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THE DEVELOPMENT POTENTIAL OF AGRICULTURAL SETTLEMENT IN NEW LANDS

to

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from

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Paraguay

Japanese colony of La Colmena²
Spontaneous with government support (1936)

Mennonite colonization in eastern and western Paraguay
Spontaneous (1927)

Peru

Settlement in the lowland tropics¹
Spontaneous and government sponsored (about 1940)

San Lorenzo settlement in the north coastal region
Government sponsored (1961)

THE DEVELOPMENT POTENTIAL OF AGRICULTURAL SETTLEMENT IN NEW LANDS

Thayer Scudder

I. INTRODUCTION

The Institute for Development Anthropology's new lands settlement project was funded by AID's Development Support Bureau (Office of Rural Development and Development Administration) for the period May 15, 1979 through October 1, 1980. Subsequently a no-cost extension was granted until August 1, 1981. As Principal Investigator, I was expected to spend a minimum of 260 days working full-time on the project. In fact, to date I have worked over 300 days and expect the total to exceed 400 by August 1.

The evaluation methodology continues to rely on the three components described in previous progress reports. Briefly, these are:

- A. A global evaluation of the literature on specific government sponsored and spontaneous settlement areas and, to a lesser extent, on countrywide programs and analyses of settlements in several countries.
- B. Field studies by IDA grantees on specific settlements which have been in existence for a minimum of ten years.
- C. Site visits by myself, with and without IDA consultants, to a number of settlement areas in Indonesia, Malaysia, Nepal, the Philippines, Sri Lanka, and the Sudan.

For both evaluation of the literature and field studies, procedures — in the form of abstract forms, questionnaires, and a wealth index — have been worked out to facilitate the comparison of settlement areas around the world and of settler families within the same settlement and on different settlements regardless of locale.

Though the literature search is global, field studies and site visits were restricted to Africa, the Middle East, and Asia. This was at the request of AID which funded all the field studies and site visits except for my self-financed visit to the Philippines. Though I have completed my own schedule of site visits, fieldwork continues at this moment in the Sudan (Muneera Salem Murdock) and in Egypt (Zeinab Gamal Hassan and Mohamed Fikri Abdel Wahab).

Because this will be the last progress report before the submission of a final report in the form of a book-length manuscript, I am requesting the assistance of readers in providing further information

Candelaria River Settlement
Government sponsored (1964)

Mennonite colonization²
Spontaneous (1922)

SOUTH AMERICA

Argentina

Settlement in the Misiones area, with special emphasis on
the European settlement of Monte Carlo²
Spontaneous and company/government sponsored (1920)

Jewish settlements including Colonia Baron Hirsch^{1,2}
Refugee settlement facilitated by the Jewish Colonization
Association (1905)

Bolivia

Mennonite Settlement in Santa Cruz Department²
Spontaneous (1967)

San Julian settlement of Santa Cruz Department¹
Government sponsored (1972)

Brazil

Japanese settlement in the Amazon^{1,2}
Spontaneous and government sponsored (1920)

North Parana Province Colonization
Facilitated by a British financed colonization company (1928)

Mennonite settlement in Parana²
Spontaneous (1930)

Transamazon Highway Settlement¹
Government sponsored (1971)

Mato Grosso Settlement
Government sponsored (1924)

Columbia

State of Caqueta Settlement¹
Spontaneous and government sponsored (late 1950s)

which I can use during the final phase of data analysis and write-up. Especially needed is additional information on new lands settlements which have been in existence for at least ten years. One of my basic assumptions has been that new lands settlements constitute a distinct type of sociocultural subsystem which to be considered successful* by both settlers and national planners must evolve through a series of four stages. Outlined in the second six-month progress report, these are Stage One: Planning, Infrastructure, and Settler Recruitment; Stage Two: Transition; Stage Three: Social and Economic Development; and Stage Four: Handing Over and Incorporation. A brief description of each is attached as Appendix 1.

A major reason why we have restricted our field studies and most site visits to settlement areas that have been in existence for at least ten years is because it usually takes at least five to ten years for most successful settlements to reach Stage Three, which is when rapid development is most likely to occur. Unfortunately most analyses, including donor evaluations, deal with settlements that are still in Stage Two — during which it is unreasonable to expect rapid increases in production, in settler net incomes, and in nonfarm employment. As a result both donors and scholars alike tend to underrate the potential of new lands settlement to catalyze a process of development both within the settlement area and within the surrounding region.

II. LITERATURE SEARCH

Using the comparative abstract forms which were described in and appended to the first report, 83 Form One Abstracts (dealing with specific settlement areas) have been completed to date, along with 18 Form Two Abstracts (dealing with comparative analyses of a number of settlement areas in one or more countries). Settlement areas and projects which have been subjected to Form One analysis, along with those intended for analysis during the next few months, are listed in Appendix 2. I would greatly appreciate receiving suggestions from readers of this report for other settlement areas and projects which should be included in the comparative analysis which will begin next month. Though we have tried to include the best studied projects around the world, some have been inadvertently left out. Furthermore, there are certain countries like India where we have not been able to discover enough detailed analyses of specific settlements which have been in existence for at least ten years.

* The definition of success will be considered in detail in the final report. So far I have developed thirty-five indices dealing with seven components which include macroeconomic, microeconomic, technical, sociocultural, managerial, public health and social services, and ecological variables.

Silanga resettlement, West New Britain
Spontaneous (1953)

Kioa settlement, Fiji
Spontaneous (1948)

New lands settlements in the Solomon Islands¹
Government sponsored (1938) and spontaneous (1955)

Maat resettlement to Efate Island, New Hebrides
Spontaneous with outside assistance (1952)

Micronesia

Bikinian Resettlement¹
Compulsory (1946)

Enewetak resettlement
Compulsory (1947)

Polynesia

Resettlement of Micronesia to Sydney Island,
Phoenix Island Group²
Government sponsored (1938)

CENTRAL AMERICA

Belize

*Settlement of the Kleine Gemeinde Mennonites
at Spanish Lookout²
Spontaneous (1920s)

Guatemala

Settlement in El Estor Municipio
Spontaneous (about 1950)

Settlement in Department of Esquintla
Government sponsored (1956)

Mexico

Santo Domingo Settlement
Government sponsored (1949)

Papaloapan Settlement
Government sponsored (1952)

III. COMPLETED SITE VISITS

During 1979, site visits were made to the Rahad (Sudan) and Jordan Valley (Jordan) settlement projects in connection with a Ford Foundation consultancy just prior to the AID grant. During 1980, further site visits were made in Indonesia, Malaysia, the Philippines, Sri Lanka, and the Sudan. Between May 15, 1979 and November 15, 1980 I spent approximately six months overseas, most of which was spent visiting settlement projects. In all, three separate trips were made — of which the first and second were described in the previous progress reports. The third trip lasted from July 1 to September 28, 1980 and is described below.

