

THE WORLD BANK GROUP ARCHIVES

PUBLIC DISCLOSURE AUTHORIZED

Folder Title: Minhas, B. S. - Articles and Speeches (1971)
Folder ID: 1652387
Fonds: Records of Office of External Affairs (WB IBRD/IDA EXT)

Digitized: March 12, 2014

To cite materials from this archival folder, please follow the following format:
[Descriptive name of item], [Folder Title], Folder ID [Folder ID], 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.

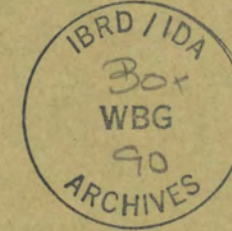
© 2012 International Bank for Reconstruction and Development / International Development Association or
The World Bank
1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

PUBLIC DISCLOSURE AUTHORIZED

Minhas, B. S. - ARTICLES and speeches (1971)

**Archives**
A1992-007 Other #: 13 1652387 212058B
Minhas, B. S. - Articles and Speeches (1971)

DECLASSIFIED
WBG Archives



Special Bowf M.



MASS POVERTY AND STRATEGY OF RURAL

DEVELOPMENT IN INDIA *

B.S. MINHAS

- * Sections II and III of this paper are a summary of materials already published in the April 1970 issue of the Indian Economic Review. The remainder of this paper is adapted from a working paper of the Economic Development Institute which was circulated by the author in September 1970. The responsibility for the views expressed rests solely with the author.

ECONOMIC DEVELOPMENT INSTITUTE
International Bank for Reconstruction and Development
March 1971

I. Introduction

Almost everyone seems to be aware that the Indian peasant is poor. Nevertheless the extent and magnitude of his poverty is not so well understood. On the basis of two, equally arbitrary but quite reasonable, definitions of a minimum level of living, I estimated the numbers of the rural people below the poverty line as follows:^{1/}

Table 1: Percentage and Numbers of People Below Minimum Level of Living - Rural India

Year	Below Rs. 240 per Annum at 1960-61 Prices		Below Rs. 200 per Annum at 1960-61 Prices	
	%	Millions	%	Millions
(1)	(2)	(3)	(4)	(5)
1956-57	65.0	215	52.4	173
1957-58	63.2	212	50.2	169
1960-61	59.4	211	46.0	164
1961-62	56.4	206	43.6	159
1963-64	57.8	221	44.2	169
1964-65	51.6	202	39.3	154
1967-68	50.6	210	37.1	154

The computations of Table 1 and gusses about the post-1968 period may support the following conclusions.

- (i) Between mid-1950's and 1967-68 the absolute number of people below the poverty line did not undergo any clearly discernible change.
- (ii) Their numbers seem to fall in good harvest years but shoot up in bad crop years.

^{1/} For details, see Minhas, B. S., "Rural Poverty, Land Redistribution and Development Strategy: Facts and Policy," Indian Economic Review, April 1970, pp. 97-128.

- (iii) Between mid-1950's and 1967-68, there was a slow but steady decline in the proportion of people below the poverty line. This seems to be the case on either of the two definitions of poverty.
- Iiv) The number of people below the abject poverty line in rural India today may be at least as large (probably larger) as in 1967-68.

In short, after 20 years of economic development, between two-fifths to one-half of the rural people of India today are living in abject poverty. They have begun to take interest in the procedures of a political democracy; their expectations are rising everyday and so also are their frustrations. In view of this grim situation, the emphasis on "the common man, the weaker sections and the less privileged" in the Fourth Plan^{2/} and the recent trend towards radicalism in Indian politics should seem to be welcome phenomena. And in these times of social turmoil and political activism, it should not seem a day too soon for the economist to focus policy analysis on concrete measures for the benefit of the poor, particularly the rural poor who are far more numerous but fail to catch less attention than the urban poor.

Since the numbers of people below the poverty line are so vast, the conventional measures of poor relief, such as doles or public works of the distress-relief variety, are clearly impractical. For improving the levels of living of the rural poor on a permanent basis, the Government in India may, however, consider the following types of policies.

1. It may force the pace of growth in the non-farm sectors of the economy and in the process help pull out the rural poor from agriculture into more productive activity elsewhere.
2. It may try to achieve some redistribution of incomes through its fiscal, pricing and other policies.

^{2/} Planning Commission's concern for the small farmer, the poor and the weak is discussed in my, Fourth Plan: Objectives and Policy Frame, Vora and Co. (Bombay), 1969. pp. 14-20 and 56-68.

3. It may redistribute the available cultivated area and bring about a more equalitarian distribution of land among peasants. It can also supplement this effort by way of reforms in tenurial relations.
4. It may modify its strategy of rural development and take measures to improve the absorptive capacities and productive capabilities of scores of millions of small peasants.

A considerable potential for accelerating the rate of industrial growth does exist in India. And, no effort should be spared in exploiting this potential. However, for the purpose of this paper, and without risking a serious error of judgement, I assume that any foreseeable acceleration in the pace of industrial development in India is unlikely to produce enough jobs to make even a slight dent on rural unemployment and poverty over the next decade. The absolute numbers of people dependent on agriculture are not likely to go down; there is a greater likelihood that in the next 10 - 15 years their number will rise. In fact the foreseeable increase in the rate of industrial growth in the next ten years may hardly be able to contain open urban unemployment which has become even more intractable since 1966. I also assume that the potential of conventional fiscal and pricing policies for the benefit of the rural poor is severely limited.

The most outstanding development problem in rural India today is one of raising the absorptive capacity of millions and millions of small farmers whose paltry holdings are fragmented into small bits here and there. It is these farmers who are unable to take full advantage of the recent seed-fertilizer-credit revolution. This revolution has not delivered much yet and is already threatening to get stuck at the periphery. In order to remove the inabilities that beset the small farmers and restrict them in their use of modern inputs, I have argued for a change in the strategy of rural

development.^{3/} The dominant element in the proposed strategy is an integrated programme of consolidation of landholdings and complementary land and water development works at the local level. In the paper just cited, I also argued for a fair measure of land redistribution and placed it in the category of "realistic radicalism."

In this paper I shall summarise the salient elements of my earlier proposal for land redistribution and show why a change in the strategy of rural development is necessary. In addition I shall focus attention on some technical, behavioral, administrative and policy matters which are relevant not only for my own proposals but seem also to be equally relevant to many other questions concerning future growth and employment in Indian agriculture. In particular I intend to (i) make some observations on the likely consequences of land redistribution for total agricultural output, (ii) look into the relationship between changes in the distribution of income and land and the volume of aggregate savings, (iii) argue that the absence of suitable financial intermediation coupled with extremely unequal distribution of land is distorting the choice of production techniques in Indian agriculture away from the basic factor proportion of the economy - a development which will hurt the cause of future growth as well as social justice, and (iv) also argue that without a strategy of rural development which fits the needs of small peasant agriculture and without institutional reform, the "green revolution" will not be able to secure growth with social justice.

