

# APPROPRIATE TECHNOLOGY AND THE GRASS ROOTS: TOWARD A DEVELOPMENT STRATEGY FROM THE BOTTOM UP

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“What we have come to understand, I think, is that we are facing a potential polarization between two social types. . . . One type is a walking calculator, abstractly concerned with solving a problem, but only really fascinated with the convolutions of the technical systems he uses to do so. The other type is a participatory ideologue, unable to trust anyone to the point of delegating any authority. He also is abstractly concerned with solving a problem, but is only really fascinated with the process of feeling himself in action. . . . Between them, properly joined, there would make one authentic human being. It is not clear how this can be accomplished. But the suspicion grows that if it is not, they may kill each other.” [Manfred Stanley, *Alienation*, p. 248]

**T**HIS ESSAY argues for a grass roots, populist approach to development for poor countries seeking to avoid either dependence on foreign capital and technology on the one hand, or romantic or totalitarian activism on the other. The essay first outlines major approaches to national development and liberation and suggests criteria by which any approach might be judged. A second section presents and criticizes the currently dominant conservative strategy, while the third examines whether economic nationalism is a viable alternative. A distinction is made between “inward looking autarchy” and “outward looking autonomy,” with the latter being advanced as the form of nationalization most likely to optimize both independence as well as economic growth. In the last parts of the paper, a technology appropriate to such a strategy is outlined, and a specific practical program of rural mobilization is suggested.

## I. INTRODUCTION

There is a crisis in the world, a crisis shared by nations rich and poor. In its “ultimate” form, this crisis is expressed in the choice between freedom *or* survival, between dignity or bread, between “liberation” or “development.” Given such global apocalyptic potentials as Malthusian food scarcities, nuclear blackmail, and “eco-cide” brought about by environmental pollution, many thinkers have advocated (or warned against) technology as a means of salvation. Yet carried to its ultimate application, “technology” means the instrumental use of not only tools, but of reason, and of persons themselves. Moreover, as most of the world’s

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technological resources lie in the wealthy countries, a high technology approach to economic development by poorer countries makes them dependent on their wealthier neighbors.

Further, in addition to their dependence on patron states, a capital and technology intensive approach to development also tends to atomize individuals and polarize classes. Even in the developed countries, the tremendous productive efficiency made possible by the industrial revolution also has brought with it a so-called mass society—the breakdown of community institutions and the alienation of personal identity. While this process began in Europe, America, and Japan in the eighteenth century, it has been initiated in Africa, Asia, and Latin America only in the twentieth century, and in some nations only since World War II [66] [67].<sup>1</sup>

Much of the writing by Westerners on national development has centered on (or simply assumed) the necessity of a choice between the impersonal but highly efficient bureaucratic form of organization appropriate to industrial production, and the emotionally rich but productively inefficient communal forms characteristic of nonindustrial societies. Non-Western writers, on the other hand, have tended to assert the necessity both of using modern technology *and* of preserving communal values. Yet practical attempts to combine these two elements have largely failed. In experiments that achieved high productivity (say the Soviet Union), the term “community participation” generally has been a euphemism for extended control by a centralized bureaucracy. On the other hand, those efforts that have been organized on a genuinely participatory basis (e.g., Ghandi’s village development scheme) have tended to become economically stagnant soon after their birth. The cry “Western technology, indigenous values” also clouds awareness that the highly sophisticated technology of the West is rarely useable without technological forms of organization, thought, and training [13] [18]. Technology,

<sup>1</sup> The crisis in the conceptions of self and society brought on by modernization fill the pages of non-Western autobiography and fiction, of which the following quotation from a Sierra Leonean novel is but one example: “In the old days your brother was anyone who originated from the same village or town, and to refuse to help in time of need was unthinkable. But all this was changing fast now. The sense of family interdependence, cement of our society, seemed to be going out of the country with the diamonds; and the European’s exaggerated individualism, his constant exaltation of the single human being, at the polls, in the classroom, and in the sight of God was sweeping in. Social cohesion was pawned for the material well-being of the individual, and our mental hospitals were beginning to fill up as a result. Birthrights were being sold daily in our markets for a mess of pottage. I cannot describe myself as being so much disillusioned as unhinged.”

On the mixture of traditional and modern in contemporary democratic industrial societies, see L. W. Pye and S. Verba, “Introduction” to their (eds.) *Political Culture and Political Development* (Princeton: Princeton University Press, 1965), pp. 19–21. That “traditional” characteristics might be conducive to modernization was shown by R. E. Ward and D. A. Rustow in *Political Modernization in Japan and Turkey* (Princeton: Princeton University Press, 1964), pp. 434–68, esp. pp. 441–47, and by S. Ottenberg’s “Ibo Receptivity to Changes,” in *Continuity and Change in Africans Culture*, ed. W. R. Bascom and M. J. Herskovits (Chicago: University of Chicago Press, 1958), pp. 130–43.

in this broader sense, tends to generate interests of its own—i.e., there often emerge new status groups such as owners, bureaucrats, and experts whose collective consciousness is more technicist than traditional [15] [33]. There thus would appear to be a “cruel choice” between indigenous values and economic growth [30] [56]. Yet it is my contention that such a choice, though inevitable, is not absolute. This paper, then, sketches part of a strategy by which development may proceed so as to enhance communal structures and values, rather than destroying them in the name of progress.

In discussing a “bottom up” approach to national development, it may be useful to set our ideas against the currently dominant models of economic growth and societal change. (For reviews see [12] [14] [34].) Such models may be classified on three dimensions:

- Whether they are conservative—accepting the political context as given—or radical, seeking to change the nature of the “system” itself;
- Whether they are macro-societal—dealing with the nation or society “as a whole”—or micro-societal, dealing with local communities; and finally
- Whether their orientation is “endogenous”—focusing on factors intrinsic to the society or economy under study—or “exogenous”—tending to locate causal factors in the international system.

At the macro-societal level, *conservative approaches* are ostensibly non-ideological and purely technical. This in fact is the viewpoint of almost all social and economic planning in the United States. At the micro-societal level, conservative approaches seek to provide services and assistance to those who somehow could not “make it” in a system that otherwise is functioning fairly well. At both the macro- and the micro-societal levels, conservative approaches point to internal rather than external factors, locating the sources of underdevelopment in shortages, or shortcomings, of the poor people or nations themselves (for examples see [8]).

In contrast, *radical approaches* to a social change tend to see virtually *all* problems as emanating from a corrupt and illegitimate social structure, international order, or form of governance. Discussions of the technical aspects of social problems thus are viewed as a rhetoric used to mask the basic injustices of the system. On the local level, radical approaches often are either anarchistic or dogmatic. If it is assumed that people are good by nature and that it is only society which corrupts them, it follows that one wishes to operate outside of *all* social forms (say hippie communes), or to impose new forms that somehow transcend old limitations (e.g., post-bourgeois communization). Thus radical approaches tend to be anti-technical at the macro- as well as the micro-levels and to focus on exogenous rather than endogenous obstacles to change.

Conservative approaches are favored almost universally by scholars in wealthy nations. They speak the language of “development” [27] [64]. Adherents of radical approaches are mainly in the Third World. They speak the language of “liberation” [11] [16] [19] [48]. With few exceptions, however, in both conservative and radical approaches there tends to be very little linkage, either conceptually or practically, between macro- and micro-levels and between intrinsic

and extrinsic sources of poverty and dependence [56]. Thus, while conservatives can launch a technical critique against radicals, the latter can criticize conservatives for operating in an ideological or political vacuum; at the same time, planners and operateurs at the national level can attack locals for being out of touch with the "real," national issues, while locals can accuse nationals of being irrelevant to the "real," community problems.