A. Sri Lanka (July 3-August 17, 1980)

During much of this time I traveled with Kapila P. Wimaladharma, Head of the Land Settlement Department of the Ministry of Lands and Land Development (and Institute for Development Anthropology grantee responsible for carrying out a twelve-month study of the Minneriya Settlement Project). Using Wimaladharma's jeep, we traveled throughout Sri Lanka, visiting in sequence the following settlement areas during a four-week fieldtrip: Rajangana; System H (part of the Accelerated Mahaweli Programme in the Kala Oya Basin); Muthu-Iyan-Kaddu-Kullam; Minneriya; Minipe; Debara Ara Wewa; and Uda Walawa. I was especially pleased to visit for the first time Rajangana, Muthu-Iyan-Kaddu-Kullam; Minipe, and Debara Ara Wewa. Started in the mid 1960s, the first two settlement projects were studied by G. M. Abayaratna in 1970, with the results presented in his 1972 Oxford Ph.D. dissertation, "Economic Aspects of Some Peasant Colonizations in Ceylon." Our visit was intended to give us an impression of both schemes ten years later. Considered one of the more successful schemes in Sri Lanka, Minipe has been evaluated by a number of settlement scholars, the most recent being by Rangit Wanigaratne who is currently completing his Ph.D. at the University of Wisconsin. As for Debara Ara Wewa, we wished to visit that both because it was a product of private sector initiative combined with government assistance and because developments there have influenced the planning for the Accelerated Mahaweli Programme.

During our tour Wimaladharma and I also discussed with the Secretary of the Ministry of State, and with the Director and other personnel in the Department of Wild Life Conservation, plans (including resettlement) for dealing with villagers and others living within or adjacent to national parks. We also discussed with the Secretary of the Ministry of Lands and Land Development his plans for establishing within the Ministry a Centre for Land Tenure and Settlement Studies. These discussions resulted in two brief reports: one by myself labeled Sri Lankans: Tourists and National Parks for the Secretary of the Ministry of State; the other by Wimaladharma and myself on a proposed Centre for Settlement Studies and Training for the Secretary of the Ministry of Lands and Land Development. As part of my own

Malaysia

FELDA settlement projects¹
Government sponsored (1956)

Chinese settlement in Sabah
Spontaneous with government assistance (1905)

State settlement in Kelantan
Government sponsored settlement (1957)

Resettlement of Chinese-speaking Malaysians during the "emergency"
Compulsory (1950)

Nepal

Settlement in the Terai¹
Spontaneous (late 1940s) and government sponsored (1960s)

Philippines

New lands settlement in Mindanao¹
Spontaneous (1919) and government sponsored (1938)

Settlement in Luzon¹
Spontaneous (1900) and government sponsored (1953)

Narra Settlement Scheme, Palawan and adjacent areas.
Government sponsored (1949) and spontaneous

San Jose Settlement, Palawan
Spontaneous (1931)

Thailand

Resettlement in connection with the Nam Pong Dam
Compulsory (1964)

Vietnam

The Agrovillage resettlement program
Compulsory (1959)

MELANESIA, MICRONESIA and POLYNESIA

Melanesia

Settlement on the Gazelle Peninsula, Papua-New Guinea
Government sponsored (1955)

ongoing work for the AID Mission in Colombo, I also submitted to Jeffery W. Evans, Chief of AID's Mahaweli Development Division, a report on The Accelerated Mahaweli Programme (AMP) and Dry Zone Development: Some Aspects of Settlement.

B. Malaysia (August 19-26, 1980)

During this period my wife and I rented a car in Singapore in order to visit a number of the older Federal Land Development Authority (FELDA) oil palm and rubber settlement projects in Malaysia. Visits were made to Taib Andak, Gh. Chahaya Baharu, and Endau in Johore; Ulu Jempol and the Jengka Triangle area (with associated new town Bandar Pusat and old town Sungai Jerik) in Pahang; and Kemendore in Malaka. Taib Andak, Gh. Chahaya Baharu and Kemendore were all started in the 1950s, while the Jengka Triangle area is being developed as a series of settlements with an associated new town with major World Bank funding. There is an extensive literature relating to the FELDA projects — including Bahrin, Perera, and Low's Land Development and Resettlement in Malaysia; a Ph.D. dissertation by Colin MacAndrews; and a number of World Bank evaluations, the analysis of which will be facilitated by the above site visits.

C. Indonesia (August 28-September 20, 1980)

During this time period, visits were made to settlement areas in South Sumatra and in Southern and Central Sulawesi.

1. South Sumatra (September 1-6)

This visit was organized by Professor Sediono M. P. Tjondronegoro, Chairman of the Social Economics Department at Bogor Agriculture University, who also organized the Central Sulawesi visit. In both cases we traveled together, Tjondronegoro's presence and detailed knowledge of the history and current status of transmigration in Indonesia being invaluable. Accompanied by his colleague in sociology, Dr. Chris Baks, we visited in order Metro (a Dutch-initiated irrigation settlement project going back to the 1930s), Way Abung, Baturaja, and Belitang (another 1930s Dutch-initiated irrigation project). We were especially interested in comparing Metro (which was booming) and Belitang (which was becoming increasingly involuted) — not just because of their age but also because Belitang was included in Karl Pelzer's 1940 fieldwork, with more recent analyses by Joan Hardjono and by research personnel from Gadjah Mada University under the supervision of Colin MacAndrews. As for Way Abung and Baturaja, they are World Bank assisted projects, the former receiving its first settlers in 1965 and the latter in 1976. In both cases, World Bank funding began in 1976, Way Abung being a rehabilitation project and Baturaja a new settlement. As in the FELDA case, World Bank involvement has contributed to the availability of

SOUTH ASIA

India

Pilibhit Colony (Uttar Pradesh)
Government sponsored (1958)

Settlement within the Indian Terai (Uttar Pradesh)
Government sponsored (1948)

H. B. Halli settlement in Mysore in connection with the
Tungabhadra River Basin Project
Compulsory (1952)

Kaki settlement in Assam
Government sponsored (1952)

SRI LANKA

Mianeriya irrigation settlement project¹
Government sponsored (1933)

*Minipe irrigation settlement project¹
Government sponsored (1939)

Rajangana irrigation settlement project
Government sponsored (1965)

SOUTHEAST ASIA

Indonesia

Settlement in the Parigi Area, Sulawesi
Spontaneous (1906) and government sponsored (1960s)

Belitang, Sumatra¹
Government sponsored (1937) and spontaneous

Way Abung Transmigration Settlement
Government sponsored (1965) and spontaneous

Luwu District settlement at Bone-Bone, Sulawesi¹
Government sponsored (1938)

Spontaneous settlement in Lampung, Sumatra
Spontaneous (1951)

Gedongtataan settlement, Sumatra
Government sponsored (1905)

more quantitative evaluatory material.

2. Southern Sulawesi (September 7-13)

Focusing on Luwu District, this visit was organized by Dr. Frederick E. Machmer, Jr., the AID Luwu Project Officer, and by the Luwu Project Office under the Director General of Transmigration. I was accompanied throughout by Arie W. Supit of AID's Luwu Project Office whose assistance as colleague and interpreter was a major factor in enabling me to cover a lot of ground during a short visit. Three days were spent in the District Headquarters of Palopo and another two days were spent visiting settlement areas between Palopo and Bone Bone. We concentrated on Lamasi and Sidomukti, with a shorter visit to Sidobinangun. All three are irrigation based, with the first two started just prior to World War II and the last during the latter part of the 1960s. Currently the irrigation systems in all three are being extended and rehabilitated with the assistance of the Dutch (Lamasi) and United States (Bone Bone) governments.