^{3/} Minhas (1970), op. cit.

of the distributional characteristics of operational holdings among households by size of holding, family size, extent of ownership and area leased-in is given in appendix Table 2. With this factual background of the current situation on land distribution, I assess the impact on the rural poor of the following redistribution policy:

- (i) no household ownership holding is to be larger than 20 acres. This ceiling may be fixed in a number of different ways. It could, for instance, be 15 acres in wet lands and 25 acres in dry lands; or in some areas it could respectively be 10 and 25 acres;
- (ii) non-land-owing, non-cultivating households are not to receive any land which step (i) would release for redistribution;
- (iii) extra land is to be distributed among the households in the four lowest size classes of household operational holdings in a way such that per capita ownership of land in these four classes is absolutely equal. In other words, a floor on land ownership per capita is envisaged.

If we suppose that this policy is implemented right away, then, under its provisions, the three largest ownership holding classes (25.00 - 29.99, 30.00 - 49.99 and 50.00 acres and above) would lose about 43 million acres of land (see Appendix Table 1). If these 43 million acres are redistributed among the four lowest size classes of household operational holdings (0.01 - 0.49, 0.50 - 0.99, 1.00 - 2.49, and 2.5 - 4.99 acres), who at present are estimated to own 57 million acres already, then according to rule of redistribution provided in the policy, the ownership of land in these classes would uniformly come up to 0.54 acres per capita. As against this, at present the average per capita ownership of land in these four classes respectively is estimated to be 0.037, 0.11, 0.25 and 0.50 acres. After redistribution, land operated per capita in these four classes would work out to be somewhere between 0.54 acres and 0.60 acres. It is to be noticed

that after this land reform policy is implemented, differences in per capita land ownership over all size classes of household operational holdings would not be larger than 5 times. This would represent a considerable amount of leveling down. It is certainly arguable whether or not, in the prevailing circumstances, the proposed land redistribution policy is politically implementable. However, even if it is supposed that this policy is implementable, it is nonetheless worthwhile to inquire whether it will by itself make a big dent on the problem of rural poverty in the sense of a considerable reduction in numbers below the poverty line.

My rough guess is that the land redistribution proposed here may reduce the number of rural people below the poverty line by about 20-25 millions. Instead of the two-fifths of the rural population now living in abject poverty, this proportion may get reduced to about one-third. In other words, even if it is assumed that from tomorrow onwards agriculture is not going to be saddled with any more people (or equivalently if productivity per acre keeps pace with population growth) and inspite of the "radical" land redistribution policy coming into effect before sunrise tomorrow, a very large core of the rural poverty problem will still be with us. For tackling it we shall need additional measures. These additional measures are the subject matter of the next section.

At this stage it will be worthwhile to note that the policy package proposed in the next section is logically as well as operationally independent of the land redistribution policy discussed here. The only link between the two sets of policy packages is the objective of eliminating the enormous magnitude of dismal rural poverty. My contention is that without a basic (and enabling) doze of land redistribution which assures around one-half

acre of land per capita, almost all the 27 million families, with about 110 million people, who at present operate between 0.05 to 0.30 acres per capita, will not be able to have a minimum level of living. With the reorganization of rural productive apparatus along the lines of the next section, after land redistribution has been effected, there is a fair chance that in 10 - 15 years these direct beneficiaries of land redistribution as well as the rest of the rural poor could hope to pull themselves above the very low, normative poverty line comprising of a private per capita consumption level of Rs 200 per annum at 1961 - 61 prices.

III. A Strategy for Rural Development

At present one of the most serious bottlenecks in effective land and water development and increasing agricultural productivity is the excessive parcelisation of land holdings. The extent of parcelisation at the all-India level can be gauged from Table 2.

In the size class of operational holdings between 2.5 to 5 acres, constituting 22.6% of the total number of operational holdings and covering 40.6 million acres of land, on an average there are 6 parcels per holding, each of an average size of a little over one-half acre. Similarly the size class, 5.0 to 7.49 acres, comprises 12.8% of all holdings and covers 38.7 million acres of land. The average holding in this size class is broken up in 6.8 parcels of 0.87 acres each. Parcelisation of bigger holdings is equally pervasive. In the size range, say, from 25 to 30 acres, there are as many as 8 parcels.

Table 2

**Parcelisation of Operational Holdings,
Rural India, 1960-'61**

Size class of operational holdings (acres)	Estimated number of holdings ('000 nos.)	Estimated area operated			Parcels per holding	
		'000 acres	as % of total	per holding (acres)	Average number	Average size per parcels (acres)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Upto 0.49	4341	1053	.32	.24	1.82	.13
0.50—0.99	4355	3146	.95	.72	3.07	.24
1.00—2.49	11140	18433	5.59	1.65	4.45	.37
2.50—4.99	11484	40616	12.32	3.54	6.05	.58
5.00—7.49	6517	38671	11.73	5.93	6.79	.87
7.50—9.99	3532	29557	8.7	8.37	7.63	1.10
10.00—12.49	2565	27191	8.25	10.60	7.56	1.40
12.50—14.99	1474	19595	5.95	13.29	8.02	1.66
15.00—19.99	1902	31564	9.58	16.60	7.92	2.10
20.00—24.99	1162	24352	7.39	20.96	8.78	2.39
25.00—29.99	664	17468	5.30	26.31	8.00	3.29
30.00—49.99	1108	39710	12.05	35.84	8.07	4.44
50.00 and above	521	38229	11.60	73.38	9.44	7.78
All sizes	50765	329585	100.00	6.49	5.66	1.15

Source : N.S.S., 17th Round, Report No. 146, I.S.I. (1966)

The corresponding situation in the States is presented in Table 3.

At the aggregative state level, it appears that the situation is not so bad in Assam, Kerala, Mysore and Maharashtra. In Gujarat and Rajasthan, although the average number of parcels per operational holding is a little more than 4, their average sizes are 2.58 and 3.22 acres respectively. On the other hand, the extent of parcelisation looks very grim in U. P., Bihar, West Bengal and Orssa, where parcels are more numerous and their average size very small.

