause of the urban poverty problem.

In contrast, empirical evidence has clearly demonstrated that agricultural growth is the engine without which rural welfare cannot improve. Research has shown that rural incomes can grow through this growth, and the associated forward, backward, and consumer demand links. Dynamic, family-based farm sectors have fueled non-farm activities and employment through these links. The links have been strong in Asia and Latin America where taxation of agriculture has been less than in Africa and where rural incomes and technology are higher. Any strategy for rural growth and poverty reduction will strengthen these links. This will directly improve the conditions for private sector development in the rural non-farm sector. While tourism, mining, and small-scale industry can play supplementary roles, without agricultural growth there is little hope for sustained income increases for the rural poor.

Agricultural growth must be based on sustainable productivity improvements.

Agricultural growth must be based on sustainable productivity improvements. Moreover, to produce poverty reduction it must be employment-intensive. This will require less emphasis on production per se and more on farmers' capacities to adopt efficient, ecologically sound practices. Only in East Asia and Southeast Asia have countries fully realized their poverty reduction potential. In South Asia, Kenya, and Mexico only partial success as occurred. In the rest of the developing world, however, and in Eastern Europe and Central Asia, the poverty reduction potential of widely shared agricultural development remains largely unrealized.

Towards a Positive Strategy for the Rural, Agricultural, and Natural Resource Sectors

Economists and other professionals have examined the development theories, measured the impacts of various policies, and painstakingly sifted through the experiences of various countries to fathom what makes the difference between success and failure. While there are many areas where knowledge is still limited, a fairly clear picture has emerged. The broad professional consensus includes:

- The foreign exchange, trade, and taxation regime should not discriminate against agriculture, but should tax it lightly, preferably using the same progressivity and instruments as for the urban economy.
- An open economy, employment-intensive and family farm-oriented strategy is both economically efficient and most likely to reduce poverty, both rural and urban.
- Such a strategy cannot succeed without rapid technical change in support of sustainable growth in yields and productivity and the reduction of losses. This requires substantial investment in national and international agricultural research and technology dissemination that the public sector must partially finance.
- New approaches and technologies are needed, not only in pest management and in soil and water management, but also in traditional subjects such as varietal improvement, animal feeding, and disease control. Modern biotechnology and information techniques are leading to exciting new possibilities to improve biological efficiency. Similarly, modern information technology can also be used to stimulate participatory approaches.
- Sustaining and preserving natural resources must be based on favorable incentives for the farmers and rural non-farm populations involved to protect and improve the natural resources on which their welfare so critically depends. Incentives include productivity

increases, price incentives, and participation in the choice and execution of production and conservation programs.

- Removing parastatal privileges and increasing competition in output, input and credit markets benefits consumers and taxpayers and helps small-scale farmers and the rural poor.
- Where land is unequally distributed or lies in the hands of collectives or the state, a new strategy requires, prior to or concurrently, substantial effort at land reform or privatization. The land market can be used for this if the poor are given purchasing power to buy land. The property rights of individuals must be strengthened. Constraining land rental and insisting on expropriation without compensation has a perverse impact on the rural poor. Centralized ministries or parastatal bureaucracies generally are not efficient at implementing land reforms.
- Rural areas require substantial investments in economic and social infrastructure, and in health, education, and farm support programs. Concentrating these investments in urban areas misses an important opportunity for the rural areas.
- Implementation of development programs in a cost effective and successful manner requires mobilizing the skills, talents, and labor of the rural population - both men and women - through three methods: (a) decentralized administrative, fiscal, and political systems conducive to their genuine participation, (b) education and information dissemination, and (c) private sector involvement.
- Designing decentralized mechanisms that allow poor men and women to participate effectively in making and executing decisions, and promoting accountability requires a special effort. Otherwise the rural elite will appropriate most of the benefits of the rural development programs. New methods of participation in lending have recently been developed.

Removing parastatal privileges and increasing competition in output, input and credit markets benefits consumers and taxpayers and helps small-scale farmers and the rural poor.

These lessons have been acquired at an enormous cost for poor and non-poor rural populations of the developing world. It is politically difficult to change misguided policies and the allocation of fiscal resources for technology development, diffusion, and natural resource management institutions. Yet ignoring these lessons has a high social cost-for economic growth, for the fiscal balance, for agricultural resources, for the rural and urban poor, and for social peace.

Repositioning the Bank to Meet the Challenge

The welfare of both farmers and non-farmers includes the income, resource base, environment, and social dignity of both the current and

Within country departments, staff and divisions devoted to agriculture, natural resources, and rural development...represent the key spokespersons for the rural poor.

future generations of rural people. The analysis of policies and strategies, institutions, programs, and technologies potentially spans all areas that substantially affect this welfare, including: macroeconomics, agriculture, the environment, rural infrastructure, and rural employment programs. Bank operations will be more narrowly circumscribed and will vary by region. Within country departments, staff and divisions devoted to agriculture, natural resources, and rural development will have to ensure that the welfare of rural populations is adequately considered in all programs of the Bank. The staff potentially represent the key spokespersons for the rural poor.

Within the narrower operational involvement, the activities of the Bank staff will typically concentrate on agricultural policies and programs, rural development, and natural resource management. This will involve improved intersectoral coordination and collaboration with divisions and staff whose primary responsibility includes economic and financial policy, infrastructure, human resources, or the environmental commons such as biodiversity and habitats. It will also entail improved multidisciplinary Bank cooperation.

The Bank's Instruments

The Bank's operations are increasingly judged by their impact in the field. Prior to the 1980s, such impact was primarily through project lending. Since then, the Bank has greatly expanded the use of other instruments:

- Economic and sector work and policy dialogue
- An increasing variety of loan instruments, such as adjustment and sector adjustment loans, sector and subsector investment loans, project loans, support to pilot programs and technical assistance
- Donor coordination and the facilitation of collaborative initiatives with NGOs, and National Agricultural Research Services (NARS)
- Support to the Consultative Group on International Agricultural Research (CGIAR) and the new Consultative Group to Assist the Poorest (CGAP): A Micro-finance Project
- Development, compilation, analysis, and dissemination of best practices through the WDR and a wide range of other publications

Country Departments, taking into account the special circumstance of each country, choose different instruments and their level of use. Major impact is regularly achieved through economic and sector work (ESW) and policy dialogue in which countries are assisted in changing policies, institutions, and public expenditure levels. Development of the rural sector should be a primary issue in such dialogue. Once a meeting of the minds is achieved on a vision and the key strategies for rural sector

development, loans follow fairly readily, depending on the financing needs of the country and/or sector. There are also various examples where successful dialogue with the country had an impact without being followed by a loan.

The Bank's operations are increasingly judged by their impact in the field.

The focus of Bank's lending in all sectors is increasing in the following areas:

- Fine tuning of adjustment and sector-investment lending based on country and sector strategies
- Provision of public goods, but not necessarily delivered by public agencies (in the rural areas these include agricultural research and extension, natural resource management, primary health and education, and rural infrastructure)
- Cost-effective targeted interventions on a partial or full grant basis to assist the poor in participating in growth (access to education, health, nutrition services, capital, land, and technology), to mitigate their poverty (access to employment, food, and nutrition), or to offset the harmful effects of adjustment or environmental problems on the welfare of the poor

Commitments to Existing Areas

Within the narrower operational confines of rural, agricultural, and natural resource operations the following existing thrusts clearly need to be sustained. The Bank must maintain strong commitments to:

Agricultural Policy Adjustment in Developing and Developed Countries

Experience has shown the important role that macroeconomic and agricultural policies play in influencing agricultural performance. The country policy environment under which agriculture operates has a crucial impact on the effectiveness of Bank-supported investments. An important component of Bank operations affecting agriculture is the reform of policies and institutional structures at the macro-economic level (e.g., trade and foreign exchange policies) and at sector level (e.g., privatization and price reform). The Bank should continue to support policy adjustment and fine-tuning of policy regimes.

Technological Research for Rapid Growth of Agricultural Productivity and Sustained Improvement in the Management of Land, Water and Forestry

The capacity of countries to raise their agricultural and forest productivity and reduce post-harvest losses will require an even greater technological underpinning than the past 20 years. Existing technologies need to be adapted to both ecological and socioeconomic conditions have to help

The Bank must maintain commitments to:

- *Agricultural Policy Adjustments*
- *Technological Research for Smallholders*
- *Information Services*
- *Sustainable Irrigation*
- *Natural Resource Management*
- *Forestry and Agro-forestry*

stop or reverse resource degradation. New technologies and new plant varieties need to meet changing conditions, such as new pests and diseases, changes in soil fertility, and changing markets. Sustained financing is needed for research, because many new technologies take seven to ten years to be developed. The Bank should therefore maintain a strong focus on technology development through its policy and lending operations, as well as through its support for international agricultural research.

Information Services for Smallholder Families –Both Men and Women

Bank supported extension programs have had high impacts and rates of return. A recent OED Report suggested, there is substantial scope for increasing farmer involvement in the decisions about the messages and contents supplied by extension programs. The use of cost-effective media, such as radio, TV and video, can contribute greatly to knowledge formation. The information provided to farmers must focus on profitable productive, sustainable, and environmentally sound technologies.

Environmentally Sustainable Irrigation

Environmentally sustainable irrigation will be promoted in the context of the Bank's new water policy. There is a major need and vast scope for improving the performance of the irrigation subsector. Irrigation subsector is expected to make an important contribution to doubling the world food supply in the next 30 years. There will be increased competition among alternative uses of water-agriculture, ecosystems, industry, and urban households. Further, it will be necessary to reduce negative effects of irrigation on surface and ground water quality, human health, and ecosystem viability.

Increased performance of irrigation must be sought via:

- Institutional and organizational reforms such as participatory management and transfer of management to users, the establishment of water rights, private sector development, etc.
- Improved water use efficiency, reliability and timeliness of water delivery to users through modernization, changes in system design and operational procedures
- Increased attention to drainage, which is the biggest single source of environmental problems stemming from poor irrigation practices
- Better coordination of the management of water resources at the national and river basin level as recommended by the Bank's Water Policy

Community-Based Natural Resource Management

While much can be done at the enterprise level, the full benefits of watershed management or soil conservation can rarely be realized without some sort of collective action. Collective action incurs transaction costs that are often a deterrent to such action. The Bank's regions have contributed many innovative project approaches in this area. Experience from inside and outside the Bank still needs to be distilled and disseminated.

Forestry and Agro-Forestry Development

Under the new Bank forest policy, lending has been redirected towards restorative and proactive activities, and promoting alternative livelihoods in forest frontier areas. This trend should be pursued further. Projects should also increasingly target the use of forest resources to reduce poverty, reconcile conservation and utilization, and promote increased investment through policy and institutional reform.

Areas To Be Strengthened

The Bank needs to strengthen its capacity in a number of areas in order to deliver on the rural, agricultural, and natural resource priorities outlined above. Priorities differ across countries and regions; and would not be the same for successful countries in Southeast Asia, or for the adjusting countries in the ECA region, or for the "crisis countries" in the Africa region. Country managers will choose priorities based on their knowledge of the specific circumstances. These needs are listed in three clusters of relatively equal importance and should be read in conjunction with the preceding areas of continuing commitment.

Sectoral Strategy Design and Implementation

Country-Specific Rural Strategies. Country-specific rural strategies should promote widely shared growth, poverty reduction, food security, and sustainable resource use. Such strategies entail the review and integration of the full range of policies, institutions, programs, technologies, and practices which affect the sector. Strategy should also be based on analysis of the appropriate division of labor between the private and the public sector in the different rural, agricultural, and natural resource management programs. Recent models for such country-specific strategies include Brazil and Colombia. The Bank needs to enhance its capacity to synthesize elements such as, human resource development, infrastructure, and information into coherent strategies to guide countries and operations in the sector. Country-specific strategies will inevitably identify requirements for further adjustment or fine-tuning of sector policy and institutions. Sequencing issues are still poorly understood, and are

The Bank needs to strengthen its capacity in:

- *Sectoral Strategies*
- *Rural Finance*
- *Water Allocation*
- *Land Policy*
- *Targeted Poverty Reduction*
- *Food Policy and Nutrition*

Improvements of water service to users must be based on modern water control concepts...

especially important in the transition economies of ECA. Increased policy adjustment is also required to encourage farmers to use environmentally sustainable techniques such as integrated pest management, integrated soil fertility management, irrigation water management, and the like. Policy reform and fine-tuning will increasingly be pursued via sector and subsector investment lending. Greater understanding is needed about how to use these instruments to reform public expenditure programs.

Rural Finance. Rural financial sectors require a great deal of reform to reduce fiscal burden and improve private sector incentives to supply rural financing. Furthermore, it is necessary to support the development of financially sound sectoral institutions to serve the rural poor, especially women. A critical need is the articulation of viable designs of rural financial subsector operations within the overall framework of the Bank's policy for the financial sector.

Water, Land, and Natural Resource Management

Water Allocation Management Among Sectors, Regions, and Nations. The Bank's water policy paper makes a start at addressing water allocation issues. The recently published *Guide to the Formulation of Water Resources Strategy* goes a step further. Research on water markets is in progress and several best practice papers are now being prepared. Improvements of water service to users must be based on modern water control concepts as well as on a conducive incentive system.

Land Policy and Strategy. Due to the ideological polarization that marked the Cold War, very serious land and agrarian structure problems have been suppressed for nearly five decades in developing countries, both in market economies and in the former socialist economies. The problems include the structure of the farm sectors in the former socialist countries, in Southern Africa, and in Latin America, all of which still suffer from extraordinarily inefficient and iniquitous land ownership patterns. The high growth and employment potential of agriculture cannot be realized in these regions without an appropriate resolution of these problems.

Natural Resource Management. On natural resource management, World Bank operations have developed a variety of new approaches to the management of land. Clearly the participation of farmers in sustainable resource management requires a concentration on enhancing farm productivity and profitability. Technology must improve along with their management practices.

Targeted Poverty Reduction

Targeted Interventions In Support Of The Rural Poor. The lack of accepted best practices of government support to poverty-reducing rural

development is crippling Bank policy dialogues and lending in this area. The development and dissemination of best-practice policy recommendations and lending instruments by the Bank is urgently needed. The starting point for research in this area is administrative and fiscal decentralization. Conditional or matching grant systems for communities and lower-level jurisdictions are the main new project tools on which to build. The different subsectors need systematic approaches to grant design.

Food Policy and Nutrition. The welfare of both the urban and rural poor should guide the work of the Bank. Countries continue to use inappropriate policies and institutions to ensure food supply. Food consumption budgets, i.e., food aid, food subsidies, and nutrition programs, are usually mistargetted. Excellent models of better targeting are available but require coordination between the ministries of agriculture, trade, health, and education. Coordination inside the Bank must improve with education, health, and nutrition units, and with World Health Organization (WHO), Food and Agriculture Organization (FAO), the World Food Programme (WFP), and UNICEF, and others, including several CGIAR centers, but specifically IFPRI. Capacity is needed to analyze the impact of agricultural policy and rural development programs on national food supplies and on the food consumption of the poor. Particular emphasis is to be placed on evaluating countries' food budgets and their food subsidy programs.

Bank Actors and Their Responsibilities

Responsibility for implementing the Bank's vision for the rural, agricultural, and natural resource sectors lies, first, with the sector operations divisions. These divisions should design country-specific programs based on a sector strategy and to be carried out through policy dialogue, sector work, lending, and supervision. Sector operations divisions are rarely just agricultural and are frequently responsible for some or all of the following related areas: the environment, natural resource management, rural poverty, and water. These diverse recent changes reflect the choice of departments to organize their activities in ways that reflect their assessment of priorities in the countries in which they work. The general trend is clear-away from a narrow focus on agriculture, towards a wider vision of rural welfare.

Regional technical departments are quite heterogeneous. They have evolved in response to different regional needs for specialized capacities to complement the skills available in sector operations divisions. In Africa, moreover, the technical department manages a wide array of Africa-wide or cross-departmental activities. Technical departments also undertake region-specific studies, best practices identification and dissemination, and

Responsibility for implementing the Bank's vision for the rural, agricultural, and natural resource sectors lies, first, with the sector operations divisions.

The Agricultural and Natural Resources Department provides a focal point for the rural, agricultural, and natural resource sectors.

training, as well as liaison with regional donors, professional societies, academics, and NGOs.

The Agriculture and Natural Resources Department (AGR) supports sector operations divisions to implement the Bank's vision many different ways. The first consists of direct operational support, which is most mutually beneficial when related to issues or activities for which best practices are not yet established. Second, AGR addresses issues of high operational relevance and undertakes or manages cross-regional or worldwide studies, while trying to influence others' research in parallel directions. Third, AGR synthesizes emerging best practice cases–in strategy and project design–drawing lessons and providing operational guidance. Dissemination of such analyses, and of the findings of research (from all sources) is also an import support activity. In addition, AGR is responsible for developing and reviewing the implementation of Bank policy for agriculture and natural resources, and for responding to senior management or Board requests for analysis and information. Finally, AGR represents the Bank to other organizations–in the UN family, donors, professional societies, academic associations, and NGOs–and endeavors to bring back knowledge from these sources. AGR is singularly placed to provide the focal point for the rural, agricultural, and natural resource sectors Bank-wide, to articulate the collective vision both within and outside the Bank and to provide leadership in pursuing its implementation.

Within the Office of the Vice President for Environmentally Sustainable Development (ESDVP), the Secretariat of the Consultative Group on International Agricultural Research (CGIAR) is responsible for administering the group's activities, and the Agricultural Research Group (ESDAR) is responsible for promotion of national agricultural research and for improved synergy between international and national research systems.

The Economic Development Institute (EDI) focuses on client training but, increasingly, is working in collaboration with other Bank units for mixed Bank/client staff training. Recent major successes have included, for example, changing clients' perceptions of the roles of the public and private sectors in managing irrigation and forests.

The Operations Evaluation Department (OED) continues to handle project completion and audit work, but increasingly undertakes reviews of clusters of projects or even wider thematic reviews. These reviews have a strong empirical basis and are major sources for the identification of operational problems as well as best practices and their wider dissemination.

The challenge *within* the Bank is for these units, working together, to implement a strategy and operational procedures that move the World Bank and its many partners towards the achievement of the vision outlined above.

The World Bank is well-positioned to lead in meeting the critical challenges of food security, rural poverty reduction and sustainable natural resource management.

THE COLLECTIVE CHALLENGE

With few notable exceptions, agricultural growth rates in developing countries have been disappointingly low over the last 50 years, as have rural poverty reduction rates. Moreover, the rates of depletion and degradation of natural resources have been unacceptably high in many cases. Furthermore, Bank-financed agricultural projects have until recently performed below average compared with projects in other sectors.

Over the last ten years, donors have significantly cut back investment in rural projects and so has the Bank (although not by nearly so much). Governments, too, have generally been reducing public expenditure in rural areas.

The *overall* challenge is to persuade multilateral institutions, governments and other donors that major policy and institutional changes are still required to realize the growth and poverty reduction potential of rural areas, that the below-average project record of the past can and is being improved, and that the decline in public expenditures in rural areas must be reversed. Fundamental lessons have been learned, at great cost, about what not to do and what might be done better. Employment-intensive agricultural growth is the engine without which rural welfare, and the management of natural resources, cannot improve. Obtaining rapid agricultural growth and thereby providing the necessary conditions for reducing rural poverty and reversing natural resource depletion and degradation is the Bank's major objective. Realizing these beneficial outcomes also requires effective programs in targeted poverty reduction and more sustainable natural resource management.

The challenge ahead is large and difficult. The World Bank is well-positioned to lead in meeting the critical challenges of food security, rural poverty reduction and sustainable natural resource management.

SELECTED REFERENCES

Binswanger, Hans P. and Pierre Landell-Mills. 1995. *Implementing the World Bank Strategy on Poverty and Hunger*, Environmentally Sustainable Development Studies and Monographs Series No. 4. Washington, DC: The World Bank.