With multisectoral planning, followed by a carefully phased implementation program, the development potential of Luwu District struck me as very significant. This is a case, however, where new lands settlement is just one of a number of components that must be integrated within an area development program — in contrast, for example, to the Mahaweli Basin in Sri Lanka where new lands settlement should be the main catalyst for facilitating area and regional development.

In discussing the policy implications of irrigation-based new lands settlements in relationship to area and regional development programs, I plan to analyze the documentation on these two cases (along with large-scale irrigation settlement projects in the northeastern Sudan and small-scale irrigation settlement projects in the Middle Zambezi Valley of Zambia).

3. Central Sulawesi (September 14-18)

Trondronegoro, AID Chief of Rural Development Douglas Tinsler, and I met in Ujung Padang and traveled together to Palu and then by jeep across the divide to the east coast. Our destination was Parigi, the site of one of the most successful spontaneous settlement areas in Indonesia — the history of which has been recorded in detail by Dr. Gloria Davis of the World Bank in her unpublished Ph.D. dissertation. Though the earliest Balinese settlers were exiles sent to Sulawesi by the Dutch prior to World War I, their initially tenuous colonization of the area led to the relatively large-scale movement of both Hindu and Christian Balinese spontaneous settlers into the area. This movement started as a trickle in the late 1950s, swelling to thousands in the early 1970s.

Khashm el Girba Irrigation Settlement Project¹
Compulsory and government sponsored (1964)

*Bahad Irrigation Settlement Project
Government sponsored (1977)

Tanzania

Tobacco based settlement schemes¹
Government sponsored (1952)

Upper Volta

Settlement in connection with Onchocerciasis control¹
Government sponsored (1974) and spontaneous

Zambia

Settlement in connection with the Kariba Dam Scheme¹
Compulsory (1958)

MIDDLE EAST

Afghanistan

*Helman Valley Settlement¹
Government sponsored (late 1950s)

Egypt

*Ibis Settlement
Government sponsored (1967)

Kom Ombo Settlement
Compulsory (1964)

Israeli

Romema: a Moroccan Jewish Moshav²
Spontaneous with massive government support (1956)

Bet-Avi: a Cochin (India) Jewish Moshav²
Spontaneous with massive government support (1951)

Jordan

*Settlement under the Jordan Valley Authority¹
Government sponsored (1972)

At the time of our visit, handing over to the second generation of spontaneous settlers had successfully occurred and the Balinese appeared adequately integrated within the overall political economy of the area. At the same time, both first and second generation settlers were actively involved in an on-going process of economic and sociocultural development, the latter manifested through the construction of new family and community shrines by the Hindu Balinese and of churches by the Christian Balinese -- the former facilitated by improved road construction along the east coast.

We spent three nights in Parigi, visiting Balinese settlers in a number of communities including Parigi itself (Kampung Bali); Massari; Sumbersari (a government sponsored transmigration project started in the early 1960s); Astina (another government transmigration project which followed Sumbersari in time); and Tolai where Gloria Davis concentrated her fieldwork over an eighteen-month period.

D. The Philippines (September 20-27)

On my return to the United States from Indonesia, I stopped over in the Philippines to visit friends and colleagues on a personal visit. Besides visiting old friends in Manila, the main purpose of my stopover was to visit three anthropologists doing fieldwork in Palawan, which is the last major new lands settlement frontier in the Philippines. These were Miriam Chaiken, Tom Conelly, and Dr. James F. Eder, Jr. Graduate students at the University of California at Santa Barbara, Chaiken and Conelly had both been involved in IDA's new lands settlement project as research assistants up until the time they left for the Philippines in the spring of 1980. Eder had returned to Palawan during a sabbatical leave from Arizona State University at Tempe to continue his scholarly research there.

During my stay I spent several days with the Eders in Puerto Princesa on the east coast and with Chaiken and Conelly on the west coast. During this time we visited San Jose, which is a successful community of spontaneous settlers several kilometers north of Puerto Princesa. Analyzed in Eder's 1974 Ph.D. thesis, which was based on fieldwork during the early 1970s, the first members of this community came as spontaneous settlers from Cuyo Island in the 1930s and 1940s. During the 1970s, some had left San Jose to pioneer (along with other Cuyonons and spontaneous settlers of a different ethnic background) the west coast, using a mining road for access. In their research, Chaiken and Conelly are concentrating on two of these west coast communities (both of which I visited) with their research focusing both on the spontaneous settlers and the host population.

IV. COMPLETED AND ONGOING FIELD STUDIES

Very little comparative evaluation has been carried out on new lands settlements that have been in existence for longer than ten years or

APPENDIX 2

SETTLEMENT AREAS AND PROJECTS SELECTED FOR COMPARATIVE ANALYSIS
LISTED BY LOCATION, TYPE OF SETTLEMENT, AND DATE OF FIRST SETTLERS

AFRICA

Ghana

*Settlement in connection with the Volta River Project¹
Compulsory (1963)

Ivory Coast

*Settlement in connection with the Bandama River Project
Compulsory (1969)

Kenya

Mwea Irrigation Settlement Scheme¹
Government sponsored (1954)

*Small-holder settlement in the former White Highlands¹
Government sponsored (1962)

*Shimba Hills Settlement Scheme
(1952)

Senegal

*Terres Neuves Settlement Project
Government sponsored (1972)

Sudan

*Gezira Irrigation Settlement Project¹
Government sponsored (1925)

* Still to be abstracted.

1 Multiple studies of one or more settlements.

2 Ethnicity or religious affiliation of settlers mentioned where they originate outside the country of settlement.

have moved beyond the transition stage. Several years ago Weitz, Pelley, and Applebaum* were commissioned by the International Labor Office (ILO) to evaluate past experiences with agricultural settlements by consulting the libraries of international organizations such as the World Bank. Quickly they learned that most data on the sixty-three projects identified "referred to the planning phase of the projects, while very little data could be found on the implementation and post-implementation phases" (p. 17). For that reason, they had to limit their study to the planning phase.

In our evaluation we have tried to correct for this deficiency in two ways. The first was to more rigorously search out both long-term studies of specific settlements and studies which were completed after the second stage of transition had come to an end. The second was to award grants to candidates for higher degrees to carry out further research on a carefully selected number of well-established settlement areas, at least some of which had moved beyond Stage Two. Because the most valuable source of existing information on well-established settlements was already-completed Ph.D. dissertations, our two approaches were linked since IDA grants would eventually increase the number of such dissertations.

