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# THE INSTITUTIONAL CONSTRAINTS ON TECHNOLOGY TRANSFER TO SMALL FARMERS

by

Jeffrey Race\*

## Introduction

The "small farmer problem" must be viewed in the widest possible context in order to understand its full subtlety. It is one manifestation of an income distribution problem and of the homeostatic mechanisms by which societies perpetuate peaceful inequality. In turn, the income distribution problem is part of the larger historical phenomenon of differentiation, specialization, and the institutionalization of increasing inequality. Evidence indicates that in some advanced societies this trend toward increasing economic inequality is reversed, but not by the operation of autonomous processes such as brought about the inequality in the first place. The trend is reversed by the use of political power, just as it was created. Since we are interested in ameliorating the small farmer problem in societies at a stage of evolution far ahead of the time when these political processes characteristic of advanced industrial societies begin to act, we may infer that political "interventions" in various spheres (not just the economic) may be required. That is, if we wish to reverse the trend sooner, we must use the same mechanisms sooner.

This paper will not approach the small farmer problem from one traditional viewpoint, that the small farmer problem is a discrete problem within a special sector (agriculture), with its special consequences and special cures. In the author's view, this approach slightes the historical institutional context, and tends to treat symptoms. Unfortunately, an understanding of the historical context reveals that the problem, while completely comprehensible in scientific terms, may be difficult politically, since our small farmer problem is a manifestation of none other than the historical consolidation of the elite position of certain social groups. Doing something about the problem thus means working against a universal historical trend. The good news is that the means to do this are well understood, and hence the bars to solutions, where they exist, are not technical (i.e. lack of adequate scientific knowledge). The bad news is the obverse of this proposition: that the bars are ones of human will, a difficulty even more intractable than shortcomings of scientific research. The reason for this intractability will be elaborated

later, but basically it is that there is an important relationship between the distribution of certain social values (not just wealth and income, but also power, education and status) and the level of production and the rapidity and uniformity of innovation.

Even so, we must not make too much of the difficulties of this task. There is in fact a large range of things that can be done, with varying degrees of effectiveness, and more or less removed from immediate political consequences. My point is simply that the most effective measures (in the short run) involve serious costs for social elites; if one is willing to settle for results in the longer term, the constraints are much relaxed. An argument can be made, in this perspective, though, that it is better to do the things that have a surer long-term payoff with few immediate political costs, than to press (as some agencies and government advisors do) for quick fixes which also raise social tensions. More on this later, where in the concluding section I propose an inventory of possible solutions.

Before proceeding I should clarify one point: we shall avoid what I call the "economist's fallacy". Discussion of development in agriculture (and of material change in general) is impossible without a consideration of institutional aspects, since changes in these aspects are primarily responsible for development. But these are explicitly considered constants in economic analysis. Ergo, the small farmer problem is not one easily amenable to the tools of the economist's trade, since the relevant variables do not fall within this discipline. This is worth emphasizing because of the widespread belief to the contrary, despite frequent reminders from economists themselves; for example, 24 years ago one economist felt constrained to urge:

"Economists would no doubt accept the obvious view that economic development is a social process, but this process involves much more than the response of individuals to material incentives and is of such a nature that the usual equilibrium analysis offers little help. There is the need for a wider, if less tidy, approach by economists, which draws on the resources of other social sciences or applied arts — anthropology, sociology, political science, education, law or public administration — and sets economic motivation, not austere apart but in its proper place in complex

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systems of responses, beliefs, organizations and institutions. If we begin with acceptance of economic development as a social process, and bear this consistently in mind, and not, as is common, think of it primarily as a set of requirements such as more land and capital, and better techniques, it should make a profound difference to our assumptions, our time perspective, and systems of priorities, judgments on the relative importance of various requirements at different times, and procedures."<sup>1</sup>

Yet as recently as three years ago, another distinguished economist felt he must publish the same injunction:

"The significance of [non-economic] determinants of material progress has been underrated, or even ignored, in most of the development literature of the last two decades. These influences have either been ignored altogether or have been treated parametrically at best. Various reasons may account for this comparative neglect. These determinants are not among the familiar variables of economic analysis; they are not readily quantifiable; and they cannot easily be manipulated by official policy. . . . A further reason for the neglect of the crucial determinants . . . in these discussions is that the discussions themselves are much influenced by modern macroeconomic models which address themselves to problems quite different from those of long-term economic development. The irrelevance of these models to an analysis or explanation of material progress is quite clear from the assumptions of Keynes' *General Theory*, the work from which most of these models derive . . . Thus the prime determinants of material progress are deliberately taken as given."<sup>2</sup>

Thus, in my view, our attention is properly focused on the institutional aspects of the small farmer problem as the most appropriate path to a solution.