Le Moigne, Guy, Ashok Subramanian, Mei Xie, and Sandra Giltner. 1994. *A Guide to the Formulation of Water Resources Strategy*. World Bank Technical Paper, No. 263. Washington, D.C.: The World Bank.

McCalla, Alex F. 1994. "Agriculture and Food Needs to 2025: Why We Should Be Concerned?", *Sir John Crawford Memorial Lecture*, International Centers Week, Washington, DC, October 27, 1994.

World Bank, Operations Evaluation Department. 1994. Agricultural Extension: Lessons from Completed Projects. OED Report No. 13000. *Final version is forthcoming.*

World Bank. 1991. *The Forest Sector*, World Bank Policy Paper. Washington, DC.

World Bank Agriculture and Natural Resources Department. 1993a. *Agricultural Sector Review*, Washington, DC.

World Bank, 1993b. *Water Resources Management*, World Bank Policy Paper. Washington, DC.

World Bank, 1994. *Learning from the Past, Embracing the Future*, Washington, DC.

BACKGROUND

Binswanger, Hans P. 1994. "Agriculture and Rural Development: Painful Lessons", the Simon Brandt Address delivered at the 32nd annual meeting of the Agricultural Economics Association of South Africa, Pretoria, South Africa, September 21, 1994.

World Bank. 1994. *Review of Implementation of the Forest Sector Policy*, Washington, DC.

Yaron, Jacob and World Bank Agriculture & Rural Development Department. 1992a. *Rural Finance in Developing Countries*, Policy Research Working Papers. Washington, DC: The World Bank.

Yaron, Jacob. 1992b. *Successful Rural Finance Institutions*, World Bank Discussion Papers, No. 150. Washington, DC: The World Bank.

Agriculture and Food Needs to 2025: Why We Should Be Concerned

Alex F. McCalla

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH
Sir John Crawford Memorial Lecture
International Centers Week
October 27, 1994
Washington, D.C.



Published by the Consultative Group on International Agricultural Research, CGIAR Secretariat, The World Bank, 1818 H St., N.W., Washington, D.C., 20433, United States, October 1994.

Sir John Crawford Memorial Lectures

1985 Robert S. McNamara, United States
1986 Bukar Shaib, Nigeria
1987 Amartya Sen, India
1988 Helen Hughes, Australia
1989 Jacques Diouf, Senegal
1990 M. S. Swaminathan, India
1991 CGIAR Twentieth Anniversary Commemoration
1992 Enrique V. Iglesias, Uruguay
1993 James Gustave Speth, United States
1994 Alex F. McCalla, Canada

The Sir John Crawford Memorial Lecture has been sponsored by the Australian government since 1985 in honor of the distinguished Australian civil servant, educator and agriculturalist who was one of the founders of the Consultative Group on International Agricultural Research (CGIAR). Sir John (1910-1984) was the first chairman of the CGIAR's Technical Advisory Committee.

Agriculture and Food Needs to 2025: Why We Should Be Concerned

Alex F. McCalla
Chair, Technical Advisory Committee, CGIAR
Director, Agriculture and Natural Resources Department, The World Bank

Introduction

Everyone agrees that the world's population will exceed 8 billion people by 2025, an increase of over 2.5 billion in the next thirty years. Everyone agrees that most of the increase will occur in developing country cities—urban population is expected to rise from 1 billion in 1985 to 4 billion by 2025. Most everyone agrees that world food supplies will have to more than double by 2025, because of increases in income and urbanization in addition to population growth.

Given this widespread agreement on the needs or demand side of the equation and its magnitude—the greatest numerical growth in human numbers in history and a required magnitude of increased food production never before achieved—why is there so little agreement on the ease or difficulty of generating the

supply to meet that demand? The spectrum of views ranges from the one extreme, "there is no problem," to the other, "the imminent arrival of the Malthusian nightmare, unless effective population control is implemented immediately." By far the predominance of views is toward the "no problem" end, and can only be characterized as bordering on complacency.

Therefore, the puzzle that this lecture identifies is, how can intelligent students of the international food economy agree so closely on the demand side and disagree so wildly on the capacity of the world to provide the supply to meet that demand? The cacophony of views is muddying the waters and, in my view, retarding needed attention to this critical issue.

This lecture has a modest objective. It is to critically appraise the competing viewpoints and to show that, regardless of which view you prefer, the productivity improvement challenge facing world agriculture in the next thirty years is enormous. Twenty twenty-five is just thirty years away. From initiation to implementation in farmers' fields, agricultural research takes ten to twenty years to have an impact. Twenty years from now there will be at least 1.8 billion more people in the world to feed. Research and technology development to contribute to the needed production must start today. Everyday spent on further debate about whether "Malthus must wait" or "Malthus is finally right" is "fiddling while Rome burns."

Specifically, I shall do five things. First, I will review briefly the past history of "food crises" debates. Second, I will quickly summarize the demand side upon which most people agree. Third, I will summarize four

different viewpoints on the supply side of the world food equation, from the "no problem" view, as exemplified by Donald O. Mitchell and Merlinda D. Ingco in their paper entitled "The World Food Outlook," to the ominous predictions of Lester R. Brown and Hal Kane in their book, *Full House: Reassessing the Earth's Population Carrying Capacity*. Fourth, I will critically appraise the consequences of each of these scenarios for future agricultural development and technology generation needs. Finally, I will focus on the consequences of not recognizing the urgency of the productivity challenge.

Past Debates

The sufficiency of future food supplies has been a recurrent question in the international debate over most of the post-World War II period. The debate is most frequently driven by supply side considerations. Since Thomas Malthus wrote his "Essay on the Principle of Population as It Affects the Future Improvement of Society" in 1798, the debate has focused on the race between supply (seen to grow linearly) and population (seen to grow exponentially). New lands, new technology, and capital investment in irrigation have delayed the "Malthusian cross" (i.e. when population growth rates exceed the rate of food supply increases) for most of the world, but the debate, for how long?, has raged for years.

Immediately after World War II, there were concerns about imminent food shortages. These quickly gave way to food production surges and rising stocks

in the 1950s and early 1960s. Two bad monsoons in South Asia during 1965-66 led to resurgent concerns about imminent famine. William and Paul Paddock wrote a best seller in this period called *Famine-1975!*, which predicted imminent famine by 1975. In the late 1960s and early 1970s, Malthus was kept at bay again by expanded output. The years 1972 to 1974 saw a coincidence of events—production shortfalls in several locations simultaneously and rapid demand expansion, particularly from the Soviet Union, which caused agricultural prices to skyrocket. Grain prices tripled over an eight-month period. Global food shortages were predicted. Then U.S. Secretary of Agriculture, Earl Butz, exhorted farmers to "plant fencerow to fencerow."

Surpluses rebuilt in the early 1980s. The United States instituted its most comprehensive and expensive supply control program, Payment in Kind (PIK), in 1983 as stocks soared. The 1988 drought brought a brief return of the issue of possible shortages, but concerns about excess supplies soon cooled the debate, at least in developed countries. Mitchell and Ingco, in their recent paper, extensively reviewed previous chapters of this debate and concluded that technological pessimists have always been wrong.

Currently, the food production versus population growth issue is the subject of some debate, but the issue is not viewed as critical, even though there are widely divergent views on what the next twenty to thirty years will hold regarding the world's capacity to increase production to feed more than 8 billion people.

I will return to four of these widely divergent views in a moment, but first let me quickly review the demand side that most people agree on.

World Food Needs to 2025—The Convergent View

World population will double in the next forty years. By 2025—thirty-one years from now—the median variant of projections by the United Nations suggests a global population of 8.5 billion people. A larger share of that population will live in developing countries. In 1985, 75 percent of the world's population lived in developing countries. By 2025, more than 83 percent will live there. At present, approximately 31 percent of the population of developing countries live in cities, although there are strong regional differences. By 2025, it is estimated that 57 percent of the population in developing countries will live in cities. The number of people living in cities will quadruple from 1 billion to 4 billion. Regionally, the population in Asia will nearly double to over 4 billion, while that in Sub-Saharan Africa will more than triple from 420 million in 1985 to nearly 1.3 billion by 2025 (Table 1). The number of malnourished will rise from the current level of 750 million to over 1 billion.

In addition to population growth, income growth also increases the demand for food. Even with modest income growth in developing countries, the demand for food in 2025 will be more than double current levels of production. Further, urbanization, in conjunction with income growth, will cause the character of diets to shift away from roots and tubers and lower quality staple grains to higher quality cereals, such as rice and wheat, livestock products, and vegetables. [See Mitchell and Ingco, 1993, Chapter V, for an excellent review.] With massive urbanization will come increased need for markets and basic infrastructure as well as for urban oriented food security policies.

Table 1. Global Population and Distribution Patterns

Year	World	Developed Countries	Developing Countries	Sub-Saharan Africa	Latin America	Asia and the Pacific	West Asia-North Africa
			POPULATION (millions)				
1960	3,019	964	2,055	209	218	1,505	123
1985	4,855	1,210	3,645	421	404	2,575	245
2010	7,191	1,365	5,826	916	631	3,810	469
2025	8,467	1,422	7,045	1,296	761	4,379	609
			DISTRIBUTION (percentage)				
1960	100.0	31.9	68.1	6.9	7.2	49.8	4.1
1985	100.0	24.9	75.1	8.7	8.3	53.0	5.0
2010	100.0	19.0	81.0	12.7	8.8	53.0	6.5
2025	100.0	16.8	83.2	15.3	9.0	51.7	7.2

Source: CGIAR, Technical Advisory Committee. 1990. "A Possible Expansion of the CGIAR." Paper AGR/TAC:IAR/90/24. TAC Secretariat, Food and Agriculture Organization of the United Nations, Rome, Italy.

Most observers also agree that there will be wide regional differences in the severity of hunger and malnutrition. All agree that Sub-Saharan Africa and South Asia will face particularly difficult problems. Let us recall that by 2025 these two regions alone will approach a population of 3 billion people.

The Supply Side—The Divergent Views

Perceptions of the capacity of the world to meet the above challenges vary widely. On the optimistic side are analysts who use global projection models based on past trends, which basically conclude that on a global basis the world can feed itself until at least 2010. The clearest and most comprehensive presentation of this view is by Mitchell and Ingco. At the opposite end of the spectrum is the most recent Worldwatch Institute study by Brown and Kane. Reading Mitchell and Ingco and then Brown and Kane one after the other is a study in contrasts which makes one wonder whether they are talking about the same planet.

Between these two poles are two other views. One I call the conventional scenario which argues that the challenge is serious indeed, requiring developing countries to increase significantly their capacity to feed themselves and in a sustainable fashion. The perception is that it can be done; but, if current investments in agricultural development and productivity improvement are not maintained or increased, the world will spin toward the Brown-Kane model. A fourth wild-card scenario is a hypothesis presented by Ian Carruthers called "Going, Going, Gone! Tropical Agriculture as We Knew It," which argues that developing countries will not be able to meet their growing urban cereal demands and that the developed countries must fill the gap with greatly expanded trade.

I begin by presenting the conventional view and then turn to the other three scenarios.

Scenario 1: The Conventional View

The challenge facing world agriculture is enormous. World food production has to more than double. Until the middle of the twentieth century, expansion of cultivated area roughly kept pace with population growth. In the last forty years, the doubling of cereal output came from three sources—area expansion, increased intensity of land use (mainly through expanded irrigation), and yield increases. While irrigated area more than doubled from 1950 to 1980, its rate of growth has since slowed substantially as has area expansion in rainfed areas. The current view is that the next doubling of food production must come primarily from increased productivity (i.e. yield). Already increasing productivity in many developing countries is putting stress on the natural resource base—in some countries as much land is lost to erosion and salinization as is brought into production through irrigation or area expansion.

Therefore, the difficult challenge facing world agriculture is to double production on the same land base while maintaining or, hopefully, improving the natural resource base. These are the twin challenges of creating environmentally-sustainable production systems—productivity improvement and improved management of natural resources.

The aggregate challenge is staggering enough; but, when we begin to disaggregate food demand, the task

is more complicated. As noted, rising incomes and urbanization shift the composition of food demand. Consumers demand more diverse and higher-quality diets and need foods that can be transported and stored. While yields of some cereals, such as wheat and rice, have doubled in the last thirty years, yields of most other developing country crops—such as maize, cassava, sorghum, millet, beans, and edible legumes—have shown less rapid increases. To double again wheat and rice yields and more than double yields of other basic food products will be problematic without increased research and development efforts. While biotechnology holds the promise of significant genetic improvements, that promise is becoming reality much more slowly than earlier forecasts suggested.

This scenario implicitly views the food supply problem as basically a nationalistic one (i.e. countries are responsible for their own food security). This is generally translated to mean responsible for their own food production. Trade enters the scenario in a limited way. If food demands double, grain consumption—of wheat, rice, and maize—will increase from 1.9 billion metric tons to 3.8 billion metric tons. Trade is now around 200 million metric tons, or approximately 10 percent of the supply, and is not likely to grow as a percentage. If developing countries are to grow their own food, and if population increases 2 percent per year, then their food production must rise by 2 percent per year.

Scenario 2: The Optimists

Analysts have been projecting world food supply and demand balances for decades. In their simplest

form, rates of population growth are added to rates of income growth, modified by the income elasticity of the demand for food, to project a rate of growth in food needs (i.e. demand). This rate is then compared to rates of growth in productivity (i.e. production), usually made up of an estimate of new land availability plus projected yield increases. These models, therefore, are basically projections of two compounding growth rates. Any deviation between these rates either leads to food gaps or surpluses and the difference increases the further the projection. If the model has endogenous prices, then real prices either rise or fall. Over a twenty-five year time horizon a one-tenth of 1 percent difference leads to substantial divergence. In reality, of course, food gaps or food surpluses do not occur because prices in the marketplace equilibrate quantity supplied to quantity demanded. Thus, the strong focus on the direction of real prices of food over future periods.

One such model deserves our attention here. Mitchell and Ingco have produced a substantial and controversial paper in "The World Food Outlook." After reviewing past predictions of global food shortages over the last several decades, Mitchell and Ingco concluded that the world has really done quite well. Using three indicators—real food prices, calories available to consumers, and per capita food production—they concluded that, overall, the world was better fed in 1990 than in 1960. Real food prices, except for a blip from 1972 to 1974, have continued their century-long decline. "Per capita calorie supplies in developing countries rose by 27 percent from 1961-63 to 1987-89" (Mitchell and Ingco 1993, p. 20) and overall per capita food supplies

"increased at a steady pace since 1961-63" (p. 23).

Their basic question is, what can we expect to 2010? Their model is based on two critical assumptions. The first is that the global population growth rate will decline from 1.74 percent in 1994 to 1.4 percent in 2010. The second is that world grain production will grow at 2 percent per annum from now until 2010. The result of their baseline simulation model is that global food production increases will more than keep pace with increases in demand. Food imports by developing countries will increase by more than 4 percent per annum, doubling imports by 2010; but these will easily be provided by expanded exports from developed countries and reduced net imports by formerly centrally planned economies.

Among the study's conclusions are:

1. "The simulation results strongly suggest that the outlook for the world food situation is good, despite regional problems" (p. 151).

2. "It should become increasingly easy to meet the world's demand for grain if past trends in production and consumption continue" (p. 175).

3. "The most important conclusion to come from our analysis is that the world food system has many options to meet future demand" (p. 175).

4. Mitchell and Ingco's final paragraph:

> The world food situation has improved dramatically during the past thirty years and the prospects are very good that the

> twenty-year period from 1990 to 2010 will see further gains. However, these gains depend on continued increases in food production along the trends of the past. This will not occur automatically, rather it will require continued investments in research to increase crop yields and in other factors of production. If past crop yield trends continue and if population growth rates slow as projected, then the gains in the world food situation seen during the past thirty years should continue. If Malthus is ultimately to be correct in his warning that population will outstrip food production, then at least we can say: "Malthus must wait" (p. 232). [Emphasis added.]

Other studies—such as "Agriculture: Towards 2010" by the Food and Agriculture Organization of the United Nations (FAO) and an International Food Policy Research Institute (IFPRI) paper by Mark W. Rosegrant and Mercedita Agcaoili entitled "Global and Regional Food Demand, Supply, and Trade Prospects to 2010"—reach similar, though not identical, conclusions. The FAO study uses the same population growth rate for 2010 (i.e. 1.4 percent), but a slightly lower rate of global production increase (i.e. 1.8 percent). The study concludes that per capita calorie supplies will rise and the absolute numbers of people suffering chronic undernutrition will decline. Production increases for grains are projected to be 2.2 percent per annum, made up of a 1.4 percent per annum increase in yield and a 0.8 percent per annum increase in area harvested.

Rosegrant and Agcaoili use an IFPRI simulation model to project to 2010. Aggregate simulation results suggest declining or constant real prices of major food commodities, which suggest optimism for future aggregate food supplies. As with the Mitchell and Ingco and the FAO studies, the IFPRI study also points to potential regional problems, particularly in Sub-Saharan Africa, but in general it is upbeat.

Their conclusion is:

> If governments and the international community maintain (or renew) their commitment to agricultural growth through policy reform and sustained, cost-effective investment in agricultural research, extension, irrigation and water development, human capital, and rural infrastructure, there will be no overwhelming pressure on aggregate world food supplies from rising population and incomes. Projected per capita availability of food will increase and real world food prices will be stable or declining for key food crops. However, these aggregate price trends conceal emerging problems at the regional and country level, which show that there will continue to be problems in getting food to those who need it most (Rosegrant and Agcaoili 1994, p. 40-41).

Thus, these models project that growth in global production will keep pace with global demand. In fact, they argue that production could grow faster than

2 percent if land currently held out of production in developed countries returns to production. The conclusion is that supply will continue to press on demand leading to a continuation of the decline in real grain prices which has persisted with few exceptions for the last 100 years. They conclude that there will be no global world food problem as aggregate supply will be equal to or greater than aggregate demand at constant or lower real prices. Finally, none of the studies sees resource degradation as a critical issue. In fact, the Mitchell and Ingco study suggests less land would be needed.

They do, however, admit that there will be pockets of problems such as in Sub-Saharan Africa and South Asia, particularly where there will be problems of malnutrition. They identify this as a problem of access to food, which is a poverty problem not a food problem. If pressed, the supporters of these models will admit that a 1.8 percent to 2 percent output growth assumption is critical, and that there will, therefore, be a role for research and technology development; but they do not see global food supplies as a crisis in the next decade or two. They are generally silent about the longer-term.

Scenario 3: The Pessimists

At the opposite end of the spectrum we find Brown and Kane in *Full House: Reassessing the Earth's Population Carrying Capacity.* This book is in stark contrast to the Mitchell and Ingco analysis. The basic premise is that the 1990s mark the beginning of a new era where it will be much more difficult to expand food output.

> Many knew that this time would eventually come, that at some point the limits of the earth's natural systems, the cumulative effects of environmental degradation on cropland productivity, and the shrinking backlog of yield-raising technologies would slow the record growth in food production in recent decades. But because no one knew exactly when or how this would happen, the food prospect was widely debated. Now we can see that several constraints are emerging simultaneously to slow the growth in food production (Brown and Kane 1994, p. 22).

The "facts" according to Brown and Kane are different from Mitchell and Ingco. Brown and Kane say grain production expanded at 3 percent per year from 1950 to 1984, but the rate of growth dropped to scarcely 1 percent annually during the period 1984-93. Recall Mitchell and Ingco projected a continuation of the 2 percent per year growth in production that occurred in the 1980s. Further, Brown and Kane argue that production of fish has reached its biological limit and the carrying capacity of rangelands has been exceeded, requiring future food needs to be met by only the cropland food system, whereas before it was met by all three—fish, livestock, and crops.

Therefore, Brown and Kane argue future supply trends will be subject to six new constraints:

1. The shrinking backlog of unused agricultural technology.

2. The growing human demands that are pressing against the limits of what fisheries and rangelands can contribute to increase food needs.