Seven grants have been awarded: dealing with the government sponsored Kom Ombo settlement project in Egypt, two spontaneous and one government sponsored settlement in Nepal's Terai, the government sponsored Mianeriya project in Sri Lanka, and the government sponsored Khashm el Girba (New Halfa) project in the Sudan. These studies are briefly described below. Except in one case where the emphasis was exclusively on nonfarm employment within a settlement area, each grantee was asked to include within his/her research methodology a specially designed questionnaire which would enable us to compare settler families both in regard to their histories as settlers and in regard to their current standard of living. The historical questions were designed to test the utility of our four-stage settlement model, while living standards were assessed by using a 25-point "wealth index" designed to not only compare settler families within the same settlement area but also on different settlements throughout the tropics and subtropics. Both the wealth index and the series of core questions dealing with contemporary and historical aspects of the settler family's history were pretested in Nepal, Sri Lanka, and the Sudan. To date over 300 schedules dealing with six settlement areas in four countries have been completed. Preliminary analysis suggests that the data is indeed comparable and hence has important academic and policy implications for the transnational study and the planning, implementation, management, and evaluation of new lands settlements.

* R. Weitz, D. Pelley, and L. Applebaum, Employment and Income Generation in New Settlement Projects, World Employment Programme Research Working Papers, WEP 10/WP 3 (Geneva: International Labor Office, no date).

Scudder, Thayer and Colson, Elizabeth

1981 "Involuntary Migration and Resettlement Studies: A Summary Essay." In Involuntary Migration and Resettlement: The Problems and Responses of Dislocated Peoples, edited by Art Hansen and Anthony Oliver-Smith. Boulder: Westview Press.

Weitz, R.; Pelley, D.; and Applebaum, L.

1979? Employment and Income Generation in New Settlement Projects. International Labour Office, World Employment Programme Research, Working Paper 3. Geneva: International Labour Office.

Though some of this data will be incorporated within my final monograph, each grantee has been encouraged to publish the results of his/her research to the greatest extent possible. At the moment I anticipate at least three and possibly four dissertations during the next two to three years. In all cases, grantees were either from the country or the region (i.e., Middle East) in which their research was carried out. In all cases, they spoke the official language in the settlement area.

A. Nepal

The first IDA grantee selected to carry out fieldwork was Tulsī Uprety, a Ph.D. candidate in Development Studies at the University of California at Berkeley. Uprety spent approximately one year in Nepal, starting in June 1979. During that year he evaluated the government's resettlement program and carried out field research in three new lands settlements in the Eastern Terai — a lowland area, formerly heavily forested, which has been increasingly colonized from the Himalayan foothills since the late 1940s. Pioneered over thirty years ago by a small number of spontaneous settlers, including Uprety's grandfather and father, the first of these is Durgapur. Dating from the 1960s, the other two settlements are Juke Khadi and Prithibinagar — the former being a spontaneous settlement and the latter a government sponsored one.

I visited Uprety in the field in October 1979, during which time period we field tested his elaborate questionnaire. Working with a research assistant who had just completed his Masters thesis in Economics at Tribhuvan University, Uprety subsequently interviewed adult members (usually household heads) of 71 spontaneous settlement families and 70 government sponsored families. He also carried out less formal interviews among government officials, shopkeepers, and laborers within all three settlements. Currently he is back at Berkeley analyzing and writing up his data (with the help of a second research grant from the Institute for Development Anthropology) in dissertation form.

B. Sri Lanka

The second research grant (with a subsequent supplement) was given to Kapila P. Wimaladharmā to carry out a twelve-month study of the government sponsored Minneriya settlement. This study began in September 1979. Two research assistants were recruited to carry out the fieldwork under Wimaladharmā's supervision, with both taking up residence in Minneriya in December 1979. They are M. S. Sivisena and Bandula Hewahetawat. The research methodology included three major components in addition to an analysis of the history of the project from its initiation in 1933. The first was to track down and reinterview members of a random, stratified sample of 128 settler households interviewed during 1968 as part of the Jogaratnam and

B. Incorporation

Incorporation refers to the process whereby a new lands settlement become an integrated part (rather than a special enclave) of the region within which it is situated. To an extent, incorporation is the result of a successful process of handing over to locally based government departments, and to rural and municipal councils. But physical handing over alone is not sufficient. The incorporating agencies must have the personnel and capital resources and the will to take over essential settlement services so these services do not subsequently break down. Resources and will both require emphasis. Where new lands settlements are in isolated areas, departments of public works, for example, may not have the resources to maintain access roads, bridges, and other essential structures even if they have the will. And because of the tensions that so often exist between specialized development authorities and the technical ministries, this will may be absent — local officials in public works and other departments preferring to allocate resources to communities and projects which they have been serving for longer periods of time and where they are part of a network of social and political relationships. Part of the problem here is political incorporation, since settlement organizations will not be able to compete for regional resources after handing over unless they are integrated within the political economy of the region. So incorporation has a number of aspects which extend beyond the process of handing over. Furthermore, if larger and more diversified new lands settlements are to realize their potential for catalyzing a process of regional development, incorporation must enable the settlement area to play a major role in influencing regional policies and the implementation of those policies.

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Schickele socioeconomic survey of nine Sri Lankan settlement projects. The second was to make a more intensive study of a single community within the Minneriya area, and the third was to census the number and type of nonfarm occupations, and the number of seasonal and permanent extra-familial male and female farm laborers employed within the Minneriya area.

I was able to visit with the research team in the field on two occasions (September 1979 and July 1980). By December 1980, adult members of 115 of the households in Jogaratnam's 1968 survey had been tracked down and interviewed -- a remarkable achievement to say the least. The micro-analysis of Talakolawewa had also been completed along with most of the survey of nonfarm and extra-familial farm labor employment.

C. Sudan

Three grants have been given to young scholars for the ongoing study of the Khasim el Girba (New Halfa) irrigated settlement project which first began to receive settlers in 1964. At the time of IDA consultant Dr. Hussein Fahim and my visit in April 1980, grants were given to Muchtar I. Agouba and Mohamed El Hassan El Tayeb -- Agouba having just completed his Ph.D. dissertation for the University of Khartoum on New Halfa while Mohamed El Hassan El Tayeb was working as a research assistant for Dr. Mohamed Osman El Sammani in connection with a World Bank financed study of certain aspects of the project. Using our comparative questionnaire, Agouba subsequently completed 76 interviews among Halfaween and Shukriyah settlers who constitute the large majority of those settled on the New Halfa project. As for El Tayeb, he completed for IDA a very interesting census of nonfarm employment on the New Halfa scheme.

During the summer of 1980 another award was given to Muneera Murdock Salem, a graduate student in anthropology at the State University of New York, Binghamton, to help finance her dissertation research at New Halfa -- with special emphasis on the Shukriyah, and especially Shukriyah women. This research continues at this time.

