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TRANSMIGRATION:
THE REGIONAL IMPACT OF A MIRACLE CURE[1]

Introduction

An independent, overall evaluation of the impact, and the wisdom, of Indonesia's largest land settlement program --- transmigration --- and its supporting policies is long overdue.

A program with so many goals --- some explicit, and some, perhaps, unwritten --- and one which appears to be expanding at an exponential pace, cries out for answers to a host of questions. What is the program achieving for Java, Bali and Lombok, the central Indonesian islands from which the migrant settlers come? How does it change the socioeconomic --- and the natural --- landscape of the regions of settlement, the 'outer islands'? Do the settlers themselves prosper? Are the vast sums of Indonesian and foreign capital investments involved most wisely spent on such land settlement projects? How long can the program continue? In short, why transmigration?

In actual fact, we simply do not know much, in any systematic detail, about the overall impact of transmigration. This article is an initial attempt to marshall a portion of the evidence that does exist and to extract from it some implications for the future shape of the program. In keeping with the theme of this book, explicit focus is placed on the impact of transmigration on the Indonesian periphery, the location of transmigration settlements. For however we evaluate the results of the program in terms of demographic, economic or ecological impact, it remains clear that for many years transmigration has been a most visible manifestation of the penetration of the Indonesian center into the landscape of the major islands of the periphery.

The Transmigration Program and Its Policies

Transmigration is the largely government planned and financed movement of chiefly farming people from Java, Bali and Lombok to agriculture-based settlements in the outer islands.[2] The term 'transmigration' also covers self-motivated and self-financed ('spontaneous') migrants who move into or near to already established transmigration projects and open up land on their own. While its roots go back to the quite similar though relatively tiny 'colonization' program of the Dutch administration in the first decades of this century, the program has recently undergone such a massive expansion that today it is counted among the largest agriculture development programs in the world[3]. Up to the beginning of the Second World War, the program had moved some 200,000 people, while between 1950 and 1969 almost 425,000 people were resettled.[4] During the first Indonesian Five-year Plan (Repelita I: 1969-74) some 200,000 people were moved, while in Repelita II (1974-79) roughly a quarter of a million were relocated under the government-sponsored program. In the current Repelita (III: 1979-84) targets are in excess of two million people, and initial figures suggested for Repelita IV are in the neighborhood of 800,000 to 1,000,000 families.

Under the scheme that pertained up to the program re-organization of mid - 1983, the Department of Public Works was responsible for selecting suitable areas for settlement, for physical planning and road construction. This department also prepared land for residential and agricultural purposes, either through clearing forests or through reclaiming swamplands or savanna grasslands.[5] Depending on the model used, settlers are provided with two to five hectares of land, though usually only 1.25 hectares is actually cleared for them with the remainder to be opened up by the settlers in the following years. The Department of Home Affairs is responsible for initial land use surveys, project boundary measurement and surveying and providing

title to individual plots of land. The Department of Transmigration selects and transports the settlers and provides houses, water supplies, community facilities, food supplies for 12-18 months, some tools and training, and project administration for roughly five years from the time of settlement until the handing over of the project to local government authorities. The Department of Agriculture provides planting materials and other agricultural inputs for three years plus extension services. Other agencies, such as Education, Health and Cooperatives, are involved to a greater or lesser extent. It requires little imagination to see that the management of such a huge and complex program is fraught with tremendous practical as well as political difficulties, which the government has recognized, though only partially solved, by the creation of a variety of interagency management and coordination structures.

Over the years, the emphasis of the transmigration program has varied somewhat, as to whether it is essentially a population distribution measure or a program for resource development. In fact, the program today has such a plethora of objectives that one cannot escape the impression that it is conceived as a magic solution for most of the troubles that weigh so heavily on the nation.

The basic legislation providing for the transmigration program is Law No. 3 of 1972, wherein the goals of transmigration are set out as follows:

1. improved living standards
2. regional development
3. more balanced population distribution
4. equitable distribution of development across the country
5. utilization of natural and human resources
6. national unity
7. national defence and security.

Some comments are necessary to clarify these goals. Achieving a 'balanced' population distribution has been the major, and for

many people including some senior government officials even today, virtually the only objective of transmigration. Reduced to its simplest and most common expression, the problem is seen to be one of Java, with less than 7% of Indonesia's land area, having some 62% of the nation's population (1980 census) and a population density of 690 per square kilometer. Thus, the argument runs, Java is overpopulated and the outer islands are sparsely populated. This simplistic argument, as will be discussed below, pays no attention to immense differences in the resource bases of the two areas, and thus their respective carrying capacities or ideal man:land ratios. Yet, the idea of eventually evening out population density across Indonesia continues to evince great support.

Equitably distributing development projects and programs across the country is a praiseworthy goal in any country. In Indonesia, however, it must be particularly understood in the context of the regional revolts of the 1950s and early 1960s against the central government and Javanese domination of the country, and must be viewed as well against the natural tendency towards visible accumulation of development projects in areas of obvious population concentration. National unity must also be seen in this context. Quite understandably, a country composed of such a diversity of cultures, ethnic groups and religious communities has long been preoccupied with forging a unified nation. Precisely how transmigration is supposed to aid this effort, however, is not spelled out. Frequent use is made of the term 'asimilasi', but the simplistic operational definition of assimilation in transmigration circles is merely intermarriage between a transmigrant and a non-transmigrant. In essence, it appears to be felt that spreading large numbers of Javanese (and lesser numbers of Sundanese, Balinese, Madurese and Sasaks) across the ethnic mosaic of the outer islands will somehow increase consciousness of and adherennce to the nation's 'unity in diversity' philosophy. Strengthening national defence and resilience is conceptually linked to this point:

emphasis is in theory placed on locating settlements in border areas (e.g. on Natuna Island in the South China Sea) and also on settling retired or semi-active armed forces families in transmigration projects throughout the country. It is likely, too, though not explicitly stated, that establishing in the outer islands large concentrations of 'central Indonesians', presumably loyal to the central government, is conceived as a counterbalance to possible regional disaffection.

Improved utilization of human and natural resources appears to be a very straightforward aim, directed towards increasing the productivity of underemployed migrants from Java and Bali and exploiting underutilized resources, particularly land, in the 'periphery'. However, as we shall see below, there are not only physical but also ideological or political constraints on how these resources should be exploited, which have grave consequences for the quality of the projects that are set up. In particular, a related government policy from another sector, that of achieving selfsufficiency in major foodstuffs (particularly rice), has had a profound effect on the shape, and level of success, of the transmigration program as a whole.

Finally, a comment on the goal of regional development is necessary. Presumably in realization of the fact that transmigration as a population measure is fairly weak, the General Clarification of Law No. 3 of 1972 states that not population redistribution but implementing development projects to raise national productivity is the main goal of the program. Transmigration therefore must support and be integrated into the development of particular regions, so that a series of linked development centers will grow up with economies strong enough to attract self-motivated settlers to the area. Indeed, since the early 1970s, the concept of integrated regional and area development planning, as opposed to strictly sectoral planning, has become increasingly popular in planning circles in Indonesia. A main part of the evaluative material presented

below will be devoted to determining just how far transmigration has contributed to regional development, in a planned or unplanned manner.

What is most important to remember in a discussion of the goals of transmigration, however, is that the program has a momentum --- and an ever increasing one --- of its own. While the goals of the program, and the supporting framework of ideas surrounding it, have been reworked from time to time, the program itself has persisted, and continuously if erratically expanded, over the decades, and its continuing existence has never been much in doubt. Indeed, so entrenched, even 'sacred', a part of national policy and consciousness is transmigration that it has rarely been subject to probing public criticism. The media, as well as various research reports, do indeed criticize certain aspects of the program, and more commonly the failure of particular projects, but they attempt no overall evaluation.[6]

This article represents an effort to stimulate a critical debate on the wisdom of transmigration, focussing explicitly on the results of the program during the First, Second and first part of the Third five-year plans (1969-83).

The Regional Impact of Transmigration

In examining the regional impact of the transmigration program, the discussion below will focus on eight broad areas: demographic changes, agricultural development, ecological impact, physical infrastructure development, socio-economic infrastructure development, employment creation, general social and political impact, and the importance of the program in regional (provincial) development budgets. Changes in many of these areas are not easy to measure. Nevertheless, we will be able to form a reasonably useful picture of the multifaceted nature of the program's impact. We will also

see that in a number of areas, the impact has been fairly minor, whereas in others the attendant changes have been relatively significant.