Here let me also emphasize a second point, namely what I mean by the "small farmer problem". This is a question of objectives, and I see three in our hopes for the improvement of the agricultural sector:

- (a) Reasonable equality in rural areas in both wealth and income;
- (b) Rapid innovation of appropriate new technologies;
- (c) Widespread (i.e. relatively equal) innovation of new technologies.

The logic of these is as follows: The first objective is our basic goal of distributive justice. The second objective serves the goal of enhancing rural income, while the third is necessary to maintain equality or to prevent inequality from arising from differential in the rate of innovation of new technologies which give rise to different income flows.

It is reasonable to ask at this point why we should consider the problems of small farmers at all, given historical trends favouring consolidation, and some evidence suggesting the virtues of large integrated enterprises. I propose that there are at least four reasons, as outlined in the next four paragraphs though other analysts might well add to the list.

The "small farmer problem" is an index or indicator of certain important trends with significant long-run consequences. By small farmer problem here I refer to farmers with family-size or small holdings, who are disadvantaged in such important respects as access to credit, education, profitable new technologies or supporting inputs, and the kinds of power and status which would enable them to resolve their other problems. In this sense, then, the small farmer problem is an index of rural inequality or, in another interpretation, of injustice. Such inequality is widely considered to be undesirable in itself, but as I will point out later on, the differential access to technology and supporting inputs makes this a cumulative development, such that the small farmers suffering these problems today are on their way to becoming the landless farmers of tomorrow. Consequently it is advisable to nip this problem in the bud.

Increasing inequality produces social tensions with important implications for the stability of the society and its level of violence — implications which it is imprudent to overlook.<sup>3</sup>

Small farmers, in terms of the size of their holdings, are everywhere a potentially powerful economic asset, strictly from the standpoint of economic efficiency. This is because of the intensive management which the family farm is able to provide. With the proper supporting institutions, then, the small farmer will produce more output for a given level of capital inputs than large commercial farms. This relationship is of tremendous importance in view of the capital scarcity in less developed countries. The crucial relationship, however, is precisely the institutional one, and thus we see that in practice institutional reform is an alternative to more intensive capital investment. This tradeoff is of all the greater interest because the relevant institutional reforms can be had at little or no real resource cost. What I am saying, then, is that there is a means to achieve significant increases in agricultural production

<sup>1</sup> H. Belshaw, "Economic development as an operational problem", *Civilizations*, Vol. 2, No. 2 (1952), pp. 159-160.

<sup>2</sup> P. T. Bauer, *Dissent On Development* (Cambridge, Massachusetts, Harvard University Press, 1972), pp. 80-82.

<sup>3</sup> For a summary of the literature on "relative deprivation" see Ted Robert Gurr, *Why Men Rebel* (Princeton, Princeton University Press, 1971).

without increases in capital investment (other than working capital).

The fourth and related point is that we may be forced to consider this alternative in any event, because the great promise of the technological breakthroughs of the so-called "green revolution" has hardly been fulfilled. The following figures from a recent study demonstrate this:

Rates of growth of agricultural production, 1955-1970

	Percentage annual rate of growth			
	Agricultural product	Food product	Wheat product	Rice product
<i>Latin America</i>				
1955-1965	3.10	3.02	2.21	6.30
1955-1970	2.74	3.05	1.28	4.85
<i>Africa</i>				
1955-1965	2.86	2.49	2.25	2.50
1955-1970	2.49	2.15	2.19	3.40
<i>Near East</i>				
1955-1965	3.42	3.10	1.93	5.94
1955-1970	3.11	2.89	2.23	5.49
<i>Far East</i>				
1955-1965	2.90	2.94	5.48	3.30
1955-1970	2.77	2.80	5.06	2.84

Source: Consolidated and abbreviated from tables 1.1, 1.2, 1.3 and 1.4 of Keith Griffin, *The Political Economy of Agrarian Change* (Cambridge, Harvard University Press, 1974).

