

One of Africa's great dams, the Kariba on the Zambesi River, was built mainly for hydropower generation.

# What It Means to be Dammed

## The Anthropology of Large-Scale Development Projects in the Tropics and Subtropics

by THAYER SCUDDER

Since 1956 my research has been concentrated on the local impacts of river basin development in the tropics and subtropics. In particular, I have been studying what it means to local residents to adjust to the effects of the damming of the rivers whose banks have been their ancestral homes and whose waters have provided much of their families' livelihoods. Recently, however, I have expanded that research to include a wider variety of large-scale development projects in the rural areas of Africa, the Middle East, and Asia, including new lands settlement projects as well as river basin and irrigation projects. This research is of special interest because of its policy implications—both locally and nationally, and to both late-developing and industrial nations throughout the world.

To date, the big-project approach to rural development in the tropics and subtropics has largely failed to achieve the benefits intended—both for local citizens who live in the project area and for the nations involved. In the case of river basin development, the big-project approach has failed to tap to the extent possible the development potential of local resources. And since many countries in the tropics and subtropics have access to only one major river system, which is often the heartland of these countries, clearly they cannot afford such underutilization.

I believe that this failure can be attributed more to policy, planning, and implementation inadequacies at the national level than to inadequate responses to new opportunities on the part of local citizens living within the



Tonga villages like the one above are relatively resilient because they are relatively self-sufficient. But often big projects replace such resiliency with dependency.



The photograph above shows a Tonga village that has been flooded out by water backed up from the Zambesi River in Central Africa.

project area. Combining what are called “development from below strategies” with “development from above strategies,” an alternative development approach starts from a better knowledge of an area’s human, land, and water resources than is usually the case. And in advocating the integrated development of those resources, it focuses from the start on the people living in the area — the assumption being that they and subsequent immigrants are the major resources. Any project that tries to release the development potential of these people and their land and water resources must pass through four stages, taking a full generation, before it can be considered successful both from the point of view of the local people and of the project planners and managers. My four-stage framework is at this point tentative; it needs further empirical testing in the field.

From a policy point of view, the deck is stacked against most rural areas of the old world tropics and subtropics because national development policies not only favor the urban industrial sector, but do so at the expense of the rural sector. (The best general source on this topic is Michael Lipton’s *Why Poor People Stay Poor: Urban Bias in World Development*.) With only a few exceptions (including Egypt’s High Dam — probably the most integrated and successful of the various large dam projects though, ironically, also the most condemned), big dams are a classic example of this bias. Though located in rural areas, their main purpose is to generate hydroelectric power for the urban-industrial sector. Not only do rural areas not benefit through, for example, rural electrification from the transmission lines that pass overhead, but local residents realize this and follow those transmission lines to

the cities where they know the opportunities lie — hence accelerating the rural-to-urban influx that is such a global feature of our time.

In terms of what rural development is carried on within river basins, there are other policy and planning inadequacies. The overemphasis on the management of water resources, for example, precludes the integrated development through time of human, land, and water resources. In such African projects as Kariba (Zambia-Zimbabwe), Volta (Ghana), and Kainji (Nigeria) — all giant projects producing the first mainstream dams on the Zambesi, Volta, and Niger rivers, respectively — the primary emphasis was on water management for hydropower generation to the exclusion even of irrigation. But even where irrigation does occur, the emphasis in both Africa and Asia is on the production of one or two crops, often for export, rather than on the creation of diversified farming systems that can catalyze the development of the regions in which they exist. They catalyze development by raising net incomes of the farming community (hence increasing their purchasing power for local goods and services) and by meeting the food needs of the nonfarm sector as well as providing produce for agro-industrial development.

Another policy-planning inadequacy I have labeled “the development from above syndrome coupled with the myth of the conservative or lazy peasant.” Espoused by politicians, planners, and decisionmakers who think they know what is best for local populations (about whom they actually know very little), “the development from above” approach can be best visualized as an economic laying on of hands, backed up by international expertise and finance. The planners superimpose development strategies on local

people who have virtually no say in any aspect of the project — planning, implementation, management, or evaluation — in spite of the rather obvious fact that these local people are the primary risk takers.