D. Egypt

Grants have been given to Zeinab Gamal Hassan and Mohamed Fikri Abdel Wahab to reinterview members of approximately 100 Nubian families who had originally been interviewed in 1961-62 just prior to their relocation in connection with the Aswan High Dam Project. The original sample had been carefully selected to cover the range of economic activities carried on by Nubians prior to the relocation of some 50,000 people to the Kom Ombo settlement area in 1964, with the interviewing done by the late Abdel Hamid el Zein, the late Wafeya Mishriki, Aida Adib, and Ibrahim Nimr under my supervision (the research being sponsored by the Social Research Center of the American

On the whole, however, the problem in the postcolonial era is that settlement agencies retain for too long a period a wide range of activities which could be more efficiently carried out under a policy of devolution to local organizations. Since it is natural for bureaucrats to endeavor to perpetuate themselves in space and time, the problem of inefficient national and special settlement agencies is a major one during the later stages of settlement projects. Indeed, it is so major in some cases as to possibly offset the undeniable advantages of such centralized and hierarchical organizations during the initial stages, hence requiring a reexamination of the relative merits of centralized versus decentralized management strategies for project development. Whether or not effective mechanisms can be built into centralized agencies from the start for subsequent handing over of a range of activities remains unclear. It is equally unclear whether or not a number of decentralized agencies (including technical departments of agriculture and irrigation) will ever be able to take over all the functions executed by centralized agencies, especially in regard to complex river basin development and other projects involving irrigation. More analysis and thought is required on these issues as they relate to the development (or lack of development) of new lands settlements through time.

Because of the nature of the educational system and the propensity of settler families to invest in the education of their children, a number of older settlements are having difficulty in passing on farm activities to the children of settlers as the pioneering generation retires. This appears to be especially a problem in the aging Gezira scheme in the Sudan, but it may also become a problem on other settlement projects, including mature FELDA schemes in Malaysia. Government planners must anticipate this problem and either establish and implement policies which will provide sufficient incentives to keep at least one married child on the farm or consider other mechanisms for recruiting a second generation of farmers. In the former case, rural-urban terms of trade are crucial. So too are nearby service centers and townships which can cater to at least some of the rising economic and social aspirations of settler families, pointing up once again the potentially self-defeating implications of planning new lands settlements as agricultural production schemes based on the export of a small number of crops. At a different level, another crucial problem frequently ignored on many settlement schemes is the absence of a household plot large enough to allow the settler's heir to build a separate house for his/her family. Though it is seldom possible to set aside nearby farm land for the second generation (again emphasizing the need to plan for nonfarm employment so as to avoid the dangers of land subdivision), enlargement of a quarter or half-acre homesite plot to a size large enough for two families is much more easily accomplished.

Where many children do not wish to continue farming, as in parts of the Sudan, it should be possible to develop policies to enable enterprising farm laborers to take over the farms of first generation settlers without heirs or without heirs who are willing to remain on the land.

University at Cairo). During our April 1980 visit to Cairo, Fahim and I met with Gamal and Fikri (both of whom are currently employed by the Social Research Center), who agreed to carry out the restudy. Since that time, they have been working closely with Fahim whose long-term study of the Kom Ombo settlement dates back to 1964. He was able to meet with them in November 1980 during another visit to Egypt and will be working closely with them again in March 1981, at which time we expect their research to be completed.

V. INITIAL IMPRESSIONS

A number of initial impressions have already been briefly discussed in the first and second progress reports. Most will be briefly restated here since ongoing evaluation is reinforcing their importance. The listing is not intended to be at all exhaustive but is rather to illustrate the type of conclusions and discussion issues which are emerging. Along with other conclusions and discussion issues, they will be dealt with at length in the final monograph. Though tentative, they are presented provocatively in hopes of soliciting commentary from readers which can be incorporated into the final report.

A. New Lands Settlements as a Special Type of Sociocultural Subsystem

New lands settlements do indeed constitute a special type of sociocultural subsystem which can be comparatively analyzed in space and time and which must pass through a number of stages before they can be considered successful. Not only does each stage have important policy implications, but a modified version of the four stage model can also be applied to irrigation projects, river basin development projects, and other types of areal and regional development projects.

B. The Need for Both Spontaneous and Government Sponsored Settlement

Though spontaneous settlers make better farmers in less time at less cost than government sponsored settlers, they also tend to have more resources -- government sponsored settlers tending to come from a lower income sector of the population. For this reason there is a place for both types of settlement in the tropics and subtropics, although spontaneous settlement can be expected to continue contributing the larger proportion of new lands settlers. In the final report I will discuss various ways in which governments can facilitate spontaneous settlement (and combine it with government sponsored settlement) in such a way as to tap into settler initiative while avoiding low production and environmental degradation.

based process of regional development, an outcome which can be realized either toward the end of Stage Three or during Stage Four. Before this is possible, however, a wide range of settler organizations need to develop. These make a number of vital contributions to the emergence of economically and socially viable settlements, of which three warrant brief mention. First, they contribute to community and settlement integration, altering the atomistic nature of social organization during the transition stage and making the settlement area a more interesting place for settler families (including children) to live. Second, their existence is correlated with higher productivity since members can personally deal with matters that directly concern their economic welfare. Third, strong local organizations, especially projectwide farmer unions and water user and cooperative federations, enable settlers to influence policy and to compete at the regional and national level for scarce resources.

During Stage Three, careful government monitoring and intervention can help identify and remove bottlenecks dealing with the provision and upkeep of physical and social infrastructure; changing rural-urban terms of trade, especially pricing policies for agricultural produce and agricultural requisites as they relate to farm income; and farm services including extension, credit, and marketing. Government agencies can also anticipate increasing labor demands in order to develop appropriate policies to serve farm laborers, while settlement agencies should actively encourage or pursue training and institution building programs for delegating increasing managerial responsibility to specialized government agencies (especially decentralized departments dealing with health, education, and so on at the local level), local rural and municipal councils, and settler organizations.

V. STAGE FOUR: HANDING OVER AND INCORPORATION

A. Handing Over

Because of the observed inefficiency of long established national and special project settlement agencies and because of the frequently negative impact of educational systems on the willingness of settler children to continue farming, I do not consider any settlement to be a success until a degree of handing over has occurred and until a second generation of settlers has taken over. Handing over activities to departmental, local government, and settler organizations is a tricky business which can proceed both too rapidly and too slowly. As Chambers has pointed out, settlement agencies may try to divest themselves of responsibility for certain essential activities because of financial stringency and a desire to concentrate more on crop production. In both the Mwea and Khashm el Girba projects, health services suffered because responsibility for schistosomiasis and malarial control was handed over too soon to local departmental and community control.

C. Underestimating the Development Potential of New Lands Settlement

National and international planners, as well as scholars, tend to underestimate the development potential of both spontaneous and government sponsored settlement both as a mechanism for raising production and living standards within the settlement area and as a mechanism — where scale and net incomes are sufficient — for catalyzing a process of areal and regional development which extends beyond the settlement area.

There are a number of reasons as to why this potential is underutilized. They include the following:

[1] Unrealistic expectations for rapid increases in production during the early years of settlement, based on a lack of appreciation of the dynamics of the development process involving new lands settlements.

[2] Overemphasis on new lands settlements as agricultural production schemes as opposed to area development projects, with the result that the potential for new lands settlement to generate nonfarm employment and multisectoral development is lost. The developmental implications of this bias are major since the data collected to date on successful settlements suggests that a ratio of one or more nonfarm families for every farm family is not an unreasonable expectation for Stage Three. Because of the potential of new lands settlement to generate nonfarm employment, and the scarcity of information on this important topic, I would appreciate receiving additional information on multiplier effects and specifically on nonfarm employment from readers.