As an inspection of these figures reveals, the rate of growth of total agricultural production has been less in the 1965-1970 period (of the "green revolution") than during the previous decade in every region of the world. ( $R^2$  figures are statistically significant.) Food production figures are showing either essentially constant rates of growth (Latin America) or decreased rates. For wheat production, it would appear that rates of growth have increased in Latin America and Africa, but the T value of the regression coefficients are low for both periods for both regions, so it is hard to say what the true trend is. The figures for the Near East are also statistically ambiguous; only in the Far East can it be said that there has been a true "revolution" in rates of change. The trend in rice production appears to have declined in the Far East and Latin America, and to have remained roughly constant in the Near East. Only in Africa is there clear statistical evidence that the tempo of rice output has accelerated, and rice in Africa accounts for less than 10 per cent of total cereal production.<sup>4</sup>

These figures thus seem to disprove conclusively the proposition that there is a technical holdback in agricultural production in the third world. An economist, or agronomist, looking at response curves to

fertilizer for many of the main crops, and comparing usage rates in the advanced countries with those in the third world, might nevertheless be tempted to say that we need only reallocate fertilizer (and other inputs such as pesticides) to those using less, in order to exploit the higher marginal yields in the third world. Unfortunately, this begs the whole problem, since third world users do not use fertilizers and other inputs to their economic optimum because they cannot in turn because of other constraints. The conclusion is inescapable: if third world agriculture is to advance without explosive social tensions and unacceptable levels of inequality developing, attention must be devoted to relaxing these constraints on the small farmer. These constraints are the institutional ones to be discussed further on.

What are these institutional problems? The hope of the reformer is that we can identify the constraints through our scientific knowledge, bring this wisdom to the attention of the political leaders, and then persuade them to relax these constraints. It is this conception which underlies the calls for governments to bring about reforms in such institutions as credit facilities, co-operative organization, landholding, administration, markets and the family. This is, however, too narrow a conception of institutional constraints. Why this trend persists (one which implicitly sees institutional constraints as a "technical" problem) is not clear, but some observers have suggested that it involves telling international agencies what they want or are prepared to hear. As Bauer writes, "the preoccupation with political acceptability is notorious."<sup>5</sup> In this paper, I will explicitly reveal the unpalatable truth, which is that the institution of government itself is, in my interpretation of the evidence, the major constraint on equal and rapid innovation. To expand a bit, it is not government *per se* but government as the ultimate regulator of certain immanent social processes which appear universal to human societies. The evidence for the universality of these processes is powerful and will be elaborated shortly. The point of this is that one of the real dilemmas of "helping small farmers" is that one is "going against history" so clearly and unambiguously that if one is determined to do so, one must steel one's will for the task and, in addition, be very careful to find the points of highest leverage, precisely because the obstacles are so formidable.

To offer some suggestive points now, I propose it is no coincidence that technology serves the larger, more skilled farmers, that credit is less available to the small and disadvantaged, that education is not equally distributed, that political institutions, such as central bureaucracies, serve best those with wealth, power and "influence". These relationships are so by virtue of the operation of an "invisible hand" (not Adam Smith's) we will discuss further on.

<sup>4</sup> Keith Griffin, *The Political Economy of Agrarian Change* (Cambridge, Harvard University Press, 1974), pp. 4-9.

<sup>5</sup> P. T. Bauer, *op. cit.*, p. 516.

Within the last decade or so, there have been very significant advances in our understanding of the way societies work, partly as a result of field work by anthropologists, ethnologists, sociologists, economists and political scientists; but partly also as a result of better conceptualization. These advances now permit us to compose a comprehensive picture of the evolution of societies as a result of their technological advance, and correlate this with changes in the political, economic, sociological, military and other spheres. The full implications of those recent advances in knowledge for an understanding of the problems of the small farmer have not yet been committed to paper, in the author's view: a lacuna which this study seeks to overcome in some measure.

### 1. Historical relationships between agricultural technology and social institutions

The analysis in the first part of this paper will rely largely on the work of an American sociologist, Gerhard H. Lenski, who has completed the most comprehensive and sophisticated study yet to appear on the relationship between changes in agricultural technology and changes in the institutional structures of society and especially in the stratification system.<sup>6</sup> Lenski's study is currently the definitive work in the field and it reveals essentially that there is a positive relationship between the size of the community's *per capita* surplus and the inequality of its division.<sup>7</sup> Certain means evolve to preserve this inequality, primary among them government and the means at the disposal of government. After recapitulation of Lenski's argument, we will advance beyond him and try to show that the mechanisms, by which society preserves inequality, hinder innovation in the respects we have stated above to define our "small farmer problem". In this conception, governments as we understand them are thus part of the problem, rather than part of the solution. Since this is to a considerable degree a strange and perhaps unwelcome insight, it will be necessary to explain the findings of Lenski's research in more detail.