Table 3

Parcelisation of operational holdings : States, 1950-'61

States	All Sizes			Size Class 2.5—4.99 acres				Size Class 5.00—7.44 acres			
	Total area operated ('000 acres)	No. of Parcels	Parcel Size acre	Area (000 acres)	% of total area	Parcels		Area (000 acres)	% of total area	Parcels	
						No.	Size (acre)			No.	Size (acres)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Andhra Pradesh	28219	4.32	1.64	2627	9.31	4.32	0.82	2929	10.38	5.03	1.15
Assam	4649	2.75	1.31	1722	37.04	2.96	1.19	1154	24.82	3.50	1.69
Bihar	24736	7.18	0.52	5282	21.53	8.04	6.44	3850	15.69	10.97	0.55
Gujarat	23215	4.30	2.58	1163	5.01	3.49	1.01	1590	6.85	4.17	1.42
Jammu & Kashmir	1875	5.09	0.69	545	29.07	5.83	0.59	411	21.92	6.63	0.88
Kerala	3314	2.01	0.92	761	22.96	3.40	1.03	465	14.03	3.73	1.58
Madhya Pradesh	41789	5.30	1.86	2975	7.12	4.31	0.84	4054	9.70	4.95	1.23
Madras	13107	4.96	0.74	3025	23.08	5.40	0.64	2482	18.94	6.58	0.90
Maharashtra	40975	3.78	3.04	2299	5.61	3.50	1.02	2528	6.17	3.51	1.72
Mysore	24277	3.79	2.68	1498	6.17	3.18	1.13	2743	11.30	3.85	1.59
Orissa	12604	6.39	0.76	2600	20.63	6.08	0.58	1933	15.34	8.32	0.70
Punjab	13605	4.76	2.00	691	6.08	4.32	0.79	1267	9.31	4.65	1.30
Rajasthan	36552	4.27	3.22	1689	4.57	3.66	0.98	2244	6.14	3.89	1.51
Uttar Pradesh	46978	7.78	0.57	9837	20.94	8.33	0.42	8024	17.08	9.27	0.63
West Bengal	12557	7.12	0.54	3506	27.92	7.48	0.48	2705	21.54	10.02	0.60

One should not, however, be content with the aggregate picture. Instead one should look at the detailed, size class by size class (as in table 2) incidence of parcelisation across States. For a quick glimpse of the situation, a summary picture of the two size classes, 2.5 to 4.99 acres and 5.0 to 7.44 acres, is presented in Table 3. For want of space, full details for the States have been kept out of this paper.

Although the data given in Tables 2 and 3 relate to operational holdings, the extent of parcelisation of ownership holdings is likely to be worse. It is also to be remembered that we have presented this picture for the year 1960-61. Ten years have gone by. The number of parcels per operational holding in 1970 must be larger than in 1960-61 and their average size must have shrunk further.

Over and above the fact that each holding is broken up into too many parcels, these parcels in turn are so haphazardly laid out that where irrigation is available, it is not capable of being used to the best advantage; and where cultivation depends on rainfall, the conditions for proper soil and moisture conservation are vitiated. The future planning for land and water development as well as for drainage and moisture conservation also gets vitiated for the same reasons. It is true that most (but not all) States have passed Land Consolidation Acts. Only a few of them have achieved a measure of success in implementing them. The present consolidation program has been defective in many respects. Firstly, it has not been compulsory in all areas and its progress has been extremely slow. Secondly, the process of consolidation has not been explicitly related to rational land development and proper soil and water management. Thirdly, the procedure has been such that even after consolidation farmers are left with not one but three or four disjointed parcels.

The major weakness in present consolidation procedure arises from the fact that no land improvements are brought into effect when consolidation is undertaken. Essentially undeveloped lands are distributed back to the owners. Because of the presence of externalities in land development process, the individual owners are unable to assess the development potential of different classes of land. The market for land is riddled with all sorts of imperfections and institutional restrictions. The set-up here is suggestive of an n-person, non-cooperative, game-theoretic situation, in which each person comes in with a given amount of land of different types but lacks information about its development potential. Individual interest will produce a solution in this case which will be collectively inoptimal.^{5/} In an integrated program of land development and consolidation, one can devise methods^{6/} to bring about rational realignments of property rights in land which will be conducive to sustained growth of agricultural production.

Consolidation of land holdings by itself will produce very limited results. A program of public works in rural areas, conceived and executed without being anchored to consolidation and realignment of property rights in land, is likely to leave little impact on the productive capabilities of small farmers. The usual rural works programs are ill-planned and tend to be of the make-work variety. Generally, these works end up being nothing better than "digging holes and filling them up." An integrated program of land consolidation and complementary development work is needed and for its success the following steps are necessary:

^{5/} For a more detailed development of this argument, see Minhas (1970) op. cit. pp. 121-22.

^{6/} On such method is discussed on pp.120-21 of the publication cited in the preceding foot note.

- (1) Consolidation of holdings must be made compulsory under the law.
- (2) Prior to actual consolidation, (a) the entire land in each village should be topographically surveyed and levelled to receive water wherever water is already available, (b) the irrigation channels and drains be constructed for the entire village, (c) if there exists a potential for additional minor irrigation (underground or surface) works, these works should be constructed and rationally located from the point of distribution of water, (d) in dry villages, without any potential for underground water resources, land levelling and contour bunding for soil and moisture conservation (and construction of storage tanks for collection of rain water) should be effected for the entire village or a group of villages at a time and (e) village and feeder roads should be properly aligned.
- (3) The survey, design and construction of these works entrusted to teams of surveyors, engineers, agronomists and administrators under the auspices of the State Governments and village Panchayats.
- (4) Some part of the cost of this type of program should be met by local contributions, which, in the manner of consolidation fees today, should be collected as a compulsory initial fee. In assessing each individual's contribution in the village, a considerable element of progression with respect to the extent of land held should be introduced. Peasants could also contribute in labor and draft power in the construction works.
- (5) The developed land should be so distributed back among the owners that each one of them has his holdings in one, or at most two, compact pieces. Equitable and democratic procedures for such a program of consolidation could be devised. One such procedure is discussed elsewhere.^{7/} The lands of all holders having not more than, say, 4 acres each could be realigned in a compact block on one side of the village for subsequent intensive development.
- (6) The maintenance and operation of the works constructed as part of this integrated program could be the joint responsibility of the State and the Panchayats. Adequate machinery for collection of current operating charges and other rates could be designed.

The program outline above differs from the approach to rural development so far pursued in many essential aspects: (a) It emphasizes intergrated

^{7/} See foot note 6 above.

planning of resource development in small local communities and its benefits would be permanent and available to all and not for a select few. (b) It involves a much greater input of technical expertise in the operation.

(c) It is designed to provide some rationalization of, and a sound anchorage for, the operations of large number of agencies, who never pull their weight together though they are entrusted with the execution of agricultural programs in the Five Year Plans. (d) This approach to rural development is a problem - and field-oriented instead of the usual secretariat-oriented operations.

(e) It would use those factors of the production which are most plentiful in rural areas or are at present under-utilised or unemployed. (f) It would raise a substantial part of the needed resources locally.

Compulsory consolidation of land holdings and all the complementary works suggested here must be effected, in the first instance, on 8-10 million hectares of land which are envisaged to receive new irrigation benefits from the major, medium and minor irrigation schemes already provided for the Fourth Plan. Unless something like this were done, the instance of a large measure of infructuousness in irrigation development at the field level (which are so well documented in many evaluation reports on irrigation schemes) would go on multiplying. And a large part of the resources necessary for financing the compulsory consolidation and complementary works program could come out of the allocations for agriculture, irrigation, flood control, rural electrifications, etc., already made in the Fourth Plan. For these 8-10 million hectares of land the integrated program may cost an extra 200 crores of rupees over a five year period. Gramdan people should be induced to adopt this model for land development in the areas of their operation. Future irrigation development in the Plans should be integrated into this comprehensive approach to rural resource development.