It thus would seem that an optimal strategy of development/liberation would have to satisfy the following criteria:

- Integrate macro- and micro-societal levels;
- Integrate endogenous and exogenous perspectives;
- Be feasible in terms of available or potential technical, organizational, financial, and material resources; and
- Be "political" in that conceptually it deals with power and influence and that, practically, it fosters local and national independence.

In this paper, I will try to imagine forth one component of a strategy that can meet these criteria and, in so doing, help overcome the cruel choice between dignity or bread. Because the macro-social, endogenous, technical-reformist approach of conservatives has dominated American thinking, it will receive most of my criticisms, though limitations in the radical model will be suggested by implication. Somewhat arbitrarily, my focus will be on the Third World rather than on poor areas in already developed nations.<sup>2</sup>

## II. THE CONSERVATIVE TECHNICAL REFORMIST APPROACH

Many Third World nations, particularly in Africa and Latin America, may be understood as three countries in one—the modern twentieth century cities, the seventeenth century rural provinces, and the unexploited and often unexplored frontiers. Wealth tends to be concentrated in the hands of a relatively tiny urban minority and is invested mainly in the larger industrial concerns of the few major cities. Aid and investment coming from abroad also tend to favor the small modern sector that can most readily absorb capital and technical assistance, presumably with the expectation that the rest of the society simply will be absorbed into it. This remains true despite recent efforts by the World Bank, AID, IDB and others to support rural development.

Western experts concerned with such areas necessarily bring to the host country some implicit model of national development. Such models generally are derived from classical economic theory; they tend to be rationalistic in conception and technical in prescription. The basic assumption of this type of thinking is that, as almost all individuals in a society desire a higher income, people automatically

<sup>2</sup> For an exposition of the same argument with reference to poverty in America, see R. H. Brown, "Economic Development as an Anti-Poverty Strategy: Notes on the Political Economy of Race," *Urban Affairs Quarterly*, Vol. 9, No. 2 (1973). The conflict in America between B. T. Washington and W. E. B. Du Bois is paradigmatic of the technical reformist versus political revolutionary debate. See Washington's *Up from Slavery* (New York: Bantam Books, 1959), and Du Bois's *The Souls of Black Folk* (New York, 1903).

seek to improve their productive efficiency. If they do not, there must be some barrier preventing them from doing so. "Since these barriers do not lie in the nature of human desires," writes Hagen, "they must be external to humans. Therefore, except as individuals are blocked from technical progress by the vested interests of powerful groups, the barriers must be economic ones" [32, p. 37]. Hagen goes on to cite various barriers to which economists have pointed most often—low income and inadequate savings, insufficient markets to justify investment in improved production methods, over- (or under-) population, lack of "social-overhead capital" for roads or power installations, and so on. The main purport of these doctrines, in brief, is that:

- the central problem in national development is economic growth,
- the central problem in economic growth is capital formation, and
- given sufficient capital, any country possesses or can create the necessary human skills and social or attitudinal conditions necessary to carry forward economic expansion.

At first sight, such models seem an adequate starting point for national development planning. Yet economic theorists themselves often have felt that the sources or goals of change lie outside the economic system itself. Why, for example, should one society discover more efficient means of production than another? Why should one society save and another waste? The neoclassical economist Alfred Marshall, while emphasizing the importance of saving so that profit can be reinvested into business expansion, also acknowledges that thrift is not something people automatically practice when it is "in their interest" to do so [44]. Other economists have been even more explicit in noting the influence of noneconomic factors. Professor Ragnar Nurkse, after stating that capital formation is at the heart of the problem of economic development, goes on to suggest: "We shall do well to keep in mind, however, that this is by no means the whole story. Economic development has much to do with human endowments, social attitudes, political conditions—and historical accidents. Capital is necessary but not a sufficient condition of progress" [53, p. 1]. In the same vein, Nicholas Kaldor writes:

In my view the greatly accelerated economic development of the last 200 years can only be explained in terms of changing human attitudes to risk-taking and profit-making. The emergence of the "business enterprise" characteristic of modern capitalism was thus the cause rather than the result of changes in the modes of production; and it was the product of social forces that cannot in turn be accounted for by economic and technological factors. [40, p. 236]

Almost without exception, however, economists who acknowledge the limits of their discipline, then proceed to prepare economic development plans just as though the technical-economic model was fully adequate as it stands.<sup>3</sup>

While many such models conflict with each other, all of them assume, on the

<sup>3</sup> For important accounts of modernization as a political process, see [1] [17] [21] [26] [36] [39] [54] [60]. For psychological accounts, see [46] [47] [50] [51], and Volume 1 of Marx's *Capital*, on commodity consciousness.

psychological level, an economic man whose sole motivation is the increase of his material possessions by the most rational and expedient means. In other words, all factors are "held constant" except the rational economic ones. History, of course, presents numerous cases of conduct that were wildly irrational by economic standards. Yet we need not even look to history. In nonindustrial societies today, even the poorest classes spend at least part of their incomes on goods not at all related to the physical necessities of life. The higher income groups in these countries spend a considerable portion of their incomes in such "nonessential" ways. Economic man undoubtedly would eschew such activities; yet a good part of humanity has acted, and continues to act, on the basis of noneconomic considerations.

Another model of development that *does* consider the institutional factor is the structural-functional theory of change, a principal articulator of which is Talcott Parsons. In Parsons's terminology, industrial societies are characterized by greater self-orientation, functional specificity, universalism, and achievement orientation, while traditional societies are more collectivity-oriented, functionally diffuse, particularistic, and ascriptive. This means, for example, that in developed countries people are evaluated in terms of what they can do (achievement), rather than who they are or were born (ascription); that anyone, ideally, may compete for any job or social position (universalism), rather than being bound to roles as in a caste system (particularism); and that the relationship of one person to another is determined by and limited to the task at hand (functional specificity), rather than being bound up with kinship, religious, or other considerations (functional diffuseness).

This formal classification and others like it have been useful in refining some concepts important to the multi-factorial analysis of social change. Yet we are deceived if we believe that such dichotomous choices exactly describe the differences between industrial and traditional societies or, more importantly, that they of themselves provide an explanation of economic growth. In attempting to answer this question of how societies move from one "stage" of growth to the next, Parsons employs the Aristotelian doctrine of biological development of the species. The logical distinctions between traditional and modern society are ordered into a unilinear time series and identified with "sociocultural evolution" of "total society." Parsons's explanation thus refers to the natural history of "Society"—that is mankind in general—and the particular histories or conditions of specific peoples are either ignored or slotted into the logico-temporal scale of development from Australian primitive to American modern. When economic development or modernization occur, this is seen as the unfolding of a natural tendency inherent in the nature of society and, hence, requiring no further empirical explanation. When development does *not* occur, the natural processes are said to have been inhibited by accidental obstacles that, because accidental, also are not amenable to further empirical investigation. Thus Parsons goes beyond the classical economic theorists. Whereas the latter did not study non-

economic variables, in Parsons's scheme virtually *all* empirical testing is suspended.<sup>4</sup>

This type of theorizing would not be of interest here except that it underpins a good deal of Western development planning. That is, users of Parsons's classification system often come to think that the supposed characteristics of developed countries are precisely what have *caused* them to become developed. Professor Kindleberger has pointed to this fallacy in his comments on the reports of the World Bank:

Essentially these are essays in comparative statics. The missions bring to the underdeveloped countries a notion of what a developed country is like. They observe the underdeveloped country. They subtract the latter from the former. The difference is a program. Most of the missions come from developed countries with highly articulated institutions for achieving social, economic, and political ends. Ethnocentricity inevitably leads to the conclusion that the way to achieve the comparable levels of capital formation, productivity, and consumption is to duplicate those institutions.<sup>5</sup>

In sum, then, both economic and sociological models of development characteristic of Western thinking tend to presuppose a politically and ideologically "virgin" environment, one, indeed, in which virtually all noneconomic factors in any concrete situation may be overlooked.<sup>6</sup> Rather than programs emerging

<sup>4</sup> See T. Parsons, *The Social System* (Glencoe: Free Press, 1951); T. Parsons and N. Smelser, *Economics and Society* (Glencoe: Free Press, 1956); and T. Parsons, "Max Weber's Sociological Analysis of Capitalism and Modern Institutions," in *An Introduction to the History of Sociology*, ed. Barnes (1948), pp. 287-308. For Parsons's views of development as an evolutionary process, see *Societies: Comparative and Evolutionary Perspectives* (Englewood Cliffs: Prentice-Hall, 1966). For another contemporary example of the evolutionary functionalist approach, see [70].

<sup>5</sup> Quoted in [38].

<sup>6</sup> Kindleberger's remarks are most true of agencies whose responsibilities are limited to providing capital, i.e., international banks and lending programs. In the past decade, however, even these agencies have paid much lip service to the complex interdependent nature of the development process, yet they have refused to spend heavily on projects other than capital-intensive ones, in part because of pressure from recipient countries. This appears to be due to fears by host country elites of broad-based popular development programs the results of which are unpredictable and difficult to manipulate from the top down. At the same time, countries of a more socialistic pattern, whose elites are more sympathetic to grass roots activities, generally are labelled "communist" by Western agencies and hence ineligible for loans of any sort. In the United States, Congress since the mid-sixties has sought to force the Agency for International Development, the Inter American Development Bank, and the World Bank to design programs for the unemployed poor, but without much success. The funding of housing and agricultural projects are examples of such efforts; their benefits have accrued mainly to already prosperous farmers and higher income groups, and to Western firms supplying machinery or supplies. Some personnel of the World Bank have seen the need for change and have commented on it. See Price Gittinger's discussion on "Project Analysis Methodology" in *Rural Development: The Interplay of Analysis and Action*, International Development Research Center, Indiana University, Bloomington, Indiana.

out of an awareness of the political realities and aspirations of any specific country, instead purely rational technical plans are suggested, much along the lines of what is taken to have worked back home. Experts picture the underdeveloped country as simply poor and, despite sincere efforts by everyone to do the most with the resources available, the nation is nevertheless trapped by its shortage of resources. Therefore, it is argued, little if any improvement can be made in labor productivity, or even the productivity of land or capital, without a greater supply of the items in which the nation is short. As these cannot be supplied from within the country, and as the nation is determined to accelerate its "natural" course of evolution, it can escape from the "resource shortage trap" and move to the next stage of development only by importing great amounts of foreign capital and know-how. Once these missing resources are injected into the economy, according to these theories, progress comes about more or less automatically, for the new resources permit greater output from the resources already available and in maximum use.

From this type of thinking flow some familiar principles of planning and operation. First, a poor society is one in which additional labor in agriculture will not yield additional production. Therefore, industrial development, again financed and often managed from abroad, is required to increase production and absorb "excess" labor. A second principle is that the poor nation needs additional foreign capital to finance more overhead facilities, such as roads, power, drainage, and so on, before it can do anything more by itself. Thirdly, it is often assumed that the standard of living is so close to subsistence that any increase in output immediately goes into consumption, and therefore it is impossible for the poor country to save and finance its own development.

Local elites in many Third World nations tend to share this view of their economies, and they tend to profit from it, because under the current monetary-industrial approach a tremendous demand is created for capital and modern technology, resources that big industrialists and government officials alone control. Moreover, local elites, often educated in the wealthy countries, tend to apply Western standards of excellence to their own countries. Hence it becomes a matter of pride to purchase heavy tractors rather than light tillers, or to build superhighways before there are farm to market roads.

Libertarian nationalists also sometimes support the monetary-industrial approach, even if they describe it with a socialist vocabulary. Having accepted the basic view of their economies as trapped by a lack of resources, they have felt that to implement their development plans they increasingly need expensive imported equipment and machinery, and the hard currency with which to buy it. However, hard currency is earned mainly by the sale of primary goods such as copper, tin, petroleum, coffee, sugar, bananas, and other raw products, the prices of which generally have not kept pace with the rise in price of the needed capital and consumer imports.<sup>7</sup> Those local elites wishing to escape this cycle have

<sup>7</sup> The distribution of gains between investing and borrowing countries of course varies from country to country, from commodity to commodity, and from period to period. For example, the terms of trade for the poor nations declined between 1950 to 1963, improved somewhat between 1963 to 1970, and declined in some fields between 1971 to 1976,



attempted to industrialize as rapidly as possible. But the outcome in almost every case has been an increased dependence on outside capital, even to purchase food commodities, and insistent demands for "better treatment" by the United States. Meanwhile, the poor do get poorer, relatively and often absolutely, and—though the GNP and per capita income go up—wealth and social opportunity continue to polarize, both internationally and within nations. And as rural poverty goes unabated, the exodus to the cities results in "misery belts" that threaten to strangle, both physically and politically, those centers where a relatively prosperous life has been established. In cities as diverse as Sao Paulo, Lagos, or Manila, urban crime rates increase and municipal treasuries diminish as political leaders attempt to placate the poor with doles and showcase housing projects.

### III. ECONOMIC NATIONALISM: A PRECONDITION FOR LIBERATED DEVELOPMENT?

It should be obvious that, despite such limitations, the capital and technology intensive approach to development is in the interests of powerful groups—chiefly those classes that own and control global corporations, as well as their client classes in underdeveloped countries.<sup>8</sup> These interests are backed up by force—local militias, national armies, and the military might of imperialist superpowers. Moreover, nationalist leaders, even after establishing economic independence, often find that they must either renew their dependence on some other foreign giant, or pursue a self-contained course of economic growth by imposing totalitarian techniques in order to mobilize their populaces. Treatment of such factors and choices is indispensable to a comprehensive analysis of economic development and national liberation. For our present, more narrow purposes, we shall assume as our audience groups that operate in a political context which *already* is largely committed to bread *and* dignity. Hence our focus will be on "how to" proceed with such a strategy, and we will assume the prior question—the political commitment to independence and self-development—to have been at least partially resolved.

One question libertarian nationalists must ask themselves concerns the nature and degree of their economic independence. In this connection, the conservative, rationalistic model for comparing the trade-offs involved in integrating or in separating poor and wealthy economies may be useful. In the rationalistic model, the wealthy economy exports capital and technology, which it has in relative abundance, while the poor economy exports its raw materials and, where possible, its labor. In acting "nationalistically," however, one group avoids dependence on the other by forbidding transactions with it. Yet this choice also involves a forfeiture of trade advantages. According to this model, labor in the wealthy

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though oil and coffee have kept pace.