Lenski begins his analysis with the simplest human communities using the most primitive technology: the so-called "hunting and gathering" societies. These societies have no metals, they are invariably nomadic or seminomadic because of the wide geographical areas they must cover in the search for food; they are self-sufficient and there is no trade (an important point, note, when we come to Migdal's work); they are invariably small, with perhaps 50 to a band, and no more than a few hundreds. Also, there is no specialization at the individual level; even "leaders" and "medicine men" must work for subsistence. The

household and the band are the only social units: there are no separate government, army, business or political groups.<sup>8</sup>

More important from our viewpoint is the fact that this level of technology produces little or no surplus. It is literally necessary to work 365 days a year to survive. Consequently there is relative equality in such a community, i.e. around the level of survival. There is also redistribution within the band since there are no reserves for individuals to fall back on. A good take by someone on one day will be spread around, against that day, which is sure to come, when he is too old, or sick, to hunt and gather any more.<sup>9</sup>

Some inequality exists, nevertheless, but it is "functional inequality", in that the best hunters and gatherers do have some more than others, but they also give away much of their yield, gaining prestige. Thus "potentially disastrous inequalities in subsistence are transformed into inequalities in prestige and influence, a much safer and more satisfying arrangement", and "power, privilege and prestige are largely a function of personal skills and ability".<sup>10</sup> Since there is no special cadre for enforcement, and there is equality of fighting ability, "benefits and honors enjoyed by the few represent a return for services rendered to the many under conditions free from any form of social coercion or man-made shortage".<sup>11</sup> Even the inequalities which do exist cannot be transmitted, because the devices which would permit this do not yet exist: wealth, and hereditary roles which accrue regardless of ability (resources are so limited that everyone must prove himself); there are no "classes" and hence no differential socialization.<sup>12</sup>

The next stage in the evolution of agricultural technology is the horticultural society. Horticulture is defined as gardening, i.e. the use of the hoe or digging stick, without the more advanced technologies (e.g. the plough) which define agricultural societies proper. Simple horticultural societies use only the digging stick; advanced horticultural societies employ such improvements as terracing and irrigation, fertilization and metallurgy.<sup>13</sup>

Simple horticultural societies are more productive than hunting and gathering societies, and this has several consequences. For one, these societies are larger, averaging one to two hundred members, while sizes of up to 3,000 have been observed. Such societies also begin to produce "non-essential goods", have ceremonies, engage in warfare, and have specialized

<sup>8</sup> *Ibid.*, pp. 94-102.

<sup>9</sup> *Ibid.*, pp. 103-104.

<sup>10</sup> *Ibid.*, pp. 105 and 109 respectively.

<sup>11</sup> *Ibid.*, p. 105. I should emphasize that these generalizations rely on an extensive body of case studies summarized by Lenski.

<sup>12</sup> *Ibid.*, p. 109.

<sup>13</sup> *Ibid.*, pp. 117-118.

<sup>6</sup> Gerhard H. Lenski, *Power And Privilege* (New York, McGraw Hill, 1955).

<sup>7</sup> *Ibid.*, p. 81.

roles for individuals, including full-time political offices and specialized staffs; and there begin to be "organizations" apart from the family. The distributive results are also pronounced. First, inequality of wealth (implying, of course, inequality of income) becomes noticeable; and there is a greater political inequality (as illustrated by the appearance in the type of society of prostration, absolute power, and slavery).<sup>14</sup>

An extremely important development for our purposes is the fact that such societies first begin to develop "institutions", or roles of office. With institutions, we can begin to get the "institutionalization" of inequality, which is part and parcel of our small farmer problem. "No longer is [status] simply a function of [personal attributes]. Now status is a complex function of both [the individual's] personal attributes and his office or offices. Now it becomes possible for an individual to enjoy a reward to which his personal attributes alone would not entitle him. . . . In short, the development of offices in society represents an important early step in the direction of stabilizing, solidifying and institutionalizing systems of social inequality."<sup>15</sup>

Even so, in simple horticultural societies, there are no gross material inequalities, since there is relative plenty (land, game); there is an absence of capital goods (except for wives). Thus produce must be consumed, and as a result most of it is given away to maintain prestige in the so-called "prestige economy". This is an important aspect of the strength and solidarity of local communities in horticultural societies, which we will have occasion to refer back to later when we discuss the breakdown of communal solidarity and its consequently concomitant decline with the growth of commercialization.