Population Changes

While demographic changes in the sending and receiving provinces do not in themselves describe actual changes in conditions of life in the regions, they do show us where to look for such significant impacts. Data on this point, while not recorded in the detail nor the manner ideally required for analysis of this kind, is nevertheless of higher quality than that available for other examples of impact discussed below, and is somewhat more readily available.

Estimated Repelita I and II transmigration population formed some 1.4% of the population of the provinces of settlement in 1980, ranging from 0.04% in North Sumatra to 5.6% in Jambi.[7] Table I shows that other provinces where population composition was changing relatively rapidly as a result of sponsored settlement included Bengkulu, Central Sulawesi and Southeast Sulawesi. It was in these four provinces, plus South Kalimantan, that sponsored migration formed a relatively large component of total provincial population growth as well. In general, transmigration accounted for some 5.8% of total provincial population growth in the eighteen provinces of settlement. It must be remembered, however, that these figures do not include self-financed settlers, whose numbers are only in 1983 beginning to be recorded with any regularity; self-financed settlement was important largely in Lampung, where sponsored transmigration formed less than 8% of the province's net in-migration.[8] As to the effects of transmigration on the population of central Indonesia, it need only be stated that the 1980 transmigration population in the outer islands was equivalent to less than 0.7% of the 1980 population of Java, Bali and Nusa Tenggara Barat.

In the first four years of Repelita III, new sponsored settlement was the equivalent of 1.8% of the receiving provinces' estimated population and 13.5% of estimated population growth. New transmigration made up 3% or more of provincial population in Riau, Bengkulu, South Sumatra, Central Kalimantan, Central and Southeast Sulawesi and Irian Jaya. It also comprised more than 10% of provincial population growth in all provinces except North Sumatra, West Sumatra, Lampung and South and North Sulawesi, ranging up to 45% in South Sumatra (see Table II). Clearly, with Repelita III, transmigration began to become a very visible program in much of the outer islands.[9] With such significant changes in population composition in parts of the provinces of settlement, we might expect to see changes of roughly similar magnitudes in other aspects of life in the province. The sections below examined this proposition.

One effect of transmigration on local population composition that has not often been commented on is that the program should to some extent lower the age structure in the provinces of settlement. While a number of older dependants do migrate, transmigrant families are generally relatively young; the household head should be no more than 40 years of age. In addition, transmigrant couples are likely to be fertile, and with the apparent abundance of land in their new settlements, may be less inclined to limit the size of their families than if they had remained in Java. This topic would be a most useful subject for detailed demographic research.

TABLE I

POPULATION IMPACT OF REPELITAS I AND II TRANSMIGRATION (1969/70-1978/79) ON PROVINCES OF SETTLEMENT(a)

PROVINCE (1)	PROVINCIAL POPULATION ('000 Persons)		TRANSMIGRANT POPULATION ('000 Persons)		TRANSMIGRANT RATIO (%)	
	Census 1980 (2)	Growth since 1971 (3)	Settled in Repelitas I+II (4)	Estimated at 1980 (E) (5)	To Total Population (5÷2)	To Provincial Population Growth (5÷3)
ACEH	2,611	602	10	11	0.4	1.8
N. SUMATRA	8,361	1,739	3	3	0.04	0.2
RIAU	2,169	517	17	19	0.9	3.7
W. SUMATRA	3,407	614	24	27	0.8	4.4
JAMBI	1,446	440	72	81	5.6	18.4
BENGKULU	768	249	29	32	4.2	12.9
S. SUMATRA	4,630	1,189	101	113	2.4	9.5
LAMPUNG	4,625	1,848	85	95	2.1	5.1
W. KALIMANTAN	2,486	466	23	26	1.1	5.6
C. KALIMANTAN	954	252	11	12	1.3	4.8
S. KALIMANTAN	2,065	368	38	43	2.1	11.7
E. KALIMANTAN	1,218	484	27	30	2.5	6.2
N. SULAWESI	2,115	396	10	11	0.5	2.8
C. SULAWESI	1,290	376	52	58	4.5	15.4
S. SULAWESI	6,062	881	39	44	0.7	5.0
SE. SULAWESI	942	228	32	36	3.8	15.8
MALUKU	1,411	321	3	3	0.2	1.3
IRIAN JAYA	1,174	251	4	5	0.4	2.0
T O T A L	45,248	11,219	580	649	1.4	5.8

(a) Adapted from "Evaluasi", Table 5.2, p. 194; some of the 1978/79 target was not actually settled until after the end of Repelita II.

(b) Weighted average of settlement by year at 2.5% per annum, equivalent to 12% increase since settlement.

Agriculture Development

Extent and Patterns of Cultivation.

It is estimated that by 1983 some 6,000 square kilometers of forests, swamps and grasslands had been cleared and put under cultivation for and/or by the settlers, roughly 0.4% of the total land area of the provinces of settlement (see Table III). Considerably more than this amount has actually been distributed to settlers in the form of uncleared land to be developed by the farmers themselves as time and energy permit; in general, however, such reserve land is slow to be brought into production.

Variation in the scope of land development in the various provinces can be seen in Table III. For Repelita I and II settlements, an average figure of 1.75 ha. of land worked per family has been assumed in making estimates: this is based on Department of Transmigration figures of 1.54 ha. and 1.92 ha. reported in well established villages evaluated in 1980/81 and 1981/82 prior to being transferred from the Department to the local authorities.[10] For Repelita III settlements to 1983, a figure of 1.5 ha. has been assumed, to include the 1.25 ha. clean-cleared for settlers prior to arrival plus an allowance for some land they may have cleared on their own. The figures are admittedly rather crude and give little indication of the quality of the land or the use to which it is put; nevertheless the orders of magnitude are clearly revealed.

What the figures in Table III show us is that land cultivated by transmigrants as a percentage of provincial land area is nowhere very large. Figures range from 0.04% in Irian Jaya to 1.7% in Lampung; only Southeast Sulawesi, South Kalimantan, South Sumatra, Bengkulu, Lampung and Jambi approach or exceed 1%.[11]

A somewhat better indicator of the scope of land utilization can be gained by comparing transmigrant land cultivated with the total amount of land under cultivation in the provinces. The latest systematic figures for provincial land use come from the Agricultural

TABLE II : POPULATION IMPACT OF REPELITA III TRANSMIGRATION (1979/80-1982/83)[a] ON PROVINCES OF SETTLEMENT[b]

PROVINCE	PROVINCIAL POPULATION ('000 Persons)			TRANSMIGRANT POPULATION ('000 Persons)			NEW TRANSMIGRANT RATIO	
	Census 1980	Estimated 1983 Population at 2.5% p.a. (Without Migration)	Estimated Natural Increase in Three Years	Transmigrant Population Settled First Four Years Repelita III	Estimated Total Population 1983 (3 + 5)	Estimated Total Increase In Three Years (4 + 5)	New Transmigrant Ratio	
							To Total Population (5 ÷ 6)	To Growth In Population (5 ÷ 7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ACEH	2,611	2,812	201	37	2,849	238	1.3	15.5
N. SUMATRA	8,361	9,004	643	17	9,021	660	0.2	2.6
RIAU	2,169	2,336	167	113	2,449	280	4.6	40.4
W. SUMATRA	3,407	3,669	262	15	3,684	277	0.4	5.4
JAMBI	1,446	1,557	111	41	1,598	152	2.6	27.0
BENGKULU	768	827	59	34	861	93	3.9	36.6
S. SUMATRA	4,630	4,986	356	294	5,280	650	5.6	45.2
LAMPUNG	4,625	4,981	356	0	4,981	356	-	-
W. KALIMANTAN	2,486	2,677	191	54	2,731	245	2.0	22.0
C. KALIMANTAN	954	1,027	73	52	1,079	125	4.8	41.6
S. KALIMANTAN	2,065	2,224	159	60	2,284	219	2.6	27.4
E. KALIMANTAN	1,218	1,312	94	36	1,348	130	2.7	27.7
N. SULAWESI	2,115	2,278	163	14	2,292	177	0.6	7.9
C. SULAWESI	1,290	1,389	99	47	1,436	146	3.3	32.2
S. SULAWESI	6,062	6,528	466	12	6,540	478	0.2	2.5
SE. SULAWESI	942	1,014	72	61	1,075	132	5.6	45.5
MALUKU	1,411	1,519	108	27	1,546	135	1.7	20.0
IRIAN JAYA	1,174	1,264	90	45	1,309	135	3.4	33.3
T O T A L	45,248	51,404	6,156	959	52,263	7,114	1.8	13.5

(a) Data for transmigrants settled to Feb. 1983. (b) Data adapted from "Evaluasi", Table 9.3, p.195 and from the Office of the Junior Minister of Transmigration, Data Section.