[3] Overemphasis on the production of specific crops as opposed to diversified farming systems in which farm families attempt to pursue a range of strategies through time for developing the crop, livestock, and nonfarm components of their family enterprise. Analysis of such strategies strongly suggests that the development potential of the settler model is greater than that of the more restricted and static government and donor model.

[4] Overemphasis on production as opposed to adequate settler family net incomes.

D. Planning New Lands Settlements as if They Existed in a Vacuum

A number of design inadequacies exist here of which three can serve as illustrations.

[1] Making no attempt to relate expected net incomes to other options available to potential settlers in the agricultural,

While settlers concentrated previously on a domestic mode of production involving extensive agriculture, with investments largely restricted to education for children, during Stage Three we have observed a wide range of investment strategies designed to achieve higher levels of labor productivity through diversification of the family estate. While more data analysis is necessary, it would appear that settlers follow the same sequencing of investment activities in different parts of the world. As already mentioned, initially they invest in education for their children, indicating a willingness from the start to forego returns from the labor of those children in agriculture for possible remittances and other support ten or more years later. Subsequently additional farm land is sharecropped, leased, and/or purchased and the farming system is expanded into cash crops (including labor intensive, high risk crops), while the crop component is expanded to cover livestock -- both on and off the project -- and nonfarm activities. Nonfarm activities tend to start on the farm homestead, taking the form of small business enterprises such as crafts, baking, and tailoring which are located within the home. The home itself may be extended, with rooms rented out to laborers and officials -- and in some cases a separate house built for rental income. Subsequently, investment expands to nonfarm activities off the homestead but within the settlement area, with these including fixed businesses like small general stores, and mobile businesses involving transport for hire in the form of two- and four-wheel tractors, trucks, taxis, and mini and other buses. Still later, as observed in Egypt and the Sudan, investments are made in urban real estate (both land and housing) and businesses.

As incomes go up, many settlers prefer to hire laborers for an increasing proportion of agricultural tasks, using family labor for more remunerative activities both on and off the settlement allotment. Especially in irrigated settlements in Africa, Asia, and the Middle East, the number of seasonal and permanent laborers may exceed the number of settler families. Though often living under extreme poverty, such laborers also have been observed to pursue a sequence of development activities designed to tap into the economic growth of the settlement area. Seasonal laborers attempt to become permanent laborers by establishing a year-round relationship with one or more settlers. Working for wages initially, the more enterprising laborers seek out sharecropping and lease-hold arrangements. Both may be sought at the same time since the landlord provides the capital in the first case while the leasee is responsible in the second. Finally, the successful sharecropper or tenant attempts to purchase land, hence becoming a settler in his own right.

Farm diversification and increasing net income among settlers also facilitate the development of commercial and service centers which process the produce and serve farm and nonfarm family needs. Provided the scale of the settlement (or of a cluster of settlements) is large enough, farm production diversified, and net incomes sufficiently high, in time nonfarm employment may exceed farm employment -- with the settlement finally realizing its potential for catalyzing a broad

service, and urban-industrial sectors.

[2] Ignoring the development implications for new lands settlements of unfavorable rural-urban terms of trade.

[3] Failure to relate new lands settlements to surrounding communities, especially existing townships and marketing networks (or the absence thereof). The classic example here is restricting the planning of irrigation based settlements to the area under command.

E. Settler Selection

In the case of government sponsored settlement the following tentative conclusions are beginning to emerge:

[1] Settler selection should be related more to the solution of pressing national problems in the areas of origin, such as the need for land consolidation or the protection of water catchment areas.

[2] Potential settlers for a given community should be selected from the same area of origin (but not necessarily in large numbers from the same village).

[3] Settlers should be selected as families with both husband and wife interviewed. Not only do women tend to be ignored during the selection process, but they also tend to be ignored during the planning and implementation process -- with the result that their economic and social position often deteriorates after settlement, with adverse implications not just for the women and children but also for agricultural production, net family income, and family organization.

F. The Need to Phase the Construction of Settlement Infrastructure and Services

Since attempts to create "instant" infrastructure and services from the start usually fail, priorities should be set so that the provision of infrastructural and service components can be phased. More attention should be paid to the timing of each component as they relate to settler families and nonfarm families and as they relate to settlement administrators and other government personnel.

the emphasis should be on helping the settlers feel secure in their new habitat at the earliest possible moment. Such an approach does not mean that developmental activities should be ignored at that time; quite to the contrary. Just as land negotiation and tenural arrangements should be completed during Stage One to expedite subsequent development, so too are there a similar range of developmental activities which can be implemented during the transition stage. These include, for example, continual provision of crucial physical and social infrastructure (especially construction of feeder roads and upgrading of access roads) and construction, equipping, and staffing of schools. (Schools are especially important because one of the first investments made by settlers is in education for children. If schools are inadequate in number and quality, settlers are less apt to bring their families to settlement areas, hence contributing to instability and labor bottlenecks.) Other developmental activities include fielding of an appropriate unified extension service of men and women who can deal with diversified farming systems development, including development of the livestock and nonfarm components; the encouragement of appropriate private and public sector marketing services, including marketing cooperatives and loans to private entrepreneurs; and setting the stage through extension and training for the emergence of settler-dominated participatory action organizations. All these activities, however, must be carefully formulated and implemented so they actually facilitate settler initiative and independence rather than promote a sense of dependency which can bog a settlement down in the transition stage for years to come.

IV. STAGE THREE: ECONOMIC AND SOCIAL DEVELOPMENT

The contrast between Stage Two and Stage Three is dramatic: the first characterized by a population of risk-averse settlers and the second by a population of risk-taking settlers. Since the same people are involved, a dramatic change occurs during which a relatively conservative (and often closed system) evolves into a dynamic open-ended one with the potential to catalyze a process of development both within and without the settlement area. There is something of a paradox here since some of the variables creating stress during Stage Two facilitate development during Stage Three. A case in point is the simplifications of the sociocultural system immediately following settlement. While departure from an old sociocultural setting -- with extended ties of kinship, patron-client and other nonkin relationships, and a pervasive community and religious organization -- can be initially stressful, subsequently individual households and groups of neighbors may be more able to show initiative and to innovate within the settlement area than if they had stayed "at home" simply because their behavior is no longer constrained by the preceding relationships and institutions. Extending the paradox, their capacity to innovate may be more constrained in the settlement area during the preceding transition stage than in their "home" environment because of the stress accompanying relocation to a new habitat.

APPENDIX 1

NEW LANDS SETTLEMENT STAGES

I. INTRODUCTION

A number of authors have stressed the importance of studying settlement areas and projects as "entities which change over time" (Chambers, 1969:226). Based primarily on a comparison of the Ghanaian Volta resettlement program (carried out in connection with dam construction at Akosombo) with the Mwea Irrigation Scheme in Kenya, Robert Chambers' African contribution is especially important. He separates out three stages: the first dealing with the presettlement period; the second with settlement and organization, with an emphasis on welfare and production; and the third with withdrawal involving specialization and devolution. Writing on Latin America, Michael Nelson (1973:73-74) has also analyzed new lands settlements in terms of stages -- dealing with both spontaneous and government sponsored settlements whereas Chambers concentrates on the latter. Focusing on settlement areas, Nelson's first stage is labeled pioneer and is followed in succession by consolidation and growth stages -- with the first two lasting from five to ten years each.