As for the myth of the conservative peasant, that portrays the local people as so conservative that the only way to “jolt” them into the 20th century is to restructure their societies according to the national priorities of the day. This approach has four very pernicious effects. First, it ignores the fact that the closed traditional peasant society is today the exception; most rural societies in the tropics and subtropics are increasingly dynamic and open-ended systems in which citizens are both aware of and want better education for their children, better medical facilities, and better economic opportunities. Indeed, it can be convincingly argued that the developmental strategies of the members of such societies are more dynamic than those of the planners and decisionmakers who manipulate them! Second, it ignores the fact that local people are willing to work for these benefits. Third, it ignores the voluminous recent literature on the “rationality” of local farming and other production systems. For example, Robert Bates, professor of political science at Caltech, has written in detail on this topic. This literature suggests that development plans should start with these systems, enhancing their very real strengths and offsetting their weaknesses through a process that combines “development from below” with “development from above.” Fourth, it provides an effective mechanism for blaming project failure on the supposed beneficiaries rather than on the more responsible planners.

In believing that they know how to create new and better farming and production systems for rural peoples, planners forget that such systems are imbedded in far more complicated sociocultural systems that they do not have the ability to create. The cultural arrogance of this position has two major defects. First, it does not tap the potential of existing production systems. (In this sense, planners are



Inevitably, the construction of big dams like Kariba opens up isolated areas by incorporating them within a national or regional framework.

ignoring the private sector and its involvement in development. Though I am stressing here the involvement of small- and medium-sized private sector operators — the family firm whether farm or business — the same applies to larger businesses.) Second, it can and does lead to the extinction of existing sociocultural systems, especially in the case of the societies of small-scale host populations.

Another inadequacy is an institutional one. Frequently governments establish a highly centralized special area or national development agency — called parastatal agencies in Africa — to implement and manage large development projects. Well capitalized, at least at the start, such agencies, it is argued, can best implement and manage development. They also allow international donors to more carefully monitor how their funds are spent, hence giving them greater control over what the economist Judith Tandler calls their “external environment” in an intriguing little book titled *Inside Foreign Aid*. It may well be true that such parastatals are more efficient (and possibly more effective) during the initial years of project development than decentralized administrative arrangements whereby one agency is responsible for coordinating the activities of a range of government departments with existing responsibilities within the project area. But there is also increasing evidence that such agencies may also become a major — if not the major — constraint to subsequent development both because of increasing operational inefficiencies and because of their inability to decentralize and to devolve responsibilities to the relevant government departments, local municipal and rural councils, and local participatory action groups of farmers and other producers.

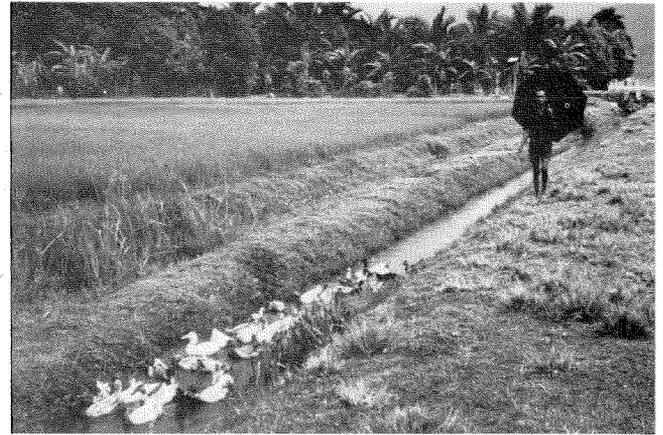
In making this critique, I do not wish to give the impression that I am necessarily anti big project — a perspective that is becoming quite fashionable in certain quarters. On the contrary, in some countries major river basin development and area development projects are essential if current living standards and rural productivity are to be raised. Though more emphasis should be placed on articulating a series of small- and medium-sized projects into a larger regional context, it is not necessarily bigness as such that should be under attack; rather, it is the approach to project planning and implementation.

My own work with large-scale river basin development projects, irrigation projects, and new lands settlements has convinced me that planning for such projects must start with a far better knowledge of the human, land, and water resources of the development area. As I see it, the purpose of area or regional development is to start a process of integrated development of an area’s human, land, and water resources in terms of production for local consumption and export, employment generation, rising standards of living, social equity, natural resource enhancement, and resiliency.

All of these goals are straightforward except for the last. By resiliency, all I mean is the capacity of an area to stand on its own to some extent in the event that the external



Started by the Dutch in the 1930s, this irrigation project in Sulawesi, Indonesia, is currently being rehabilitated through a cooperative Indonesia-Dutch aid program.



Rice fields, ducks, and settler-owned tree crops on another Sulawesi irrigation project, which is currently being renovated through a cooperative Indonesia-US AID program.