We should digress here for a moment to specify more exactly what we mean by an "institution". We use the term to mean a repetitive pattern of behaviour in which participants are influenced to behave, possibly, in ways contrary to the preferences of each one of them. Related concepts are those of "authority", or legitimacy of power, and "organization" or pattern of behaviour which pursues an intended purpose. Our concern is to what extent an organization becomes "institutionalized", i.e. continuous in its functions regardless of changes in personnel. Notice that this is another form of the point Lenski makes earlier about the innovation of institutions in simple horticultural societies: that people occupying certain roles come to be rewarded (or conversely, penalized) regardless of their personal contributions or abilities. Crucial to this development is the creation of an "authority structure", which the sociologist Peter Blau has described in the following terms:

"The social norms and values of subordinates that legitimate the power or influence of a superior transform it into authority. Simultaneously, indirect processes of social exchange become substituted for the direct exchange transactions between superior and individual subordinates. Before legitimating norms have developed, subordinates offer compliance with the superior's directive in exchange for services he furnishes. . . . The emergent social norms that legitimate authority give rise to two exchange processes that take the place of this one. Individual subordinates submit to the authority of the superior because group norms require them to do so and failure to conform evokes social disapproval. The individual exchanges compliance to the directives of the superior for social approval from his peers. The collectivity of subordinates exchanges prevailing compliance with the superior's orders, which it has to offer as the result of its social norms that enforce compliance, and which legitimates the superior's authority, for the contribution to the common welfare his leadership furnishes."<sup>16</sup>

Thus there is a kind of "flywheel effect" by virtue of which the expectation by each subordinate that all other subordinates will comply actually enforces compliance even though each individual subordinate might prefer otherwise, and even though the superior's contributions to the group do not justify (fully or even at all) his exactions. Such compliance is however precarious, but, nevertheless, "in simple horticultural societies a very limited degree of tyranny is possible, but . . . the means are not yet available for the tyrant to protect himself".<sup>17</sup> This is so because (a) the superior yet lacks a "staff" of dependent specialists to protect him; (b) there is a democracy of weapons and training in use; and (c) the victims are in constant communication, so the chief enjoys no significant organizational advantage. Later forms of society develop means to greatly increase the reliability of the extractive mechanisms, means which hold the small farmer of today in their grasp, and which we must relax if we wish to bring this group into full partnership in the technological advance of the modern world.

The next stage of development advance is the advanced horticultural society, which permits a great increase in the surplus (subsistence for a year may require but 100 days of labour). Again, an enlargement of size is permitted, from 15,000 to up to 3-4 million members; the first empires appear among societies having this level of technology. There is also a striking development of social inequality, with these societies being the first to have leaders who are regarded and treated as gods.<sup>18</sup>

<sup>14</sup> Peter Blau, *Exchange and Power in Social Life* (New York, Wiley, 1964), p. 209.

<sup>17</sup> Lenski, *op. cit.*, p. 140.

<sup>18</sup> *Ibid.*, pp. 143-154.

<sup>14</sup> *Ibid.*, p. 126.

<sup>15</sup> *Ibid.*, pp. 130-132.

An examination of advanced horticultural societies in Africa reveals an important relationship with major implications for our concern with small farmers. Lenski relies on a series of ethnographic studies by Meyes Fortes, in which Fortes divided the societies studied into two groups: group A, which had centralized authority, administrative machinery, and judicial institutions; and group B, which had village autonomy, and no higher form of government *per se*. A "striking" relationship emerges: the group B societies have no sharp dividing lines of rank, status and wealth. Thus Lenski draws the inference that in advanced horticultural societies the separation of political and kinship systems and the development of the state are necessary preconditions for the development of marked social inequality,<sup>19</sup> and "an institution [government] which began primarily as a functional necessity of group life became . . . an instrument employed primarily for self-aggrandizement and exploitation".<sup>20</sup>

Agrarian societies (as defined earlier) carry these trends further: greater surplus, greater size (up to 100 million members observed); a trend toward monarchical government; and a far greater degree of inequality than in horticultural societies. The increasing specialization and improved transportation and communication means in these societies also lead to the innovation of a separate merchant class involved in trade and commerce, and two new mechanisms of control are introduced: money, which is a store of wealth; and writing, which provides a special organizational and communication advantage to the literate.<sup>21</sup>

Lenski's data on agrarian societies indicate that in general the ruler himself receives approximately one quarter of the national income, and the ruler and the governing classes together receive not less than half.<sup>22</sup> The extractive methods for transferring the surplus from the cultivators are so effective that, even in the case of peasant revolts and uprisings (not infrequent), the patterns of resource transfers, from village, to town, to capital, remain the same; only the identities of the beneficiaries change.<sup>23</sup>

The societies with which we are concerned in our work with small farmers fall largely into this category of historical agrarian societies, with, in some cases, the thinnest overlay of industrialization. There is one modification to the structure described here, and that is the coming of commercialization. Before we discuss this, it will be useful to review the patterns and developmental trends examined heretofore.