Also dealing with Latin America, C. F. Reboratti has postulated a three-phase cycle for colonization in Argentina and Brazil (unpublished conference paper, 1979). Still other authors have wished to study the development of new lands settlements through time but have been constrained by a lack of appropriate data. Though Weitz and his colleagues had intended to study employment and income generation in new lands settlements during the "implementation and post-implementation phases" they had to eventually narrow their study to the planning phase only, projecting possible employment outcomes through the use of simulation (1978:17). Though their final sample of government sponsored settlements included twenty-nine projects in eight countries, the large majority were in Africa and Latin America -- only four being in Asia.

In building upon the work of these and other authors, we have had access to a wider range of sources on mature (but not necessarily successful) projects both in terms of written materials and field studies. Unpublished materials (including Ph.D. dissertations) have been very helpful as have the field studies and site visits carried out as part of our study methodology. In formulating the stages outlined below, information on the following government sponsored new lands settlements have been particularly useful (country and starting

initiating the third stage of economic and social development. This shift is most apt to occur after settler security is increased through the production of sufficient food to meet family needs and the settlers begin to feel "at home" in their new habitat. Economic self-sufficiency can be measured by calculating agricultural yields and family incomes while feeling at home can be assessed through the use of a wide range of indices. One set relates, for example, to increasing familiarity with the new habitat as indicated by willingness and ability to travel to off-farm locations; the use of names (local, transferred, and new) for physical land-forms, plants, and animals; and "taming" the new habitat by referring to it in songs and other narrative forms.

Another set of indices relates to the reestablishment of community organizations (especially of community supported religious structures) and the formation of new organizations (such as farmers' unions, water user associations, womens' groups, cooperatives, and rural and municipal councils) which can represent the interests of the settlers vis-a-vis the hosts, the government, and the outside world at large.

At this point it is worth mentioning a major policy implication of the transition stage. Granted the security oriented and conservative stance of the settlers at this time, it is unreasonable for governments and donors to expect rapid increases in productivity through agricultural intensification during the first five years. Yet such unrealistic expectations all too often characterize both national and international planners since project evaluations several years after project implementation often show economic rates of return well below planning estimates. There is rather a paradox here since planners tend to seriously overestimate rates of return during the early years of subsequently successful settlement projects and to underestimate them during subsequent stages.

The logical way to improve project performance during these early years of implementation is to shorten the length of the transition stage. This can be done in a number of ways. One relates to settler recruitment. Although there are potential disadvantages as well as advantages to recruiting whole communities as settlers, the advantages of recruiting settlers from different villages within the same locale and ethnic area as opposed to different ethnic areas are overwhelming during the transition stage. There are two reasons for this. The first is that neighbors and co-ethnics are much more likely to form self-help groups for land clearing and house building during the early years of settlement which often are characterized by serious labor shortages. The second is that the potential stress and uncertainty of having to adapt to new neighbors is lessened when those neighbors come from a similar ethnic background.

Another way for governments to shorten the length of the transition stage is to make a conceptual distinction between settlement and development phases, the former corresponding to the transition stage and the latter to the subsequent stages. During the settlement phase,

dates indicated in brackets):* FELDA projects [Malaysia, 1956]; Gezira and Khasha el Girba [Sudan, 1925 and 1964, respectfully]; Kariba Lake Basin [Zambia, 1958]; Kom Ombo [Egypt, 1964]; Mimmeriya [Sri Lanka, 1933]; Mwea [Kenya, 1954]; Papaloapan [Mexico, 1952]; Volta [Ghana, 1963]. As for spontaneous settlement areas, studies of Durapur [Nepal, late 1940s]; Palawan [Philippines, 1931]; and Parigi [Indonesia, 1906] have been equally useful — giving access to data on both settlement categories in eleven countries: one in Latin America, three in Tropical Africa, two in the Middle East, and five in Asia. Though this weighting was not intended, the emphasis on Asia counters the emphasis of the preceding authors on Africa and Latin America.

Like Chambers' three stages, our four-stage model is a transformational one where ideally "a sequence of activities transforms an environment and creates a new entity" (Chambers, 1969:219, fn 1). It differs from Chambers' in focusing more on new lands settlements from the point of view of the settlers (as opposed to planners, administrators, and managers — and the organizations to which they belong); on placing more emphasis of the later stages; and on dividing Chambers' second stage into two (between which there are very fundamental differences). Though our emphasis is also on government sponsored settlement (since the delineation of stages is clearer), the focus here is on voluntary settlers since Colson and I have dealt with settlement projects involving compulsory relocation elsewhere (Scudder and Colson, 1981). Transformational models also can be applied to spontaneous settlement as well as to other types of projects, including irrigation and area development.

To meet our criteria for success, a new lands settlement must pass through all four stages, though not necessarily as sequenced. Since the fourth stage includes handing over to a new generation of settlers, at least a generation must pass before success is insured, although a considerably longer period may be involved if the third and fourth stages are reversed. Both of these stages are crucial if living standards and productivity are to rise and if continuity and development are to continue. In many new lands settlements the third stage is omitted entirely so that handing over to the next generation tends to perpetuate a pioneering situation characterized by a subsistence mode of agriculture based on extensive agriculture, a low level of community services, community instability, a low level of employment and production outside of the agricultural sector, and often environmental degradation. As time goes by, living standards and productivity are apt to drop as degraded holdings are subdivided — and the potential for new lands settlement to catalyze a process of regional development lessens rather than grows. Such settlements are considered unsuccessful.

* An extensive bibliography will be included in the final report.

III. STAGE TWO: THE TRANSITION STAGE

The use of the word "transition" is used to emphasize two points. First, that this is a stage of transition for settlers who in many cases are moving from one habitat to another and, second, that this transitional period must come to an end before settler families can be expected to take risks and increase significantly their productivity. While the duration of the transition stage may be less than a year for a minority of families in settlements which subsequently reach Stage Three, for the majority it would appear to last for at least two years and more often for five to ten years.

During the transition stage the large majority of settlers are risk-averse, which explains why few technical, organizational, and sociopolitical innovations are adopted at this time. Risk-aversion appears to be a coping response to the stress and uncertainty associated with moving into a new habitat — where settler families need not only come to grips with a new physical and biotic environment but also with new neighbors, an increased government presence, and frequently with a new host population. In responding to stress (which, while greater with compulsory relocation, also characterizes voluntary settlers), most settlers adopt a conservative stance, their first priority being to meet their subsistence needs. They favor continuity over change; and where change is necessary, they favor incremental change over transformational change. They cling to the familiar by moving into new settlements with relatives, former neighbors, and co-ethnics. They also try to transfer area-of-origin house types, farming practices, and other skills even though they may not be suited to the new habitat — with the result that the transference of the old to the new may increase nutritional stress while alleviating psychological and sociocultural stress by recreating "the security of an encapsulating community with familiar institutions and symbols" (Scudder and Colson, 1981:14). Stress is also increased by illness, with morbidity and mortality rates being considerably higher during the transition stage than later on, and quite possibly also being higher than prior to settlement (although inadequate data makes such a conclusion tentative).