In the dry regions for which stream flow irrigation does not seem possible, development of other sources of surface irrigation (such as collection and storage of rain water in tanks) and prospecting for underground water should be accorded the highest priority. Compulsory consolidation of holdings in dry regions will have a different complement of works to go with it. Contour bunding of an entire village's land for soil and moisture conservation, provision of drinking water facilities, creation of conditions for the acceptance of more rational land use pattern (through for instance, the setting aside of a portion of village land for common pasture) and construction of some storage facilities. We could select a group of 5 villages in each of the relatively dry districts of India in the first year of the program and in the light of the experience gained expand the scope of the program to cover the bulk of the country in the course of the next fifteen years.

Since the conditions and the problems in different parts of the country differ widely, it would not be easy to indicate precisely either the complement of technical staff or the scale of expenditure needed for the program. This matter as well as the details of the first phase of the program could be elaborated by competent task forces appointed specifically for this purpose. A provision of 15 crores of rupees for the first phase of the program in the dry areas could be adequate for making an imaginative beginning in about 1000 villages.

The reorganization of the rural productive apparatus in the manner outlined in this paper will remove the inabilities besetting the small farmers and enhance their absorptive capacity for modern inputs and technology. And without such a transformation of their productive apparatus, our efforts to improve the lot of the rural poor are likely to bear little fruit. We cannot pull vast millions out of abject poverty by passing out doles: there

are far too many claimants and the size of the cake is small. A make-work program of rural works will leave little lasting effects. In order to be effective, the rural works program must be integrated into a comprehensive view of rural resource development.

The integrated program of compulsory consolidation and complementary public works proposed here would greatly augment employment opportunities not only for rural labor but also, in large numbers, for a variety of technical personnel (especially for engineers, who are at present seriously unemployed) in survey, design and construction operations. This coordinated program demonstrated to be for the benefit of the community as a whole and not contrived for the benefit of a few could be expected to evoke much wider acceptance and participation in rural development than we have been able to achieve so far. This integrated view of rural resource development can also greatly increase the efficiency in the use of large amounts of funds (about 750 crores a year at present) which are now being spent on agriculture and related activities under the Five Year Plans.

I must emphasize that the essence of this program is not finance per se but speedy legislative and executive action to facilitate compulsory consolidation and mobilization of competent teams of technicians to carry out the resource development program effectively in the field. The program may not even be started on the scale I have indicated. In the first year, a few experimental projects may be tried to gather technical and operational data in some typical situations. Nonetheless I will plead for making a determined beginning in the direction indicated in this paper. And in about 10-15 years we could accomplish this kind of comprehensive resource development over the whole of rural India.

IV. Crucial Issues in Land Redistribution

Among other things, the purpose of the redistribution exercise has been to show how limited an impact land redistribution alone will have on the objective of eliminating abject rural poverty. Nonetheless, I maintain that without the enabling circumstance of a good measure of land redistribution, the elimination of dismal poverty will ever remain an empty objective, a slogan without content. Aside from the problem of fair compensation, which will have to be paid to those who lose land, a land redistribution policy must answer two crucial questions. And they are: what would be the impact of land redistribution on total agricultural output? How would land redistribution affect the volume of total savings in the economy?

Land Redistribution and Total Output: There is an extensive body of literature^{8/} in India which strongly tends to support the conclusion that output per acre declines with the rise in holding size. The explanation of this phenomenon is based on the more intensive (both in quality and quantity) use of labour input (mostly family labour) per unit of land by small holders as compared with the big holders. I am, however, quite content with the weaker hypothesis which states that output per unit of land on smaller holdings is at least as large, if not larger, as on bigger

^{8/} In particular see, Khuro, A. M. "Returns to Scale in Indian Agriculture" Indian Journal of Agricultural Economics, July - December 1964, Mazumdar, D. "On the Economics of Relative Efficiency of Small Farmers", The Economic Weekly, Special number, July 1963 and also his "Farm Size and Productivity", Economica, May 1965, Rao, C. H. H. "Alternative Explanations of Inverse Relationship between Farm Size and Output per Acre in India", Indian Economic Review, October, 1966, Sen, A. K. "Size of Holding and Productivity" The Economic Weekly Annual Number, February 1964 and Saini, G. R. "Farm Size, Productivity and Returns to Scale", Economic and Political Weekly, June 28, 1969.

holdings. Breaking up of holdings, which are bigger than 20 acres, into smaller holdings, such that none are less than 2.5 acres, should not therefore reduce total agricultural output.

Income Distribution and Aggregate Savings: This question is somewhat more involved and I cannot do full justice to it here. However, as received economic wisdom would have it, a large degree of inequality in the distribution of income (and wealth) is considered to be conducive to larger national savings. And since more savings are known to give rise to more output, which is good to have, economists often relegate the awkward distributional questions to the domain of politicians in charge of finances. We (the economists) spend our energies on questions relating to optimal allocation of savings among different sectors and also on fancy questions concerning the choice of techniques. Assuming all the time of course, that these latter allocations and choices are quite independent of the distributional issues. And if the sectoral allocations of savings and the choices of techniques suggested by us have any distributional implications at all, it is once again assumed that the finance minister in his political wisdom will be able to handle them. Quite universally, finance ministers fail in this task, and often not for want of will to tackle these issues. The fault lies elsewhere. Our basic assumption about the relationship between the distribution of personal income (and wealth) and the choice of production techniques in family enterprises on the one hand and the generation of savings on the other seems to be in error. While I do not have all the necessary facts to prove it, yet it seems to me that the hypothesis of a direct relationship between inequalities in the distribution of income (and land) and savings is wrong in the case of Indian agriculture.

In a number of respects, the year 1965 represented a watershed in

the history of India's economic growth, more particularly of growth in the agricultural sector. Although the "green revolution" was yet to start its march from the experimental plots, the crop year 1964-65 was a year of record harvests over most of the country. The index of total agricultural production in this year climbed to 158.5 as compared with the corresponding levels of 143.1 and 142.2 in 1963-64 and 1960-61, respectively (See Table 4). The net domestic product (at 1960-61 prices) originating in the agricultural sector in 1964-65 was about 9% higher than in 1963-64. The terms of trade were just beginning to turn in favor of agriculture. No such movement in terms of trade could be discerned during the period 1951-52 to 1963-64. The index of industrial production stood at 153.6 in 1965 as compared with 100.0 in 1960 and 140.8 in 1963-64. The net domestic product (in 1960-61 prices) originating in the non-agricultural economy was about 5.8% higher in 1964 than in 1963-64. The ratio of net domestic savings to national income, which had been rising since 1960, reached an all time high of about 11 percent in 1965. This ratio was about 8% in 1960 and a little over 10% in 1963-64. The ratio of gross domestic savings to gross national product (which is a better index of national savings than the net savings ratio) had risen to 15.5% in 1965-66 as compared with 14.7% and 12.8% in 1963-64 and 1960-61 respectively. (See Table 6).