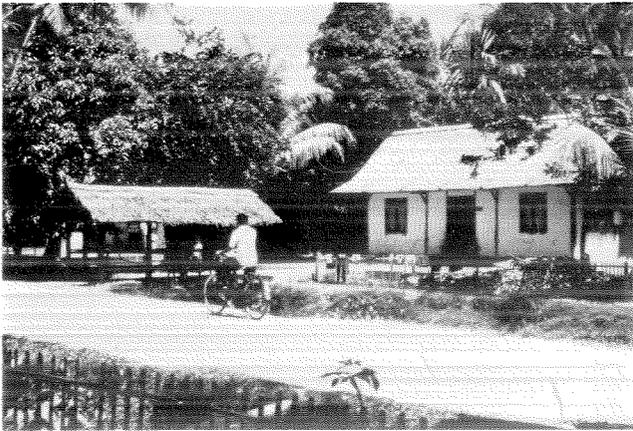
political economy (both national and international) destabilizes (as, for example, in the recent case of Uganda), so that government commitments to the area cannot be met. Though decisionmakers take the initiative in opting for a policy that advocates area development, the starting point should be the existing production systems of the local peoples and the sociocultural contexts in which they are imbedded. This priority makes sense not just because the local people are the main risktakers, but also because evaluatory studies indicate that their active involvement increases the chances for project success. (This was pointed out in a 1975 evaluation for the U.S. Agency for International Development by Development Alternatives, Inc., of 36 rural development projects in 11 countries in Africa and Latin America.) The local people include both current residents (irrespective of length of residency) and future immigrants. Both need to be integrated into project planning and implementation since ignoring the hosts is an assured way of exacerbating conflicts over land, economic opportunities, and social services, while ignoring immigrants will reduce the capability of any large-scale project to catalyze a process of area development.

During the past two years I have spent most of my time carrying out a global evaluation of both government-sponsored and spontaneous settlement of new lands in the tropics and subtropics. Though most new lands will have been settled by the end of the present century, in such areas as the humid tropical lowlands of Latin America (including, of course, the Amazon basin), Africa (including the Congo basin), and Asia (including Malaysia and Indonesia) large relatively unutilized areas remain. I say relatively unutilized because such areas are frequently used by gatherer-hunters, and shifting cultivators who constitute a host population whose land and other rights tend to be ignored by governments more often than they are observed. (For a blatant example of government inhumanity to host populations — in this case local tribal societies who have lived in the Amazon Basin for millennia — I

suggest reading *The Geological Imperative: Anthropology and Development in the Amazon Basin of South America* by Shelton H. Davis and Robert O. Mathews.) The same applies to certain savanna, semi-arid and arid lands, the development of which requires improved irrigation, provision of domestic water supplies, and, often, disease control for both people and livestock. Examples include much of the Sudano-Sahelian zone of West Africa, large parts of the Sudan, the basin of the Mahaweli Ganga (which covers approximately two-fifths of Sri Lanka), and other monsoonal areas of Asia characterized by seasonal rainfall.

Large-scale development projects are already under way or on the drawing boards for many of these areas, most of which continue to illustrate the deficiencies that I have briefly mentioned. Ironically, while many of these projects tend to have unreasonably high expectations for the initial five years, they also tend to underestimate project benefits and especially multiplier effects that could occur over the longer term. A major reason for this incongruity relates to the short time horizons of many planners and planning agencies, and especially to their failure to visualize a development project as a dynamic process that must pass through a succession of stages in order to be considered successful.

I have found a four-stage development framework very useful in explaining the relative success or failure of a number of new lands settlement projects that have been in existence for 15 or more years. Influenced by the African research of Robert Chambers, this framework not only “explains” why planners’ expectations for rapid early returns are unrealistic, but it also illuminates a range of other issues that have plagued new lands settlement projects — issues that are of critical importance though there is insufficient space to explore them in this article. While the model was developed specifically for new lands settlement projects, I believe, with some modifications, that it is also applicable to populations of refugees, and to river basin and other types of area development that are not focused



A typical irrigation-settler household plot in the Luwu District of Sulawesi has a relatively comfortable residence surrounded by fruit trees.

so much on the settlement of new lands by an immigrant population.