During the earliest days of the transition stage, settler behavior is family and neighbor oriented, while community activities (including the formation of and participation in economic, social, political, and religious groupings) are deemphasized. In this sense, the context of social behavior is simplified. Simplification also occurs because many behavioral patterns, production techniques and skills, and some institutions are not transferred at all, partly because they are not compatible with ecological, economic, and sociocultural conditions in the new habitat. Where community or ethnic organizations are established, they tend to be benevolent associations that cater to such family crises as death.

The transition stage comes to an end when enough settler families shift from a conservative stance to a dynamic open-ended one, hence

Ideally the four stages should occur in sequence, hence realizing the development potential of new lands settlement in the shortest time period possible. But as indicated in the previous paragraph, the last two stages may be reversed in some successful settlements while unsuccessful ones may cease to be economically and socially viable during Stage Two. Analytically, the situation is made more complicated for a number of reasons.

First, the different stages, and substages within them, frequently overlap. As Chambers points out, during the initial presettlement stage planners and politicians are often in a hurry to realize the perceived benefits of settlement so that implementation often overlaps with planning. Agricultural areas for both rains cultivation and irrigation, for example, may be laid out before soil surveys are completed. Subsequently, when soil conditions are found inadequate, changes are constrained since settlements have already been laid out and access roads cleared.

Second, the boundaries between the stages are often fuzzy, partly because of measurement difficulties (relating to whether or not certain indices apply) and partly because some settlers progress more rapidly through the second stage than do others. The possibility of settlers being pulled back from Stage Three into Stage Two is an ever-present one, new lands settlements being vulnerable to ecological setbacks (new disease of plants and livestock, for example, as well as floods and irregular rainfall and the degradation of what is often a poorly understood habitat); changes in government pricing policies and in rural-urban terms of trade; and increasing managerial inefficiencies. While all these factors are crucial, increasing managerial inefficiencies threaten a number of large-scale projects around the world. The Khasha el Girba scheme in the Sudan is a case in point, where the Agricultural Production Corporation is no longer able to provide essential services (such as tractor mechanization) — with the result that Halfaween settlers who had progressed to Stage Three are being pulled back into Stage Two, while the growth of the off-farm sectors in New Halfa township have also been adversely affected.

A third difficulty of applying an ideal model to actual settlement areas arises from the fact that particular settlements may attract new settlers over a considerable time period. This is especially the case where government agencies plan phased settlement, with first one block or area and then another being systematically opened up and colonized. Phased settlement is especially common in the major irrigation settlements in Sri Lanka, where phasing occurs within a single settlement project. In Indonesia, the phased "development" of a number of settlements may be implemented within a particular settlement area, while FELDA in Malaysia has gone one step further (as in the Jengka Triangle area) by phasing the establishment of different settlements around a planned new town designed to serve as a commercial center.

density among the hosts may be very low (as with bush fallow cultivators and gatherer-hunters) and though occupation may be seasonal (as with transhumant herders in semi-arid lands), the hosts have customary land rights which need to be assessed. Even where assessment is carried out and host-settler land rights negotiated and legalized, subsequent conflicts can be expected so the need for adjudication procedures can be assumed from the start. During the planning phase, consideration should also be given to the extent to which the hosts will be included within the settlement project on social equity, economic, and political grounds.

B. Construction of Initial Infrastructure and Settler Recruitment

The wording "initial" infrastructure suggests that infrastructural development should be phased, with planners establishing priorities for implementing in time different types of infrastructure for settler families, administrators, and other nonfarm families. A major problem with many settlement projects is the inadequacy of all infrastructure, the authorities failing in their attempt to introduce "instant" infrastructure from the start. During the design substage, decisions need to be made as to whether or not an elementary "site and services" approach will be taken versus a more ambitious approach. In either case, implementation of infrastructure should be sequenced, with only essential items like access roads and irrigation structures constructed during Stage One. As for settler recruitment, far too much emphasis in the past has been paid to the recruitment of individual men as opposed to settler families where attention is paid to both spouses. But settler recruitment should be still more broadly linked during the planning process to the consideration of what types of production systems, what types of communities, and what types of societies are desired so that recruitment can seek out both farm and nonfarm families with the necessary aptitude/orientation, experience, and skills. The design and implementation of a new production system and society almost from scratch is an incredibly complicated process in which planners need rely more on the initiative, the experience, the institutions, and the symbols of the settlement population.

To date we have found that the development potential through time of the settler model would appear to be greater than the more restricted and static model of the planner. Paying more attention to the main risk-takers on new lands settlements (who are the settler families as opposed to the planners and managers) would help shift the balance from an overemphasis on agricultural production as an end in itself to a greater emphasis on the type of net income needed to encourage a greater settler initiative in regard to production and community formation and to raise demand for consumer goods and services so as to encourage development of nonfarm employment.

In spite of these analytical difficulties, it has been relatively easy to place different settlements in a particular stage. Furthermore, the very concept of stages draws attention not only to the fact that new lands settlements have histories but also that these histories are remarkably similar. It follows from this that people and the sociocultural systems in which they are imbedded respond to new lands settlement in predictable ways. Having analyzed a number of them on different continents, I have concluded that new lands settlements are a distinct type of subsystem which must evolve through a succession of stages if they are to become socially and economically viable -- viable here being defined not just by the analyst but also by the planner, the manager, and the settler family. Though some of the stages (especially the first) could well be subdivided, the four-stage model outlined below should facilitate the design, implementation, management, and evaluation of more viable settlements since each stage involves a number of basic issues, each of which can be anticipated and each of which has important policy implications. These implications along with a much fuller analysis of each stage will be elaborated in the final report, the purpose of the present outline being to introduce the reader to each of the four stages in hopes of eliciting reader comments.

II. STAGE ONE: PLANNING, INFRASTRUCTURE, AND SETTLER RECRUITMENT

This stage lends itself to further division into two substages -- the first relating to feasibility studies, planning, and design and the second to the construction of initial infrastructure and settler recruitment.

A. Feasibility Studies, Planning, and Design

Ideally the feasibility studies which are carried out during this substage should consider a wider range of alternatives before the decision is made to proceed with a particular type of settlement project. Should a positive decision result, then a whole range of planning and design activities follow -- a number of which Chambers has outlined (Chambers, 1969:220-221; Chambers and Moris, 1973:462). Under planning, a wide range of issues need be considered -- including the scope and scale of the intended farming systems and the settlement as a whole in relationship to regional development. Weitz and his colleagues assume, for example, that multiplier effects are correlated with diversification of the farming system, farm family income, and settlement scale. A more specific issue which is important in part because it tends to be deemphasized is planning the type of land tenure for the settlers and then undertaking the necessary negotiations with the host population so as to reduce the disruptive potential for subsequent land disputes and uncertainty over tenure. Regardless of the habitat and the production systems of the hosts, host-settler conflict almost inevitably accompanies new land settlement projects. Though in humid rain forests the population