The crop years 1965-66 and 1966-67 experienced unprecedented droughts. The per capita national income in 1965-66 and 1966-67 fell to levels which had been reached in early sixties. Although we do not have firm data on the distribution of income in the agricultural sector, there is evidence to show that income distribution became more skewed in these two years as compared with the situation in the previous five years. During these two years 42.2 and 41.8 percent of real net domestic product originated in

Table 4 : Index Numbers of Agricultural Production
(1949-50 = 100)

Year	Rice	Wheat	Pulses	Total Foodgrains	Total Non-food grains	Total Agriculture
1960-61	137.7	162.8	129.0	137.1	152.6	142.2
1962-63	132.6	159.6	117.9	133.6	151.6	139.6
1963-64	147.0	145.9	102.9	136.5	156.5	143.1
1964-65	155.1 (39.31)	182.1 (12.26)	126.3 (12.42)	150.2 (89.34)	175.4	158.5
1965-66	121.8	154.5	98.4	120.9	154.8	132.7
1966-67	120.9	168.8	85.3	123.8	148.5	132.1
1967-68	149.4 (37.61)	244.9 (16.54)	123.5 (12.10)	159.0 (95.1)	165.1	161.0
1968-69	157.2 (39.76)	258.7 (18.65)	102.3 (10.42)	157.5 (94.0)	161.0	158.7
1969-70 *	(40.43)	(20.09)	(11.69)	(99.50)		

Note: Figures in parentheses are in millions of tonnes.

Sources: Most of the data are from Indian Agriculture in Brief (Tenth Edition), Directorate of Economics and Statistics, Ministry of Food and Agriculture, Government of India (1970), pp. 96 and 97. The gaps in this data source were filled in by consulting the Statistical Abstract of India, 1968, CSO (1969), p. 75.

* Preliminary estimates

agriculture, but the share of agriculture in total N.D.P. in money terms was 47.4 and 49.2 percent respectively (See Table 5). It is unlikely that this shift in the distribution of money incomes in favor of agriculture had any favorable impact on the conditions of approximately 40-50 percent rural people whose production levels were not adequate to support even bare subsistence standards. As shown in Table 1, the proportion of the rural people below the poverty line in 1964-65 was about 40%. In 1965-66 and 1966-67, this proportion (in accordance with the experience of previous bad agricultural years) must have increased. However, the middle level and substantial farmers, a large proportion of them having assured irrigation sources and cheap credit, enjoyed good prices during these two years. They are the ones who had surpluses to sell and it is this thin upper crust of rural India who benefited from the shift in income distribution.

The next two years, i.e., 1967-68 and 1968-69 were years of good harvests. The index of agricultural production in 1967-68 stood at 161.0 as compared with 158.5 in 1964-65. In 1968-69 there was a slight fall in agriculture output as compared with 1967-68. Although agricultural production in 1968-69 was only slightly higher than in 1964-65, it was considerably larger than in 1963-64 or 1965-66. The real net domestic product originating in the non-agricultural economy in 1967-68 was Rs. 561 crores higher than in 1964-65; in 1968-69 it was higher by Rs. 971 crores as compared with 1964-65 and by Rs. 764 crores over 1965-66. Reckoning 1967-68 was a year of adjustments in the economy, 1968-69 was a normal year for agriculture as well as industry. The real per capita income in each of these two years was as high or higher than the per capita income levels reached in 1962-63, 1963-64 and 1965-66, although lower than in 1964-65. The average of per capita real income in these two years was also as high as the average for the three years,

Table 5 : Net Domestic Product by Sector of Origin

	<u>1960-61</u>	<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>	<u>1965-66</u>	<u>1966-67</u>	<u>1967-68</u>	<u>1968-69</u>
A. <u>At Current Prices</u>									
1. N.D.P. (Agric.) Rs. crores	6822	7053	7198	8360	10213	9846	11755	14973	14860 a/
2. N.D.P. (Total) Rs. crores	13380	14161	14999	17231	20229	20753	23902	28187	29070 a/
3. 1:2	.510	.498	.480	.485	.505	.474	.492	.531	.511
B. <u>At 1960-61 Prices</u>									
4. N.D.P. (Agric) Rs. crores	6822	6891	6704	6898	7519	6421	6411	7560	7473 b/
5. N.D.P. (Total) Rs. crores	13380	13891	14177	15000	16090	15199	15333	16692	17015 b/
6. 4:2	.510	.496	.473	.460	.467	.422	.418	.453	.439
7. N.D.P. (Non Agric.) Rs. crores	6558	7000	7473	8102	8571	8778	8922	9132	9542
8. Per Capita National Income, Rs.	307	311	309	319	333	307	302	322	320

Source: Estimates of National Product, Central Statistical Organization, Government of India (1969), Tables 3 & 4.

a/ Taken from Fourth Five Year Plan 1969-64, Planning Commission, Government of India (1970) p. 39.

b/ Estimated from Economic Survey 1969-70; Government of India, pp.62 and 64.

1963-64, 1964-65 and 1965-66, taken together. Yet the ratio of net domestic savings to national income was only 8.0 percent in 1967-68 and 8.8 percent in 1968-69 as compared with 10.2 percent in 1963-64 and 11.6 percent in 1965-66 (See Table 6).

Speaking in terms of trends there was, of course, no growth in per capita real income in 1967-68 and 1968-69. The inequalities in the distribution of income (which are considered helpful in increasing savings), nonetheless were further accentuated. The real net domestic product originating in agriculture accounted for 45% of the total in 1967-68 and 44% in 1968-69. Agriculture's share in the total domestic product in money terms on the other hand was about 53 percent and 51% respectively in these two years. The small farmers may have succeeded in recovering to their 1964-65 production levels, yet this was barely adequate for subsistence consumption for their enlarged numbers. The number of rural people below the poverty line in 1967-68 was as large as in 1964-65 (See Table 1) and probably larger in 1968-69. Once again, thanks to government's price policy for agriculture, the relatively rich and surplus-producing farmers (particularly those in the wheat region) were the major beneficiaries of this further shift in incomes in favor of agriculture (as between agriculture and the rest of the economy) as well as within the agricultural sector.