<sup>8</sup> For accounts see [4] [25] [41] [43] [59]. Most critics of imperialism are Westerners opposing the policies of their own countries. Soviet imperialism, however, can be subjected to a similar critique, though here the mechanism is Soviet controlled central planning, rather than competition between unequal partners. As a popular joke in Poland puts it, "They import our steel, and in exchange we ship them our coal."

economy and capital in the poor economy gain by "nationalism"; but wealthy country capital and poor country labor lose by an even greater amount; and the net aggregate return to both economies is decreased.

Such an analysis would suggest that international trade is not a zero-sum game. Rather, the greater the separation of economies, the greater the net loss to each due to forfeited advantages of specialization and exchange. As we noted earlier, however, by holding constant political, moral, and psychological factors, the conservative model simplifies the issue considerably. "Free competition" between unequal partners is neither free nor does it long remain competitive. Moreover, the question of "opportunity costs" has to be taken into account. For example, specialization in labor-intensive crops may be economically most rational, but for subsistence farmers outside a market economy, such a choice is either unavailable or taken only at the risk of their lives. Also, the ideological and cultural energies often stimulated by the nationalistic approach sometimes can overcome, or at least compensate for, economic disadvantages [3]. Further, the political implications of trade generally are quite different for a large diversified economy as against a small single product one. The former has many trading partners and products and, with its large capital base, is unlikely to become too dependent on any one of them. But the small specialized economy may find itself at the mercy of a single partner who has become its chief source of foreign exchange. The algebra of this relationship holds true whether it is a small tool manufacturer producing exclusively for Sears, an urban ghetto exporting only one crop—labor—to the surrounding economic orbit, or a banana economy producing exclusively for United Fruit [45] [62].

Yet, while economic nationalists are quick to point out these dangers of dependence, they generally fail to note the economic costs of producing everything oneself. And, as political power ultimately depends to some extent on a solid economic base, this narrowly nationalistic approach may in the end defeat even its noneconomic political aims. Indeed, the richest and most powerful economies tend to be the ones that import and export the most. Thus a distinction is in order. On the one hand, the goal of economic nationalism may be political autarchy and economic self-sufficiency—a closed economy with political decisions therefore not influenced by trade—say a la Japan after the Edicts of Restriction of 1615 up to 1853, or Cuba just after the revolution. In the Cuban case, an attempt was made to substitute locally produced goods for imports; but it was soon discovered that to import many finished products was cheaper than to buy even the raw materials needed to produce them. "In agriculture," said Guevarra, "we committed the fundamental error of scorning the importance of sugar cane, our fundamental product."

On the other hand, economic nationalism may mean political autonomy *and* economic specialization within a larger trading system, say a la Cuba or Japan today. The first approach, as in the examples above, may be called "inward looking autarchy," the second "outward looking autonomy." The second approach to economic nationalism—autonomy with specialization—assumes that there is no simple path to political independence *and* economic prosperity, but tries to

optimize both. It seeks indigenous ownership of indigenous industries and local production of previously imported goods, but *only* in areas where such production can be made competitive with the outside economy. Indeed, rather than concentrating on import substitution, investment focus around the relative advantages of national production in relation to a larger market. At the same time, stress is placed on mobilizing human and organizational resources and on diversifying production to the greatest extent possible. Outside investment also is invited, as in Tanzania, but only to the extent that it conformed to the criteria of local control, community mobilization, and diversification of production.<sup>9</sup>

Large-scale local employment, diversification of production, and maximum community involvement are unlikely to be achieved by the capital and technology intensive top down approach typical of global corporate investment. At the same time, few national economies, even if centrally controlled, have sufficient resources to sustain long-term rapid development without earning some foreign exchange. What is required for "outward looking autonomy," then, might be called *appropriate industry*, industry competitive within the national or international economy, but suited to the special needs and resources of the poor country and its particular communities.

#### IV. THE ROLE OF APPROPRIATE TECHNOLOGY

The pattern of development that is highly dependent on capital and sophisticated technology may be well suited for already industrialized countries like the United States or Western Europe. In most non- or semi-industrial nations, however, these resources cannot be secured except by dependence on (and control by) outside investors. Instead, the massive economic potential of such nations lies in the un- and under-used labor, simple technical skills, land, and local raw materials of the 40 per cent to 80 per cent of the people living in rural areas.<sup>10</sup>

<sup>9</sup> One version of this approach has been called "squeeze the tomato." It involves welcoming investment from multinational firms, especially in critical or "bottleneck" sectors, helping them to get established and prosper, and then slowly "Mexicanizing" them. A sophisticated version of this tactic is to borrow money from AID or OPIC to help pay for gradual nationalization, with assistance and pressure from the multinational and its congressmen.

<sup>10</sup> There are, of course, some exceptions to this. Argentina's cities are bloated, for example. Yet even here our strategy would be recommended as a means of relieving *urban* problems by drawing people back to new opportunities that can be most appropriately created in rural areas. In newly wealthy oil-rich nations, a bottom up approach would be justified as a means of political development even if it were not necessary economically. See B. Higgins, "Economic Development with Unlimited Supplies of Capital: The Libyan Case," in [34]. Higgins's essay takes its title from W. A. Lewis's "Economic Development with Unlimited Supplies of Labour," *The Manchester School of Economic and Social Studies*, May 1954. Also see J. Fei and G. Ranis, *Development of the Labor Surplus Economy* (Homewood, Ill., 1964), and a critical review of this volume by Higgins in *Economic Development and Cultural Change*, January 1966. For an analysis of the role of the high value of labor in the development of the American polity and economy, see C. N. Degler, *Out of Our Past: The Forces That Shaped Modern America* (New York: Harper and Row, 1970).

And the needs of the poor countries—food, agricultural by-products, building materials, clothing, roads, and schools—are just the items that could be produced with simple existing resources. If these resources could be mobilized on a national scale, a major new force would be channeled into the development process.

The key to such an approach is employment, for labor is the Third World's greatest untapped resource. Moreover, for a poor person the chance to work is the greatest of all needs, and even poorly paid and relatively unproductive work tends to be more attractive than idleness. The "output per person ratio," so important in economists' thinking on highly capitalized heavy industry, would be a secondary consideration; instead the primary concern would be to maximize the number of workplaces. To quote Gabriel Ardant, "It is important that there should be enough work for all because that is the only way to eliminate anti-productive reflexes and create a new state of mind...where labor becomes precious and must be put to the best possible use" [2, p. 41].

In other words, this approach would stress the necessity of establishing structures through which local initiative and enterprise could be channeled into a total development effort. To get such a process moving, the first need is to start work that brings some kind of reward, whether it be a small cash payment or a local improvement undertaken through self-help, for only when people experience the value of their labor can they be interested in making that labor *more* valuable and productive. It therefore generally is more important that many people produce *something* than that a few people with sophisticated machines produce everything, even if in some cases total production is lower in the former arrangement than in the latter. The point is that output would not long remain small, because economic participation will have initiated a dynamic process that invites rapid broadly based growth.

Experience in many depressed economies indicates that high level industry cannot bring into existence the millions of new workplaces that poor areas require. Even with the heaviest dependence on outside capital and technology, the high level approach cannot be appropriate for economies poor in capital and rich in labor. The case of Puerto Rico—often cited as an exemplar of the monetary-technical model—is instructive on this point:

Development of modern factory-style manufacturing makes only limited contributions to employment. The Puerto Rican development program has been unusually vigorous and successful; but from 1952–1962 the average increase of employment in EDA-sponsored plants was about 5,000 a year. With present labor force participation rates, and in the absence of net emigration to the mainland, annual additions to the Puerto Rican labor force would be of the order of 40,000.