3. The demands for water that are pressing against hydrologic limits.

4. The declining response of crops in many countries to additional fertilizer application.

5. The substantial losses of cropland to industrialization and urbanization.

6. The "social disintegration, often fed by rapid population growth and environmental degradation [that] is undermining many national governments and their efforts to expand food production" (p. 24).

On this last point, Brown and Kane cite extensively a chilling article by Robert Kaplan entitled "The Coming Anarchy."

Full House presents quantitative information to back-up these basic propositions. The food production increases have slowed perceptibly in the last ten years and may slow even more in the future. Per capita grain production has fallen from a peak of 346 kilograms per capita in 1984 to 303 kilograms per capita in 1993. World grain stock, as a percentage of production, is at an all time low. Relatively little land is currently being held out of production in the United States and the European Union, and what is out is of low productivity. Bringing all this land back into production would "expand the world grain area by only 1.6 percent, not half enough to get it back to the historical high reached in 1981" (p. 99).

Further, China is losing nearly 1 million hectares or 1 percent of its cropland per year to industrialization. Brown and Kane predict that China will follow a

similar path to Japan, South Korea, and Taiwan, where their combined grain areas decreased from 8 million hectares to 4 million hectares from 1950 to 1990. Thus China, in their scenario, will experience a 66 million metric ton reduction in grain production from 1990 to 2030 and an increase of 210 million metric tons in imports—more than total world trade in the 1990s.

These facts plus others—declining fertilizer use; a falling off in yield increases in recent years in many countries (world grain yields increased 2.3 percent per year from 1950 to 1984, but only 1 percent per year from 1984 to 1993); declining investments in agricultural research; and increasing environmental pressures—lead Brown and Kane to conclude that the world is close to exceeding its carrying capacity. Their analysis suggests that by 2030 world grain import needs will "exceed exportable supplies by 526 million tons, an amount approaching the current grain consumption in the United States and China combined" (p. 188). Their bottom line is that the growing imbalance between food and people can only be redressed by frontally attacking the population issue. In sum, if Brown and Kane were to paraphrase Mitchell and Ingco's concluding sentence, it could read "Malthus is here."

Scenario 4: The Developed Countries Fill the Gap

The most radical scenario is one put forward by Carruthers, a professor at Wye College, in "Going, Going, Gone! Tropical Agriculture as We Knew It."

Carruthers' view is that our traditional model of developed countries (i.e. rich) supplying the world with manufactured goods and financial services while the developing countries (i.e. poor) provide primary products—such as food, natural resource products, and minerals—is not sustainable. Carruthers' view is that in the long-run developing countries will produce manufactured goods and trade them for food from developed countries. His argument in simplified terms runs as follows:

1. Carruthers is convinced that the tropics are incapable of producing enough basic foodstuffs for burgeoning cities in the developing world—where population is estimated to be 4 billion by 2025—in the long-run. The fragile tropical and subtropical environments will be lucky to support the remaining 50 percent that still subsist from the land.

2. The trend has already started; it is developed countries—the United States, Canada, Europe, and Australia—which export food to developing countries and increasingly import labor intensive manufactured goods.

3. Production increase potentials are greater in the temperate zone because of better technology and significant areas of land held out of production. Therefore, developed countries can provide increased supplies through trade.

4. If the scenario occurs with developing countries exporting manufactured goods (i.e. from labor abundance), urbanites in developing countries will have enough income to import basic foods (i.e. grains).

The implications of this scenario are enormous. If the additional 3 billion urban dwellers are to be fed by trade, exports of grain will have to increase 4 times from 200 million metric tons to 800 million metric tons, assuming minimum consumption of 200 kilograms per capita, in next thirty years. This is—physically, biologically, and economically—a huge task. If trade does not expand this rapidly, the impact on food prices could be substantial, causing greater increases in malnutrition in poor countries. Carruthers' paper contains no numbers, so it may be that the physical magnitude of the increases in production in developed countries suggested was not fully comprehended. The United States currently provides about half of world grain exports. To maintain that share, US grain production would have to triple by 2030.

Some Comparisons of the Scenarios

The four scenarios presented look at the same "facts" and reach vastly different conclusions. The reasons for the differences, despite all the rhetoric, reside in four projection parameters:

1. The rate of increase in biological cereal yields to be expected over the next fifteen to thirty years.

2. The amount of new land to be added to or lost from agricultural production.

3. The amount of land subject to increased intensification primarily through irrigation.

4. The impact of environmental degradation on food production capacity.

Mitchell and Ingco assume a continuation of the rate of increase in production of the last several decades. Ninety percent of that increase resulted from yield increases. In their terms, yield is output per unit of land, which includes the impact of both biological yield increases and intensification. Presumably both the rate of growth in biological yield and irrigation is assumed to continue at the same rate as during 1960-90. Therefore, the assumption with respect to increased land area appears to be close to zero. They minimize any significant negative impact on production of resource degradation.

On the other extreme, Brown and Kane argue that biological yield growth has slowed to about 1 percent per year in the last decade and may decline further. Herein lies the major difference—a 1 percent difference in a compound growth rate over thirty years makes an enormous difference at the end of the projection period. Further, Brown and Kane argue that land lost from agricultural production, coupled with increased urban competition for water, will lead to a projected decline in irrigated acreage. Environmental degradation will further constrain production increases. Carruthers makes no explicit presumptions about any of these parameters, but must implicitly be assuming low yield growth in developing countries, very high rates of yield growth plus expanded land area in developed countries, and environmental constraints mainly in the tropics and subtropics.

The conventional scenario argues that biological yields must increase to about 2 percent per annum to

replace the contributions made by area expansion and intensification in the last three decades. These yield increases must be accomplished without degrading the environment further.

All scenarios recognize the need for sustained or increased investments in research and technology development.

One must be somewhat cautious in assuming that future biological yield increases at past rates will be easy. Research by the International Rice Research Institute (IRRI) and the International Center for the Improvement of Maize and Wheat (CIMMYT) found significant slowing in the rate of yield increases of rice and wheat under experimental conditions. Nor should we be blasé about area or irrigation expansion. While the area of potentially useable arable land seems large, its potential for production has been seriously questioned in a recent study by Gershon Feder and Andrew Keck entitled "Increasing Competition for Land and Water Resources: A Global Perspective."

The trade implications of the four scenarios are also widely different. Carruthers appears to be arguing that, given population increases in developing countries, exports from developed countries would need to increase by 400 percent to possibly 800 million metric tons by 2025. Brown and Kane have export requirements which appear to exceed 700 million metric tons. The Mitchell-Ingco model sees a doubling of developing country imports by 2010 and, presumably, if the models were projected further, developing country imports could double again by 2025. This would imply a tripling of cereal trade. Finally, the conventional scenario would imply a doubling of cereal trade.

The first three scenarios raise two critical issues. First, the capacity of the developed countries and, possibly, the formerly centrally planned economies to achieve the required rate of increase, particularly given environmental concerns and resource limits. Second, the physical capacity of developing country infrastructure to handle the volume of trade projected. All of these models—Mitchell-Ingco, Brown-Kane, and Carruthers—are very cavalier in assuming that these two barriers can be overcome.

Of course, no one knows who will be right. Projections thirty years ahead, particularly those by economists, are invariably wrong. This is partly because of questionable assumptions, limited models, and poor information, but also because a dynamic world economy is self-adjusting since it does not tolerate disequilibrium easily.

The Consequences for the Future

While my own views tend to be more consistent with the conventional view than any others, this is not crucially important. Regardless of who is correct, the productivity-food production challenge for the globe is very substantial. Given the agreement on the demand side, all scenarios "require" at least a 2 percent or more per year increase in global food production. However, each scenario would have a different distribution of required relative increases. At one extreme, Carruthers places almost the entire burden of production increases on developed countries, and seems to imply a rate of increase approaching 4 percent per year—a rate never before accomplished. Mitchell and Ingco clearly imply a larger rate of increase in devel-

oped countries. The conventional view places more of the burden on developing countries and implies that virtually all of these increases must come from biological yield increases. Brown and Kane are skeptical about it happening at all. Under all scenarios biological yield increases accomplished over the last thirty years must be at least maintained or, better yet, increased.

Several other points need to be made:

1. The global requirements for production systems to be non-degrading to the environment (i.e. sustainable production systems) increases an already enormous research and development challenge. Few systems have sustained increases of over 2 percent per year, and these have often been at the expense of resource degradation.

2. Sources of increased rainfed land are limited, and the rate of increase of irrigated land has slowed considerably because of rising costs and the threat of long-term salinization. Therefore, production increases must come from yield increases. How difficult will it be to get 250 bushels per acre of corn or to increase the average irrigated rice yields in developing countries from 3.5 tons per hectare to 7 tons per hectare? Doubling sorghum yields in the Sahel from 500 kilograms to 1 metric ton per hectare is not going to help much in meeting global food security needs no matter how important it is to the Sahel.

3. The mix of crops will need to change to produce more tradable surpluses which are transportable and storable. Further, the increased foreign exchange earnings required by developing countries

for imports require a much more open trading system than we now have, even given the advances made during the Uruguay Round of negotiations of the General Agreement on Tariffs and Trade (GATT).

4. Even increasing production does not solve the malnutrition problem which will surely grow. It is a problem of access and income.

Further, we must recognize that the agricultural productivity issue is not just an issue of food supplies or even of biological food security. Let me make three quick, but very important, points in this regard. First, in the poorest countries of the world, the agricultural sector remains the most important, both in terms of employment and income generation. Increased productivity in subsistence and smallholder agriculture is a powerful engine of labor intensive growth, income improvement, and better access to food. It is a major contributor to poverty alleviation and equity improvement.

Second, more of the poorest of the poor and the malnourished currently live in low-potential areas than in high-potential areas, and rural numbers far exceed urban numbers so far (Pinstrup-Andersen and Pandya-Lorch 1994b). Thus, improvement in productivity in agriculture in both low- and high-potential areas has the multiple impact of increasing production, reducing poverty, reducing malnutrition, and generating growth, thereby improving food security broadly defined. Agricultural development is not just increasing cereal yields. Further, for the growing number of urban poor, ever-declining real food prices are a positive contribution to reducing malnutrition and poverty.

Third, increased yield per unit of land, particularly biological yield increases, reduces pressure on fragile environments. Feder and Keck argue that " ...every 0.1 percent of yield increase in the period 2010 to 2025 'substitutes' for about 25 million hectares of rainfed cropland" (p. 22). Further, given that agricultural production systems are dominant users of the arable landscape, attention to environmental issues in the development of sustainable production systems is an indispensable component of any successful future strategy.

Concluding Comments

The frightening part of this story to me is that, while the challenge just outlined is, in my view, critical and immediate, funds to support agricultural development and productivity improvement are being reduced in developed countries, and aid agencies and international development institutions are reducing the share of resources going toward agriculture. This trend is made worse by the overall decline in development assistance. Even the interest of developing country governments in agricultural development appears to be in steep decline. There is at least a twenty-year lag between initiating strategic research and significant increases in production in farmers' fields. Twenty years from now there will be 2 billion more people to feed and most of them will be in developing country cities. To not recognize the challenge and increase efforts is bad enough, but it is much worse to allow existing research capacity to erode.

Explanations for the apparent neglect of a critical problem abound: the short time span of attention of politicians; perceptions of over-production and surpluses in rich countries; protectionist domestic agricultural policies, which reduce incentive prices in developing countries; aid fatigue; fiscal crises in countries of the Organisation for Economic Co-operation and Development; the end of the Cold War, which reduced the urgency for development assistance; and on and on. Regardless of the reason, the consequences of not addressing these issues now will clearly have serious future consequences. Unfortunately, extremely pessimistic or optimistic scenarios, both of which must be questioned, detract us from serious debate on this critical issue. The efforts of IFPRI through their 2020 Vision for Food, Agriculture, and the Environment are, therefore, to be applauded as they seek a broadly accepted consensus on the challenges ahead. A recent IFPRI paper by Peter Hazell entitled "Prospects for a Well-Fed World" begins to move us on that direction. More than anything, the global community needs a balanced and reasonable analysis upon which to base critical future decisions.

Bibliography

Brown, Lester R., and Hal Kane. 1994. *Full House: Reassessing the Earth's Population Carrying Capacity.* The Worldwatch Environmental Alert Series. New York: W.W. Norton and Company.

Carruthers, Ian. 1993. "Going, Going, Gone! Tropical Agriculture as We Knew It." Tropical Agriculture Association Newsletter (United Kingdom) 13(3):1-5.

Crosson, Pierre, and Jock R. Anderson. 1992. "Resources and Global Food Prospects." Technical Paper Number 184. World Bank, Washington, D.C.

Feder, Gershon, and Andrew Keck. 1994. "Increasing Competition for Land and Water Resources: A Global Perspective." Paper presented at workshop, Social Science Methods in Agricultural Systems: Coping with Increasing Resource Competition in Asia, held May 2-4, in Chiang Mai, Thailand. Agriculture and Natural Resources Department, World Bank, Washington, D.C.

Food and Agriculture Organization of the United Nations. 1993. "Agriculture: Towards 2010." Conference Paper C-93/24. Rome, Italy.

Hazell, Peter. 1994. "Prospects for a Well-Fed World." Paper presented for roundtable meeting, Population and Food in the Early Twenty-First Century: Meeting Future Food Needs of an Increasing World Population, held February 14-16. International Food Policy Research Institute, Washington, D.C.

Kaplan, Robert D. 1994. "The Coming Anarchy." *The Atlantic Monthly* 273(2):44-76.

Mitchell, Donald O., and Merlinda D. Ingco. 1993. "The World Food Outlook." Draft paper. International Economics Department, World Bank, Washington, DC.

Paddock, William, and Paul Paddock. 1976. *Famine-1975!* Boston: Little, Brown and Company.

Pinstrup-Andersen, Per, and Rajul Pandya-Lorch. 1994a. "Alleviating Poverty, Intensifying Agriculture, and Effectively Managing Natural Resources." Food, Agriculture, and the Environment Discussion Paper Number 1. International Food Policy Research Institute, Washington, DC.

———. 1994b. "Poverty, Agricultural Intensification, and the Environment." Paper presented at the Tenth Annual General Meeting of the Pakistan Society of Development Economists, held April 2-5, in Islamabad. International Food Policy Research Institute, Washington, DC.

Plucknett, Donald L. 1993. "Science and Agricultural Transformation." IFPRI Lecture Series Number 1. Washington, DC: International Food Policy Research Institute.

Rosegrant, Mark W., and Mercedita Agcaoili. 1994. "Global and Regional Food Demand, Supply, and Trade Prospects to 2010." Paper presented at roundtable meeting, Population and Food in the Early Twenty-First Century: Meeting Future Food Needs of an Increasing World Population, held February 14-16. International Food Policy Research Institute, Washington, DC.

Alex F. McCalla is Chair of the Technical Advisory Committee (TAC) of the CGIAR and Director of the Agriculture and Natural Resources Department of the World Bank. Dr. McCalla is also Professor Emeritus of Agricultural Economics at the University of California, Davis.

Dr. McCalla's service at the University of California, Davis spanned three decades and encompassed a number of positions, including Dean of the College of Agricultural and Environmental Sciences, Associate Director of the California Agricultural Experiment Station, and Founding Dean of the Graduate School of Administration. He was also Professor of Agricultural Economics and Professor of Management.

Dr. McCalla was Study Director of the first review of the CGIAR. He was appointed as a Member of TAC in 1984, and has served as TAC Chair since 1988.

Dr. McCalla received a Bachelor of Science degree in Agriculture and a Master of Arts degree in Economics from the University of Alberta in Canada and a Doctor of Philosophy degree in Agricultural Economics from the University of Minnesota. His awards include a Ford Foundation Travel and Study Award to review world food policy research on a global basis and being named a Fellow of the American Agricultural Economics Association.

Printed on Recycled Paper

THE WORLD BANK/IFC/M.I.G.A.

OFFICE MEMORANDUM

DATE: November 30, 1995

TO: Distribution

FROM: Alexander McCalla, Director, AGR

EXTENSION: 85028

SUBJECT: **Coping With Rising Grain Prices: Update**

Following my memo of August 10, please find attached an update on the world grain market that supersedes page 1 of the August 10 memo.

Prices of all grains have continued to increase and are now expected to remain high for at least another year. Reduced export subsidies and lower food aid shipments can be expected, which will further increase import costs for food deficit countries. Apart from balance of payment effects, the fiscal burden of food consumption subsidies will increase and access to food by the poorest will be threatened unless targeting is improved.

Existing programs and facilities described in my August 10 memo remain the most appropriate vehicles and are likely to suffice to contend with balance of payments effects; but the fiscal and access problems are likely to require special analytical efforts and innovative responses.

Distribution:

Country Directors
Agriculture and Natural Resource Division Chiefs
Country Operations Division Chiefs
Human Resources Development Division Chiefs
Chief Economists
Lead Economists
Project Advisers
Technical Department Advisers

CC: Messrs. I. Serageldin (ESDVP), M. Bruno (DECVP)

November 30, 1995

World Grain Market Update[1]

The world's grains markets tightened further this quarter as production problems in the United States continued. Prices of all grains increased and are expected to remain high for at least another year. Stock levels have fallen to the lowest level on record when measured relative to consumption and are below levels which can be rebuilt in a single year. This suggests that the period of high prices could continue for several years. Reduced export subsidies and lower food aid shipments can be expected which will further increase import costs for food deficit countries.

The USDA's October estimate of world grain production was for a reduction of 3.7% compared to last year and this confirmed the common views of an already tight world market. World consumption is expected to exceed production by 63 million tons and cause stocks to fall to the lowest level on record. The stock-to-use ratio, which is the common measure of the availability of stocks, is expected to fall to 13% by the end of the 1995/96 crop year (June 1996). This compares to a ratio of 17% in 1994/95 and is below the previous low of 15% in 1972.

Export prices for maize, rice and wheat rose by 44.0%, 48.3% and 69.1% respectively from July 1994 to October 1995. Further price increases will depend on final production numbers and import demand for the remainder of the crop year. Most of the large grain producing countries and regions such as China, India, Eastern Europe, and the European Union have good grain crops which should moderate import demand. The FSU has a very poor grain harvest (-8.2% from last year and -36% from the 1990 level), however, continuing economic problems and a lack of foreign exchange will keep imports low. Most of the major exporting countries, except the United States, have good to excellent crops and should fill the export gap left by the poor US harvest.

Next year appears to be shaping up as another tight market with high and volatile prices--a repeat of this year--because stocks are below levels which can be rebuilt in a single year. For example, consumption is expected to exceed production by 63 million tons this year and stocks are expected to fall to 232 million tons. If 1996 production were to increase by 5.7% to equal the 1992 record harvest, this would only add roughly 20 million tons to world stocks. This would not be enough to change the market situation significantly and the stock-to-use ratio would increase to only 14% which would still be near the lowest levels on record. Consequently, the outlook is for another year of tight market conditions in 1996.

---

[1] Prepared by Donald Mitchell, Senior Economist, Commodity Policy and Analysis Unit, International Economics Department, The World Bank.

WHEAT

Wheat prices rose to an average of $203.7/ton during October for US hard red winter wheat (f.o.b.). This compares with a one year ago price of $167.2/ton during the same month. World production is estimated to be 1.5% higher than for the previous year, but still below consumption. Stocks are expected to fall to 17.8% of consumption by the end of the 1995/96 crop year in June 1996, compared to 20.7% last year and an average of 26.4% during the past 10 years. Some rebuilding of stocks is expected in 1996/97 as current high prices increase area planted and fertilizer use on wheat. However, stocks are expected to still remain low relative to consumption and prices should remain high. The Chicago futures prices remain near current levels until the May of 1996 contract before declining on the expectations for the next harvest.

The world wheat market will experience the third consecutive year where production is less than consumption in 1995/96, however, adequate production in most of the major importing countries should prevent large import demand and this may hold price increases to what has already occurred. The only major importing country or region with a significant production shortfall this year is the former Soviet Union (FSU), but imports are not expected to increase significantly due to economic constraints. The FSU is expected to have net imports of only 5.5 million tons compared to 17.3 million tons in 1992/93. China is expected to remain the world's largest importer with imports of 11 million tons, despite a relatively good harvest. World trade is projected to fall to about 95 million tons in 1995/96, compared with imports of 97 million last year and 113 million tons in 1992/93.