To summarize, the shortfalls in agricultural output in drought years were extremely uneven in their impact on the small and big farmers. Most of the small farmers, who are an overwhelming proportion of the total, had their incomes cut to levels which could hardly support minimal consumption needs. These small farmers had no room left for savings. Further increases

Table 6: National Savings and National Product Aggregates
(Rs. Crores in current prices)

	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1967-68	1968-69
1. Net Savings	1184	1344	1480	1903	2081	2486		
2. Depreciation Allowances	736	811	930	994	1118	1213		
3. Gross Savings (1+2)	1920	2155	2410	2897	3199	3699		
4. N.N.P. at factor cost	13308	14063	14891	17119	20080	20586	27920	29070 ^{a/}
5. N.N.P. at market prices	14256	15143	16156	18685	21864	22672		
6. G.N.P. at market prices	14992	15954	17086	19679	22982	23885		
7. Net Savings/N.N.P. (1 + 4)	% 8.89	9.55	9.93	11.11	10.36	12.07) 8.0 ^{b/}) 8.8 ^{b/}
8. Net Savings/N.N.P. (1 + 5)	% 8.30	8.87	9.16	10.19	9.51	10.96		
9. Gross Savings/G.N.P. (3 + 6)	% 12.80	13.50	14.10	14.72	13.91	15.48		
10. N.N.P. Per Capita (Rs. in 1960-61 prices)	307	311	309	319	333	307	322	320

Notes:

1. Data on net savings and depreciation allowances are from, Estimates of Capital Formation in India, 1960-61 to 1965-66, Central Statistical Organization (CSO), Government of India (1969), p. 13. This publication also gives data on G.D.P. and N.D.P. at market prices (p.15). Estimates of N.N.P. and N.D.P. at factor cost are available in another publication, Estimates of National Product, CSO (1969).
2. a/ Taken from the Fourth Five Year Plan (1969-74), p.39. It represents N.D.P. at factor cost, from which over Rs.300 crores of net factor payments abroad have to be deducted. The comparable N.N.P. figure would be around Rs. 28,630 crores.
3. b/ Net savings ratio of 8% for 1967-68 is taken from the Fourth Five Year Plan (1969-74) Draft, p. 42 and the corresponding number for 1968-69 is taken from the final document of the Fourth Five Year Plan (1969-74). However, the Plan documents are not clear whether this represents the ratio of net savings to N.N.P. at factor cost or at market prices.

in inequalities in incomes in the agricultural sector and much larger income originating with bigger farmers in 1967-68 and 1968-69 (when total real net domestic product in the rest of the economy was approximately 1000 crores higher than the corresponding levels in 1963-64 and 1964-65, average per capita real income had recovered to the average levels of 1963 to 1965 and the extra output, though unevenly distributed, was just large enough to neutralize the scale effects of population growth between 1963-64 and 1968-69) did not produce a larger volume of aggregate savings. Instead, with increased inequalities in the distribution of rural incomes in 1967-68 and 1968-69, the net savings ratio was only 8.0 and 8.8 percent respectively in these two years as compared with 10.2 and 11 percent in 1963-64 and 1965-66.^{2/}

Green Revolution and Misuse of Savings: The untruth of the hypothesis of "more skewness in income distribution and more savings" for India derives further support from the events of the last four years. And the recent experience in the field of agriculture in India also casts a very serious doubt about the alleged existence of a trade-off between social justice and growth. In fact they seem to be moving in the same direction both in the short, as well as, medium-run.

The so called "green revolution" is supposed to have struck its roots in India during the past 4-5 years. The fact of the matter, nonetheless, is that in 1967-68, 1968-69 and 1969-70, the realized foodgrains output (95.1, 94.0 and 99.5 million tonnes respectively in these three years) was well

^{2/} The domestic savings in India are computed by subtracting foreign savings from domestic capital formation figures. Due to the devaluation of the rupee, a little less than one percentage point of the drop in domestic savings in 1967-68 and 1968-69 may be taken as a pure accounting artifact. The remainder of the drop in the savings ratio in these years, however, is real.

below (about 2.5, 6.5 and 4.2 million tonnes respectively) the corresponding trend estimates derived from the data of the "pre-green revolution" era (1951-52 to 1964-65). The data for non-food grains and total agricultural output (See Table 4) speak for themselves. While the new seeds, and even fertilizers, in their use do not by themselves discriminate in favor of the big farmers, the small farmers are unable to derive maximum advantages from them because of the difficulties that they face in the field of irrigation and land development which have already been analyzed in this paper. The seed-fertilizer revolution has not therefore unfolded itself in the form of larger total output^{10/} but in the shape of haphazard expansion of irrigation

^{10/} The only exception seems to be wheat, where the contribution of new seeds has been sizeable though not as dramatic as it is made out to be. In the pre-green revolution year of 1964-65, 13.442 million hectares of land produced 12.257 million tonnes of wheat. By 1968-69 the area under wheat expanded to 15.958 million hectares and total wheat output was 18.652 million tonnes. However, only a part of this increase of 6.394 million tonnes can be attributed to new seeds. By far the larger part of this increase represents the contribution of 2.516 million new hectares of land under wheat, and of other inputs, particularly, irrigation and fertilizers.

The average per hectare yield of wheat in 1964-65 was 0.913 tonnes and wheat yields had been rising steadily at a rate of about 2.5 percent per year between 1950-51 and 1964-65. Extrapolating this past trend, the expected wheat yield in 1968-69 (without new seeds) would have been 1.01 tonne per hectare. The wheat area of 15.958 in 1968-69 would have, therefore, yielded a total output of 16.118 million tonnes. The actual output, however, was 2.534 million tonnes larger. In a total increase of 6.394 million tonnes between 1964-65 and 1968-69, the contribution of new seeds was therefore less than 2.53 million tonnes. Let us note that a good part of these extra 2.53 million tonnes should be attributed to intensification of fertilizer and irrigation use - a degree of intensification which was considerably higher than what would have been expected on the basis of trends in the use of these inputs in the pre-green revolution era (1950-51 to 1964-65). While it is legitimate to doubt if this kind of input intensification would have taken place without the introduction of new seeds, it is necessary to disentangle the effects of these inputs from seeds per se. On the basis of evidence on control plots in the experiments, my guess is that the contribution of seeds per se was not larger than 1.6 to 1.7 million tonnes.

In 1969-70 wheat output went up to 20.09 million tonnes and the area under wheat was 16.63 million hectares.

facilities and a concerted drive for mechanization,^{11/} land purchases, resumption of lands for personal cultivation and increases in conspicuous consumption by the big landholders. Aside from the evidence on increasing income inequalities already analyzed, I wish to emphasize that the limited impact of the green revolution, which has manifested itself in wheat (See Table 4), is confined to a part of North and North-west India. In other words, in the past five years we have witnessed not only a worsening of the income distribution in general, but also an accentuation of the regional dimension of income inequalities.

The choice of new production techniques witnessed in Indian agriculture in recent years is a direct consequence of the extremely unequal distribution of incomes and lands and is not in line with the factor proportions of the Indian economy. While irrigation development is basically land-augmenting, and a good thing, its potential for increasing labor demand is being choked off by mechanization of agricultural operations. Mechanization of tillage, seedbed preparation and post-harvest operations by big farmers, on an individualistic basis,^{12/} is resulting not only in over-mechanization and undue tying up of capital in some areas, but also is displacing agricultural labor.

11/

Approximately 90,000 new tractors (forming about two-thirds of the total stock in 1969-70) were added during the past five years. The number of threshers (particularly wheat threshers) has also been skyrocketing. In the absence of an effective consolidation of land holdings, the addition of over 260,000 private tubewells (approximately two-thirds of existing number in 1969-70) and nearly 1.1 million pump sets during the past four years has not been able to add as much to agricultural output as might be possible with proper realignment of property rights in land. The bunching of these facilities in a haphazard manner is leading to disastrous consequences in some areas. Many of these wells are drying up and big investments are being lost.