<sup>19</sup> *Ibid.*, p. 160. Lenski goes on in following pages to examine the ecological factors which account for a community's evolution into an A or a B society.

<sup>20</sup> *Ibid.*, p. 168.

<sup>21</sup> *Ibid.*, pp. 194-210.

<sup>22</sup> *Ibid.*, p. 228.

<sup>23</sup> *Ibid.*, p. 275.

First, let us note that anthropologists distinguish two historical types of peasant communities in agrarian societies: those in which lords ruled (a lord being understood as one who is differentiated from the peasant in that he need not work the land but can live completely off the work of others through rents, interest and profit); and freeholding communities in which there was not immediate rule of local lords.<sup>24</sup> Resources were extracted from both, but by somewhat different means.

In the lord-dominated community (European feudal serfdom, the Latin American *hacienda* system, evolving in the modern period into patron-client systems), the lord controlled the vital resources of land, water, credit and other services. The lord's advantage lay in his monopoly over these resources, enforced by the central state, and his interest lay in placing barriers against the involvement of peasants with individuals and institutions outside the local community, because such outside linkages would threaten his monopoly and hence his extractive ability.

The second type of peasant community was the freeholding community, which erected its own bars to outside involvement. Here I will quote Migdal:

"Peasants in these freeholding villages suffered from their vulnerability: their contact with outside institutions meant high taxes and exploitation, and, as a result, the peasants felt that the world outside the village was fraught with danger and hostility for them. Communities lived within their 'bamboo hedge' and had institutions to prevent, as much as they could, further interference in their affairs which the hostile world outside might bring about by means of alliances with peasants desiring change.

"Such freeholding communities had various mechanisms, for example, to consume or redistribute the surplus of the wealthier peasants. Fiestas, ceremonies, gift procedures, and so forth [i.e. the 'prestige economy' discussed earlier in connection with hunting and gathering communities] served to prevent the accumulation by anyone of resources that could be used to form alliances with outside individuals or institutions. The fear was that such alliances could form the basis of an even more direct and severe domination of the peasants. Sanctions such as gossip, refusal of cooperative labour, beatings, ostracism, and banishment served to insure compliance with the demands of local institutions."<sup>25</sup>

<sup>24</sup> The discussion in this section follows the argument of Joel S. Migdal in "Why change? Toward a new theory of change among individuals in the process of modernization", *World Politics*, Vol. 26, No. 2 (January 1974), pp. 189-206.

<sup>25</sup> *Ibid.*, p. 199. This type of community organization was characteristic of China, Java and the mainland Southeast Asian countries.



We thus note that the lord-dominated societies had weak local institutions or none at all, and with the collapse of lordly rule in the modern period they have been peculiarly ill-adapted to cope with the challenges of the present day. On the other hand, societies in the freeholding model had strong local communities which redistributed wealth and, in effect, risk, via "political" mechanisms, or "social pressures" if one prefers. However, as we will discuss below, these strong so-called "closed corporate communities" begin to disintegrate with the growth of commercialization.<sup>26</sup>

From the viewpoint of elites, agrarian societies have been extremely rewarding, since the elites succeed in skimming off the great bulk of the agricultural surplus; the magnificent cultural achievements of these civilizations in their cities bear witness to this, as does, of course, the continued prosaic existence of the farmer, generation after generation, since he is able to accumulate little of the surplus from his labours. Two general distributive rules apply to agrarian societies. First, the cultivators get to retain enough of the crop to survive until the next harvest, with the remainder going to the ruler, the governing groups, and the religious establishment. Secondly, the best predictor of one's future income was one's standing in the political community, which was closely related to one's wealth. This translated into something like "the more one has, the more one gets."

Nevertheless, there were several problems with this system. First was its unpredictability from the viewpoint of elite continuity: uprisings, revolts and coups fill the history of the ancient world. This problem was mitigated to some extent by the elites providing actual services to the peasants, principally protection, or "law and order", not a small service in view of the imperative need for peace at planting and harvest time. The only question was the price: the elites extracted virtually all of the surplus in return for providing this service. The reason is simple in economic terms: they had a monopoly on the supply, since they explicitly acted to prevent any kind of peasant organization which would threaten elite rule. (The means were numerous and varied; for example, tattooing of subjects; forbidding meetings or associations; spy system; and the exclusion of local communities from political power in the national system.) Also helping to preserve the stability of the extractive system was the legitimation provided by religious belief systems; hence the enormous transfer payments made by political leaders to the religious communities in return for their blessing or, alternatively and less conspicuously, sanctioning "by law" the collection of large portions of the surplus by the religious establishment itself. Differential literacy

also helped, a point we mentioned briefly above and will return to again later because of its great importance. Its significance is that illiteracy hampers communications and cohesion and it is essential for elites to have better communication, hence more cohesion, than non-elites.