Within manufacturing, there should be imaginative exploration of small-scale, more decentralized, more labor-using forms of organization such as have persisted in the Japanese economy to the present day and have contributed materially to its vigorous growth. [57, p. 38]<sup>11</sup>

<sup>11</sup> Cf. [42].

The ambitious efforts to develop Northeast Brazil through a capital and technology intensive approach have had similar results:

In parallel, it should be emphasized that the growth of the industrial sector has not satisfactorily absorbed the labor excesses. . . . This situation can be explained by the fact that industrialization is advanced by use of capital intensive technology, and if it persists, the industrial expansion of the Northeast will presumably bring about a higher concentration of income and, consequently, its effects on the enlargement of the region's internal market would be attenuated. [65, p. 43]<sup>12</sup>

Equally powerful illustrations could be drawn from other poor areas. In Turkey, India, and the Philippines, for example, highly ambitious five-year plans, even assuming they were implemented as reported, regularly show a greater volume of unemployment at the end of the five years than at the beginning. According to all available statistics, the same is true of most other developing nations [69, pp. 158-60].<sup>13</sup>

One means of reversing this trend is to bring jobs to where the people, the raw materials, and the local markets are: in a word, to decentralize. The exact size of the unit of production would vary depending on local markets, communications, and natural conditions. A few thousand people would be too few to permit much specialization and exchange, but a few hundred thousand, even with very simple technology, might well form a basic economic unit. As Schumacher has pointed out, "The whole of Switzerland has less than six million inhabitants; yet it is divided into more than twenty 'cantons,' each of which is a kind of development district, with the result that there is a fairly even spread of population and of industry and no tendency towards the formation of excessive concentrations" [58]. Each district, ideally speaking, would have some social cohesion and identity and possess at least one town to serve as the commercial nexus, the source of special technical help or supplies, and the center for higher educational and cultural activity.

Just as the district is a natural unit of consumption, so voluntary associations in local communities and towns are an appropriate unit of production. The masses of people whom development programs hope to reach live and work in small communities, and the quality and vitality of participation generated at this level greatly determine the responsiveness of economic, social, and political structures at higher levels. Therefore, in contrast to broad regional plans emanating from the top down, a new approach would seek to stimulate thousands of small projects involving millions of people at the local level, mobilizing their ideas and energies through business firms, cooperatives, self-help clubs, and other community organizations. Physical infrastructure such as paved highway or deep dredged harbors would be de-emphasized and constructed mainly in response to the growing ability of local groups to undertake more advanced pro-

<sup>12</sup> Cf. [10].

<sup>13</sup> For interesting arguments that development plans are rhetorics aimed at shaping values and mobilizing commitments, rather than being the essentially technical agenda they represent themselves to be, see [30, pp. 60-72] [49, p. 33].

jects requiring more sophisticated technology and more complex levels of organization and coordination. Within a relatively short time, a broad popular base of technical and organizational skills could be built up to absorb and make full use of heavy capital-intensive enterprises rather than, as in the case today, being crushed by them.

It is obvious that this "district" and "community" approach to development has no chance of success unless it makes use of an appropriate technology. In underdeveloped areas, the gap between the "\$10,000 technology" of the new factories in the cities and the "\$10 technology" of the dirt-farmers and cane cutters in the rural sector is so gigantic that a direct transition from one to the other is impossible without killing off the traditional workplaces and disenfranchising masses of the populace. What are needed then, symbolically speaking, are technologies in the \$100 to \$1,000 range, ones that would be immensely more fruitful than indigenous methods of production, but that also would be immensely cheaper than the highly capitalized technology of modern industry. At such a level of capitalization, large numbers of workplaces could be created in a fairly short time.

Also, initial successes would have a demonstration effect because similar opportunities would be within reach of the more progressive and enterprising individuals and communities within the district. On the other hand, the demonstration effect of the \$10,000 technology has been wholly negative, in that people to whom this technology is inaccessible tend simply to "give-up" and often even abandon their former activities. A \$100 to \$1,000 technology would be available to almost all groups, not only in financial terms, but also in terms of their education, practical skills, and organizational ability.

The appropriate technology also would fit much more smoothly in the unsophisticated rural environment where the massive labor resources reside but where capital is scarce. Equipment would be fairly simple and therefore used, maintained, and repaired on the spot without great dependence on trained mechanics and imported parts. Production could be undertaken with raw materials of far less purity or exact specifications, and marketing, which would be primarily for the local district itself, would be far less vulnerable to fluctuations in international trade, transportation breakdowns, and other uncontrollable outside factors. People could be more easily trained, supervision and organization would be simpler, and the operation in general would be geared to the capacities of those whom it seeks to employ and serve.

Though a great deal of research still needs to be done, a good amount of this appropriate technology already exists and has been codified. No development-minded person can walk through a rural village or urban slum without thinking of dozens of ways people could improve their production and living conditions by employing the simplest technological innovations. In certain coconut growing regions on the Atlantic coast, for example, where the soil is deficient in iron, yield could be doubled by pounding several nails into the trunk of each tree, thereby supplying the needed iron traces. In the same areas, backyard factories could produce coconut oil competitively, using the husks for fuel and the pulp

to start pig-feeding operations. In other areas an estimated 40 per cent of food crops rot for lack of storage facilities and farm-to-market roads, both of which could be constructed with presently unused local labor. Appropriate technology is not necessarily a matter of scale. The Nagarjunasagar Dam—three miles long and four hundred feet high—is a hand made masonry structure, and as such is more appropriate to India's resources than a smaller dam of steel and concrete. Similarly, a new plant in Hyderabad designed to produce "sponge iron" from low grades of coal, which India has in abundance, is more appropriate than the conventional facilities that require higher grades of *imported* coal.

In almost all the poor countries, however, the greatest untapped resource is labor. Hence the appropriateness of a technology will largely be measured by the degree to which it optimizes the use of this resource, that is, the ratio of total resources invested to jobs produced. Thus an automated lumberyard employing fifty people, at \$10,000 of investment per job created, would be less "appropriate" than an electronics assembly plant with twenty, or eighty, job places at \$1,000 each. Likewise, with an appropriate technology, even such basic products as oil or ammonia could achieve economies of scale and be produced competitively at an intermediate level. To cite two examples from the Third World:

The first relates to the recent tendency (fostered by the policy of most African, Asian, and Latin American governments of having oil refineries in their own territories, however small their markets), for international firms to design small petroleum refineries with low capital investment per unit output and a low total capacity, say from 5,000 to 30,000 barrels daily. These units are as efficient and low-cost as the much bigger and more capital-intensive refineries corresponding to conventional design.

The second example relates to "package plants" for ammonia production, also recently designed for small markets. According to some provincial data, the investment cost per ton in a "package plant" with 60-ton-a-day capacity may be about 30,000 dollars, whereas a conventionally designed unit, with a daily capacity of 100 tons (which is, for a conventional plant, very small), would require an investment of approximately 50,000 per ton. [24, p. 87]

Of course, the application of appropriate technology is not universal, but it is ideally suited to just those things—food, houses, roads, and schools—that almost everywhere are most urgently needed.