Census of 1973; nevertheless they provide a useable rough basis for comparison.[12] From Table III it can be seen that the impact in certain provinces has been relatively great: figures range up to almost 26% for East Kalimantan, 23% for Southeast Sulawesi, 21% for South Sumatra, 18% for Jambi, 16% for Bengkulu, 14% for South Kalimantan, and 13% for Central Sulawesi, with the others falling below 10%. Much of the land cleared, it should be noted, has actually been done in a relatively short span of time in the last few years, i.e. the early part of Repelita III.

It would be ideal to know what portion of potentially arable land is being exploited by transmigrants, but we do not. It is clear, however, that much of the settlement program is now taking place on land that is agronomically, ecologically or economically poorly suited to food crop agriculture --- which remains the major emphasis of the program. It is only to be expected that the most suitable such lands, with few exceptions, have long been put under cultivation by local populations. Fully three-quarters of Repelita settlements are located on dryland/upland areas, mostly without irrigation, and particularly in central Sumatra (by far the largest settlement area) as well as much of Kalimantan, the soils are simply low in nutrients and acidic as well.[13] Given high input costs and poor infrastructure, plus complex farm management problems, applications of the necessary amounts of fertilizers and soil conservation measures have turned out to be impracticable other than on test farms.[14] Such areas are often highly suited to tree crops, particularly rubber, which has been successfully introduced in a few projects such as Rimbo Bujang in Jambi. In general, however, tree crops are so far considered as secondary activities and only sporadically planned for.

It is not surprising, then, that under various 'crash programs' some serious mistakes have been made in choice of settlement location and subsequent farm model; examples that may be cited include Sitiung

TABLE III

CULTIVATED LAND IN TRANSMIGRATION PROJECTS : 1969-1983

Province	Total land area (sq. km.)[a]	Land area farmed 1973 (sq. km.)[b]	Transmigration land worked (sq. km.)[c]	T. land worked as % of province area	T. land worked as % of 1973 province land worked
Aceh	55,392	3,737	176	0.3	4.7
N. Sumatra	70,787	8,055	76	0.1	0.9
Riau	94,562	5,072	484	0.5	9.5
W. Sumatra	49,778	3,448	151	0.3	4.4
Jambi	44,924	2,413	434	1.0	18.0
Bengkulu	21,168	1,538	242	1.1	15.7
S. Sumatra	103,688	7,031	1,483	1.4	21.1
Lampung	33,307	6,733	562	1.7	8.3
W. Kalimantan	146,780	9,820	287	0.2	2.9
C. Kalimantan	152,600	5,241	235	0.2	4.5
S. Kalimantan	37,660	2,695	372	1.0	13.8
E. Kalimantan	202,440	925	236	0.1	25.5
N. Sulawesi	19,023	3,518	89	0.5	2.5
C. Sulawesi	69,726	2,832	378	0.5	13.3
S. Sulawesi	72,781	7,375	196	0.3	2.7
SE. Sulawesi	27,686	1,511	346	1.2	22.9
Maluku	74,505	2,600	110	0.1	4.2
Irian Jaya	421,981	n.a.	182	0.04	-
T o t a l	1,698,788	74,544	6,038	0.4	8.1 (excluding Irian Jaya)

[a]Source : Buku Saku Statistik Indonesia 1979/80, Biro Pusat Statistik, Jakarta, 1980

[b]Source : 1973 Agriculture Census, quoted in "Evaluasi", Table 9.4, p.196

[c]Calculated from Repelita I and II data from "Evaluasi", Table 9.4, and for Repelita III from population figures in Table II of this text, increased by the figures for local people settled in transmigration projects (roughly 10% of total), for whom land is also cleared. A figure of 1.5 ha. of land per family, and 4.5 individuals per family, is assumed.

in West Sumatra, Pasir Pangarayan in Riau and Sintang in West Kalimantan. While the extent of such mistakes is hard to estimate, it must be correct that if accelerated crash programs continue, increasingly marginal land will be cleared for settlement. With food crop yields, virtually guaranteed to decline after the first couple of cropping seasons because of the above mentioned and other conditions (such as pests, drought), the future looks bleak indeed for many of these settlements.

An equally crucial aspect of this issue is the effect of transmigration on the agricultural patterns of the local populace. In many or most of these areas, various forms of extensive, shifting cultivation, sometimes with a tree crop component, have been practised for centuries, and with low population densities are ecologically sound. Influxes of transmigrants intending to practise more 'sedentary' forms of agriculture on fixed plots (combined of course with local natural population growth) tend to limit the relatively large amounts of land needed for swidden cycles. It is probable that this is an important factor in the problem of land claims by local societies on transmigrant settlement, an almost intractable feature of transmigration projects across the country.[15] Despite good intentions to change local patterns of agriculture, using the patterns of transmigration settlements as models, this is simply not possible to any great extent in a relatively short time, since (a) such processes of social change are complex and lengthy, and (b) as mentioned earlier, appropriate alternate food crop models acceptable to local farmers do not yet appear to exist. Indeed, signs are present in several parts of the country that transmigrant settlers themselves are forced to adopt various elements of shifting agricultural systems into their own practices.[16]

The situation is somewhat different in a number of sites, particularly from Repelita I and II and mainly in Sulawesi, which have been provided with irrigation systems: besides giving transmigrants

the possibility of achieving reasonable sustained yeilds on sedentary plots, in some cases local people benefit from the new technology as well. In terms of the overall program size, however, provision of irrigation is fairly limited.

The UNDP/OPE Management and Monitoring Team concludes in its evaluation of transmigration settlements that 'the foremost constraint on the economic development of the Repelita I and II transmigration program has been the very land development model chosen'. The lack of agricultural progress has been primarily a result of the forced application of a farming system on agro-environmental conditions largely unfavorable to such a system.[17] The chief current model, an allocation of 3.25 ha. per family with 1.25 ha. clean-cleared for planting to food crops on dryland/upland areas without irrigation, yet with little planning involvement from the Directorate-General of Food Crop Agriculture, may well be for reasons suggested above a recipe for long-term disaster.[18]

Agriculture Production : Food Crops

In the government's eyes, the single most important, and often the only, indicator of the agricultural health of a transmigration project is its production of rice. Table IV presents some data comparing annual transmigrant and total provincial rice production. While provincial figures quoted are based on reports from the regions, transmigrant production is based on estimates, in part because data from older projects handed over to the local administration is no longer recorded by the regional transmigration offices. On the basis of surveys conducted by the Department of Transmigration, an average Repelita I/II transmigrant family is assumed to cultivate one hectare of padi, and to produce 1.25 tons per hectare (except in Sulawesi where due to irrigation and better soils average yields are assumed to be 2 t/ha.). Great caution should be taken in using all these, however: they show mainly orders of magnitude and comparisons rather than precise yield data.

Overall transmigration padi production in 1980 was estimated at roughly 185,000 tons, equivalent to 1.9% of total rice production in the provinces of settlement and 0.6% of Indonesian rice production (see Table IV).[19] Comparisons of areas planted to rice show areas in transmigration settlements to be 3.5% and 1.4% of total province of settlement and national areas respectively. With the notable exception of Irian Jaya, not a traditional rice-growing area, the only provinces where Repelita I and II transmigrants appear to contribute significantly to provincial rice production are Jambi, Riau, South Sumatra, Lampung, East Kalimantan, and Central and Southeast Sulawesi.

Follow-up on transmigrant contribution to incremental rice production

Similar calculations made for corn production, estimating transmigrant yields at one ton per hectare, with a third of a hectare cultivated per family, indicate that transmigrant corn production was equivalent to 5.3% of provincial production and 1.1% of national production.[20] Other important food crops grown on transmigration projects include cassava, legumes, fruits and vegetables, but comparative data is less consistently available.

For Repelita III, an assumption of one hectare of rice per family with a yield of 1.25 tons per hectare is used throughout, since the majority of projects are located on dryland areas. Estimated rice production of Repelita III settlers is equivalent to some 3.3% of 1980 provincial rice production, and 1.06% of national production. With the exception of Jambi, the same provinces as in Repelita I and II show up as registering the greatest transmigrant contribution to rice production, with the addition of Maluku and Central Kalimantan.