Nonetheless, major problems remain. One is the continued threat of uprisings by the farmers. A second, related problem, is the visibility of the extractive system: it works by physically transporting the surplus of each harvest from villages to towns to the royal capital. The sight of lengthy caravans of rice, maize, or wheat was obviously provocative, and hence the introduction of money was a great potential boon, since it held the promise of converting this physical process of extraction into a much more recondite system of bookkeeping entries. The farmer, rather than having his surplus physically removed from him in one operation, and seeing plainly the identity of the small number of beneficiaries, instead just "doesn't have enough money left at the end of the year", understand the system, and furthermore there are many more hands involved in the transactions, to diffuse the feelings of discontent. Nevertheless this shift only becomes completely operational later, when commercialization of the economy takes over.

A final at least implicit shortcoming of this system is that elites would like it to be even more productive of surplus. We are looking forward here to commercial agriculture and an industrial economy.

We should note here that in agrarian societies there is no "small farmer" problem as we have defined it, since technology changes but slowly, and at the bottom end of the scale, there is rough equality, converging on subsistence.

## 2. The development of the small farmer problem

Why have we spent all this time on the historical evolution of agricultural technology and the correlative development of institutions? Simply because the elements which contribute to the historical stability (such as it was) of the extractive systems—essential for elites—are the same elements which contribute to the "small farmer problem" in our own period. This is not an argument for perfect stasis—were that the case, there would be no change at all in the world. There are important axes of tension within agrarian societies, which ultimately (in combination with an infinite variety of technological change, wars, religious innovations, etc.) bring us to the modern world. I have in mind tensions between the ruler and the governing groups; between these and the priestly class, if any; between elites and the peasantry; and so forth. Two points need to be kept in mind, however. First, government as it has historically evolved, whatever its

<sup>26</sup> Eric R. Wolf, "Closed corporate peasant communities in Mesoamerica and Central Java", *Southwestern Journal of Anthropology*, Vol. 13, No. 1 (Spring 1957), reprinted in Jack M. Potter and others, eds., *Peasant Society* (Boston, Little Brown, 1967).

"purpose", has universally had as one of its consequences the maintenance of stable inequality. There is no reason to believe that something so central to the existence of historical governments has disappeared from those governments currently on the face of the earth; and indeed, income distribution figures show that there have been but modest changes in the distribution of wealth and income in the modern period, and only in some parts of the world. This perspective must shape our understanding of the use of governments to overcome the "small farmer problem".

Second, since we have cast aside the idea of perfect stasis as contradicting reality, we conclude that some people innovate and escape from the grip of these various control mechanisms. Thus we explicitly identify the "small farmer problem" as applying to those farmers who, in the present transitional period in the world, are still caught in the grip of these control mechanisms of days past. The "transitional period" to which we refer is the one in which commercialization of agriculture has begun, but is not yet universal. Hence, we turn to a consideration of the process of commercialization of agriculture.

As Migdal points out in his important study, during the eighteenth and nineteenth centuries, the improvement of communications and transportation brought about the beginning of the end of the traditional systems of redistribution and relative local stasis in many parts of the world. Three factors combined to produce a "cash crisis" in local communities: population growth, the increasing demands of the state for cash taxes (rather than a share of the crop), and the erosion of handicraft markets due to competition from more advanced countries. The result was to force new outside ties on villagers, to disintegrate cohesive local structures where they existed, and to begin a process of severe local inequalities which become the "small farmer problem" of our own day.

"All three factors [quoted above] placed numerous freeholding households in severe financial straits. The solution they sought was very much along traditional lines. Without ties to outside institutions (and fearing that such ties would mean only increased exploitation), the needy turned for help to others in the village who had escaped the crisis.