The four stages are as follows. *One*: Planning, Infrastructure, and Settler Recruitment; *Two*: Transition; *Three*: Economic and Social Development; and *Four*: Handing Over and Incorporation. To meet my criteria for success, a new lands settlement project 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 stages are crucial if living standards and productivity are to rise and if continuity and development are to continue. In many government-sponsored new lands settlements, the third stage is omitted entirely. Consequently, 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 (a characterization paraphrased from Michael Nelson's 1973 book, *The Development of Tropical Lands: Policy Issues in Latin America*). 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.

Ideally, the four stages should occur in sequence, thus 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. Analytically, the situation is made even more complicated for a number of reasons. First, the different stages, and substages within them, frequently overlap. 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 a more extensive and subsistence-oriented mode of production is an ever-present one, new lands settlements being vulnerable to ecological setbacks, changes in government policies, and increasing managerial inefficiencies. 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.

In spite of such 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.

#### 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 settler recruitment and the construction of such initial infrastructure as roads and irrigation facilities.

1. *Feasibility Studies, Planning, and Design.* Ideally, the feasibility studies that are carried out during this substage should consider a wider range of alternatives before the decision is made whether or not to proceed with a particular type of settlement project. Should a positive decision result, then a whole range of planning and design activities follow. Under planning, a wide range of issues need to be considered, including the scope and scale of the intended farming systems and the settlement as a whole in relation 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. (See R. Weitz, D. Pelley, and L. Applebaum, "Employment and Income Generation in New Settlement Projects," International Labour Office, World Employment Programme Research, Working Paper 3.)

2. *Construction of Initial Infrastructure and Settler Recruitment.* The wording "initial" infrastructure suggests that infrastructural development should be phased, with planners establishing priorities for timing the construction of 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" facilities from the start. The logical corrective is to construct only essential items like access roads and irrigation structures 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.

## STAGE TWO: THE TRANSITION STAGE

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 the risks that may increase significantly their productivity. While the duration of the transition stage may be less than a year for a minority of families in settlements that 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 they are reluctant to adopt major technical, organizational, and sociopolitical innovations 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. While "learning the ropes," 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, if possible.

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.

The transition stage comes to an end when enough settler families shift from a conservative stance to a dynamic open-ended one, hence 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, "taming" it, for example, by referring to it in songs and other narrative forms.

Another set of indices relates to the reestablishment of community-wide religious organizations and the formation of such new organizations as farmers' unions, water-user associations, women's groups, cooperatives, and rural and municipal councils that can represent the interests of the settlers vis-a-vis the hosts, the government, and the outside world at large.

Granted the security-oriented and conservative stance of the settlers during the transition stage, it is unreasonable

for planners to expect rapid increases in productivity through agricultural intensification during the first five years.

## 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 settler communities become dynamic and open-ended, with the potential of catalyzing 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. They may also be more innovative 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.

Though settlers previously concentrated on a domestic mode of production involving extensive agriculture (with investments largely restricted to education for children), during Stage Three I have observed them develop 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. 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 in exchange 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). The crop component itself is expanded to cover livestock 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 is built for rental income. Subsequently investment expands to nonfarm activities off the homestead but within the settlement area, with these including small general stores and 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.



Local farming systems in South Asia are often diversified as here in Sri Lanka where rice cultivation and livestock are combined with off-farm employment; but big projects often reduce such resiliency by over-emphasis on one or two major export crops.

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.

Farm diversification and increasing net income among settlers also facilitate the development of commercial and service centers that consume and process the produce and serve farm and nonfarm family needs. Before the settlement can realize its potential for catalyzing a broad-based process of regional development, 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. First, they contribute to community and settlement integration, altering the atomistic nature of social organization during the transition stage. 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 enable settlers to influence policy and to compete at the regional and national level for scarce resources.

#### STAGE FOUR: HANDING OVER AND INCORPORATION

1. *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 control to settlers and other local institutions by the agencies 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 that can proceed both too rapidly and too slowly. On the whole, however, the problem in the postcolonial era is that centralized and hierarchically organized settlement agencies retain for too long a period a wide range of activities that



A thriving regional center on the large-scale Uda Walawe irrigation project in Sri Lanka uses two-wheel tractors. This is one of the few cases in the tropics and subtropics where development planning included both rural and urban components.

could be more efficiently carried out under a policy of devolution to local organizations. This delay indicates a need for a reexamination of the relative merits of centralized versus decentralized management strategies for project development.

2. *Incorporation.* Incorporation refers to the process whereby a new lands settlement becomes 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 often preferring to allocate resources to communities and projects that they have been serving for longer periods of time and where they are themselves 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 that 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. □