MAIZE AND OTHER COARSE GRAINS

Reduced production and low stocks caused maize prices to rise to $140.9/ton for US exports during October. Prices are expected to remain high for the next year and, depending on 1996 growing condition, prices may remain near current levels through 1997. This view is consistent with futures prices which remain high through July 1996 contract deliveries before declining with the 1996 harvest.

World coarse grain production for 1995/96 is projected to be 8% lower than for the previous year due to a poor US crop. The US maize crop is expected to be 25% below the previous year due to a poor spring planting and early frosts. End-of-year world stocks are expected to fall to the lowest level on record when measured relative to consumption. This will be the fourth consecutive year that world production has been lower than consumption. Trade levels are expected to fall due to higher prices and tight export supplies.

China is expected to become a net importer of coarse grains in 1995/96 following several years as the world's second largest net exporter after the United States. The reversal follows a surge in demand for livestock feed and is expected despite a record production which is nearly 8% higher in 1995/96 than for the previous year. This reversal contributed to the overall tightness in the coarse grain market as China shifts from a net exporter of 10.8 million tons in 1993/94 to a 3 million ton net importer in 1995/96.

RICE

Rice prices have been rising along with other grains prices and stocks are expected to fall to the lowest levels in more than 20 years. This occurs despite near record world production in 1995. World rice consumption has exceeded production every year since 1990/91 and the stock-to-use ratio is expected to fall to 12% by the end of the 1995/96 crop year (July 1996). This compares with an average stock-to-use ratio of 16% during the decade of the 1980s. The Chicago rough rice futures contract continues to show higher delivery prices through July 1996.

The large supplies of low quality rice being exported by India should offset low stocks in other exporting countries. India has emerged as a major exporter of rice with an expected 3.3 million tons to be exported in 1995. India has large stocks of rice available for export and little capacity to properly store the rice. Consequently, India is aggressively pursuing exports. The other major exporters of low quality rice such as Myanmar, China and Vietnam have exhausted current export supplies. World imports were a record 19.4 million tons in 1994/95 (year ending June 1995) as Bangladesh, China, Indonesia and Iran were all large buyers.

Despite the abundance of low quality rice, the price spread between the high and low quality rice remains narrow. Thai A1 Special 100% broken rice was quoted at $294.4/ton in October compared to $382.6/ton for Thai 5% broken white rice. This 30% margin of premium to low quality rice compares with an average margin of 49.7% in 1993 and 46.8% in 1994 and reflects the strong buying of low quality rice by Bangladesh, China and Indonesia.

GRAIN IMPORT REQUIREMENTS

According to the October/November estimates of cereals import requirements from FAO, the low income food deficit countries will have total import requirements which are slightly larger than in 1994/95. However, Africa will have a 15% larger import requirement because of poor harvests. The drought in southern Africa has caused an estimated 10 million people to need emergency food aid assistance. Asia will have slightly larger import requirements while countries in Central and South America, and Europe will have lower import requirements. The monsoon in Asia has improved after a poor start, and prospects are now considered good for Asian rice and coarse grain production despite flooding in China. The individual countries expected to require larger cereal imports in 1995/96 relative to the previous year include Afghanistan, Angola, Cameroon, China, Kenya, Morocco, Mozambique, Zambia and Zimbabwe.
(The latest FAO import requirements are attached.)

FOOD AID

The declining trend in food aid deliveries continues in 1995 according to the World Food Programme report. (See attached report).

CONTACTS

For additional information on specific programs, please contact:

Mr. Hans Binswanger
Senior Agricultural Policy Adviser
Agriculture & Natural Resources Department
The World Bank
Tel: 202-473-1871

Ms. Nancy Happe or Mr. Mark Tureen
Chief of Special Facilities and Issues Division
Policy Development and Review Department
International Monetary Fund
Tel: 202-623-8675 or 202 623-4534

Ms. Dianne Spearmen
Chief, Policy Affairs Service
Policy and Public Affairs Division
World Food Programme
Tel: 39-6-5228-2601

Updated 11/28/95

ESTIMATED IMPORT REQUIREMENTS OF CEREALS: LOW-INCOME FOOD-DEFICIT Countries 1/(Thousand tons)

(b) 1995/96 estimates for LIFD countries which have entered the 1995/96 marketing year

COUNTRY	Marketing year	1994/95 or 1995			1995/96			
		Actual imports			Total import require-ments (excluding re-exports)	Import position		
		Commercial purchases	Food aid	Total commercial and aid		Total commercial and aid	Food aid allocated committed or shipped	Commercial purchases
AFRICA		14 738.8	1 644.7	16 383.5	17 885	6 256.7	1 036.5	5 220.2
Northern Africa		10 632.4	257.2	10 889.6	11 538	4 943.7	151.2	4 792.5
Egypt	July/June	8 611.3	178.3	8 789.6	7 505	2 555.6	151.2	2 404.4
Morocco	July/June	2 021.1	78.9	2 100.0	4 033	2 388.1	0.0	2 388.1
Eastern Africa		798.0	353.4	1 151.4	1 410	100.8	100.8	0.0
Kenya	July/June	472.3	166.0	638.3	1 075	28.9	28.9	0.0
Somalia	Sept./Aug.	249.1	45.9	295.0	310	51.4	51.4	0.0
Tanzania	June/May	76.6	141.5	218.1	25	20.5	20.5	0.0
Southern Africa		1 367.5	962.6	2 330.1	2 761	953.9	716.2	237.7
Angola	April/March	127.3	274.9	402.2	560	172.0	165.4	6.6
Lesotho	April/March	171.9	32.1	204.0	297	96.6	46.4	50.2
Madagascar	April/March	171.5	26.5	198.0	146	21.0	21.0	0.0
Malawi	April/March	218.0	266.9	484.9	180	177.8	169.9	7.9
Mozambique	April/March	42.3	346.7	389.0	446	302.1	261.0	41.1
Swaziland	May/April	67.3	8.7	76.0	93	12.9	6.0	6.9
Zambia	May/April	386.1	1.3	387.4	589	39.8	39.8	0.0
Zimbabwe	April/March	183.1	5.5	188.6	450	131.7	6.7	125.0
Western Africa		1 544.2	55.8	1 600.0	1 687	234.9	44.9	190.0
Coastal countries		*1 544.2*	*55.8*	*1 600.0*	*1 687*	*234.9*	*44.9*	*190.0*
Côte d'Ivoire	July/June	444.2	55.8	500.0	587	44.9	44.9	0.0
Nigeria	July/June	1 100.0	0.0	1 100.0	1 100	190.0	0.0	190.0
Central Africa		396.7	15.7	412.4	489	23.4	23.4	0.0
Cameroon	July/June	282.2	2.8	285.0	347	1.6	1.6	0.0
Cent.Afr.Rep.	Sept./Aug.	29.2	0.8	30.0	34	0.0	0.0	0.0
Congo	July/June	85.3	12.1	97.4	108	21.8	21.8	0.0
ASIA		37 288.1	1 774.7	39 062.8	39 741	6 631.7	705.1	5 926.6
Afghanistan	July/June	795.3	94.7	890.0	1 250	317.4	67.4	250.0
Bangladesh	July/June	1 589.3	934.8	2 524.1	2 050	354.0	82.0	272.0
Bhutan	July/June	32.0	0.2	32.2	32	0.0	0.0	0.0
China	July/June	22 621.7	231.2	22 852.9	23 400	4 122.8	96.6	4 026.2
India	July/June	79.0	235.0	314.0	150	168.8	168.8	0.0
Indonesia	April/March	5 166.5	32.2	5 198.7	5 735	510.3	17.7	492.6
Jordan	July/June	1 494.1	128.8	1 622.9	1 610	361.7	118.8	242.9
Nepal	July/June	125.6	11.4	137.0	84	21.3	21.3	0.0
Pakistan	May/April	2 277.9	22.1	2 300.0	2 200	145.0	106.6	38.4
Philippines	July/June	2 369.1	30.9	2 400.0	2 550	605.7	18.2	587.5
Syria	July/June	737.6	53.4	791.0	680	24.7	7.7	17.0
CENTRAL AMERICA		1 958.2	350.4	2 308.6	1 770	263.5	213.8	49.7
El Salvador	Aug./July	475.3	18.3	493.6	374	0.0	0.0	0.0
Guatemala	July/June	542.6	120.4	663.0	540	54.3	48.5	5.8
Haiti	July/June	302.0	100.0	402.0	401	98.8	77.2	21.6
Honduras	July/June	433.0	80.0	513.0	280	59.6	45.0	14.6
Nicaragua	July/June	205.3	31.7	237.0	175	50.8	43.1	7.7
SOUTH AMERICA		159.2	176.8	336.0	300	65.2	65.2	0.0
Bolivia	July/June	159.2	176.8	336.0	300	65.2	65.2	0.0
EUROPE / CIS 5/ 6/		5 178.2	2 155.8	7 334.0	6 410	908.5	908.5	0.0
Armenia	July/June	14.0	463.0	477.0	430	182.0	182.0	0.0
Albania	July/June	276.2	33.8	310.0	310	0.0	0.0	0.0
Azerbaijan	July/June	304.0	366.0	670.0	690	139.8	139.8	0.0
Georgia	July/June	48.0	677.0	725.0	560	219.7	219.7	0.0
Kyrgyz Republic	July/June	209.0	124.0	333.0	350	130.0	130.0	0.0
Lithuania	July/June	5.0	20.0	25.0	30	0.0	0.0	0.0
Moldova	July/June	208.0	252.0	460.0	105	52.0	52.0	0.0
Macedonia, FYR	July/June	194.0	46.0	240.0	240	0.0	0.0	0.0
Romania	July/June	260.0	0.0	260.0	260	0.0	0.0	0.0
Tajikistan	July/June	285.0	124.0	409.0	560	185.0	185.0	0.0
Turkmenistan	July/June	570.0	50.0	620.0	470	0.0	0.0	0.0
Uzbekistan	July/June	2 805.0	0.0	2 805.0	2 405	0.0	0.0	0.0
TOTAL		59 322.5	6 102.4	65 424.9	66 294	14 125.6	2 929.1	11 196.5

for footnotes, please see page 54.

ESTIMATED IMPORT REQUIREMENTS OF CEREALS: LOW-INCOME FOOD-DEFICIT Countries 1/(Thousand tons)

(b)1995/96 estimates for LIFD countries which have entered the 1995/96 marketing year

COUNTRY	Marketing year	1994/95 or 1995 Actual imports					1995/96 Import position	
		Commercial purchases	Food aid	Total commercial and aid	Total import requirements (excluding re-exports)	Total commercial and aid	Food aid allocated committed or shipped	Commercial purchases
AFRICA		14,998.5	1,832.1	16,830.6	19,300	8,015.3	1,044.3	6,971.0
Northern Africa		10,695.9	307.0	11,002.9	12,410	6,294.2	195.6	6,098.6
Egypt	July/June	8,674.8	228.1	8,902.9	8,550	3,743.9	195.6	3,548.3
Morocco	July/June	2,021.1	78.9	2,100.0	3,860	2,550.3	0.0	2,550.3
Eastern Africa		797.5	372.5	1,170.0	1,425	173.1	100.8	72.3
Kenya	July/June	490.5	166.0	656.5	1,075	73.4	28.9	44.5
Somalia	Sept./Aug.	230.0	65.0	295.0	310	63.4	51.4	12.0
Tanzania	June/May	77.0	141.5	218.5	40	36.3	20.5	15.8
Southern Africa		1,348.7	962.6	2,311.3	2,971	989.5	679.6	309.9
Angola	April/March	127.3	274.9	402.2	560	179.6	156.0	23.6
Lesotho	April/March	171.9	32.1	204.0	297	70.2	20.0	50.2
Madagascar	April/March	152.7	26.5	179.2	146	22.4	21.0	1.4
Malawi	April/March	218.0	266.9	484.9	180	177.8	169.9	7.9
Mozambique	April/March	42.3	346.7	389.0	446	313.4	265.0	48.4
Swaziland	May/April	67.3	8.7	76.0	93	12.9	6.0	6.9
Zambia	May/April	386.1	1.3	387.4	589	35.0	35.0	0.0
Zimbabwe	April/March	183.1	5.5	188.6	660	178.2	6.7	171.5
Western Africa		1,759.7	174.3	1,934.0	2,005	535.1	44.9	490.2
Coastal countries		1,759.7	174.3	1,934.0	2,005	535.1	44.9	490.2
Côte d'Ivoire	July/June	444.2	55.8	500.0	590	79.7	44.9	34.8
Ghana	Oct./Sept.	215.5	118.5	334.0	295	5.0	0.0	5.0
Nigeria	July/June	1,100.0	0.0	1,100.0	1,120	450.4	0.0	450.4
Central Africa		396.7	15.7	412.4	489	23.4	23.4	0.0
Cameroon	July/June	282.2	2.8	285.0	347	1.6	1.6	0.0
Cent.Afr.Rep.	Sept./Aug.	29.2	0.8	30.0	34	0.0	0.0	0.0
Congo	July/June	85.3	12.1	97.4	108	21.8	21.8	0.0
ASIA		37,459.0	1,826.3	39,285.3	40,049	16,027.8	692.6	15,335.2
Afghanistan	July/June	788.1	101.9	890.0	1,250	332.4	80.1	252.3
Bangladesh	July/June	1,632.8	934.8	2,567.6	2,050	973.0	120.0	853.0
Bhutan	July/June	32.0	0.4	32.4	32	0.0	0.0	0.0
China 3/	July/June	22,624.4	212.5	22,836.9	23,460	10,026.1	119.8	9,906.3
India	July/June	0.0	277.1	277.1	250	174.1	174.1	0.0
Indonesia	April/March	5,196.2	32.2	5,228.4	5,735	1,675.3	17.5	1,657.8
Jordan	July/June	1,494.2	130.5	1,624.7	1,540	633.5	124.3	509.2
Mongolia	Oct./Sept.	128.6	11.4	140.0	170	0.0	0.0	0.0
Nepal	July/June	126.7	10.3	137.0	82	23.0	23.0	0.0
Pakistan 4/	May/April	2,346.7	25.0	2,371.7	2,100	999.7	15.0	984.7
Philippines	July/June	2,364.0	32.5	2,396.5	2,700	967.8	11.1	956.7
Syria	July/June	725.3	57.7	783.0	680	222.9	7.7	215.2
CENTRAL AMERICA		1,773.6	491.1	2,264.7	1,675	697.7	242.9	454.8
El Salvador	Aug./July	474.4	18.3	492.7	329	103.2	2.7	100.5
Guatemala	July/June	382.7	246.3	629.0	520	238.5	43.1	195.4
Haiti	July/June	278.6	114.4	393.0	401	169.4	90.9	78.5
Honduras	July/June	428.9	84.1	513.0	250	96.1	57.5	38.6
Nicaragua	July/June	209.0	28.0	237.0	175	90.5	48.7	41.8
SOUTH AMERICA		185.5	150.5	336.0	275	100.6	70.8	29.8
Bolivia	July/June	185.5	150.5	336.0	275	100.6	70.8	29.8
EUROPE / CIS 5/ 6/		5,108.2	2,199.8	7,308.0	6,337	1,018.0	1,018.0	0.0
Armenia	July/June	14.0	463.0	477.0	430	150.0	150.0	0.0
Albania	July/June	276.2	33.8	310.0	310	0.0	0.0	0.0
Azerbaijan	July/June	304.0	366.0	670.0	690	170.0	170.0	0.0
Georgia	July/June	48.0	677.0	725.0	560	267.0	267.0	0.0
Kyrgyz Republic	July/June	209.0	124.0	333.0	352	130.0	130.0	0.0
Lithuania	July/June	5.0	64.0	69.0	75	0.0	0.0	0.0
Moldova	July/June	208.0	252.0	460.0	125	48.0	48.0	0.0
Macedonia , FYR	July/June	194.0	46.0	240.0	240	0.0	0.0	0.0
Romania	July/June	190.0	0.0	190.0	120	0.0	0.0	0.0
Tajikistan	July/June	285.0	124.0	409.0	560	200.0	200.0	0.0
Turkmenistan	July/June	570.0	50.0	620.0	470	53.0	53.0	0.0
Uzbekistan	July/June	2,805.0	0.0	2,805.0	2,405	0.0	0.0	0.0
TOTAL		59,524.8	6,499.8	66,024.6	67,735	25,859.4	3,068.6	22,790.8

for footnotes, please see page 53.

SOURCE: FAO

1/ Includes food deficit countries with per caput income below the level used by the World Bank to determine eligibility for IDA assistance (i.e. U.S.$ 1345 in 1993), which is in accordance with the guidelines and criteria agreed to by the CFA should be given priority in the allocation of food aid. 2/ Includes refugee needs. 3/ Includes import requirements of Taiwan Province. 4/ Excludes Afghan refugee requirements. 5/ Classified as LIFD countries as of January 1995. 6/ Data include intratrade between the Republics.

red diskette: A:\lifdcs.wk1

FOOD AID MONITOR NUMBER 24

(September 1995)

This analysis presents the first insight into food aid trends in 1995. The most meaningful findings are underlined and put into perspective. The data presented have been extracted from the database of the International Food Aid Information System (INTERFAIS) which was developed by WFP for the purpose of improving food aid management, coordination and data analysis. Requests for additional information should be addressed to WFP/FSII.

HIGHLIGHTS

The declining trend in food aid deliveries, which started in 1994, continues in 1995: Global food aid deliveries in 1995 are expected to be below the 1994 level.

After a large reduction in 1994, programme food aid continues to decrease in 1995.

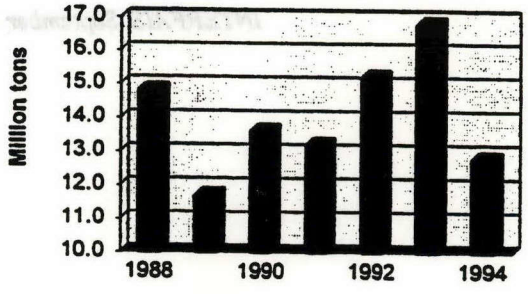
Deliveries made to Eastern European countries and the Newly Independent States of the former USSR slow down in 1995 compared with the previous year.

Global Food Aid Deliveries

According to data available so far, global deliveries in 1995 will be lower than in 1994. To date, deliveries amount to 5.9 million tons, compared with 8.0 million tons last September. Information on future deliveries in 1995 confirms the decreasing trend.

Global deliveries in 1994 totalled 12.9 million tons, 9 percent less than the 1988-93 average and a sharp drop compared with the 1993 record level (Figure 1)[1].

Figure 1: Global Food Aid Deliveries in 1988-94



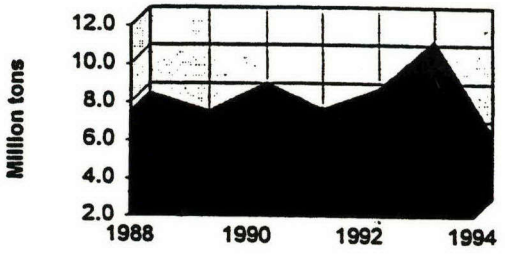
INTERFAIS, September 1995

Food Aid Deliveries by Category

The quantities of food delivered as programme aid so far were exceptionally low, and no change in trend is foreseen for the last few months of 1995. It is still unclear whether project and emergency food aid assistance will go through substantial changes.

Programme food aid deliveries so far amounted to 1.8 million tons, compared with 3.0 million tons in September 1994. The final figure for programme aid is therefore expected to be lower for 1995 than for 1994.

Figure 2: Programme Food Aid



INTERFAIS, September 1995

[1] A comprehensive analysis of 1994 Food Aid Flows was issued in April 1995 and is available on request

Source: World Food Program.