## V. TOWARD A SPECIFIC PRACTICAL PROGRAM

Many analysts have agreed that a massive latent resource lies in the labor, simple skills, and local materials of the Third World populations that reside in rural areas. At the same time, however, it also has been assumed that this resource will *remain* latent—because it is too costly (or too dangerous) to develop. The result is that, while pilot projects are set up, they almost never are expanded into comprehensive national programs that could have an impact on the country's economic growth or social and political development. The reasons for this seem to me to be both political and technical:

## (1) Political Difficulties:

- In terms of the technical reformist model, local projects were never intended to be part of the development strategy. Instead they are considered humane ways of fixing up the “slippage” in macro-economic policies at the national level.
- National and international elites discern the populist thrust of appropriate technology, and subvert impact projects that might become more than window dressing for an essentially exploitative political economy. There was no commitment to expanding the project in the first place, the real goal having been to make an “impact” not on national development but on news media in the capital cities.
- The pilot is successful, is extended, and does receive proper administrative support. But because it is decentralized and low in unit costs, the opportunities of elites for graft and manipulation are limited (e.g., heavy equipment sales, tax evasion). Realizing this, elites castrate or corrupt the program.
- There is a reaction among elites against the success of indigenous solutions that have not made use of the latest technical magic from abroad. At the same time, however, elites resentfully punish grass roots experiments designed by foreign social scientists for “our” peasants. (This is found especially in patrimonial societies that have been “Coca Cola-nized,” such as the Philippines or Central America.)

## (2) Technical Difficulties:

- Because the pilot project is defined as “experimental,” technicians and administrators bring to it a spirit of innovation and flexibility that is abandoned upon the discovery of the “formula” that works. Of course what made the project work (and pilot projects almost never fail) was this very innovative spirit; its abandonment insures the failure of any efforts to expand the program.
- Technicians are so committed to making the pilot “self-help” project work that they are practically willing to do the work for the local people. Villagers sense that they have been chosen in advance to receive outside aid, regardless of whether they help themselves. Hence activity stops as soon as the technicians leave.
- In most such projects, what is to be done locally is pre-ordained either by a comprehensive national or regional plan or by visiting technicians who decide what is “rationally” best for the people. Not having decided on it themselves, local people tend to have little commitment to, and investment in, such activities.
- The pilot project *is* successful and begins to be reproduced. But because of inadequate administrative support systems, vital services go undelivered, overhead soars, and both motivation and economy of scale are lost.
- Most importantly, and for some of the above reasons, such programs tend to have a very high ratio of outside investment as compared with local investment. Yet unless the program can be made to stimulate a great amount of local investment with very *small* amounts of government investment, the pro-



gram will run out of funds before it reaches many villages. Typically pilot projects are on the intensive model and, hence, even if successful locally, are not competitively multipliable to a national scale.

Of the above difficulties, the first set involve a lack of political will; the others are largely technical.<sup>14</sup> The first type predominate in community development programs in neocolonial societies such as the Philippines, Malaysia, or Guyana, where "community development" is essentially part of a counterrevolutionary political strategy. In such societies, the quality of open, cooperative civic relations tends to be poor. Feeling that those who make the laws are not responsible to popular will, the politically alienated concentrate on influencing not the law-makers who are inaccessible, but the *law-enforcers*, with whom they have face to face relationships which, though often resented, are at least comprehended. In such places it appears the height of folly to try to change the formal laws. Instead, wisdom lies in seeking preferential treatment in the *application* of the laws. Even assuming that individuals within a local community become concerned with their disenfranchisement and wish to do something about it, given a social structure lacking adequate institutional channels for expressing concerns from the local level to the national one, such efforts can easily be silenced, obstructed, or shelved. This is especially true of efforts emanating out of rural villages, for, in addition to their distance from the capital, their social organization often is characterized by a high concentration of power in the hands of a few—the big landowners, rice millers, or priests—who have vested interests in maintaining the status quo and who can tacitly arrange with national leaders a "conspiracy of inaction" that blocks locally initiated programs. Without basic changes in the land tenure and political structures in such nations, efforts to mobilize the poor in bottom up activities are likely to be nipped in the bud.

If this picture is grim, it is by no means hopeless. Not all poor countries are characterized by authoritarian centrist regimes. Moreover, a bottom up approach is not *entirely* dependent on the overarching political structure, and even less on the particular labels by which that structure names itself. Indeed, land reform and other basic changes may depend in part on the strength of organizations at the local level. As Warriner has pointed out [68, p. 80], the effectiveness of "functional organizations" of farmers is a major reason for the success of land reform in such diverse places as Korea and Egypt. Likewise, Owens and Shaw

<sup>14</sup> The point of these comments is not that pilot projects are unimportant, but rather that the success of conventional pilot projects and the success of a *national* program represent different kinds of difficulties. People living at the edge of subsistence cannot afford to make mistakes; hence it is a sound investment to test and study the implications of even seemingly obvious innovations. Yet even for pilot projects, the best demonstration effect is the success of ones peers. Thus rather than preselecting a group to be the test case, it usually makes better sense to offer support to many groups, and then let communities select themselves into the pilot program. The start up costs are no greater by this method, but without it the possibilities for expanding the program are enormously reduced. I, of course, am speaking of a program of community mobilization. *Research* projects conducted by experts are different but quite harmonious, with this.

note the importance of local communal organization to the economic successes of both Taiwan and Yugoslavia [55]. Political obstacles to a bottom up approach, then, lie not so much in the official ideology of a regime, but rather in its actual opposition to local decision-making. Thus community initiatives are suppressed in the communist, but centrist, Soviet Union; but they are encouraged in communist, but decentralized, China [31]; and they have been both supported and restricted in "revolutionary," capitalistic Mexico, where rural improvements are a price elites must pay for their own prosperity.<sup>15</sup>

It also should be noted that community action can be important to libertarian nationalists even *before* they come to power. Indeed, for the very reasons that it is suppressed or co-opted by conservative governments, community action can serve as a method for anti-government mobilization. Such programs tend to build their own constituencies. Unlike service or give-away activities, attacks on local action programs generally are defined as attacks on "the people." Moreover, by the very process of participating in the program, constituents tend to develop confidence and political skill, often sufficient to make them a formidable enemy or ally. Under regimes that are corrupt, unstable or repressive, then, community mobilization can be an effective instrument of social change, although in this case not as the "official" program but rather *as an insurgency movement*. Indeed, once Robin Hood activities have used up their wealthy victims, it is difficult to imagine how a revolutionary movement could secure the lasting loyalty of local people *except* by supporting activities that local people themselves are interested in undertaking (cf. [35]). Moreover, through this very process there may be created a greater likelihood that the insurgency group, once successful, will remain accountable to its new constituency. Popular mobilization, in other words, may spell the difference between real social revolution and the circulation of elites.