12/

Selective mechanization of certain farm operations (to overcome shortages of labor and draft power which peak at short intervals in the rhythm of seasons and crops) could, on the other hand lead to increases in double cropping and also provide more work for agricultural labor. (Cont'd.)

Aside from the tremendous social consequences of this switch in production techniques, the individual economics of these investments in machinery and land purchases seems to make sense only because of the fragmented nature of financial markets in India. It is the under-developed nature of the financial institutions and the lack of suitable financial assets, in which big farmers could invest, that is making them invest in land purchases (at very high prices, quite inconsistent with its productivity) and mechanical equipment. Tractors have also become a new status symbol in the Punjab villages. These kinds of investments are a consequence of extremely unequal distribution of income and under-developed (and fragmented) capital markets; and returns from them (even private returns) are of extremely dubious validity.

On the basis of arguments and facts presented above, I am inclined to conclude that large inequalities in the distribution of income and land are distorting the choice of production techniques in a direction which is not conducive either to an optimal exploitation of the growth potential of agriculture which now exists, or to generation of larger savings in the rural sector. In the absence of redistributive measures, the realignments of property rights in land, consolidation of landholdings and rational development of land and water resources in the manner proposed in this paper, the present inequalities in income and land distribution (which have been on

12/ (continued) Unfortunately, the question of power constraints on agricultural development has not been seriously looked into by agricultural planners of India. A good part of this problem is technical in nature. We have to evolve machines which are suitable for our conditions. A far more important problem, however, consists in devising suitable institutional arrangements for encouraging rational use of these machines. Setting up of machine renting service firms, or machine shops on co-operative lines, could provide the answer. Such arrangements could be of immense value to small and middling farmers in raising their cropping intensities and thereby producing more work for everybody. This kind of mechanization will be basically land-augmenting and will suit the factor proportion in the economy.

the increase during the past five years) will push the choice of production techniques in agriculture even further out of line with the factor proportions of the economy and jeopardise overall growth as well as social justice.

All this is replete with social and economic consequences, particularly because, in the short run, the current strategy is not only unlikely to produce fast growth but also will accentuate abject rural poverty; and, in the long run, there is little chance even for absorbing all the natural increases in rural population outside of the agricultural sector much less reduce the numbers of people already living in the rural areas. Aside from the redistributive measures and consolidation of holdings integrated with land and water development works already proposed in this paper, we are in dire need of a national policy on the question of mechanization of agriculture. And any steps that the nationalized commercial banks can take to provide effective financial intermediation in rural areas, would prove to be a most welcome development in aid of the optimal disposition of rural savings.

V. Consolidation of Holdings and Land Development: Some Questions

Let us now turn to the other, logically distinct and positive, part of the paper which is concerned with an integrated program of compulsory consolidation of land holdings and complementary land and water development works. It must be noted that integration between land consolidation operations and the complementary land development works here is a substantive issue rather than a semantic one. And this issue has rarely been raised or understood in this form. I do not reject rural works programs. My proposal would require a lot more public works in the rural sector and most of them will be highly labor - and skill - intensive. I am, nonetheless, against the

usual type of rural works programs, which are better labeled "distress relief". Many, rather large, rural works programs have left nothing in their wake. In my opinion all these programs have failed because of a faulty strategy of rural development. We must plan together for land consolidation and complementary land development works. Through this route, we can overcome the deficiencies caused by the absence of appropriate information and the problems posed by externalities in this branch of the Indian economy.

It has been pointed out to me that many proposals in the field of land taxes and betterment levies have failed in India. How do I expect to collect a large part of resources for my land consolidation and land development program locally? While this is a good piece of healthy skepticism, my view nevertheless is that the failures on the public-financial front of our land and water development program were inherent in the basic conception and mode of execution of these programs. Land and watershed development programs at the State and national level did not integrate into them the requisite complementary development programs at the field and local level. The mere fact that some farmers and communities are in the designated command of a canal should hardly entuse them to pay betterment levies when a large number of them, for reasons analysed in this paper, are not in a position to derive any tangible benefits from this development. My proposal seeks to provide a framework for integrating the local and field level rural works with the land and watershed development programs of States and regions. (This is still another level at which integration of development efforts is a substantial issue). And also I have proposed a detailed mechanism for assessing the gains from this type of development package to each individual landholder. Furthermore these gains will be assessed as revealed by landholders and not imposed from

above. There is a good chance for this kind of betterment fees for already realized local improvements to be collected locally. Anyhow one thing seems absolutely clear to me. The investments in land consolidation and complementary development works at the field level, which will be comparatively smaller, will increase enormously the efficiency of the big regional and State programs of watershed development envisaged in the Plan. The degree of infructuousness in these programs in the past has been extremely large. This proposal should eliminate many causes of this infructuousness.

The integrated program of land consolidation and complementary development works will not hurt the big fellows, though it may help the small fry relatively more. Although this program is not completely neutral distributionally, I do not label it "radical". Rather, I consider this aspect of the proposal as relatively the easier to undertake and accomplish. I do not think that this part of the proposal will incite insuperable enmity from the existing power structure in rural India.

It has also been pointed out to me that the administrative shortcomings, which have often been responsible for failure of rural works program, will not simply disappear because the works program will be integrated with consolidation of holdings and entrusted to the joint responsibility of the States and Panchayats. A contention of this paper is that the primary cause of administrative shortcomings resides in a faulty understanding of the technical and institutional complexities of the rural resource development programs. It is from this point of departure that I argue in favour of entrusting the job to teams consisting of surveyors, engineers, agronomists, social scientists and administrators. There is absolutely no shortage of technical talent in India. At the latest count we had about 50,000 unemployed engineers and technicians.

Agricultural graduates and administrators are also available in plenty. They have to be welded together in a well defined task of rural resource development. Since most of the rural works in the proposed package of land consolidation and complementary development works are going to be local in character, I argue that their operation, maintenance and collection of fees (and operating charges) had better be made the joint responsibility of the States and Panchayats.

One last question, which has been posed to me in one form or the other, concerns the extent of compulsion that it will be necessary to exercise for getting all landholders to agree to consolidation of holdings and the complementary works. In reply, I first want to point to the accumulated experience with consolidation operations. Over a large part of North India land consolidation (of the defective variety that I pointed out earlier) has already been done. In other areas, farmers have often expressed themselves in favour of consolidation of holdings. Most of the State already have enacted legislation on consolidation of land holdings. Some of this legislation would need to have more teeth in it before it becomes implementable. And a measure of compulsion may also be needed for effective consolidation of holdings to come about. Nevertheless one must not forget that in the affairs of a society, compulsion does not have a set or static meaning. Many social and institutional questions are often resolved through the use of an element of compulsion which develops its own *raison d'etre* and gets classified as suasion. Governmental intervention in economic and social questions, based on decisions favoured by democratic majorities, always carries an element of compulsion for some but a much larger measure of agreement from very many. My judgment is that a vast

majority of landholders in India would favour compulsory consolidation of landholdings for all. I am not worried about the element of compulsion that consolidation might require. I am more worried about the social and political compulsions of a democratic, rural India of 1970's. Some of these compulsions are here for everyone to see - the power of democratic suasion is under great test.