In 1994, programme food aid deliveries reached an unusually low level of 5.3 million tons, a 32 percent reduction compared with the 1988-93 average (Figure 2).

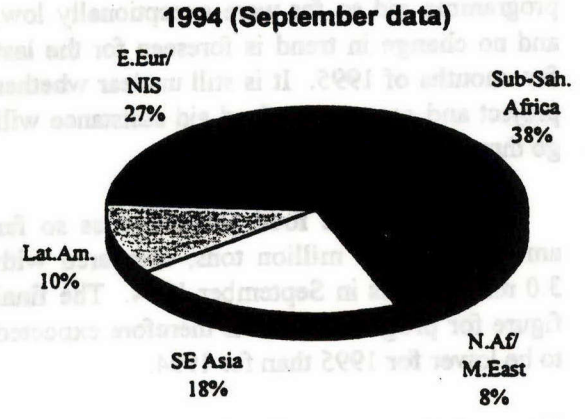
Food Aid Deliveries by Region

The breakdown of deliveries by region for 1994 and 1995 is provided in Figures 3 and 4, *on the basis of the data available in September for both years*. To date, there are no major changes in the share of food aid delivered to the regions in 1995 compared with 1994, except in the case of the Eastern European Countries and the Newly Independent States of the Former USSR region (NIS).

Deliveries to the Eastern European Countries and the NIS region amount so far to 1.1 million tons, well below the 2.0 million tons recorded last year by September. In proportion, deliveries to this region for the first nine months of the year dropped from 27% last year to 19% in 1995.

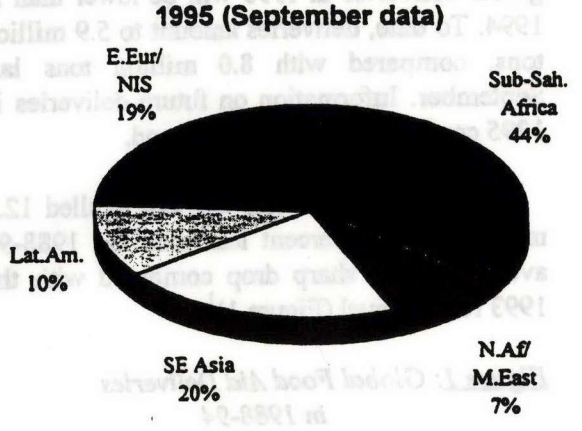
In 1994, total deliveries to this region were 3.2 million tons, a quarter of global food aid deliveries for the year but less than half the 1993 level, 6.9 million tons.

***Figure 3**: Food Aid Deliveries by region, on the basis of data available in September 1994*



INTERFAIS, September 1994

***Figure 4**: Food Aid Deliveries by region, on the basis of data available in September 1995*



INTERFAIS, September 1995

THE WORLD BANK/IFC/MIGA

OFFICE MEMORANDUM

Date: August 10, 1995

To: Distribution

From: Alex F. McCalla, Director, AGR

Ext: 85028

Subject: Coping With Rising Grain Prices

Grain prices have risen sharply in recent months. This will increase the cost of imports significantly for some developing countries, both because of higher grain prices and also because of reduced export subsides from the major grain exporters. In some cases, the cost of grain imports could rise by as much as 40-50 percent. Those countries in Africa which are also suffering from drought will be most severely impacted.

The attached note discusses the current situation, and the programs and facilities which are available from the World Bank, IMF and the World Food Program to deal with rising grain prices. The note discusses appropriate policy responses which countries should consider. The note also contains estimates of individual country import requirements prepared by FAO. The names of contacts at the World Bank, IMF and WFP are included should more information be needed.

The note was prepared by Don Mitchell (IECCP) and Hans Binswanger (AGRDR) under my direction. It has been cleared for distribution by DECVP and ESDVP.

Distribution:

Country Directors
Agriculture Division Chiefs
Country Operations Division Chiefs
Human Resources Development Division Chiefs
Chief Economists
Lead Economists
Project Advisers
Technical Department Advisers

cc: Messrs. I. Serageldin (ESDVP), M. Bruno (DECVP)

August 10, 1995

COPING WITH RISING WORLD GRAIN PRICES[1]

World grain prices have risen sharply over the last several months and further price increases are possible because of low world stocks and poor growing conditions in several major producing regions. High prices are expected to last for the next year and possibly the next two years. The price increases will significantly raise import costs for many countries. For example, the cost of wheat imports in 1995 would rise by 60% from 1994 levels based on recent price increases and lower export subsidies from major exporters. This note discusses issues and options to assist countries to deal with the situation.

Introduction

An unusual combination of events have come together to make grain prices rise sharply this year. These events include: (i) the lowest level of world grain stocks relative to consumption since 1974; (ii) higher fertilizer prices during the recent planting season in the northern hemisphere which will reduce yields; and (iii) a poor start to the growing season in the United States, China, and Russia. This situation occurs at a time when a drought has reduced food production by nearly one-third in some countries in southern Africa; many of the Republics of the FSU are relying on food aid to offset collapsing food production; and food aid availability is declining.

Wheat prices have increased from $3.42/bushel in March to a recent high of $4.85 for December futures, an increase of 42 percent. Corn futures prices have increased from $2.55/bushel in March to $3.00. Rice prices have increased by $40/ton in just the last month due to strong demand and low rice stocks for export in Asia. Further price increases can be expected if the growing conditions do not dramatically improve. Current price increases will lead to higher import costs for many countries and higher prices will also reduce the availability of export subsidies from major exporters. For example, the f.o.b. price of US wheat has increased from $140/ton in March 1994 to $159/ton in June 1995 and the US export subsidy has declined from $49/ton to $14/ton.

This note is intended to provide information about programs available from the IMF, the World Bank and the World Food Programme to deal with a sharp rise in grain prices such as we are now experiencing. These facilities should be relied upon to assist countries to cope with rising grain import costs rather than allowing countries to pursue policies which can cause longer term damage to investment programs and economic growth, such as export restrictions, or to allow hunger and malnutrition to increase.

---

[1] Technical staffs from the World Food Program (WFP), the Food and Agriculture Organization of the United Nations (FAO), the International Monetary Fund (IMF), and the World Bank (WB) have formed an informal coordinating committee to monitor the situation. This note was prepared by Hans Binswanger (AGRDR) and Donald Mitchell (IECCP) under the direction of Alex McCalla (AGRDR). Numerous staff from the WB, IMF, FAO and WFP commented or contributed to this note, but any errors or omissions are the responsibility of the authors.

Which Countries Will Be Most Affected

Nearly all developing countries import grain and will be affected. At this stage the price increases have been largest in wheat and those countries who import wheat will be most affected. However, maize and rice prices have also begun to increase and are expected to continue increasing. Beyond the general increase in import costs, those countries which also have production problems will be severely affected. (FAO's estimates of import requirements for individual countries are attached to this document.)

The early warning systems of FAO and USDA indicate that countries in southern Africa and northern Africa have severe problems this year. The most severe production problems are in southern Africa where widespread drought has adversely affected foodcrop production according to FAO/WFP Crop and Food Supply Assessment Missions. The aggregate 1995 cereal output in the 11 Southern Africa Development Community (SADC) member countries is estimated to be about one-third below the previous year's harvest and 20 percent below normal. Production in northern Africa is also poor with the winter grain crop now being harvested expected to be sharply below average in Morocco and Tunisia, while Algeria expects an above normal crop and Egypt expects to harvest a record crop. Morocco has been hit by the worst drought in decades according to the FAO.

Policies to Insure Food Access of the Poor During a Spike

Poor consumers spend over 70 percent of their income on food in many low income countries. In such countries, it is appropriate to partially insulate the poor from the international food price rises or compensate their purchasing power to insure access to food and prevent hunger. Appropriate domestic mechanisms could include employment generation programs or well targeted food subsidies for the poor. Government held food stocks could be released into the market in order to limit price rises and the government could partially finance imports. Food availability can also be increased via additional concessional imports or food aid. Unfortunately a commodity boom often reduces the quantity of food aid available. Where prices of other tradable foods which are important to the poor, such as sugar, are protected, trade could be liberalized to reduce domestic prices and provide a compensating increase in purchasing power. If such options and programs are not used, countries are likely to resort to more drastic means, such as export restrictions, or subsidization of food prices with adverse macroeconomic consequences.

Care must be taken in short-term food price spikes to make sure that both purchasing power of the poor and the food supply are increased simultaneously. If purchasing power alone is increased (e.g. through food stamps), then food prices will inflate and the consumption effect will be minimal. If food supply alone is increased (through commercial imports or monetized food aid), prices may not rise but the poor will still lack the purchasing power to buy the food.

Food Aid

Food aid is available to help some countries which suffer a severe drought or other problems which create a food import requirement. However, the quantities of food aid are not sufficient to meet the import needs of many countries. In 1994, only 5 percent of world grain imports were shipped as food aid. Among developing countries, food aid provided 11 percent of grain imports. Most of the food aid is being used for refugee and emergency relief, which reduces food aid available to help countries experiencing droughts or countries with greater than normal need due to rising world market prices.

Food aid is distributed through bilateral and multilateral channels, with bilateral deliveries typically accounting for about two-thirds of food aid and the remaining deliveries through multilateral channels. The World Food Programme accounts for most of the food aid delivered through multilateral channels. In 1994, the World Food Programme delivered 4.0 million tons, of which 1.5 million tons were procured in developing countries. The WFP also handles the shipment of food for many bilateral donors on a contract basis. The availability of food aid this year and for the foreseeable future is expected to decline due to budget reductions of the major donors.

IMF Assistance in the Event of a Cereal Price Shock

The IMF is the lead organization in providing balance of payments financing, including increases in the cost of cereal imports. The IMF has two basic modes of providing financial assistance to member countries in the event they experience balance of payments difficulties resulting from a rise in international cereals prices: a) the Compensatory and Contingency Financing Facility (CCFF) and b) Fund arrangements.

Compensatory and Contingency Financing Facility (CCFF)

The CCFF is a special facility that provides financial assistance to members experiencing balance of payments difficulties arising from shortfalls in export receipts or excess cereal import costs. Recent purchases under the cereal element of the CCFF have been made by Algeria, Moldova, and South Africa. The "response time" for a case involving a CCFF purchase request could be as quick as two or three months and a purchase can be in anticipation of a projected excess in cereal import costs.

To qualify for compensatory financing, the excess in cereal import costs must be temporary, largely beyond the control of the member, and result in a need for balance of payments financing. The allowable amount of a purchase request under the CCFF is the lesser of the compensable cereal import cost excess and the applicable access limit under the facility. The compensable excess is the amount by which the value of cereal imports in the "excess year" exceeds the arithmetic average of the value of cereal imports for the five-year period centered

on the excess year. Access limits under the facility vary depending on whether the member's balance of payments difficulties extend beyond the source of the shock and whether the member has a satisfactory record of cooperation with the Fund. If the member's balance of payments position is satisfactory apart from the excess cereal import costs, access under the cereal element is up to 65 percent of the member's quota. If the member's balance of payments difficulties extend beyond the excess cereal import costs, access is limited to 15-35 percent of quota, depending on the member's record of cooperation with the Fund and the strength of the member's economic policies.

Repurchase terms and charges under the CCFF are the same as those under the credit tranches: Repurchases are due 3¼ to 5 years after a purchase is made, and the rate of charge is equal to the rate of charge on the Fund's general resources, currently about 5 percent per annum. Purchases under the CCFF are additional to resources available under Fund arrangements.

Fund Arrangements

Balance of payments assistance can also be provided under stand-by or extended arrangements and, for low income countries, under the Enhanced Structural Adjustment Facility (ESAF), which provides resources on concessional terms. Fund arrangements can provide for flexibility in the case of unanticipated external terms of trade shocks, such as higher prices for cereal imports, through the inclusion of a contingency mechanism and/or through augmentation of access under an arrangement.

Contingency mechanisms normally provide for a combination of financing and adjustment in policies in the event of unanticipated exogenous developments. For example, in the case of higher-than-programmed import costs owing to a sharp rise in world cereals prices, a program could allow for automatic adjustment in program targets to accommodate all or some proportion of the increased import costs. The Fund's Executive Board has stressed the importance of greater use of contingency mechanisms to protect programs against adverse shocks (as well as to preserve some of the gains of favorable shocks). Since 1990, such mechanisms have been included in ten ESAF arrangements. Of these, Lesotho had a contingency mechanism related to cereal import costs.

The Fund also stands ready to consider augmenting access order Fund arrangements on a timely basis, when appropriate, to help countries meet adverse exogenous shocks. In such a case, the country authorities and the Fund would reassess the adjustment and financing needs as the program unfolds, either at the time of a mid-term review or at the request of the member. In reviewing access, the availability of additional donor financing (including food aid) to cope with the shocks is taken into account. Thus far, there have been seven cases of augmentation access under ESAF arrangements, including for Mozambique in 1992 related to maize imports.

World Bank Assistance with Food Availability

The Bank can also assist in increasing the financing capacity of countries to import foods, but its role is usually a subsidiary one to the IMF. The Bank has been able to facilitate overcoming food shortages or high food prices in a number of ways. This is not outside its mandate, especially not in cases where a country needs to import food because of a specific combination of events, and where failure to do so can derail hard-won improvements in macro-economic management and sectoral policies.

The most common Bank action in the face of food shortages caused by drought has been to modify project expenditures in order to facilitate a country's capacity to deal with a drought. In this case, the government and the Bank agree to reallocate funds in existing projects to finance actions needed to respond to the drought. In most cases, this does not include direct purchase of food, but since the funds are often in foreign exchange, which is fungible, governments are often able to indirectly use the funds to finance food. More often the funds are used to finance transport, storage, spare parts, water supply or other uses important to the movement or utilization of food. Examples of this were common in the Bank's response to the southern Africa drought in 1992.

Economic Recovery Loans (ERLs) often come after the event, but are usually used to finance transport, seeds, fertilizer, etc. which facilitate the capacity of the country or affected farmers to prepare for the following year's crop. Such loans or credits have been used in Ethiopia, Kenya, Somalia and Sudan. They were used during the 1974 and 1985 droughts in the Sahel and Horn of Africa.

The sizeable Economic Recovery Credit for Zimbabwe, as a part of the Bank's response to the 1992 drought ($200 million, combined with other funds reallocations to total roughly $350 million) was used to deal with multiple elements of the response to the drought. Probably the major contribution of the Bank's total financing for that operation, however, was that it provided balance of payment support (at least indirectly) that enabled government to do many things, including import food that were not an explicit part of the project. In fact, a major motivation for the Bank's action was to sustain the structural adjustment program that was just starting.

A very important benefit of Bank actions has not been the direct elements financed, but the indirect element of providing balance of payments support, which enables countries to import food, medicine and other essentials, which are often driven out by the loss of exports and need for emergency imports, which characterize drought periods or international food price spikes.

Also, the Bank could structure many of its projects, especially in agriculture and in drought-prone areas, so that they could be expanded or modified to help the project area cope with the drought. There could be specific project components that would only be activated in case of droughts. This would enable a country to begin to act at the early stages of the drought and stay with the local communities throughout the drought. Most of our projects tend to be wiped out,

or seriously set back by droughts (Sudan is an example).

Finally, an important action the Bank can take in the future is to build drought planning into its country strategies in countries where droughts are relatively frequent. In such cases, the Bank should have a clear policy about what preparation it will support before these events occur, what it will do in the case of droughts of different magnitudes, and what it will do for recovery. At present, most Bank concern is with the latter. Droughts are treated as an unexpected event which they are not in many drought-prone countries. In fact, growth projections for such countries should consider the impact of droughts.

World Food Programme Assistance

The World Food Programme, the food aid arm of the United Nations, responds to emergency needs caused by food price hikes or other disruptions in food supply and access. WFP works to combat acute hunger by organizing fast delivery of relief food to people affected by natural or human disasters and promotes long-term development in poorest countries by supplying targeted food aid in support of activities to enhance human resources and physical infrastructure.

To prevent hunger and starvation, WFP stands ready to identify needs, and in collaboration with host governments and other agencies, to help supply food to distressed populations at the outset of an emergency. This can be achieved through the distribution of emergency food rations to targeted populations, implementation of supplementary feeding programmes, assistance in drawing down emergency food reserves, and/or in the form of (food) wages transferred to participants of labour-intensive work projects.

WFP also devotes equal attention to the importance of laying the foundation for longer-term development, by fostering conditions for human and capital asset enhancement during and after major emergencies. In many countries, the return and resettlement of refugees and internally displaced people is dependent on WFP assistance. Labour-intensive work programmes support the reconstruction of infrastructure, the restoration of basic services and training activities that promote greater food security and self-reliance.

Donor Coordination

An important contribution in times of impending emergency, such as the drought in Southern Africa in 1992-93 is the willingness of institutions, such as the World Bank, WFP, FAO, SADAC, USAID and the United Nations High Commission for Refugees (UNHCR) to move quickly and to coordinate their efforts. In the face of the impending 1992 drought in Southern Africa, all of these agencies sent early assessment teams to the Southern Africa region to assess the situation, determine the nature of the food and financial resources necessitated by the drought, to analyze the logistical problems and capabilities of the affected countries, and to

organize timely donor meetings to ensure the projects were in place and that the needed resources were available.

As a result of their joint efforts--which reflected a willingness by countries and agencies to shorten and coordinate their individual actions in an effort to match the Regional problem with an appropriate response--more than ten million tons of additional food and over $800 million in financial resources were put in place in advance of the worst impacts of the drought. As a result, the 1992 drought, while it had serious adverse effects on Southern Africa, did not result in famine. Few if any lives were lost as a direct result of the drought.

The importance of early and effective coordination is as much attitudinal as it is process. Agencies need to reinforce existing processes by quick and accurate assessments and a willingness to subordinate processes and procedures to the need for early and effective actions. In the case of the South African drought, the World Bank was prepared to put its staff and financial resources at the service of higher coordinated responses and to support and advise the actions of others.