The overall picture that emerges, then, is that in certain areas the transmigration program has succeeded in increasing food production to a significant extent, but in other areas, and in the nation as a whole, the contribution has been limited indeed. It should also be pointed out that while useable countrywide data on the point is not available, UNDP team field visits indicate that

TABLE IV

ESTIMATED IMPACT OF TRANSMIGRATION ON RICE PRODUCTION[a]

PROVINCE	REPELITA I AND II					REPELITA III (TO 1983)		
	AREA CULTIVATED ('000 Ha)		PRODUCTION ('000 Tons/Ha)			AREA CULTIVATED BY TRANSMIGRANTS ('000 Ha)[b]	PRODUCTION ('000 Tons)	TRANSMIGRANT PRODUCTION AS % of 1980 PROV. PRODUCTION
	Province 1980	Transmigration	Province 1980	Transmigration	Total Production as % of Prov. Production			
ACEH	226.3	2.2	679.0	2.8	0.4	9,167	11.5	1.7
N. SUMATRA	523.3	0.7	1,480.7	0.9	0.06	4,240	5.3	0.4
RIAU	134.6	3.7	276.0	4.6	1.7	27,940	34.9	12.6
W. SUMATRA	289.5	5.4	1,012.1	6.8	0.7	3,780	4.7	0.5
JAMBI	147.0	16.1	388.1	20.1	5.2	10,153	12.7	3.3
BENGKULU	70.0	6.6	179.4	8.2	4.6	8,455	10.6	5.9
S. SUMATRA	359.0	22.5	890.2	28.1	3.2	72,570	90.7	10.2
LAMPUNG	272.1	19.0	702.9	23.8	3.4	15,345	19.2	2.7
W. KALIMANTAN	304.1	5.1	580.8	6.4	1.1	13,233	16.5	2.8
C. KALIMANTAN	123.6	2.5	212.0	3.1	1.5	12,800	16.0	7.5
S. KALIMANTAN	289.6	8.5	688.7	10.6	1.5	14,890	18.6	2.7
E. KALIMANTAN	78.2	6.0	131.8	7.5	5.7	8,750	10.9	8.3
N. SULAWESI	98.1	2.1	264.2	4.2	1.6	3,440	4.3	1.6
C. SULAWESI	101.2	11.7	200.2	23.4	11.7	11,570	14.5	7.2
S. SULAWESI	607.8	8.7	1,829.7	17.4	0.95	2,850	3.6	0.2
SE. SULAWESI	31.7	7.2	49.6	14.4	29.0	14,750	18.4	37.1
MALUKU	22.5	0.6	16.5	0.8	4.8	6,650	8.3	50.3
IRIAN JAYA	1.0	0.9	1.6	1.1	68.8	11,080	13.9	868.8
T O T A L	3,679,8	129.2	9,583,5	184.2	1.9	251,760	314.7	3.3
TOTAL INDONESIA	9,018,3		29,734,0		0.6			1.06

(a) Adapted from "Evaluasi" Table 9.5, p. 197. (b) Includes local settlers in transmigration projects

there is in general very little rice surplus for sale in transmigration projects, with some exceptions in Sulawesi and in tidal swamp projects. On the other hand, cassava from transmigration projects often faces a glutted market. Finally, it should be remembered that food crop production on the majority of projects which are based on dryland farming systems will inevitably decline over the years, unless soil conservation measures are practised and cheap and regular supplies of fertilizer and other inputs become available.

Non Food Crop Production.

Transmigrants generally plant a small number of tree crop and fruit seedlings on their plots, with planting material both supplied by the projects and procured by themselves. Major tree crops have been coconut, clove, and coffee. In most cases, existing data indicates that these crops are not significant in terms of total provincial (and certainly not national) production. In more recent years, a few projects in Sumatra have been provided with smallholder rubber plantings (e.g. at Way Abung, Baturaja, Rimbo Bujang), and more tree crop expansion is planned. While the impact on local production figures of some of this expansion will eventually be important, only a small proportion of transmigration settlements may be involved.

Livestock can be an important component in the welfare of transmigrants, and small numbers of animals are distributed or acquired in many settlements. Rough data for Repelita I and II settlements in 1979 shows, however, that except for West Sumatra, Jambi, South Kalimantan, and Maluku, cattle (mostly cows) possessed by transmigrants were only a very small fraction of provincial totals (and only 1.5% of the total of all receiving provinces). With the animals being mostly used for farmers' own purposes, it does not appear that cattle production has a great local impact. From available data it can be calculated that holdings of chicken

per transmigrant family are greater than those of the average provincial family; nevertheless, transmigrant poultry raising in general accounts for only some 1.8% of poultry raised in the 18 receiving provinces, and only in Jambi, East Kalimantan and South-east Sulawesi would it appear to approach or exceed 10%.

Ecological Impact

The foregoing discussion of agricultural systems has hinted at the nature of the impact of settlement programs on the ecology of the regions, and this is indeed becoming a question of increasing national concern.[21] Many of the ecosystems in the outer islands of Indonesia are notoriously fragile, yet with low population densities provide adequate livelihood under shifting cultivation systems. The influx of transmigrant settlers hoping to practise foodcrop cultivation on permanent plots of land threatens the viability of these systems. Not only is pressure placed on local shifting cultivation systems, but transmigrants themselves, faced with declining yields on infertile dryland soils and enjoying possibilities of more profitable employment off-farm, frequently have neither the motivation, the resources nor the labor to intensively cultivate their plots, which then become invaded by imperata cylindrica grass making further cropping increasingly difficult. While new settlements are planned for food crop cultivation only on land with less than 8% slope, the absence of erosion control and soil conservation measures is increasingly being recognized as a serious threat in many areas. Further, transmigration projects not only destroy the natural habitat of many forest creatures,[22] but are themselves severely affected by plagues of rats, wild pigs, monkeys and other animals and insects, whose population is no doubt sustained and even increased by the crops grown by the settlers. The destruction of crops by animal predators in fact should be classified as a national disaster.

The viability of sustained food-crop agriculture in settlements in the 'reclaimed' tidal swamp areas is also subject to question: salt water intrusion is a major problem here. Again, indigenous systems of exploitation of tidal swamps do not depend on permanent cultivation of rice but rather are a variant of shifting cultivation which commonly replaces rice with coconut after several years.

The most serious source of ecological damage resulting from transmigration projects, however, is the destruction of vast areas of tropical rain forest, replacing them with generally unsuitable and unstable farming systems. The Directorate-General of Forestry (since April 1983 the Department of Forestry) has begun to take a stronger position on protecting the rapidly diminishing stands of tropical forests, and the inherent conflict between transmigration and forest preservation and exploitation is becoming increasingly explicit.[23]

As evidence of heightened national concern over the ecological issue, the Ministry of Population and the Environment has been paying special attention to ecological aspects of transmigration settlements, the Department of Agriculture is beginning to promote soil conservation in transmigration areas (and to become more directly involved in settlement planning), while the World Bank's third loan for transmigration provides for environmental technical assistance to the government to promote solutions to the problems.

Physical Infrastructure

While physical infrastructure in early Repelita settlement areas was of such poor quality as to seriously retard development in project locations, increasingly large amounts of capital have been allocated to road, bridge and wharf construction, particularly with the post-1978 direct involvement of the Department of Public Works in the transmigration program. Available data on actual physical infrastructure construction is sketchy, and does not allow us to determine what proportion of total new road construction or local road improvement in a province has been due to transmigration projects (or to what extent expenditure on transmigration roads had led to the deferment of expenditure on other local roads). The massively expensive upgrading of the Trans-Sumatra Highway, however, has been explicitly linked to the development of transmigration, whereby Ministerial Instruction No. 6 of 1977 allocates unused land 15

Come on Tim - Should have been done 30 years ago

kilometers on the left and right of the highway for transmigration projects. In Jambi, rehabilitation of two important provincial roads, Jambi city to Muara Bungo, and Muara Tembesi to Sarolangun, was also undertaken in part to support the large transmigration projects planned and financed under the second World Bank transmigration loan. Similar cases can be cited for some other parts of Indonesia, such as Luwu in South Sulawesi.