VI. My Policy Proposals and Their Expected Impact on the Rural Poor

An immediate shift towards and sustained application, over the next 10-15 years, of the strategy of rural resource development suggested in this paper could transform Indian agriculture into a very productive sector. Under this strategy, between 50 to 60 per cent of the total cultivated area of the country could achieve its full potential for land and water development. Cropping intensities of 1.75 to 2.0 and per acre yields over one tonne of grain equivalent per crop season could be realized on these lands. A floor of 0.54 acres on per capita land ownership and operation, envisaged in the suggested land redistribution policy, in fully developed lands, should ensure per capita consumption levels comfortably above the normative poverty line of Rs. 200 at 1960-61 prices. A good part of the natural increase in rural population over the next 10 years could also be absorbed in these lands.

In the course of 10 - 15 years that we have allowed ourselves, the remaining 40 - 50 per cent of the cultivated area in the country would have received its complement of development works suited for scientific dry farming. The average cropping intensities in these areas could be pushed up to around 1.1 - 1.2. Intensive research in dry farming techniques and drought-resistant crop varieties could raise per acre yields to about or

over 0.60 tons of grain equivalent. Taking present day agricultural prices, and also allowing for expenses incurred on purchased inputs, per capita operation of land between 0.54 and 0.60 acres in this category should ensure, on an average, a per capita annual level of consumption of just about Rs. 200 at 1960-61 prices.^{13/}

The construction of land development works, in the initial phase, and the increased absorptive capacity of agriculture, when the development potential of land has been laid bare, should provide fuller employment to rural labor and a lot of technical personnel. The second and third round effects of this kind of rural development on the other sectors of the economy could generate more employment and self-sustained growth all around.

A very natural question, however, still remains: will the large masses of the poor have the patience to wait for another decade and a half? In a different context, I could not venture an answer in the positive.^{14/} A determined deployment of the proposed strategy of rural resource development and prompt and sustained implementation of other policy measures suggested in this paper may, however, instill confidence in the minds of the poor. And they may develop a stake in the continuance of a democratic structure of society that we have been trying to build. There is not much time to lose. We must speed up the rate of growth of the economy and modify

^{13/} I wish to emphasize that my expectations on minimum yields on irrigated lands are not higher than present day average yields on these lands; whereas for unirrigated lands my yield assumptions are far less optimistic than those of the agronomists and plant breeders in India.

^{14/} See, Fourth Plan: Objectives and Policy, op. cit, p.68.

the income generation process in favor of the poor in the manner suggested here. Along this route there is a fair chance that the vast millions below the abject poverty line will show willingness to wait because they will have something to wait for.

In the present radical fervor of India, when different political parties are vying with each other in asking for limitation of rights to private property, implementation of the land-redistribution policy proposed in this paper should constitute realistic radicalism. A program of compulsory consolidation of land holdings and complementary public works on the other hand should seem relatively the easier task to undertake and accomplish. It need also be reasserted that the implementation of a radical land-redistribution program is not going to obviate the need for consolidation and complementary rural works. To get the maximum out of land reforms, the integrated program of land consolidation and land development would be just as necessary. And without the reorganization of rural productive apparatus and institutions, the green revolution would also remain stuck at the periphery.

APPENDIX

Table 1: Actual distribution of household ownership holdings and area in 1960-61 and a projection for 1969-70 -- Rural India

Holding size (acres)	1960-61		1969-70		
	Percentage		Number of households (000 nos)	Area (000 acres)	Area owned in ex- cess of 20 acres per holding (000 acres)
	Number of Households	Area			
(1)	(2)	(3)	(4)	(5)	(6)
0.00	11.68	-	10098	-	-
.01 - 0.99	32.53	1.59	28123	5215	-
1.00 - 2.49	15.85	6.00	13703	19680	-
2.50 - 4.99	15.16	12.40	13106	40672	-
5.00 - 7.49	8.29	11.57	7167	37950	-
7.50 - 9.99	4.57	8.97	3951	29122	-
10.00 - 11.99	5.09	13.97	4401	45822	-
15.00 - 19.99	2.47	9.66	2135	31685	-
20.00 - 24.99	1.51	7.60	1305	24928	-
25.00 - 29.99	0.86	5.33	744	17482	2602
30.00 - 49.99	1.39	11.78	1202	38638	14598
50.00 and above	0.60	11.13	519	36506	26126
Total	72466 (000 nos)	317861 (000 acres)	86454	328000	43326

SOURCE: Data for 1960-61 are taken from N.S.S. Number 140, (I.S.I) P. 11.

APPENDIX

Table 2: Projected distribution of household operational holdings, area operated and owned --- Rural India: 1969-70

Size class of household operation holdings	Estimated households		Estimated area operated		Average No. of persons per household	Total number of person in each size class 000 Nos	Estimated area operated (in acres)		Estimated area owned		
	000 Nos.	as % of total	(000) acres	as % of total			per household	per person	percentage	Total area 000 acres	per person acres
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
0	22703	26.26	-	-	4.52	102618	-	-	-	-	-
upto - 0.49	8377	9.69	1122	0.33	2.71	22702	0.13	.049	75.53	847	.037
0.50 - 0.99	5196	6.01	3298	0.97	4.59	23850	0.63	.14	70.54	2623	.11
1.00 - 2.49	13513	15.63	19618	5.77	4.77	64457	1.45	.30	83.78	16436	.25
2.50 - 4.99	13980	16.17	43350	12.75	5.27	73675	3.10	.59	85.71	37155	.50
5.00 - 7.49	7793	9.02	40766	11.99	5.85	45618	5.23	.89	87.65	35731	.78
7.50 - 9.99	4158	4.81	30734	9.04	6.13	25488	7.39	1.21	88.74	27273	1.07
10.00 - 12.99	2974	3.44	28322	8.33	6.54	19450	9.52	1.46	92.36	26158	1.34
12.50 - 14.99	1712	1.98	20264	5.96	6.70	11470	11.84	1.77	93.38	18923	1.65
15.00 - 19.99	2187	2.53	32334	9.51	6.91	15112	14.78	2.14	94.18	30452	2.02
20.00 - 24.99	1297	1.50	24684	7.26	7.40	9598	19.03	2.57	94.83	23408	2.44
25.00 - 29.99	752	0.87	17648	5.19	7.24	5444	23.47	3.24	93.98	16586	3.05
30.00 - 49.99	1245	1.44	40154	11.81	7.84	9761	32.25	4.11	92.44	37118	3.80
50.00 and above	562	0.65	37706	11.09	8.73	4906	67.09	7.69	93.18	35134	7.16
All size	86454	100.00	340000	100.00	5.02	433999 ^{1/} (331381)	3.93 (5.33)	.78 (1.03)	90.54	307836	0.71 (0.98)

^{1/} Due to rounding errors, the column total will not agree with this number. Figures in brackets are derived after excluding households operating no land.