Contacts

For additional information on specific programs or facilities, please contact:

Mr. Hans Binswanger
Senior Agricultural Policy Adviser
Agriculture & Natural Resources Department
The World Bank
Tel: 202-473-1871

Ms. Ann McGuirk
Chief, Special Facilities and Issues Division
Policy Development and Review Department
International Monetary Fund
Tel: 202-623-8363

Mr. Patrick Webb
Policy Analyst
Policy and Public Affairs Division
World Food Programme
Tel: 39-6-5228-2622

ESTIMATED IMPORT REQUIREMENTS OF CEREALS: LOW–INCOME FOOD–DEFICIT Countries 1/(Thousand tons)

(a) Estimates for 1994/95 or 1995

COUNTRY	Marketing year	1993/94 or 1994			1994/95 or 1995			
		Actual imports			Total import require–ments (excluding re–exports)	Import position		
		Commercial purchases	Food aid	Total commercial and aid		Total commercial and aid	Food aid allocated committed or shipped	Commercial purchases
AFRICA		18 229.3	4 309.7	22 539.0	20 750	18 865.7	3 150.8	15 714.9
Northern Africa		10 777.0	325.9	11 102.9	10 605	10 698.2	226.4	10 471.8
Egypt	July/June	7 921.2	181.7	8 102.9	8 505	8 598.2	158.8	8 439.4
Morocco	July/June	2 855.8	144.2	3 000.0	2 100	2 100.0	67.6	2 032.4
Eastern Africa		2 299.5	2 173.8	4 473.3	2 859	2 129.0	1 235.5	893.5
Burundi	Jan./Dec.	29.9	96.0	125.9	46	12.9	12.9	0.0
Comoros	Jan./Dec.	36.9	6.1	43.0	44	4.6	2.3	2.3
Djibouti	Jan./Dec.	113.8	10.6	124.4	82	20.9	8.9	12.0
Eritrea	Jan./Dec.	83.0	287.2	370.2	50	29.6	29.6	0.0
Ethiopia 2/	Jan./Dec.	53.0	923.1	976.1	964	495.9	495.8	0.1
Kenya	July/June	1 365.8	300.4	1 666.2	290	586.6	156.1	430.5
Rwanda	Jan./Dec.	0.0	199.4	199.4	131	220.7	220.7	0.0
Somalia	July/June	34.1	88.0	122.1	295	136.7	66.4	70.3
Sudan	Nov./Oct.	445.4	219.2	664.6	475	137.0	55.4	81.6
Tanzania	June/may	118.6	19.3	137.9	435	434.8	145.9	288.9
Uganda	Jan./Dec.	19.0	24.5	43.5	47	49.3	41.5	7.8
Southern Africa		1 031.9	952.2	1 984.1	2 651	2 710.7	973.8	1 736.9
Angola	April/March	59.9	193.1	253.0	560	560.0	296.7	263.3
Lesotho	April/March	214.3	28.1	242.4	204	204.0	32.0	172.0
Madagascar	Jan./Dec.	81.4	33.2	114.6	178	200.4	23.4	177.0
Malawi	April/March	84.3	160.8	245.1	493	492.0	279.7	212.3
Mozambique	May/April	109.7	437.8	547.5	600	600.0	324.2	275.8
Swaziland	May/April	47.1	22.0	69.1	76	76.0	8.7	67.3
Zambia	May/April	2.9	8.8	11.7	390	390.0	3.9	386.1
Zimbabwe	April/March	432.3	68.4	500.7	150	188.3	5.2	183.1
Western africa		3 470.2	744.9	4 215.1	4 092	2 869.5	607.6	2 261.9
Coastal countries		***2 330.4***	***502.1***	***2 832.5***	***2 693***	***2 251.7***	***357.0***	***1 894.7***
Benin	Jan./Dec.	80.5	17.4	97.9	96	98.5	12.3	86.2
Cote d'Ivoire	July/June	332.8	47.6	380.4	500	500.0	62.3	437.7
Ghana	Oct./Sept.	169.6	141.6	311.2	275	274.5	91.8	182.7
Guinea	Jan./Dec.	121.4	85.6	207.0	182	14.1	0.0	14.1
Liberia	Jan./Dec.	31.4	168.4	199.8	240	176.0	165.0	11.0
Nigeria	July/June	1 383.4	0.0	1 383.4	1 100	1 100.0	0.0	1 100.0
Sierra Leone	Jan./Dec.	125.1	34.0	159.1	172	44.4	22.5	21.9
Togo	Jan./Dec.	86.2	7.5	93.7	128	44.2	3.1	41.1
Sahelian countries		***1 139.8***	***242.8***	***1 382.6***	***1 399***	***617.8***	***250.6***	***367.2***
Burkina Faso	Nov./Oct.	122.6	35.5	158.1	110	52.0	42.5	9.5
Cape Verde	Jan./Dec.	24.9	64.0	88.9	90	88.3	83.4	4.9
Chad	Nov./Oct.	78.7	13.2	91.9	50	25.9	22.7	3.2
Gambia	Nov./Oct.	69.0	5.5	74.5	74	19.2	4.0	15.2
Guinea Bissau	Jan./Dec.	49.1	3.9	53.0	65	12.0	6.3	5.7
Mali	Nov./Oct.	62.5	23.6	86.1	60	13.2	11.8	1.4
Mauritania	Nov./Oct.	161.4	46.3	207.7	190	127.4	45.8	81.6
Niger	Nov./Oct.	84.5	24.0	108.5	90	41.2	18.6	22.6
Senegal	Nov./Oct.	487.1	26.8	513.9	670	238.6	15.5	223.1
Central Africa		650.7	112.9	763.6	543	458.3	107.5	350.8
Cameroon	July/June	370.7	2.7	373.4	210	210.0	2.9	207.1
Cent.Afr.Rep.	Sept./Aug.	33.8	1.2	35.0	30	11.3	0.8	10.5
Congo	July/June	86.7	1.7	88.4	90	90.0	33.9	56.1
Eq Guinea	Jan./Dec.	7.2	2.8	10.0	11	3.3	3.3	0.0
Sao Tome	Jan./Dec.	1.8	8.4	10.2	12	4.7	2.5	2.2
Zaire	Jan./Dec.	150.5	96.1	246.6	190	139.0	64.1	74.9

ESTIMATED IMPORT REQUIREMENTS OF CEREALS: LOW-INCOME FOOD-DEFICIT Countries 1/(Thousand tons)

(a) Estimates for 1994/95 or 1995 (cont.d)

COUNTRY	Marketing year	1993/94 or 1994			1994/95 or 1995			
		Actual imports			Total import require-ments (excluding re-exports)	Current import position		
		Commercial purchases	Food aid	Total commercial and aid		Total commercial and aid	Food aid allocated committed or shipped	Commercial purchases
ASIA		28 856.7	1 879.1	30 735.8	41 833	41 633.0	2 074.1	39 558.9
Afghanistan	July/June	1 015.4	64.6	1 080.0	1 150	1 150.0	151.7	998.3
Bangladesh	July/June	545.9	654.1	1 200.0	2 411	2 411.0	963.8	1 447.2
Bhutan	July/June	29.0	1.0	30.0	32	32.2	0.2	32.0
Cambodia	Jan./Dec.	150.2	29.8	180.0	200	69.9	64.0	5.9
China 3/	July/June	14 144.8	119.2	14 264.0	23 000	23 003.2	224.0	22 779.2
India	July/June	266.8	295.2	562.0	150	177.0	98.0	79.0
Indonesia	April/March	3 012.4	97.5	3 109.9	3 940	5 215.0	32.2	5 182.8
Jordan	July/June	1 345.1	220.9	1 566.0	1 717	1 717.0	128.8	1 588.2
Laos	Jan./Dec.	193.7	12.3	206.0	70	0.8	0.8	0.0
Maldives	Jan./Dec.	49.9	1.4	51.3	36	4.4	0.0	4.4
Mongolia	Oct./Sept.	0.0	25.0	25.0	140	12.7	11.7	1.0
Nepal	July/June	52.5	14.5	67.0	137	137.0	14.7	122.3
Pakistan 4/	May/April	2 215.0	0.0	2 215.0	2 500	2 500.0	21.8	2 478.2
Philippines	July/June	2 278.0	45.8	2 323.8	2 500	2 526.7	108.7	2 418.0
Sri Lanka	Jan./Dec.	853.8	209.8	1 063.6	1 200	651.5	141.1	510.4
Syria	July/June	932.8	59.4	992.2	690	690.0	45.4	644.6
Yemen	Jan./Dec.	1 771.4	28.6	1 800.0	1 960	1 334.6	67.2	1 267.4
CENTRAL AMERICA		2 125.3	680.7	2 806.0	3 085	2 628.3	272.6	2 355.7
Dominican Rep.	Jan./Dec.	1 156.8	1.7	1 158.5	868	499.0	2.5	496.5
El Salvador	Aug./July	283.1	80.4	363.5	477	363.5	18.0	345.5
Guatemala	July/June	211.5	299.6	511.1	588	593.8	108.0	485.8
Haiti	July/June	146.0	112.2	258.2	402	412.7	39.0	373.7
Honduras	July/June	223.8	124.7	348.5	513	514.0	95.4	418.6
Nicaragua	July/June	104.1	62.1	166.2	237	245.3	9.7	235.6
SOUTH AMERICA		2 960.8	253.5	3 214.3	2 587	1 275.8	163.0	1 112.8
Bolivia	July/June	144.2	198.3	342.5	329	335.0	145.6	189.4
Colombia	Jan./Dec.	2 205.4	42.6	2 248.0	1 798	758.6	0.0	758.6
Ecuador	Jan./Dec.	611.2	12.6	623.8	460	182.2	17.4	164.8
OCEANIA		330.0	0.0	330.0	274	17.0	0.0	17.0
Kiribati	Jan./Dec.	7.0	0.0	7.0	7	0.0	0.0	0.0
Papua New Guinea	Jan./Dec.	278.9	0.0	278.9	223	14.2	0.0	14.2
Samoa	Jan./Dec.	15.0	0.0	15.0	15	0.2	0.0	0.2
Solomon Isl.	Jan./Dec.	19.0	0.0	19.0	19	2.5	0.0	2.5
Tuvalu	Jan./Dec.	1.0	0.0	1.0	1	0.0	0.0	0.0
Vanuatu	Jan./Dec.	9.1	0.0	9.1	9	0.1	0.0	0.1
EUROPE / CIS 5/ 6/		7 667.0	1 752.0	9 419.0	7 056	7 098.0	2 136.0	4 962.0
Armenia	July/June	182.0	258.0	440.0	477	477.0	463.0	14.0
Albania	July/June	0.0	472.0	472.0	310	310.0	34.0	276.0
Azerbaijan	July/June	681.0	47.0	728.0	670	670.0	366.0	304.0
Georgia	July/June	377.0	478.0	855.0	722	722.0	677.0	45.0
Kyrgyz Republic	July/June	275.0	165.0	440.0	333	333.0	124.0	209.0
Lithuania	July/June	136.0	0.0	136.0	25	25.0	0.0	25.0
Moldova	July/June	188.0	110.0	298.0	435	477.0	252.0	225.0
Macedonia , FYR	July/June	160.0	50.0	210.0	240	240.0	46.0	194.0
Romania	July/June	1 326.0	0.0	1 326.0	260	260.0	0.0	260.0
Tajikistan	July/June	717.0	83.0	800.0	409	409.0	124.0	285.0
Turkmenistan	July/June	682.0	89.0	771.0	570	570.0	50.0	520.0
Uzbekistan	July/June	2 943.0	0.0	2 943.0	2 605	2 605.0	0.0	2 605.0
TOTAL		60 169.1	8 875.0	69 044.1	75 585	71 517.8	7 796.5	63 721.3

SOURCE: FAO

1/ Includes food deficit countries with per caput income below the level used by the World Bank to determine eligibility for IDA assistance (i.e. U.S.$ 1345 in 1993), which is in accordance with the guidelines and criteria agreed to by the CFA should be given priority in the allocation of food aid. 2/ Includes refugee needs. 3/ Includes import requirements of Taiwan Province. 4/ Excludes Afghan refugee requirements. 5/ Classified as LIFD countries as of January 1995. 6/ Data include intratrade between the Republics.

ESTIMATED IMPORT REQUIREMENTS OF CEREALS: LOW-INCOME FOOD-DEFICIT Countries 1/(Thousand tons)

(b) 1995/96 estimates for LIFD countries which have entered the 1995/96 marketing year

COUNTRY	Marketing year	1994/95 or 1995			1995/96			
		Actual imports			Total import requirements (excluding re-exports)	Import position		
		Commercial purchases	Food aid	Total commercial and aid		Total commercial and aid	Food aid allocated committed or shipped	Commercial purchases
AFRICA		14 729.0	1 601.3	16 330.3	17 675	667.6	515.9	151.7
Northern Africa		10 471.8	226.4	10 698.2	11 760	84.8	84.8	0.0
Egypt	July/June	8 439.4	158.8	8 598.2	7 750	84.8	84.8	0.0
Morocco	July/June	2 032.4	67.6	2 100.0	4 010	0.0	0.0	0.0
Eastern Africa		719.4	302.0	1 021.4	1 184	12.2	12.2	0.0
Kenya	July/June	430.5	156.1	586.6	1 075	8.2	8.2	0.0
Tanzania	June/May	288.9	145.9	434.8	109	4.0	4.0	0.0
Southern Africa		1 736.9	973.8	2 710.7	2 761	512.7	361.0	151.7
Angola	April/March	263.3	296.7	560.0	560	115.7	109.1	6.6
Lesotho	April/March	172.0	32.0	204.0	297	1.0	1.0	0.0
Madagascar	April/March	177.0	23.4	200.4	146	13.5	13.5	0.0
Malawi	April/March	212.3	279.7	492.0	180	100.2	92.3	7.9
Mozambique	May/April	275.8	324.2	600.0	446	116.9	111.6	5.3
Swaziland	May/April	67.3	8.7	76.0	93	6.9	0.0	6.9
Zambia	May/April	386.1	3.9	390.0	589	24.5	24.5	0.0
Zimbabwe	April/March	183.1	5.2	188.3	450	134.0	9.0	125.0
Western Africa		1 537.7	62.3	1 600.0	1 600	36.1	36.1	0.0
Coastal countries		*1 537.7*	*62.3*	*1 600.0*	*1 600*	*36.1*	*36.1*	*0.0*
Côte d'Ivoire	July/June	437.7	62.3	500.0	500	36.1	36.1	0.0
Nigeria	July/June	1 100.0	0.0	1 100.0	1 100	0.0	0.0	0.0
Central Africa		263.2	36.8	300.0	370	21.8	21.8	0.0
Cameroon	July/June	207.1	2.9	210.0	280	0.0	0.0	0.0
Congo	July/June	56.1	33.9	90.0	90	21.8	21.8	0.0
ASIA		37 769.8	1 789.3	39 559.1	37 349	3 129.0	620.0	2 509.0
Afghanistan	July/June	998.3	151.7	1 150.0	1 250	252.1	2.1	250.0
Bangladesh	July/June	1 447.2	963.8	2 411.0	2 050	0.0	0.0	0.0
Bhutan	July/June	32.0	0.2	32.2	32	0.0	0.0	0.0
China 3/	July/June	22 779.2	224.0	23 003.2	21 175	1 613.5	91.3	1 522.2
India	July/June	79.0	98.0	177.0	150	268.9	268.9	0.0
Indonesia	April/March	5 182.8	32.2	5 215.0	5 735	281.1	14.5	266.6
Jordan	July/June	1 588.2	128.8	1 717.0	1 610	385.2	115.0	270.2
Nepal	July/June	122.3	14.7	137.0	137	7.3	7.3	0.0
Pakistan 4/	May/April	2 478.2	21.8	2 500.0	2 200	104.2	104.2	0.0
Philippines	July/June	2 418.0	108.7	2 526.7	2 400	211.2	11.2	200.0
Syria	July/June	644.6	45.4	690.0	610	5.5	5.5	0.0
CENTRAL AMERICA		1 513.7	252.1	1 765.8	1 466	378.5	378.5	0.0
Guatemala	July/June	485.8	108.0	593.8	540	119.0	119.0	0.0
Haiti	July/June	373.7	39.0	412.7	401	95.2	95.2	0.0
Honduras	July/June	418.6	95.4	514.0	350	99.6	99.6	0.0
Nicaragua	July/June	235.6	9.7	245.3	175	64.7	64.7	0.0
SOUTH AMERICA		189.4	145.6	335.0	300	82.7	82.7	0.0
Bolivia	July/June	189.4	145.6	335.0	300	82.7	82.7	0.0
EUROPE / CIS 5/ 6/		4 962.0	2 136.0	7 098.0	6 615	154.0	154.0	0.0
Armenia	July/June	14.0	463.0	477.0	450	0.0	0.0	0.0
Albania	July/June	276.0	34.0	310.0	310	0.0	0.0	0.0
Azerbaijan	July/June	304.0	366.0	670.0	663	4.0	4.0	0.0
Georgia	July/June	45.0	677.0	722.0	560	2.0	2.0	0.0
Kyrgyz Republic	July/June	209.0	124.0	333.0	352	58.0	58.0	0.0
Lithuania	July/June	25.0	0.0	25.0	30	0.0	0.0	0.0
Moldova	July/June	225.0	252.0	477.0	155	52.0	52.0	0.0
Macedonia, FYR	July/June	194.0	46.0	240.0	240	0.0	0.0	0.0
Romania	July/June	260.0	0.0	260.0	260	0.0	0.0	0.0
Tajikistan	July/June	285.0	124.0	409.0	590	38.0	38.0	0.0
Turkmenistan	July/June	520.0	50.0	570.0	500	0.0	0.0	0.0
Uzbekistan	July/June	2 605.0	0.0	2 605.0	2505	0.0	0.0	0.0
TOTAL		59 163.9	5 924.3	65 088.2	63 453	4 411.8	1 751.1	2 660.7

for footnotes, please see page 48

THE WORLD BANK/IFC/M.I.G.A.
OFFICE MEMORANDUM

DATE: October 13, 1995

TO: Mr. James D. Wolfensohn, EXC

FROM: Ismail Serageldin, ESDVP IS

EXTENSION: 30452

SUBJECT: **The Decline in Agricultural Lending**

Attached is an analysis of this issue prepared by Alex McCalla, Director of Agriculture and Natural Resources Department.

Its principal findings are the following:

(i) The decline in agricultural lending:

- Agricultural lending has declined from an annual average of 5.4 Billion per year in the early 1980's to 3.3 Billion in 1993-95.

- Agricultural lending over the same period has declined from just under 30% of Bank lending to about 15%.

- Of the four largest lending categories in the period 1966 to the mid 1980's -- livestock, credit, area development, and irrigation and drainage -- only the latter has remained a major activity.

- Significant changes in regional loan volumes seem to have occurred in recent years with sharp declines in agriculture lending in AFR, SAS and LAC while EAP and ECA have increased somewhat.

(ii) The reasons:

- Some reclassification of projects post-1987 (e.g. rural infrastructure is counted as "infrastructure" rather than "rural development".)

- Deliberate attempts to reduce lending in areas of poor performance. e.g. agricultural credit and integrated rural development.

- Deliberate attempts not to lend where the macro-economic or sectoral framework was not sound.

- The increased Bank focus on private sector development, participation and decentralization has caused rethinking of appropriate activities in the agriculture/rural sector.

We stand ready to brief you further in person if you wish.

Attachment

cc: Messrs. A. Choksi, A. McCalla

THE WORLD BANK/IFC/M.I.G.A.

OFFICE MEMORANDUM

DATE: October 13, 1995

TO: Mr. Ismail Serageldin, ESDVP

FROM: Alex F. McCalla, AGRDR

EXTENSION: 85028

SUBJECT: **Briefing for Mr. Wolfensohn: The Decline in Agricultural Lending**

This note presents a preliminary analysis in response to Mr. Wolfensohn's request. The data raise many questions which need further exploration.

Agricultural lending has declined, both in absolute, and relative terms since the middle 1980s. From a peak of an annual average lending of 5.4 Billion (constant 1992 $) in 1980-86, it has fallen to average annual lending of 3.3 Billion (nominal $) for the period 1993-95, reaching a low point of below 3 Billion in 1995. As a percentage of total Bank lending, agricultural lending has fallen from just under 30% to about 15%. (See Charts 1 and 2 for indicative annual figures) The FY96 pipeline, as of now, contains 3.6 Billion $ in agricultural lending. The pipeline for FY97 and FY98 suggests further increases but pipeline estimates almost always over-estimate subsequent actual lending.

Data on the focus of lending, going back to 1966, is contained in Table 1. The table provides evidence of significant changes in portfolio composition over time. The three largest items in 1966-72 were credit, livestock, and irrigation and drainage. In the 1970s and 1980s, the dominant lending activities were area development, credit, and irrigation and drainage. In the most recent period, only irrigation and drainage continues as a major activity and now makes up a larger percentage of a smaller portfolio. Part of the increase in this area reflects a broadened focus on water resources management and on upgrading existing facilities. In addition, lending in forestry and natural resource management is increasing.

Preliminary data on the regional composition of lending also suggests significant changes since the 1970s and 1980s (Table 2). In recent years, lending has decreased sharply in LAC, SAS, and AFR, and increased in EAP and ECA. While the decline in LAC may reflect changing regional emphasis, the declines in SAS and AFR are troubling given our long range concerns for food needs, poverty reduction and reducing malnutrition in these regions. The data also suggests that the number of projects is declining less rapidly, meaning the loan volume per project is also decreasing. We need to interact more with Regional colleagues to try to better understand why this is happening.

The explanations for the decline are likely complex. First, the sharp decline in 1987 is partly definitional. Prior to the 1987 reorganization, some of the Bank's rural investments in roads, electrification, water, schools and other infrastructure were undertaken by agricultural divisions in the era of integrated rural development projects. After 1987, these activities were reported elsewhere, mainly under infrastructure. Second, there clearly have been concerted to reduce lending for poorly performing types of projects notably integrated rural development and rural credit. We are now in a new, more cautious phase in these areas as we are learning how to use more effective approaches.