Any practical program must be geared to the specific resources, needs, and cultural conditions of the country in which it operates. For example, in Peru the basic unit of rural action programs has been the village. As the altiplano village in fact has a great deal of homogeneity and forms a natural social unit, this unit is appropriate as a focus for the program. But the same unit may not be appropriate elsewhere. In rural India, for example, the caste groupings are the important ones; different castes in the same village may be ritually prohibited from working together. (In such a case, this status rivalry might be tapped to initiate several competing, but mutually supportive, projects in the same village.) In still another country, say the Philippines, villages are what the government thinks

<sup>15</sup> Stress on technical similarities between community action programs in different countries can be overdone, however. For example, the rural self-help program in Mexico is part of a policy designed to achieve stability for a repressive social system, one dominated by the aim of accumulating wealth for elite groups. In contrast, similar programs in China are part of a revolutionary situation involving a transfer of class power to alter social priorities completely. Analysis is needed of differences between rural action programs in the political contexts of stability, revolution, and insurgency. (I am indebted to Harry Magdoff for this observation.)

are the important units, but in fact they often have little to do with the operational networks of socioeconomic relations. And in areas of large-scale agro-industrial development, such as central Luzon, there may not be any effective organizational structures other than the shared poverty of the lower class.<sup>16</sup>

There are, however, certain basic principles and techniques that appear to be useful in almost any popular action program. Such a program, it seems to me, is a necessary and feasible method for implementing the decentralized strategy described in the previous section. By "popular action," however, I do not mean

<sup>16</sup> It thus takes more than progressive leadership to make a populist program work. Existing grass roots traditions and social organization are important too. In some countries these local conditions may be so exploitative that any meaningful rural action may require the physical removal (not necessarily extinction) of such persons as village usurers and their enforcers. Yet the malleability of local customs is not unlimited, and even regimes with a revolutionary ideology and a willingness to employ totalitarian techniques have found that culturally embedded attitudes and social patterns are best used as a vehicle, rather than merely an obstacle, to popular mobilization.

In this connection it is instructive to compare the success of Chinese at cooperative enterprise and, by contrast, the relative lack of it of Filipinos. A fundamental difference between the two involves their respective kinds of social organizations, which vary independently of their respective national political systems. Beginning with family structures and clans, the Chinese are corporately organized, and the elaboration of cooperative enterprise follows from and complements this. In the Filipino case, families are bilateral and open, and such diffuse organization often conflicts with the operation of formal cooperative enterprise. Consequently, the stimulation of community initiatives requires not only adjustments of the macro-political structure, but also adjustments to the technico-cultural requirements of each setting. For a comparative analysis stressing the Philippines, see W. G. Davis's *Social Relations in a Philippine Market*; for China see J. Gray, "The High Tide of Socialism in the Chinese Countryside" [31].

The importance of community organization in mobilizing local resources and demanding outside assistance also is supported by findings of comparative study of different rural economic development efforts within the same country, or the same program within different countries. In Mexico and Peru, for example—countries with strong indigenous traditions of community self-help—political and economic action has been relatively easy to stimulate. In both these countries the ratio of local to outside investment in village projects stimulated through national community action programs has averaged about 70 per cent local to 30 per cent outside investment. On the other hand, in nations such as Guyana or the Dominican Republic, which have had slave and plantation systems, similar programs could yield no better than 50 per cent local to 50 per cent outside investment. This correlation of strong community organization and ease of mobilizing local resources is confirmed by comparing the Caribbean coastal states within Mexico and Colombia to inland states in each of these nations. In both cases, the coastal plantation states had investment ratios closer to those of each other than to inland states in the same country.

Similar comparisons can be made between the organized and unorganized poor within the United States. Beginning especially in the thirties, the government initiated such anti-poverty programs as unemployment compensation, old age and survivors insurance, and housing subsidies for those with modest incomes. While declaring a responsibility to all the poor, these programs focused specifically on the *organized* poor—those urban groups that had already partly formed into unions and political machines and that were thus important to the emerging Democratic coalition. Moreover, this organized urban working class gained concessions that supported their growth—the Wagner Act protected their right to bargain collectively and thus enabled a leap from 3 million members in 1930 to 14 million in 1945.

merely a new type of social service nor a cheap program of public works. Nor do I refer to the "one person in one village" concept that has been the mainstay of the Peace Corps. Rather, I have in mind a program that does start with the community as its basic unit, but takes as its field of operation the communities of the entire nation, and all public and private institutions and groups at all levels of the national society. Such a program can be carried out with a relatively small budget and staff, but it must be spearheaded by an agency or party that has the vision to think in terms of a national movement. Once committing itself to such a program, the sponsoring agency must concern itself with two main functions:

- stimulating individuals, groups, and communities to undertake entrepreneurial or self-help projects at the district and community levels;
- setting up an effective, low-cost, inter-ministerially coordinated administrative system to service such a field operation.

(a) *Stimulating Local Initiatives:* An effective approach to community stimulation must be based on the assumption that people anywhere, no matter how poor or depressed, can make significant contributions to creating a better life for themselves with their own existing resources. However, to do this they must be motivated and organized, and this is the central task of a popular mobilization program. As noted above, many such programs begin by selecting one community in advance to be a model and then doing whatever is necessary to make that model a success. The result too often is that local people merely wait for the outsiders to do everything for them and, when the technicians leave, the "self-help" stops. Moreover, the outside program has made such a large investment in the pilot project that, with its limited staff and resources, it cannot possibly duplicate the model on a national scale.

Basic to a *national* popular action program, therefore, must be an *extensive* approach to field work. This means that instead of working intensively in one or two communities, professional cadre would speak to as many communities and groups as possible, locating the leaders in each and stimulating them to analyze their local problems and resources. People everywhere are ready to gripe, and through a process of probing and questioning a community usually can be brought to redefine generalized troubles into specific solvable problems. The central principle of this method of community stimulation is a rigorous insistence that the initiative and responsibility come from local people themselves. If communities are not ready to help themselves, the cadres move on to other communities that are. Thus the principle of self-selection is built into the program from the beginning. Intensive outside counseling and investment are not required because rigorous standards of local initiative already have been set. Instead of having one man in one village, a single field officer can service up to thirty communities, in each of which new self-help or commercial activities are under way. Moreover, by this method communities normally put up 60 to 70 per cent of the total cost of the project. With staff and investment ratios like

these, it becomes technically feasible to begin thinking in terms of a national movement.<sup>17</sup>

Another dimension of this approach to field work is its impact on democratic processes and local government. "Political development," however, does not necessarily mean the growing power of a particular party, but rather the growth of national unity through expanded participation in problem-solving and cooperative action. Communities' confidence in their ability to shape their destiny is a keystone of political responsibility. What better way to gain such confidence than by starting with small successes, little projects that are *theirs* and from which they can gain a pride of accomplishment.<sup>18</sup> For this reason, the *process* of community initiative, cooperation, and responsibility is as important as the specific project local people wish to carry out. Thus, if a community chooses to build a school, a reservoir, or a well, it should be all the same to the field officer so long as the project represents a feasible response to their felt problems and is something they will work on themselves.

Once the community has reached this point and is ready to work, then and only then should an officer from the relevant ministry be called in to give the necessary technical advice. Such field technicians whom I have met tend to be frustrated people. They have been trained in sanitation, engineering, or agronomy, but when they go out to spread their gospel they are generally met with indifference. These officers spend much of their time pushing and selling, rather than doing the technical job they were trained to do. But by coordinating with a comprehensive community action program, these officers would enter villages at the invitation of the people themselves, and they could be surer that whatever advice they gave would be utilized to the maximum possible extent. By this approach, field officers from various ministries could get increased results from their time and effort. Also, if a portion of the budget from each ministry could be allocated at the provincial level to self-help projects, each ministry would also get much more for their dollars. For example, instead of the Ministry of Education building say 10,000 classrooms for the peasants of a certain state, by working with a self-help program, it would pay perhaps only 25 per cent of the total cost of each classroom and thus be able to build 20,000 classrooms instead of the original 10,000, and still have enough money for additional teachers.

Once this type of program is under way, local development committees could be established more formally in those villages working with the program. Little

<sup>17</sup> See note 14, as well as various reports of the Community Development Foundation, Boston Post Road, Norwalk, Connecticut.