While development of physical infrastructure related to transmigration projects has clearly been important in the general development of specific local areas, it is equally clear that many transmigration projects are increasingly being provided with roads of much higher quality than nearby local rural areas. This can also be true of the construction of wharves and jetties in tidal swamp and coastal areas. It should also be pointed out that the transmigration program is now the direct cause of the construction or rehabilitation of a small number of airports and landing strips (e.g. Sintang in West Kalimantan), since most movement of settlers takes place via air.

Some rough data on road construction in Repelita settlements up to 1983 is shown in Table V, where estimates of road construction within or providing direct access to transmigration sites are compared to total length of provincial road systems as of 1980. Figures for transmigration roads are calculated on the basis of Department of Public Works figures of 26.25 km. of village roads and 6 km. of access roads per village unit (average 500 families). Access roads to transmigration sites appear to be equivalent to some 11% of the 1980 provincial asphalt/gravel road network, while dirt roads within project sites are equivalent to some 47% of the 1980 provincial network of similar roads. Table V also shows that road construction has made relatively important contributions to the land transportation network in the majority of provinces of settlement, exeptions being North and West Sumatra, Aceh, and North and South Sulawesi; these are provinces which in general have

already well established road networks of their own, and low rates of settlement as well. The impact of road construction, however, is probably rather less than indicated in the table for provinces with tidal swamp projects (e.g. Jambi, Riau and South Sumatra), where access tends to be by river and not overland.

The construction of irrigation infrastructure is mentioned elsewhere in this paper.

In general, it appears that provision of physical infrastructure to service transmigration projects in less developed regions of the country may well be one of the more important long-term contributions the program has to make to regional development.

Social and Economic Infrastructure and Services

Transmigration settlements are today being equipped with an impressive array of public facilities, whether built as part of a package provided by the Department of Transmigration or constructed by the various sectoral agencies. Every settlement unit (roughly 500 families) has a primary school (occasionally more), and a junior high is provided for a number of adjacent settlements. A health post is built in each unit, too, and in larger areas a clinic is provided sometimes with a doctor in charge. Also provided are a meeting hall, a cooperative center (usually including an office, a warehouse and a ricemilling unit), religious facilities and a marketplace. The Department of Agriculture also provides a food crop extension center, and sometimes extension centers for tree crops, livestock and fish raising (as well as seed farms, test farms, etc.) in each settlement cluster.

No data is readily available to enable comparison concerning the provision of such facilities in transmigration settlements and local areas, but extensive field visits across Indonesia indicate that the provision of such infrastructure in transmigration areas

TABLE V :

IMPACT OF TRANSMIGRATION ON REGIONAL ROAD NETWORKS, 1969-1983[a]

PROVINCE	ASPHALT/GRAVEL ROADS (km)			EARTH ROADS (km)		
	Province 1980	Transmigration Roads	Trans.roads as % of Prov. roads	Province 1980	Transmigration Roads	Trans.roads as % of Prov. roads
ACEH	2,915	136	4.7	3,547	597	16.8
N. SUMATERA	7,131	59	0.8	4,469	260	5.8
RIAU	991	379	38.2	3,277	1,661	50,7
W. SUMATERA	3,809	110	2.9	1,521	482	31.7
JAMBI	2,756	315	11.4	1,056	1,378	130.5
BENGKULU	1,828	180	9.8	728	788	108.2
S. SUMATERA	5,034	1,141	22.7	3,285	4,992	152.0
LAMPUNG	2,291	412	18.0	1,082	1,802	166.5
W. KALIMANTAN	1,114	220	19.7	2.612	960	36.8
C. KALIMANTAN	334	183	54.8	1,921	801	41.7
S. KALIMANTAN	1,843	281	15.2	1,505	1,228	81.6
E. KALIMANTAN	909	177	19.5	841	774	92.0
N. SULAWESI	1,937	66	3.4	1.464	292	19.9
C. SULAWESI	1,538	279	18.1	3,260	1,217	37.3
S. SULAWESI	4,335	139	3.2	6,158	609	9.9
S.E.SULAWESI	1,309	263	20.1	3,321	1,150	34.6
MALUKU	1,284	87	6.8	1,230	378	30.7
IRIAN JAYA	864	144	16.7	2,048	629	30.7
T O T A L	42,222	4,471	10.6	42,325	19,998	47.2

(a) Adapted from "Evaluasi", Table 9.4, p. 196, using population figures to Feb. 1983.

is frequently superior in quality and quantity to that in neighboring areas. Severe staff shortages, particularly of health personnel, however, should remind us that provision of physical facilities alone does not guarantee that services automatically follow.

The government points out that facilities provided for transmigration villages are open to local residents of nearby settlements for use, and while no numerical data is at hand, it is true that some local children do attend transmigration schools, for example. Distances, as well as possibly cultural differences, however, would tend to reduce the actual impact of this possibility.

A slightly different sort of social service, land registration and provision of title, is now universally programmed for transmigration settlements, and is commonly carried out though with long delays. The Department of Home Affairs policy is to provide the same service for local communities in the vicinity of transmigration settlements, but the huge burden of their workload in transmigration projects (for which financing is routinely allocated), plus the existence of a variety of local land tenure systems, means that this part of the Department's work receives considerably less attention.

Indeed, it is rather paradoxical to note that while certain facilities and services provided to transmigrants are in relative terms excessive, in other cases transmigrant communities place a severe strain on local government services. This is certainly true of Agrarian, Agricultural and Health services, and probably true of high school facilities as well.

Employment Creation

Virtually all settlers, particularly in the early stages of a project, are abundantly employed in agricultural pursuits on their newly cleared land. To that extent it may be said that the transmigration program has created job opportunities in the regions,

though the profitability and long-term viability of these opportunities, as we have suggested above, are less than certain. In addition to this, settlers earn significant amounts of income in off-farm occupations, including much off-project employment in logging, sawmilling, construction and other occupations.[24] Presumably much of this latter is a case of transmigrants providing an answer to local labor shortages.

With one or two exceptions, transmigration projects have not given rise to any significant secondary industry; however, in the more prosperous project areas new market centers do grow up where commonly the entrepreneurs, e.g. the traders, the transport sector, are from nontransmigrant ethnic groups.[25] Other than this, transmigration projects themselves do offer certain employment opportunities for local low-level professionals --- teachers, health workers, agricultural extension field workers and the like --- but in fact since scarcities exist in all these categories, employment of these people in transmigration areas means that other areas go short. Data gathered by the UNDP/OPE Management and Monitoring team for 1981, for example, shows that the ratio of agricultural field workers (PPL - Penyuluh Pertanian Lapangan) to farm families in transmigration areas is far better than that in non-transmigration areas of the receiving provinces, and that the targets for the former are significantly exceeded in practice while in the latter areas less than half the target is achieved.[26]

Social and Political Consequences

The consequences of the transmigration program on the social and political landscape of the provinces are of course intimately related to the burden of the preceding discussion. The lack of serious study of the issues involved, and the reluctance of officials and the general public to openly question the wisdon of transmigration, however, make firm conclusions difficult to draw.

Apart from the positive (actual or hoped for) regional impact of the program as discussed above --- and they have been important in particular areas --- personal experience, media reports and occasional research reports show clearly that transmigration is not always warmly welcomed by receiving societies or provincial officials. Provision of superior facilities and services to new settlements, conflicts over land, historical antipathies and general cultural differences between central Indonesians and peoples of the outer islands, and the heavy burdens transmigration projects often place on provincial services are all fertile sources of resentment.[27] Land conflicts, in particular, are prevalent across Indonesia, and in some cases appear impervious to any peaceful solution. They have their source not only in competition for resources and in differing concepts of land use, but also in the imposition of Western-derived bureaucratic-legal notions of permanent ownership of land and all that stands on it on societies whose traditional concepts of rights to land are quite different. Such conflicts have led to violence and even loss of life, though in terms of the overall program scope, such extreme consequences have probably been relatively limited.[28]

There is a strong feeling among some --- spoken, but rarely appearing in print --- that transmigration in essence represents a process of increasing Javanese control over the outer islands.[29] Indeed, some speak of 'recolonization', harking back to the days of the Dutch, or perhaps even to the influence and control of the Javanese kingdoms over parts of Sumatra in centuries past.[30] Population figures discussed in an earlier section help the analytic observer to put this issue in its proper perspective, though these figures do not include pre-Repelita or self-motivated settlers, who in certain areas, particularly Lampung, are found in substantial numbers. The extent of 'Javanization' of course is more particularly evident at the district level, for transmigration tends to be concentrated in particular local areas; indeed as mentioned above,

some large transmigration areas have been turned into regular administrative districts (kecamatan) of their own.