Third, in the 1980s we learned that technical sector and subsector projects are unlikely to be effective in the absence of an appropriate macroeconomic framework. This led to a slow down in lending in the late 1980s and early 1990s as we waited for structural adjustment to be effective. Further, low agricultural prices in recent years reduced the benefits of lending for agricultural productivity improvement.

Beyond the above particular issues there are, I believe, several broader currents affecting agricultural lending. First, the increased emphasis placed by the Bank on private sector development has led to rethinking the appropriateness of Bank lending for activities usually undertaken by the private sector. We have, for example, greatly reduced lending for commodity specific production activities (e.g. livestock, fisheries, and tree crops). Even in more traditional public good activities such as research, there is an ongoing debate as to the appropriate division of investment responsibility between the public and private sectors. Second, as we have increasingly shifted towards decentralized and participatory projects, the lending volume per project has declined (see Table 2) while preparation time has increased. Both of these are in my view very positive developments which could significantly improve portfolio performance even though they likely contribute to the current reduction in lending volume.

Third and related, as the portfolio shifts from large centralized technically focused projects and large credit operations towards more sector, sub-sector and program activities such as sector investment loans, natural resource management activities and decentralized rural development, we find loans are more sharply focused on smaller components of more complex projects. These projects therefore are more expensive to prepare and supervise, tend to be smaller and disburse more slowly. Therefore, they are, if success is partly judged by volume, less attractive.

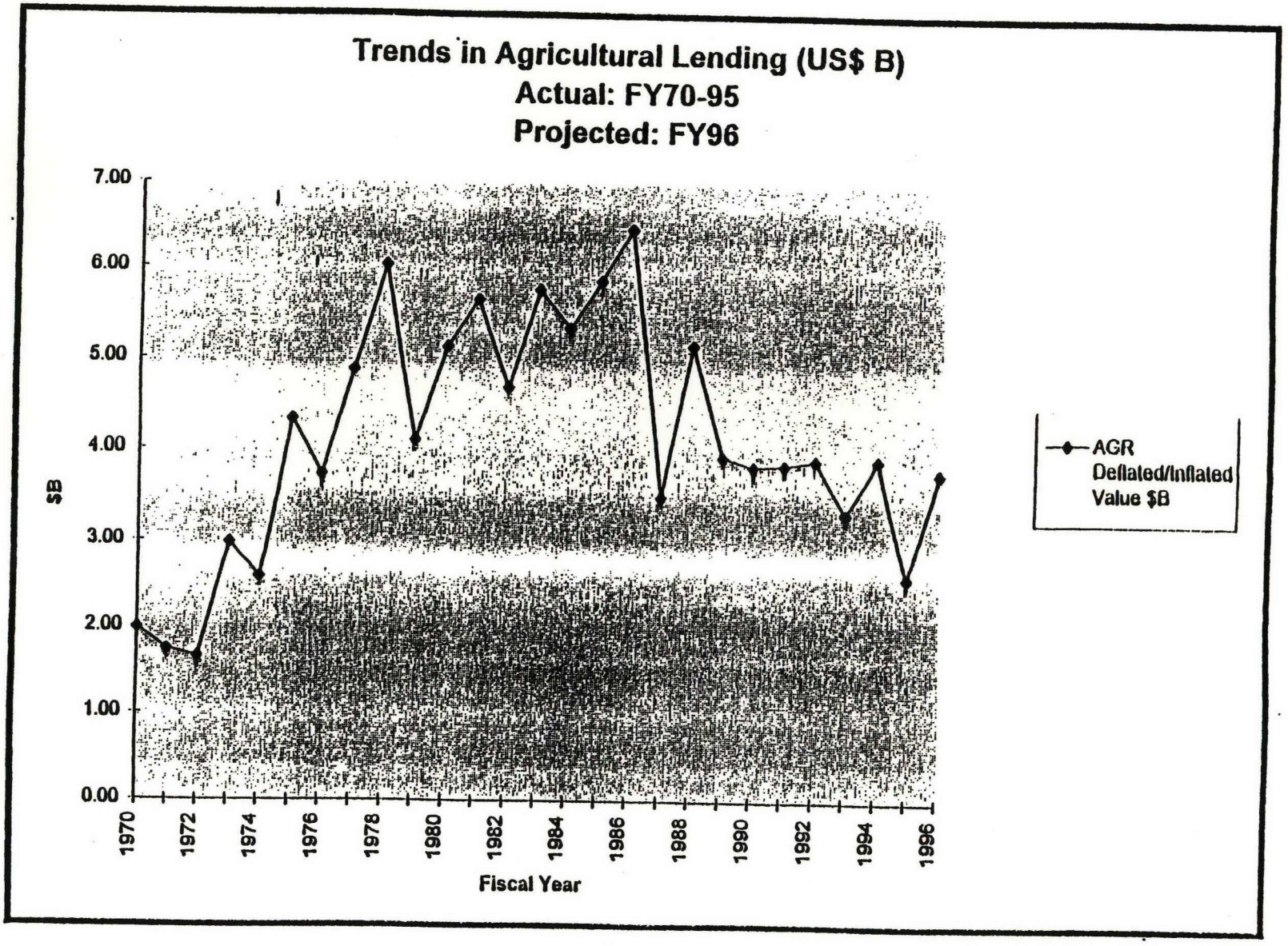
Thus, some of the decline can be explained by our shifting emphasis and the Bank's attempts to improve portfolio performance. However, there are some troubling things about the decline. First, Bank lending for agricultural research and extension continues to be low and shows no sign of increasing. Clearly, this is an area where increased efforts are warranted. Second, I believe we withdrew too quickly and too far from agricultural credit when the performance of much of the portfolio was shown to be poor. We are now working hard with the Regions to develop new and better modalities. This area of lending clearly needs to increase. Third, lending in the new promising approach of sector investment loans has yet to catch on. We in AGR are adding capacity to assist the Regions

in the task. Finally, the shifting regional distribution of lending suggests changing emphasis of regions and country departments. Ultimately, Bank lending reflects priorities determined by our borrowing partners interacting with our Country Departments.

We now have a "Vision" paper which clearly shows the direction we must go. We are working hard to persuade our colleagues in Operations that we can and should reverse the downward trend in lending. Agriculture must play a large and central role in meeting Bank objectives of poverty reduction, food security and natural resource management. This cannot be emphasized enough by yourself and hopefully by the President.

Attachments

Cc: Mr. Armeane Choksi


Trends in Agricultural Lending (US$ B)
Actual: FY70-95
Projected: FY96
$B
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
Fiscal Year
AGR
Deflated/Inflated
Value $B

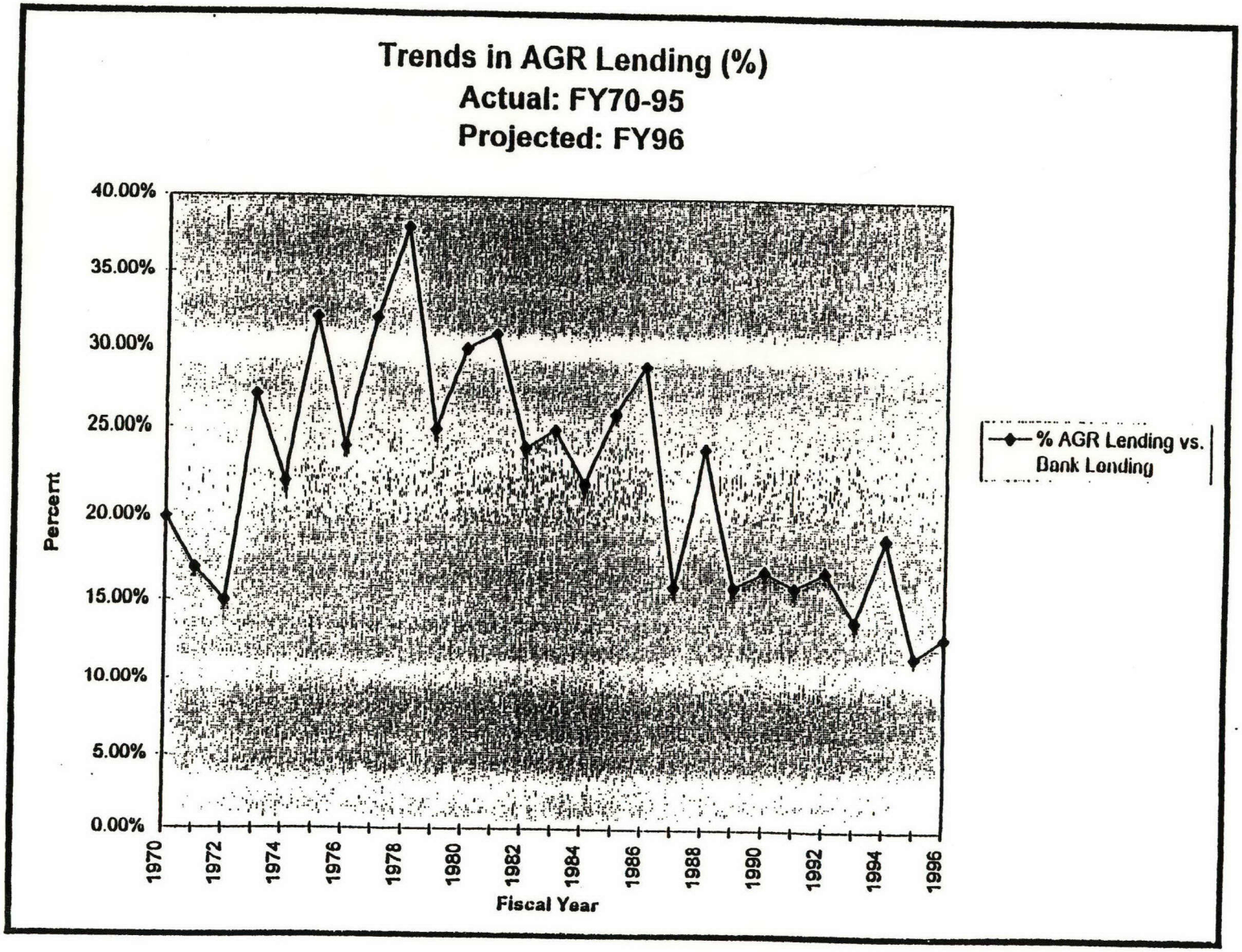

Trends in AGR Lending (%)
Actual: FY70-95
Projected: FY96
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Percent
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
Fiscal Year
% AGR Lending vs. Bank Lending

Table 1: Total Bank/IDA Lending to Agriculture by Subsector, Actual FY66-95 (as percentage of total Bank/IDA agricultural lending)

Subsector/Type of Lending	Actual FY66-72	Actual FY73-79	Actual FY80-86	Actual FY87-89	Actual FY90-92	Actual FY93-95
	(1992 US$ billion)					(Nominal US$)
Agro-Industry	7.8	5.3	7.0	9.3	2.1	5.6
Area Development	2.3	24.7	19.0	18.6	16.7	8.3
Credit	19.5	13.9	16.9	15.7	7.9	9.2
Fisheries	3.3	1.2	0.6	0.2	1.4	0.1
Forestry	1.7	2.3	3.6	3.8	7.6	11.1
Irrigation and Drainage	31.3	33.6	30.1	17.8	23.9	32.2
Livestock	24.2	7.7	1.3	6.3	0.4	2.8
Research and Extension	0.6	4.1	4.4	5.3	6.8	6.8
Sector Adjustment	0.0	0.0	9.5	12.6	13.2	8.5
Sector Investment	1.2	0.6	1.1	3.0	9.0	3.7
Tree Crops	8.2	6.6	6.5	1.7	4.5	1.7
Natural Resource Management	-	-	-	-	-	6.3
Other	0.0	0.0	1.4	5.8	6.5	3.8
Total	7.4	26.5	37.7	12.5	11.7	9.8
Annual Average Lending	1.1	3.8	5.4	4.2	3.9	3.3
Ag as % Bank/IDA	17	29	27	19	17	15

Table 2: / ...ure Lending 1966-95

Average Annual Lending By Region (Constant 1994 $M)

Region	FY66-72	FY73-79	FY80-86	FY87-89	FY90-92	FY93-95	Av. 1966-95
AFR	168.45	692.48	798.40	729.22	786.48	277.21	566.47
EAP	266.26	903.38	1090.60	787.45	1045.32	1208.05	831.47
ECA	100.51	536.85	625.39	268.15	184.74	423.81	382.31
LAC	280.35	859.73	1348.23	1090.53	1186.16	443.79	852.65
MNA	132.25	308.95	330.54	480.68	154.26	431.89	286.76
SAS	290.16	866.78	1493.22	921.64	638.36	466.36	821.01
Total	1237.98	4168.16	5686.39	4277.65	3995.32	3251.11	3740.66

Regional Share of Total Lending

Region	FY66-72	FY73-79	FY80-86	FY87-89	FY90-92	FY93-95	Share 1966-95
AFR	13.61	16.61	14.04	17.05	19.68	8.53	15.14
EAP	21.51	21.67	19.18	18.41	26.16	37.16	22.23
ECA	8.12	12.88	11.00	6.27	4.62	13.04	10.22
LAC	22.65	20.63	23.71	25.49	29.69	13.65	22.79
MNA	10.68	7.41	5.81	11.24	3.86	13.28	7.67
SAS	23.44	20.80	26.26	21.55	15.98	14.34	21.95
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Number of Projects

Region	FY87-89	FY90-92	FY93-95
AFR	70	63	41
EAP	23	24	25
ECA	6	6	17
LAC	27	30	20
MNA	18	11	16
SAS	24	24	16
Total	168	158	135

THE WORLD BANK/IFC/M.I.G.A.

OFFICE MEMORANDUM

DATE: July 26, 1995

TO: Mr. James D. Wolfensohn, EXC

THROUGH: Mr. Ismail Serageldin, Vice President, ESD

FROM: Alex F. McCalla, Director, AGR

EXTENSION: 85028

SUBJECT: **Agricultural Credit and Rural Finance**

I am responding to your request of Monday for a note on Agricultural Credit and Rural Finance. The note is in two parts.

Part A summarizes our lessons learned - both positive and negative - about rural finance.

Part B provides a narrative with the following elements:

1. Background
2. Experience with Subsidized Interest Rates
3. Rural Financial Systems
4. Best Practices
   - Financing rural entrepreneurs
   - Financing agricultural credit in economies in transition
   - Banking with the poor
5. Recent Trends in Bank Agricultural Credit

Annex - Selected References to Recent Research

This paper was prepared by Jacob Yaron, Agricultural Credit Adviser and Glenn Pederson from the University of Minnesota.

We stand ready to discuss this further with you or to provide further information as necessary.

AGR is giving highest priority to expanding the Bank's contribution to the significant needs for rural credit. We are working with the Regions to improve existing instruments and to develop new and innovative approaches. I will keep you informed of our progress.

I greatly enjoyed meeting you on Monday and look forward to working with you in the future.

Attachment

Agricultural Credit and Rural Finance

Part A

Based on more than 40 years of international and Bank experience, it is useful to summarize the major lessons for the development of viable rural financial markets and institutions. Those lessons fall into three primary policy categories: macroeconomy, financial sector policies and institutions, and agricultural and rural development. These policy prescriptions are essential elements of a framework for the successful implementation of agricultural credit projects. An elaboration on these policies can be found in the Bank publications cited in the attached Annex.

Macroeconomy

- Stabilize price level
- Avoid overprotection of industrial products that are used as agricultural inputs
- Maintain a sound exchange rate policy

Financial Policies and Institutions

- Apply positive real interest rates on loans and savings
- Rely on domestic saving mobilization to enhance self sustainability of the participating institutions
- Provide an adequate regulatory and supervisory framework, but ensure the full autonomy of rural finance institutions
- Apply outreach (to a well-defined target clientele) and self-sustainability as the two key criteria to assess the desirability of intervention
- Avoid ceilings on lending interest rates (unless for short period in economies that go through radical transition)
- If justified, apply subsidies to institution-building to cover transaction costs related to higher risk and larger administrative costs, rather than to interest rates
- Insist on achieving a high loan repayment rate - the common denominator of all successful rural finance institutions
- Identify and remove unwarranted institutional constraints that inhibit the smooth flow of financial resources (e.g., excessive collateral requirements, enforcement problems and poorly-defined property rights)
- Invest in institution-building and MIS development in infant rural financial institutions to ensure sustainability and shorten the transition to viability

Agricultural and Rural Development Policy

- Align relative domestic input-output prices with international prices
- Remove price controls and other distortions from agricultural product prices
- Avoid overtaxation of agricultural exports

- Improve market access and information services to farmers
- Avoid using subsidized interest rates as a "second best" measure in order to compensate for distorted "urban-biased" policies which depress product prices or tax agriculture indirectly (e.g., overvalued exchange rates)
- Adequately invest in rural infrastructure and human resources

Part B

1. Background. Special programs for providing credit to farmers at subsidized rates have long been a popular policy in developing countries. Many donor agencies, including the Bank, have supported those programs with the understanding that subsidized credit would facilitate rapid rural development and improve rural income distribution. Yet, the general experience with such programs has been disappointing in terms of reaching the rural poor or alleviating rural poverty. In addition many lending institutions collapsed in the face of relatively large transaction costs, legal ceilings on interest rates, less than adequate spreads, and low repayment rates. There is increasing recognition that rural borrowers place a high value on convenient and reliable access to small, short-term loans; and that repayment incentives in the form of group guarantees and the promise of repeat loans can substitute for traditional loan screening activities and collateral requirements. Moreover, it is more useful to promote organizations that provide depository and credit services to the rural poor at market prices on a permanent basis, than to sponsor short-lived, subsidized credit programs which normally fail to reach the target group. International experience has shown that targeted credit without institution-building in rural financial institutions is almost always a recipe for prolonged dependence on donor or state funds and bailouts.

2. Interest Rate Subsidies. Subsidized interest rates have been found to create a number of undesirable outcomes. Subsidizing interest rates creates a bias toward acceptance of investment projects with low returns. These projects do not enhance sectoral productivity and growth as much as projects with higher returns. When credit subsidies are given, the form they take is important (e.g., subsidies for technical assistance and location subsidies for reducing transaction costs are, therefore, preferable to interest rate subsidies). However, directed lines of credit frequently involve below-market interest rates. Interest rate subsidies have been found to: encourage the substitution of credit for the borrower's own funds (or the funds of other lenders), promote excessive indebtedness, skew incentives in favor of capital-intensive techniques of production, encourage corruption and the rationing of credit, and weaken borrowers' incentives to repay and lenders' incentives for debt recovery. Interest rate subsidies also result in lower return to savers and higher costs for nonsubsidized borrowers, unless the subsidy is fully paid by the budget instead of the banks. Finally, interest rate subsidies have added significantly to fiscal deficits and inflation in many countries.

3. Rural financial systems. Governments have largely ignored the potential for savings mobilization in rural areas as well as the role of informal credit markets in meeting agriculture's credit demand. Governments have focused instead on publicly-owned

agricultural credit institutions to supply directed lines of subsidized credit to farmers. Often, the justification for these policies was a belief that subsidized, directed credit could offset the disincentives caused by other policies that discriminate against agriculture. This urban-biased policy often constitutes an overvalued exchange rate, price control of agricultural products, overprotection of domestic industrial products that are used as agricultural inputs, and public underinvestment in rural infrastructure. Any attempt to compensate the agricultural sector with concessional credit would result in a futile exercise - only a small part of the farm sector benefits from the subsidized credit, often the well-to-do ones, while the whole sector is adversely affected by the distorted policies.