<sup>18</sup> A similar approach has been defined by Kulp in *Rural Development Planning* (New York: Praeger, 1970). On the association between isolation and political sense of powerlessness, and passivity, see Kornhauser et al., *When Labor Votes: A Study of Auto Workers*, p. 194. Kornhauser shows that individuals who feel socially alienated, indicated by a lack of confidence in other people and in the future, are likely to feel personally impotent in political matters. While 60 per cent of those high on alienation were low on political futility, and only 12 per cent of those high on political futility were low on alienation (p. 194). See also M. Seeman, "Alienation, Membership and Political Knowledge: A Comparative Study," *Public Opinion Quarterly*, Vol. 30 (1966), pp. 353-67.

by little, the leaders of these committees could be brought together, first for quarterly seminars or conferences to exchange ideas, later perhaps on a regular formal basis. Eventually, the social consciousness and political maturity of these "little people" would be cultivated to a point where they could assume official status and real civil authority. A next stage would be for representatives of these citizens' committees to sit on a joint committee with provincial officers of the various ministries along with, of course, the existing district commissioner as chairman of the joint body. By means such as this, there could be initiated a grass roots movement in local self-government.

Through such instruments a popular action movement can enhance national planning in a number of ways. Suppose, for example, it is decided in the capital to build a large irrigation dam so that new land can be brought under cultivation. At the same time arrangements are made for all the ancillary activities which will ensure that the greatest benefit is derived from the high initial investment. Dykes and secondary dams are to be built upstream to prevent siltation and erosion; settlements are to be established in the new farmland and provided with schools, dispensaries, and other services; roads are to be built linking the villages with each other and with the market towns; agricultural and veterinary services are to be set up; cooperatives are to be stimulated; village industries are to be encouraged. In all, funds may be allocated to ten or twelve ministries or bureaus. But even in highly advanced nations a central planning board cannot work out details such as where best to place a school in relation to a branch road or clinic.

Such efforts to excessively centralize control can be even more harmful to projects emanating from the bottom *upward*. For example, a crowded community may propose a land resettlement scheme for which the ministry of lands will have the major responsibility. If the project is to work, however, it is crucial that the technical and material services of many other ministries be brought into play. Public works will be consulted on irrigation and drainage problems, health will be concerned with malaria control, and so on.

Both these examples illustrate the need for a middle level planning and co-ordinating mechanism that can integrate governmental services and insure that they are calibrated to local peoples' needs and capacity to absorb them. District officers of the various ministries generally are much less restricted bureaucratically than their counterparts in the national office, and they usually have a greater sense of urgency for being in closer contact with local people. Yet all too often these officers have no means of coordination, their advice is the last to be considered in the national capital, and they may be more committed to their careers in the organizational hierarchy than to the local districts that they ostensibly serve.

To counterbalance these tendencies, it would seem that a popular movement in local self-help and self-government would be an ideal instrument for building a constituency that could enact or enforce district level coordination and integration of services, thereby enhancing the returns on national investments, stimulating counterpart investment at the community level, and avoiding the feeling among

villagers that the government does not care about them or is ignorantly implementing schemes that may be of national importance but that also do local harm.

(b) **Establishing Effective Administrative Systems:** If it is ever to become a national movement, a popular action program also must set up an effective administrative system to service such large-scale field operations. This is important for several reasons. First, if a program is to win the trust of the people whom it hopes to serve, it has to deliver, and fast, all that it promises. If a field officer says that a truckload of cement will be available, if it does not arrive villagers will lose trust in the field officer and sink into apathy. So from the psychological viewpoint, efficient delivery and service from above is indispensable to a rapidly expanding operation. Secondly, a national program is simply too big to be organized on personalistic lines, and traditional systems of reporting and supervision will not give the flexibility, accuracy, and speed required for a large-scale dynamic operation. Third, relative to other types of development investment, such as hydroelectrical stations or automobile factories, the ratio of economic return to dollar investment for community development programs often appears quite poor. If there are thousands of projects whose value amounts to only a few thousand dollars each, it does not make sense to have an administrative overhead of several thousand dollars per project. Therefore, to make locally initiated development a paying proposition, and to document that efficiency, a tight and inexpensive system of control and reporting must be used.

To meet these requirements it is necessary to adapt and use the most effective managerial practice available. The imaginative use of such techniques, and particularly of simple computers, can minimize the need for a traditional paper-bound bureaucracy. Currently in most development programs, basic reports are filled out by field officers. Their supervisors summarize these reports and send them to the next person up. When the data finally gets to the chief professional officer or the president, it has been transposed so many times that it usually is stale and inaccurate. Moreover, such data is costly to accumulate and, because it is in a static summary form, it is practically useless for program analysis or operational decisions.

But computerized administration can revolutionize this. The principle is similar to that used in gasoline stations. The person who fills up the tank needs little training in reporting or accounting. He merely reads the meter and fills in the appropriate boxes. Then he takes his slips and sends them to Houston, where a small staff, aided by a computer, can do the paper work for 10,000 gasoline stations. The same can be done, in effect, for thousands of district development projects, thus simplifying reporting enormously, and making it more up to date, accurate, and inexpensive. In addition, because the computer can produce timely analytic reports on most aspects of the program, administrators are given a powerful tool for making decisions.<sup>19</sup>

<sup>19</sup> In the Soviet Union, bureaucratic centralism was perceived as a cause of economic stagnation. The solution currently being pursued is to computerize the entire economy, and

## VI. CONCLUSION

In sum then, I have sought to outline a development strategy that would be appropriate to the material, technical, and organizational resources of most nations poor but proud, and that at the same time would enhance local and national autonomy. We have eschewed both the technocrat's excessive stress on productive efficiency and consequent disregard for politics and process, as well as the romantic revolutionary's exclusive involvement in the politics of action without regard to technical or economic factors.

In the scheme I have outlined, the process of planning is itself the most important product. True, specific goals are achieved through decentralized decision-making. But even more important is the development of peoples' *capacity* to make better use of what already exists and to undertake increasingly sophisticated enterprises. Such growth in self-confidence and organizational and technical skill of people would seem a solid base for building a society that is at once economically productive as well as politically humane.

My recommendations have not addressed global political factors effecting the emergence of libertarian nationalist leaders in any given country. Instead, my comments have been directed to leaders and advisors of nations already committed to a more progressive social ideal. Yet even in nations ruled by authoritarian elites, there is a role for a bottom up approach, only here it is as the basis of a revolutionary movement. The success of insurgent groups is not only a matter of opposing the government ideologically and militarily. It also is a matter of *outgoverning* existing rulers, of establishing civic programs that are more effectively responsive to the needs of local people.

If national or insurgent leaders in the Third World are able to scale their economic plans and political priorities to appropriate levels of capital and technical investment, and if they can find it in themselves to trust their countrymen to solve their own problems with their own resources, then they may well have found a key to both bread and dignity in the decades ahead. As for Western scholars and planners, our role is not to help contain Third World outrage with technically clean but politically sterile nostrums; nor is it to attempt to lead other peoples' revolutions. Our duty rather is to expose sources of oppression, confront our countrymen with their own bad faith, and arm activists with technically sound and politically lucid suggestions.

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thus to make central planning work. My belief is that this effort is politically repressive as well as naive, and that increased control ultimately will be bought with decreased worker commitment and productivity. Such a use of computers, in any case, is exactly the opposite of what we intend. See [12, pp. 102-15] for a description of this movement and for references in Russian. Noncomputer systems can work in poor countries if they are imaginatively designed, as, for example, the Masagana 99 Management Information System begun in 1973 in the Philippines.



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