Further evidence to support the claim of increasing Javanese and/or central government control over the regions may also be seen in the policy to settle retired or near-retired army personnel in transmigration projects. One of the less commonly-mentioned but official aims of transmigration is the strengthening of national unity and 'resilience', including defence of border areas. Current settlement programs in Irian Jaya, East Timor and on Natuna Island 450 miles off Vietnam in the South China Sea have either explicit or implicit security dimensions. What actual effects this policy has on national unity, defence and the dampening of local disaffection is impossible to demonstrate; indeed the effects could well be the direct opposite of what is intended.[31]

The sociocultural impact of transmigration on local societies -- for instance, in terms of technology transfer, land use patterns, use of government services, social organizational change, intergroup relations -- is a fertile subject for indepth research, and it is surprising that so little investigation has taken place.[32] The only such data the Department of Transmigration regularly collects on intergroup relations is what it refers to as 'assimilation', i.e. the in-marriage of non-transmigrants into transmigrant villages. That the government is quite aware of the problems of intergroup relations in transmigration areas, however, is clear from Presidential Decree No. 1 of 1978, which allows for a maximum of 10% of places in transmigration projects to be given to local residents of the area. This policy is now being practised and its effects also require investigation. It appears, however, to be rather simplistic, since no provisions are made for the differing desires and ways of life of local inhabitants. Transmigration project officials in Jambi, for example, claim that local settlers are 'troublesome' and commonly only stay as long as free food supplies

last.[33] In fact, in the current World Bank aided transmigration project in Jambi up to early 1983 some 50% of the local families given places in settlements turn out to be Javanese who happen to have opened up farms in the area; these are considered more reliable and more amenable than indigenous Sumatrans to direction from above. The policy has some good potential, which to date has not been completely actualized.[34] As discussed elsewhere in this article, the Luwu, Southeast Sulawesi and the East Kalimantan transmigration and area development projects pay more explicit attention to the problems discussed in this section.

Program Impact in Financial Terms

As a final impression of the impact of the transmigration program on the regions, it is instructive to examine central government expenditures on the program compared to expenditures on other sectors or to total provincial budgetary allocations. Examination of the relevant figures shows clearly the enormous disparity between investment in relatively small numbers of transmigrant settlers and in the provincial population as a whole. It also suggests a great disparity between the level of investment and the benefits derived, at least in the short-term and likely longer.

Table VI shows 1979/80 - 1981/82 transmigration budget allocation as a percentage of the total provincially allocated central government development budget.[35] The figures are rather astounding: in 12 of the 18 provinces of settlement the transmigration subsector accounts for fully a quarter or more of the total central budget allocation. Since transmigration is basically an agriculture program, we should also compare its budgetary allocation with that of the agriculture subsector, i.e. the total amount allocated for agricultural development for the entire provincial nontransmigrant population. Over Repelita I and II the data shows that in 13 provinces central government expenditures for transmigration exceeded expenditure on

agricultural development in general, and in two others was only somewhat lower.[36]

With such massive levels of spending, it would seem inconceivable that transmigration projects are planned simply as a social welfare measure: they should be economically viable, with healthy rates of return not only for the settlers themselves but for the nation as a whole. Unfortunately, as reported above, such a conclusion is for perhaps the majority of projects quite unjustified. So much, it appears, is being spent on so few, for such little returns.

TABLE VI : Impact of Transmigration on Central Government Expenditure: Repelita III, 1979/80 - 1981/82 [a]

Province	Transmigration Subsector Budget as % of Centrally Allocated Budget (APBN)	Repelita III Transmigrants as % of 1980 Prov. Population
Aceh	17	0.9
N. Sumatra	5	0.2
Riau	37	5.2
W. Sumatra	5	0.4
Jambi	44	3.5
Bengkulu	31	3.4
S. Sumatra	67	5.4
Lampung	14	0.9
W. Kalimantan	40	1.9
C. Kalimantan	50	5.2
S. Kalimantan	41	3.3
E. Kalimantan	44	3.0
N. Sulawesi	12	1.9
C. Sulawesi	38	4.0
S. Sulawesi	6	0.2
SE. Sulawesi	57	1.4
Maluku	26	1.5
Irian Jaya	41	3.4
T o t a l	31	1.9

a

Data adapted from "Evaluasi", p. 190, and Table 9.3, p. 195.

Lessons and Program Changes for the Future

Put briefly, the transmigration program to date has not meaningfully affected the immense problems of population and poverty in the sending provinces -- indeed it cannot -- and despite massive investments has had only very limited success in stimulating agricultural and other production in the receiving areas. While some important spin-off effects of the program in certain areas do bring positive benefits to local societies and economies, economic imbalances and social tensions are frequent, too, while ecological questions give rise to further deep reservations concerning long-term impacts. The size and complexity of the program is such that the government apparatus is incapable of consistently planning and implementing settlements that are assured adequate standards of livelihood commensurate with the levels of investment involved.

The lessons of the past decade and a half of transmigration are abundantly clear, and appropriate paths for the future are becoming increasingly so. The suggestions for program changes put forward here focus largely on redefining the scope of the program, improving the regional development aspects of transmigration, raising conditions of livelihood in existing settlement areas, and promoting self-financed settlement. Politically, there is no question that the program will continue to be a major, multistranded link between the powerful Indonesian center and the peripheral regions. The refinements suggested below are aimed at making the program more efficient, effective and equitable for those most involved.

1. Reducing the Size of the Program

There are no overwhelming convincing justifications for geometrically increasing the numbers of people moved out of central Indonesia at great expense with only limited long-term prospects of livelihood. The magical power of ever higher numerical targets

needs to be neutralized, with increased emphasis given to assuring sustained, improved quality of projects. An emphasis on the physical resources to be developed, the manpower needed to develop such resources, and the ability of the government bureaucracy to carry out such development would help to define more sensible plans, and targets, for bringing in new settlers to the regions. Certainly planned movements in the Fourth Repelita should be no higher than those of the Third Five Year Plan, and sensibly should be much less. For a variety of reasons, but mainly because of saturated man:land ratios, a number of areas (e.g. Sumatra, North and South Sulawesi) should be closed to further government-financed settlement, particularly those based on food-crop models, and in other areas the program should be sharply reduced.

The political realism of this suggestion is certainly open to question. However, there are some indications the government may be thinking along these lines. In late 1982 the Junior Minister for Transmigration recommended to the President that one option for Repelita IV could be a target of 500,000 families (the same as Repelita III) combined with programs for upgrading current settlement areas and for self-financed transmigration.[37] The Junior Minister also declared that the high Repelita III targets to the end of the Fourth Year of the plan were actually achieved ahead of schedule, by dint of enumerating and adding in some 100,000 spontaneous settler families who have moved into all projects over the last several years.[38] This numerical manipulation, which clearly cannot be repeated too frequently, may be taken as an admission of the overly ambitious size of the original Repelita III program plans. It has also been suggested that with Repelita IV the focus of transmigration will be on Eastern Indonesia, implying that Sumatra will indeed receive very few settlers.[39] Despite this, however, new magic numbers of 800,000 and 1,000,000 families are occasionally mentioned as tentative Repelita IV targets.

It will require strong political will to bring some rationality into planning the size of the program, and much encouragement needs to be given to this effort. The recently negotiated third World Bank loan for transmigration, containing a provision for funding the rapid physical planning of new settlements for some 300,000 families, will unfortunately provide a counterstimulus to this effort.

II. Planning and Implementing Transmigration as Regional Development

As stated earlier, transmigration projects, with few exceptions, are not designed in any thorough manner as parts of integrated area or regional development programs. The resultant social imbalances and the waste of opportunities to develop more efficiently the totality of resources in a given area are major reasons for changing the current mode of transmigration planning. And since under the suggested regional approach, the focus would indeed be firmly on the optimal use of physical and human resources in a particular area, of necessity the local governments --- in particular the provincial and district planning boards (BAPPEDA) -- and local societies should be given increasing authority to determine their own strategies.

As one aspect of regional planning, overall population and settlement strategies need to be drawn up in each area --- for as we have noted, many areas outside central Indonesia have population problems of their own, a story which cannot be read from a simple inspection of crude population density figures alone. In many areas, good cases can be made for local resettlement programs, to deal with problems of population pressure on the land, isolation, poor resource bases, natural disasters, and the like, and, as mentioned, such programs do exist, though on a very tiny scale, and deserve far greater national attention than they currently receive. It is only in the context of such overall population, settlement and area-focussed policy formulation that transmigration programs should be planned.