4. Best Practices. The key criteria in assessing intervention in rural finance markets are outreach to the target group and self-sustainability of the financial institutions. There are now several well-documented cases of financial intermediaries which have succeeded in reaching the rural poor and small farmers in an efficient, innovative, and sustainable manner. Perhaps the best known are: the BRI - Unit Desa (BUD) in Indonesia, the Grameen Bank (GB) in Bangladesh, and the Bank for Agriculture and Agricultural Cooperatives (BAAC) in Thailand. These institutions differ from each other in many respects, yet they all score well in terms of significant outreach and sustainability. Their successful performance is based on the application of positive lending interest rates, increased reliance on savings mobilization to finance lending, an emphasis on very high loan recovery, and the use of efficient, innovative modes of operation to reduce administrative costs.

Financing Rural Entrepreneurs. Both GB and BUD finance rural entrepreneurs, though the average size of loan extended by BUD is far larger. Unlike BUD, GB also provides a set of nonfinancial services to their clients. It is worth noting that BUD obtained a real return exceeding 20% p.a. on its loan portfolio. Lacking any subsidy over the recent years, it has relied upon local savings facilities to tap voluntary rural savings. BUD's success in mobilizing savings is unprecedented. Its savings value far exceeds (2.1 times) its outstanding loan portfolio, which has also grown at a rapid rate over recent years. BUD used high interest rates for both its lending and savings mobilization, thereby refuting two myths: first, that the poor cannot pay "high" interest rates sufficient to fully cover financial, administrative, and credit risk costs; second, that the poor cannot save. A flexible mode of operations and a sophisticated set of incentives for staff, managers, and clients, all supported by an extremely efficient managerial information system, have contributed to BUD's outstanding financial results. Currently, BUD has 2 million borrowers and twelve million depositors.

Financing Agricultural Credit in Economies in Transition. Currently, several rural finance projects or credit components, oriented at least in part to private farmers, are under implementation in transition economies (Romania, Albania, Bulgaria, Poland, Hungary, Vietnam, Lao PDR and Latvia). In addition, rural credit operations are under various stages of preparation in other transition economies (Lithuania, Russia, Macedonia, Croatia, Estonia, and a follow-up projects in Albania and Vietnam). Furthermore, the Bank is presently supporting various credit guarantee schemes aimed at ensuring a flow of

critical inputs to the agricultural sector and facilitating exports to market economies. Generally, the countries where Bank-assisted rural credit operations have been carried out in recent years, are those which have better stabilized their economies, made progress in abetting inflation, introduced better-defined private property rights, and rationalized input-output prices. All of these are conditions which improve the effectiveness of rural finance operations and reduce the risk of failure.

Banking with the Poor. Recent successful implementation with extending financial (and nonfinancial) services to very poor, rural entrepreneurs (mostly women) stands behind two recent Bank initiatives. Those initiatives are aimed at extending improved rural financial services to the poor.

The Bank (ASTAR and AGR) has launched a program of research of Sustainable Banking with the Poor (SBP) designed with the objectives of improving the ability of Bank staff, policymakers, managers of financial institutions, NGOs and other organizations to design and implement policies and programs aimed at providing financial services to the poor, women and other under-served groups in a manner which strengthens, rather than undermines, the financial sector and builds sustainable institutions. One of the objectives is to identify ways in which to provide effective subsidies for institution building in participating financial institutions in order to build institutional capacity and enhance the efficiency of their operations. SBP will: (a) examine Bank and non-Bank experience focusing on financial service systems that have successfully reached the poor; (b) assess the financial performance and the degree of self-sustainability achieved by these systems, the policy environment in which they function and the mechanisms they have used to achieve outreach in order to draw conclusions concerning best practice; and (c) distill these findings into a number of accessible dissemination formats including seminars, short publications and a sourcebook on Sustainable Banking with the Poor.

At the International Conference on Actions to Reduce Global Hunger hosted by the World Bank on November 30 and December 1, 1993, the World Bank expressed a willingness to join with other donors in an effort to explore ways of systematically increasing the resources available to the very poor. Over the past decade, provision of micro-credit and savings services has proved to be an effective means of job creation and income generation among the very poor. Participation of the poor in credit and savings systems has been correlated positively with betterment of family welfare, including improved nutritional and educational status among children and lower birth rates among women. To broaden and deepen this success, the Consultative Group to Assist the Poorest (CGAP) was established to address the provision of assistance to the poorest, initially through a micro-finance program.

The program is not a social safety net; it will focus on enabling very poor men and women to become progressively more productive, with the expectation that some participants would eventually move on to use formal banking services. The CGAP will: (a) expand the level of resources reaching the poorest of the economically active poor, initially through channeling funds through sound micro-finance institutions that meet the

eligibility criteria approved by the CG; (b) improve donor coordination for systematic financing of such programs; and (c) provide government, donors and practitioners with a vehicle for structured learning and dissemination of best practices for delivering financial services to the very poor.

5. The Recent Trends in Bank Agricultural Credit. The decline in Bank lending to agriculture in recent years reflects a growing consensus regarding the need for agricultural credit projects to meet minimum conditions if successful implementation is to be pursued. Prior to the end of the eighties four borrowing countries accounted for about half of the value of Bank lending to rural finance (Brazil, Mexico, the former Yugoslavia and India). The first three countries applied high, negative lending interest rates. This generated a severe drain on budget resources, led to the collapse of the financial institutions involved, and contributed to accelerated inflation. In India inflation was kept in check, yet the agricultural credit scheme suffered from high arrears and eventual losses. Those losses eventually culminated in a politically-motivated decision to offer debt-forgiveness prior to the election. That sent a wrong signal to borrowers that a grant and a loan hardly differ, further building expectations of future loan forgiveness which would adversely affect loan recovery. Based on this experience Bank management has chosen in recent years to allocate scarce financial resources to projects where policy distortions and inadequate institutions do not stand in the way of sound implementation.

While rural finance lending plummeted in 1995 to below $100 million, projections for 1996 indicate more than a ten-fold increase to the level of about $1 billion. The reasons for the projected, significant increase in lending for agricultural credit from four projects in FY95 to 15 projects in FY96 largely reflects the increased number of economies in transition that have stabilized their economies, realigned agricultural input-output prices with border price levels, and introduced improved financial discipline and institution-building in their financial sectors, thereby becoming eligible for Bank agricultural lending. This group of countries can be further divided into first-time borrowers (Lithuania, Estonia, and Ukraine) and repeated borrowers (Albania, Vietnam).

Annex:

Over the last two years concentrated efforts have been made to disseminate lessons learned from the Bank's rural finance research findings. A partial list of Bank publications includes:

(1) Besley, Timothy (1992). "How Do Market Failures Justify Intervention in Rural Credit Markets?", The World Bank Research Observer, 9:27-48.

(2) Gurgand, Marc, Glenn Pederson and Jacob Yaron (1994). "Outreach and Sustainability of Six Rural Finance Institutions in Sub-Saharan Africa", World Bank Discussion Paper 248.

(3) Hoff, Karla (1994). "Rural Credit Programs: A Sketch of the Arguments", Agricultural Policies Division, Department of Agriculture and Natural Resources, mimeo.

(4) Yaron, Jacob (1992). "Rural Finance in Developing Countries", World Bank Working Paper 875.

(5) Yaron, Jacob (1993). "Successful Rural Finance Institutions", World Bank Discussion Paper 150.

(6) Yaron, Jacob (1994). "What Makes Rural Finance Institutions Successful?" World Bank Research Observer, 9:49-70

(7) Yaron, Jacob (1995). "Development finance Institutions Reported Profits and Unreported Subsidies, AGRPW Working Paper.

Copy to MM
Seregueldin
Petit
McCalla
Binswanger
Forno
Le Moigne
cohen

My Em refers
[illegible]

The World Bank
Washington, D.C. 20433
U.S.A.

JAMES D. WOLFENSOHN
President

August 31, 1995

Mr. Alex McCalla:

I should like to acknowledge your note of July 26th on Agricultural Credit and Rural Finance.

This is a subject that interests me enormously and is clearly central to our activities at the Bank. I am sorry that I have not been able to get together with you on this subject but clearly we need to have some hours together on the subject.

I was particularly struck by the fact that rural finance lending plummeted in 1995 to a little over $100 million. I am most anxious to know why as I am equally interested in knowing why the project is $1 billion for 1996. I understand in general what is stated on page 5 of the report, but I really need to have some better understanding. For instance, I understand that the paper was prepared by Jacob Yaron and Glenn Peterson I would be particularly interested to know your own views on how you think the Bank is doing, stating it as clearly as you can.

I would also like your recommendations on what we should do which seems to be more important than the history. Could you also let me know how your suggestions would be affected by CGAP and how our general programs will interrelate with this initiative.

THE WORLD BANK GROUP
Headquarters: Washington, D.C. 20433 U.S.A.
Tel. No. (202) 477-1234 • Fax (202) 477-6391 • Telex No. RCA 248423

FACSIMILE COVER SHEET AND MESSAGE

DATE: 9/1

NO. OF PAGES: (including cover sheet)

MESSAGE NO.:

TO:
Title: ALEX McCALLA
Organization:
City/Country:

DESTINATION FAX NO.: 916.752.5614

FROM: David Steeds
Title: Division Chief
Dept/Div: AGRPW
Room No.: N-7035

DIVISIONAL FAX NO.: (202) 522-1142
Dept./Div. No.: 656-30

Telephone: (202) 473-8711

SUBJECT:

MESSAGE: We spoke.

877 070 9425 3093

ansmission authorized by: David Steeds, AGRPW

If you experience any problem in receiving this transmission, inform the sender at the telephone or fax no. listed above.

THE WORLD BANK/IFC/M.I.G.A.

OFFICE MEMORANDUM

DATE: September 11, 1995

TO: Mr. James D. Wolfensohn, EXC

FROM: Alex F. McCalla, Director, AGR

EXTENSION: 85028

SUBJECT: **Agricultural Credit and Rural Finance**

Your memo of August 31 regarding Agricultural Credit and Rural Finance awaited me upon my return today from two weeks vacation and attendance of two Bank retreats. Therefore, the delay in responding.

I am impressed with your interest in this topic and share your view that it is central to the Bank's mission. I stand ready to meet with you anytime, anywhere to discuss this issue in the broader context of rural/agricultural sector development.

Regarding your request for further clarification on changes in the Bank lending, I am preparing a response which I will forward by week's end. I will also forward by September 20 my own views on what the Bank is now doing and should be doing. I will be more than happy to elaborate on these when we meet for our extended discussion.

cc: Messrs. I. Serageldin, M. Cohen, D. Steeds

bcc: G. Le Moigne, H. Binswanger, D. Forno, B. McLaughlin

THE WORLD BANK/IFC/M.I.G.A.

OFFICE MEMORANDUM

TE: September 15, 1995

TO: Mr. James D. Wolfensohn, EXC

FROM: Alex F. McCalla, Director, AGR

EXTENSION: 85028

SUBJECT: **Rural Finance**

As a further follow-up to your memo of August 31, I have now reviewed in more detail rural finance lending for the period 1993-1996. The level of lending in 1995 was indeed significantly below previous years' experience. The amounts extended in rural finance during 1993 and 1994 were approximately $440 and $430 million respectively. Many of these projects were completed and not renewed during 1995, resulting in a reduction in the amount of rural credit to less than $100 million.

Several new projects are in various stages of development in 1996. These could amount to a total of nearly $1 billion. Of this, more than half ($500 million) is in two projects in China. However, one must recognize that forward projections of lending are usually optimistic.

1995 appears to have been a transition year of two sorts. First, some traditional agricultural credit projects and credit components were completed in 1994. In 1995, we apparently had only 4 active projects whereas in 1993, 12 projects had credit components and in 1994, it was 14. Therefore, 1995 may be the product of a peculiar set of outcomes in the project cycle.

Second, much of the suggested increase in rural credit for 1996 is identified with an increase in lending to planned and formerly planned economies (the expected number of projects is 15). During 1993 and 1994, more than 70% of rural credit lending was extended to market economies, whereas in 1996 the projection is that nearly 75% of rural credit will be extended to planned and formerly planned economies.

I hope this helps us both understand 1995 more clearly. I will continue to develop further information for our upcoming meeting.

Cc: Mr. Ismail Serageldin, ESDVP

bcc: Messrs. M. Cohen, D. Steeds, H. Binswanger, G. Le Moigne, D. Forno, B. McLaughlin

THE WORLD BANK/IFC/M.I.G.A.

OFFICE MEMORANDUM

DATE: September 22, 1995

TO: Mr. James D. Wolfensohn, EXC

FROM: Alex F. McCalla, Director, AGR

EXTENSION: 85028

SUBJECT: **Rural Finance**

This memo is the second one promised in my initial response (September 11) to your memo of August 31.

First let me say that I now have a much longer times series on Bank agricultural credit lending which shows both annual lending and three year averages. It is attached as Attachment I. It is clear that swings such as between 1994 and 1995 have happened before.

But you said you are less interested in history than you are in where do we go from here. I could not agree more. Further you wanted my views. Let me provide them here briefly. I can elaborate at our meeting.

The ultimate objective of World Bank rural financial involvement should be to foster the existence of self sustaining financial institutions which provide financial services--both lending and saving--to all segments of rural society. As countries are more successful in getting their macroeconomic houses in order, including inflation control, currency convertibility and fiscal discipline, the need for narrowly specialized rural and agricultural finance activities should diminish. While we are a long way from these objectives in many countries, we are making significant progress. For example, projected increases in lending in 1996 reflect progress in policy reform in many ex-command economies.

We also know a lot about what not to do. Three examples. Subsidizing interest rates to offset the negative effect of policies biased against agriculture is an inefficient way to proceed. The policies need to be reformed. Second, providing subsidized credit to agriculture through special institutions (parastatals) without building financial institutions which include opportunities for savings mobilization, are destined to fail. Third, subsidies may well be appropriate in early stages for the poor but should be for institution building and reduction of transaction costs. Lending and accepting deposits at positive real interests is not only appropriate but desirable.

The way forward is to build on success while remaining vigilant to prevent us from repeating old mistakes. I believe we are making progress. We in AGR are developing a major paper in rural finance which will include many examples of best practices that work. We are working with the Russia Department and ECA to develop a clearer notions of how we can better design rural finance instruments. AGR initiated (together with ASTHR) a

three-year project aimed at disseminating best practices in sustainable banking with the poor (SBP). Within this framework, monthly seminars are presented by Bank staff and external professionals on aspects related to improved outreach and self-sustainability in providing financial services to the poor.

For the future, I believe it is useful to think of rural finance lending in two categories. The first is lending to rural entrepreneurs including commercial farmers; the second is lending to the poor.

In the first category we expect a gradual increase in the Bank's rural finance operations. An increased number of countries have made progress in introducing the policies required for successful implementation of projects, i.e., sound macroeconomic, agricultural, and financial policies; an appropriate rate of exchange; liberalized trade; and institution building in implementing agencies. This explains the projected increase in number and value of rural finance operations planned for FY96.

In many of the ex-command economies, abated inflation and other policy changes now allow the design of rural finance operations that would not result in loan losses or financing of nonviable activities, but would rather contribute significantly to growth and development. This was not considered a realistic solution a year or two earlier.

The second category is banking with the poor, where providing financial services (lending and saving mobilization) enables poor people to become progressively more productive, thereby contributing to growth and improved income distribution through poverty alleviation.

In recent years, several rural financial intermediaries have excelled in terms of both outreach and self-sustainability. Best known are the BRI - Unit Desa (BUD) in Indonesia, the Grameen Bank (GB) in Bangladesh and the Bank for Agriculture and Agricultural Cooperatives (BAAC) in Thailand. Despite substantial variations in their modes of operation, all three followed certain common policies which contributed to their success:

- the application of positive lending interest rates, often "high" rates;
- very high loan recovery;
- increased reliance on savings mobilization to finance lending;
- efficient and innovative procedures that contain the high administrative costs often associated with the granting of small loans.

Their success has refuted many myths about lending to the poor, and underscores the fact that *access* to funds are important to the poor, not their subsidization, that the poor can pay "high" interest rates, and that they are able and willing to save.

In future, the Bank should rely heavily on the lessons learned from these successful institutions in the design and implementation of rural finance projects.

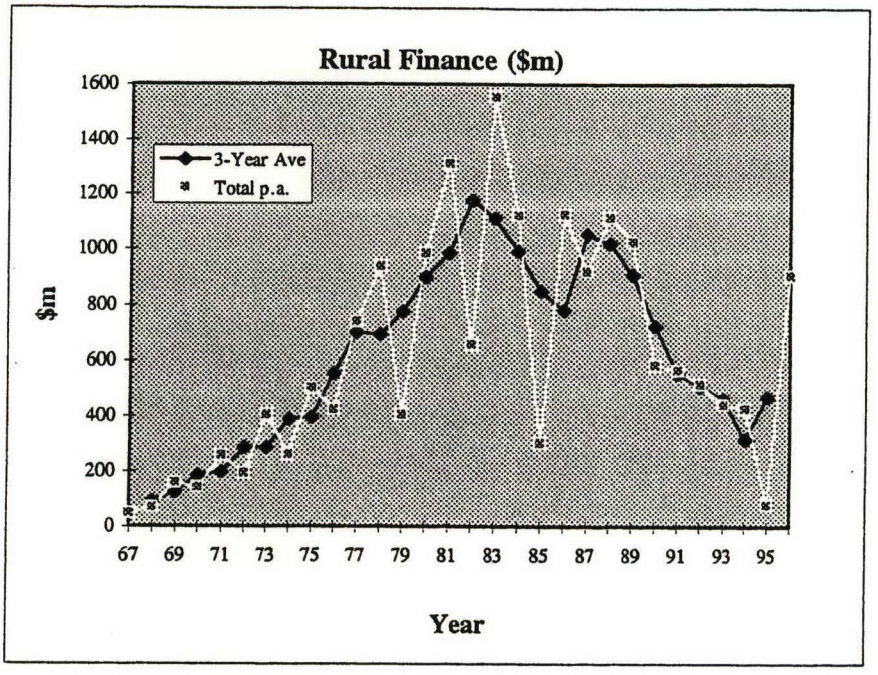
Finally, some thoughts on how to proceed forward on a positive path. First, we must be innovative in designing approaches to meet the particular needs of our partner countries. There is no standard model. Second we should ensure that each new rural finance project has explored fully the mechanisms to serve both rural entrepreneurs and commercial farmers and the rural poor. This will require us to recognize that while there are higher administrative costs per dollar when lending is done in small quantities, the benefits over the long term could be large. Third, I believe a special role for our department (AGR) should be to work continuously with the regions to make sure that financial services relevant to the poor are developed. In this regard, we will have much to learn from the experience of CGAP. Our (AGRs) role should be to monitor this experience and share it with our colleagues in the Bank. Our staff is heavily involved in this initiative which I believe to be complementary to what we should be doing on rural finance.

I have gone far too long. This is a complicated subject about which I am constantly learning. The more I learn, the more positive I am about our capacity to greatly improve our track record in this area. We know a lot more than we did before. Rural finance by itself is unlikely to be successful if macro and sector policies are perverse. Within the rural sector, rural finance is a critical component of a broader rural strategy. I believe, given the Vision Statement which I shared with you, we now know better what that strategy must contain. I look forward to sharing my views in more detail on rural finance and broader agricultural and rural strategies when we meet.

cc: Mr. Ismail Serageldin, Vice President, ESDVP

ATTACHMENT 1

FY	3-Year Ave	Total p.a.
67		49
68	93	70
69	124	159
70	187	143
71	198	257
72	285	195
73	286	405
74	388	259
75	394	500
76	554	423
77	701	741
78	695	939
79	776	404
80	899	985
81	984	1,309
82	1,173	658
83	1,111	1,553
84	992	1,122
85	850	301
86	782	1,126
87	1,053	920
88	1,019	1,114
89	907	1,024
90	724	584
91	554	564
92	506	514
93	461	441
94	315	428
95	470	78
96		906



bcc: Mmes./Messrs. M. Cohen, D. Steeds; H. Binswanger; Yaron; G. Le Moigne, D. Forno, B. McLaughlin.

C:\MCCALLA\MEMO\RURAL.DOC
September 22, 1995 4:11 PM