A second way in which a regional planning focus could enhance the quality of the transmigration program is in drawing up more appropriate agricultural systems for the lands selected for settlement. As discussed earlier, the centrally dictated major farm model for dryland areas today is an inflexible one based on 1.25 hectares of food crops, primarily rice, plus up to 3 hectares of land for eventual planting to tree crops (though in fact the farmer is quite free to use, or not to use, this land as he wishes). Much unused or under-utilized land in the outer islands is not particularly suitable, in fact often very unsuitable, for food crops, as local farmers well know.[40] Planning, with local knowledge, based on more appropriate use of the physical resources of a particular area, would open up for settlement many locations rejected because they do not fit the current model. Basing settlements, e.g. in parts of Sumatra, almost entirely on tree crops is one possibility that is suggested. In fact, a few such projects (called PIR Khusus), based on nucleus estates with smallholder plots, are currently being tried out by the Directorate-General of Estate Crops in cooperation with the Department of Transmigration.

Since the few transmigration projects explicitly formulated as components of area development plans by all accounts do do relatively well, there is room for hope that the government will expand the portion of the transmigration program carried out in this mode. Initial plans for further development of the Pematang Panggang settlement area in South Sumatra currently being drawn up with World Bank and FAO assistance also take a clear regional development stance, indicating a heightened appreciation of the advantages of the approach. In this way, we may hope, transmigration will be more warmly received in certain areas, and with equal attention being paid to all components of the population, attendant social problems, e.g. land ownership conflicts, will be kept to a minimum.

III. Improving Conditions in Existing Settlement Areas

The central theme of this paper is that vast quantities of resources have been sunk into the transmigration program to date without commensurate gains to either the settlers, the regions or the nation. In many areas, notably dryland areas, conditions may not materially improve over time, in fact may well deteriorate. There is good cause, then, to attempt to salvage the situation where possible, through rehabilitation, redevelopment, or 'second stage development'. In areas where the initial agricultural model is inappropriate, more suitable patterns should be implemented. In particular, on the dryland projects in Sumatra, tree crops (especially rubber but also a variety of others such as oil palm) should be introduced, for they are ecologically well suited and will provide cash income.[41] In some areas, irrigation and water and soil conservation measures, whether small or large scale, will be appropriate (though expensive):[42] the irrigated projects in Sulawesi demonstrate the benefits to be derived from this approach. Finally, in many areas, agricultural commodity processing can be stimulated; particularly in dryland areas, the processing of cassava into fructose sugar and other products is now frequently suggested. Improvement of access to certain areas may be needed to stimulate such agro-industrial development.

To avoid compounding and prolonging the current less-than-optimal condition of transmigration in Indonesia, a major share of government funding and energy for the next five to ten years should be allocated to rehabilitation or second-stage development. With the eventual prospering of rehabilitated areas, significant numbers of self-motivated settlers will be drawn to these areas, too, through networks of still-active family ties with central Indonesia.

IV. Promoting Spontaneous Settlement

On balance, it appears that the transmigration program as currently implemented is increasingly costly, but not increasingly cost-effective. This fact, together with the imminent sharp decline in Indonesia's oil revenues, make it obvious that the balance of transmigration should be pushed in the direction of self-motivated and fully or partially self-financed settlement. Indeed, Law No. 3 of 1972 states explicitly that this is government policy, though to date concrete steps to implement the policy have been few. During Repelita III, a special Directorate for Spontaneous Transmigration was established in the Directorate-General of Transmigration, but its activities to date have consisted mainly of policy formulation and providing some aid to already settled spontaneous transmigrants.[43]

There is a wide variety of methods to stimulate self-financed settlement. Gloria Davis in a World Bank paper has analyzed current constraints on spontaneous movement and suggested a number of ways of overcoming them.[44] Clearly spontaneous settlement could be integrated with the above three major program proposals, as well. Since various ethnic groups from outside central Indonesia, such as the Bugis of South Sulawesi, have long-standing and succesful traditions of migration, in part to develop new agricultural lands, land for spontaneous settlement should also be reserved for them.[45]

While the promotion of spontaneous transmigration is gaining some support in government circles, in part for the simple reason that spontaneous settlers appear to succeed where others do not always, it remains to be seen whether concrete plans for Repelita IV give it the place it deserves.

Transmigration: a Verdict

It is fashionable among observers of Indonesia, whether casual or professional, to adopt one of two stances towards transmigration: either it is a 'miracle cure' for most of the nations ills, or it is a totally misconceived use of government funds that does little for the participants while giving rise to severe social problems. It should be no surprise, however, that a systematic review of the available evidence once again shows that reality is not so easily depicted.

Transmigration, in short, is very much a mixed blessing for the peripheral regions of Indonesia. Substantial areas of under-utilized land are brought under cultivation, yet commonly unsuitable cropping patterns produce results that are much less than optimal. The building of road networks and other transport infrastructure has indeed been important in opening up isolated areas, whereby both transmigrants and local populations benefit. On the other hand, provision of schools, health facilities and the like for transmigrant communities often exceeds that of neighboring communities, and provision of education, health and other social services can be a heavy burden on provincial governments, who bear this responsibility.

Inequities, real or perceived, and antipathies between new settlers and older inhabitants should not be underestimated, either: It is not hard to envisage that latent tensions will at critical points in the future, as they have in the past, materialize into open conflict. The long term effects of inappropriate land use patterns on the ecological systems of the regions give cause for worry as well. Despite such severe constraints, however, for the landless migrants from central Indonesia, the large majority of whom do stay on in the projects and eke out some sort of living, the daunting move to the forests and swamps of the outer islands must be worth the risks and the costs.

The problems of Indonesia remain, and some indeed grow worse. Transmigration, put in the right perspective, does have a contribution, albeit a limited one, to make to their amelioration. With certain course corrections, such as outlined above, that contribution could be much enhanced.

Footnotes.

1. Much of the material in this article has been accumulated during work on a UNDP-aided management assistance project within the (former) Office of the Junior Minister of Transmigration. The author's ideas have also developed during three years' participation in a CIDA-aided regional development planning project in Sulawesi, where much of his time was devoted to land settlement matters. The evaluation data presented here derives in part from a UNDP team project paper entitled 'Transmigration Program Second Phase Evaluation' (Office of the Junior Minister of Transmigration, Jakarta, 1982), and from a report of the Department of Manpower and Transmigration entitled 'Laporan Menteri Muda Urusan Transmigrasi/Ketua Satdaltrans mengenai Evaluasi Penyelenggaraan Transmigrasi Repelita III' (Jakarta, 1983, henceforth 'Evaluasi'), which incorporates much of the UNDP material. Unless otherwise noted, other data used in this article derives from internal government sources. The views expressed here are not necessarily those of the UNDP, the project, or the Department of Transmigration.

2. Transmigration is not the only land settlement program in Indonesia. Several other agencies including Home Affairs, Social Welfare, and Forestry, also carry out resettlement programs within the boundaries of single provinces. These programs are potentially extremely important devices to solve a variety of local problems, but are miniscule both in size and funding, and have little impact at present. For example, Department of Home Affairs resettlement in 1981/82 across Indonesia amounted to only 3,614 families (Kompas, 26 November 1982).

3. The roots probably go back even further than 'colonization', for the Dutch brought Javanese coffee planters, for example, to places like North Sulawesi in the nineteenth century.

   For the history and background of the program, and some of its details in the early 1970s, see J. Hardjono, Transmigration in Indonesia, Kuala Lumpur, 1977.

4. See J. Hardjono, op. cit., p. 19, 24.

5. In mid 1983 the functions of the Department of Public Works with respect to transmigration were transferred to the expanded Department of Transmigration.

6. As a rough indication of the critical nature of media reports, the author's collection of clippings concerning transmigration taken from the major Jakarta daily Kompas between January and mid May 1983, for example, shows 21 out of 26 articles with basically critical content. (Not included were articles announcing the changes in department structure following the formation of the new cabinet.).

7. Transmigrant population has to be estimated because after settlements are handed over to the local administration, their population is no longer monitored and recorded by any agency as specifically transmigrant population.

8. 'Evaluasi', p. 174. Central Sulawesi and East Kalimantan also had significant spontaneous migration.

9. These average provincial figures disguise the even greater impact that transmigration has on various districts and sub-districts in a province, for of course projects are not

spread evenly across the area. In some cases large transmigration projects have even become separate administrative subdistricts (kecamatan) in themselves. The same naturally applies to Java and Bali, where the effects of transmigration on selected small areas, such as in the neighborhoods of new dams, could be rather great. In the first four years of Repelita III sponsored transmigration was however equivalent to just 1% of the estimated 1983 population of central Indonesia.

The authors of 'Evaluasi' calculate that the first three years' sponsored movement of people from central Indonesia during Repelita III had had the effect of 'postponing' that area's population growth for all of 23 weeks('Evaluasi', p. 176).

10. 'Evaluasi', p. 177

11. Note that we are only discussing land cultivated by officially sponsored settlers and not that farmed by self-sponsored migrants; including the latter, for which no data is easily available, would probably increase the figure for Lampung considerably. This caveat applies as well to the discussion of agricultural production below.

12. Data does not include perennial-crop estates. In October 1983 a new Agricultural Census was held in Indonesia, which will eventually allow us to make more accurate comparisons.

13. P. Thomas, The Maintenance of Soil Productivity on Transmigration Sites in Central Sumatra. Land Resources Centre, ODA, Surrey, England, 1981. Soils in Sulawesi are frequently much better, and even where they are not, possibilities for irrigation make food agriculture a practical choice. Sulawesi has some of the

more prosperous transmigration settlements in the country (e.g. Dumoga in North Sulawesi, Parigi in Central Sulawesi).

14. J. F. A. Russell, World Bank memorandum on food crop production in the Baturaja-Martapura project, 18 May, 1982.

15. For further comments on the incongruence between centrally-dictated and local modes of exploitation of the environment, see M. Dove's paper elsewhere in this volume. The UNDP/OPE Management and Monitoring Team's report concludes that 'in Repelita III, land tenure problems were one of the foremost constraints on the implementation of transmigration' (op. cit., p. 62). For a more detailed discussion of the land claims issue, see R.T. Ratnatunga, Land Claims in Transmigration Areas. UNDP/FAO Project INS/78/012, Department of Manpower and Transmigration, Jakarta 1982.

16. P. c. Dr. Mochtar Achmad, Universitas Islam Riau; data also from personal experience in Singkut, Jambi, and from working documents outlining proposals for the rehabilitation of Pematang Panggang in South Sumatra. See also M. Fulcher, 'Dayaks and Transmigration Communities in East Kalimantan', Borneo Research Bulletin, 14 (1), 1982.

17. op. cit. p. 1 42

18. The UNDP/OPE team carried out macro and micro economic analyses of five agricultural models (on dryland with low and with high inputs, dryland with tree crops, tidal swamps, and on irrigated land); with the assumptions discussed in the report (Ch. 5) and using recent (June 1982) World Bank commodity price forecasts, only the tree crop model has a significant internal economic rate of return, while the two other dryland models actually have negative values.

Woodward

19. A report from the Directorate-General of Food Crop Agriculture states that 0.3% of the 1980/81 national rice production was produced by transmigrants (Laporan Perkembangan Pertanian Tanaman Pangan Daerah Transmigrasi, March 1982, Table 9). This lower figure is not inconsistent with our estimated figure of 0.6%, since the DGFCA is only reporting on newer projects in which it is directly involved, and not in all projects of transmigrant origin.

20. "Evaluasi", p. 22

Can we get these from Colin?

21. For a further discussion of this issue, see M. Dove's paper elsewhere in this volume, as well as A. Hanson, "Transmigration and Marginal Land Development" in Gary Hansen (ed.) Agricultural and Rural Development in Indonesia, Boulder Colorado, 1981.

22. In late 1982 a massive operation had to be mounted with Armed Forces assistance to round up and resettle in a new habitat more than 100 elephants that were wreaking havoc in the Air Sugihan transmigration area of South Sumatera.

23. See, for example, articles in Kompas of 2 Nov. 1981 (South Sumatera), 30 November 1982 (Riau) and 21 October 1982 (Southeast Sulawesi). A number of proposed locations for settlement in Jambi, some of which had already been surveyed and designed, have been cancelled due to objections from Forestry.

Whitten

24. Directorate-General of Transmigration surveys in the years 1980/81 and 1981/82 showed 75% and 85% respectively of settlers' incomes was earned from off-farm employment, after 6 and 4 years of settlement respectively ("Evaluasi", p. 188). Clearly, many of these off-farm employment opportunities, particularly logging, have very limited long-term prospects.

25. Unfortunately this phenomenon has not been widely surveyed, and the foregoing picture has been sketched largely on the basis of fairly short visits by the author and colleagues to transmigration sites across the country.

26. Calculated from data from the Department of Agriculture.

27. It may be hypothesized that where settlements thrive and contribute materially to the development of the local economy, they are more warmly welcomed.

28. Research reports discussing cases of conflict in transmigration areas include Afdol, Proyek Transmigrasi: Masyarakat Jawa dan Penduduk Asli, and T.R. Andi Lolo, Petani Jawa di Daerah Transmigrasi, both written at the Social Science Research Training Centre in Ujung Pandang, Indonesia in 1976.

29. The brief debate in the national media in early 1982 on the 'Javanization" of Indonesia strangely did not lay stress on transmigration as a factor in this process.

30. See B. Schrieke, "The Shifts in Political and Economic Power in the Indonesian Archipelago in the Sixteenth and Seventeenth Century" in Indonesian Sociological Studies, 2nd edition, Bandung 1960, for a discussion of early Javanese expansion of control in the outer islands. See also M. Dove, elsewhere in this volume.

31. Army transmigrants are also thought to bring administrative and entrepreneurial skills to the settlements, and some eventually become village officials. One important result of this policy is that army salaries and pensions form an important source of village capital, used among other things to buy agricultural inputs and to hire the labor of non-army settlers. Not all army transmigrants originate from central Indonesia, but figures on ethnic breakdown are not readily available.

32. In the settlement planning phase, as well, the Department of Public Works pays far too little attention to this matter. For a further discussion, See the author's article "Land Settlement in Indonesia: Some Current Needs for Socioeconomic Research", in Prisma, No. 7, July 1983.

33. See also Kompas, 21 April 1983, for a similar description of local transmigrants in Riau.

34. In fact the 10% allocation is frequently used to solve various problems for which it was not intended, such as providing houses for village teachers, and for resettling regular transmigrant who are forced to be moved to new locations because of chronic floods and the like.

35. APBN or Anggaran Penerimaan dan Belanja Negara; does not include APBD or provincially-derived budget, which is of only minor importance. Development budget allocations also do not include long-term recurrent costs of projects, e.g. road maintenance, which can clearly be quite high and burdensome to the province particularly where projects generate little economic surplus and thus contribute little to the regional economy.

36. See Table 9.8 in "Evaluasi", p. 200. In terms of total APBN for all Indonesia, the transmigration subsector has constituted between 6% and 9% in each of the first four years of Repelita III.

37. Martono, Makalah Kebijaksanaan Mengenai Penyelenggaraan Transmigrasi Repelita IV. Jakarta, 29 September 1982.

38. Indonesian Observer, 22 October 1982.

39. See e.g. Kompas 7 October 1982.

40. See Kompas, 23 June 1983, article entitled "Jangan Paksakan

Pola Tani Jawa di Luar Jawa" (Don't Force the Agricultural Patterns of Java on the Outer Islands).

41. Estate crops are currently being planted on a large scale in the major Rimbo Bujang transmigration area in Jambi province and are planned for the World Bank assisted Transmigration II project in Jambi, as well. In mid 1983 the Directorate-General of Estate Crops conducted a survey of established transmigration settlements in six provinces to assess the possibilities of tree crop development on unused settlement reserve land.

42. The Directorate-General of Water Resources Development with World Bank aid has recently been surveying a number of older projects across the country to locate areas suitable for irrigation development.

43. A strong bureaucratic disincentive to moving the balance of the program towards spontaneous settlement is of course that the budgets of the implementing agencies would be significantly reduced.

44. Gloria Davis,'Moving with the Flow'. World Bank working paper, January 1979.

45. The Sulawesi Regional Development Study included components of local spontaneous and planned resettlement in its indicative area development packages proposed for various parts of the island.See University of British Columbia and Department of Public Works, Indonesia, Sulawesi Regional Development Study, Final Report. Vancouver 1979.