"In the past, upward and downward mobility within the village's status system had been shaped by the ill fortune of one family and the good fortune of another. Selling land and giving loans from one household to another raised the status of some and lowered that of others. The persistence, severity, and scope of the economic crises stemming from the three factors described here had the effect of continually strengthening the position of those who had not been affected, and of widening the gap between them and those in

need. The structure was no longer marked by the fluidity of the past; instead, it became polarized — an increasing proportion of the village's resources coming into the hands of the few who had escaped the crisis. While some sold land and went deeply into debt, others built their power position to the point where they no longer had to fear the sanctions of the community. The effectiveness of sanctions had previously depended on fairly equal reciprocity; now, those in control of many vital resources did not need to fear those whose survival depended on these resources. Simultaneous to the weakening of sanctions, those peasants who had not been affected by the economic crisis found that their new wealth, achieved through the misfortunes of others, gave them the means to form outside alliances. Once involved in a significant number of outside institutions, they had an even stronger base from which to fortify their positions in the village. External ties were now used more than ever before to shape the village's internal power structure."<sup>27</sup>

Thus, we see that a crucial element in the creation of the small farmer problem — or even small farmers at all — was the destruction of the local community redistributive system which had served ever since the ancient times of hunting and gathering societies to level wealth, share risk, and minimize social tensions. This local system collapsed since community members were forced to begin to deal with the market, hence with outside institutions over which they had no control. Whereas originally there were no alternative alliances that local community members could form to protect themselves, and they hence had to be kind to their neighbors by sharing their wealth, now the better off could rely on the external power of the state, outside merchants, and police systems, to discipline the unruly in their own communities who in earlier days would have forced them to share their good fortune.

Characteristic of these situations of advancing commercialization are free cash markets. Their growing universality testifies to their usefulness: they are an efficient way of transmitting production signals, allocating resources, and motivating behaviour, especially where (as in less developed countries) skilled administrative manpower is scarce. Thus the extension of free cash markets has had a number of effects:

- (a) It has brought about increases, often fast increases, in the level of production;
- (b) It has been an incentive to improve yields by adopting new technologies;
- (c) It has resulted, as we have noted above, in land alienation, a shift in the distribution of assets, and increasing inequality.

<sup>27</sup> Joel S. Migdal, *loc. cit.*, pp. 203-204.

In effect, with the extension of the free cash market, society as a whole has advanced, but many have been left behind, and some have been made much worse off, because formerly they could rely on the levelling effect of the local institutions which were severely damaged or destroyed by the development of outside linkages. Moreover, the disadvantaged position of those left behind, has been rigidified by the new linkages now formed by local elites with the paramount state, using pre-existing mechanisms.

There is a mistaken tendency to see these processes as peculiarly characteristic of the so-called "green revolution" of our own time. Thus for example, Griffin writes:

"We shall argue below, however, that as a result of the technical changes that are presently occurring in several tropical regions [the 'green revolution'—the subject of Griffin's book] the tenure system will tend to become simplified and class relationships will tend to become polarized. Landowners will increasingly become owner-operators or agro-businessmen and the peasantry will tend to be reduced to the status of agricultural workers who no longer perform any entrepreneurial functions."<sup>28</sup>

And again:

". . . technological change in Indian agriculture has strengthened the political dominance of the landowners and accentuated income inequality; in some areas a combination of rapid demographic increase, slow growth of non-agricultural employment opportunities and agricultural innovation biased against labour may have resulted in a deterioration of the standard of living of the mass of the rural population."<sup>29</sup>

What Griffin and many others see as a peculiar consequence of the "green revolution" in fact has characterized technological change so far in history. What he and others see as a special characteristic of the new technologies in fact is just the latest movement of a secular trend extending into the far distant past—of increasing inequality, of separation of labour from capital, of advancing specialization and division of labour.

Many have interpreted this to mean that these trends are an immanent process, and some have even gone so far as to say "God-given" and part of a divine plan for nature and men. In fact other interpretations are possible. Technologies do not exist by themselves, but are embedded in an institutional matrix. For an identical technology, different institutional

matrices produce different distributive outputs; the problem is that in free market countries the homeostatic processes we have alluded to above and will discuss in further detail below tend to produce one pattern of institutions with the characteristic distributive outputs discussed earlier.

To give one tentative example, relating to the free market: the "resource" by which this market allocates access is money; thus anyone lacking this resource is at a disadvantage; but many people are in this category: those with few assets; those without credit; those without access to a technology which will produce income streams above subsistence in the future. There are institutional means to overcome these disadvantages and equalize the terms on which people meet in the market. This is another way of saying that free markets can produce very different results in different institutional contexts.

We have discussed, in reciting the findings of Migdal's research, that local communal organs decline with the advance of commercialization and the penetration of the free market. What is to replace these formerly strong and cohesive local institutions? If "nothing", then we have the patterns of development which characterize much of the world today: increasing income inequality, increasing land alienation, and, possibly, rising social tensions, not to mention our principal concern: the absence of rapid and widespread innovation of profitable new technologies.

Rather than answer "nothing", we can propose a more positive response, that something will replace these decaying natural local communities, something which will work against the immanent processes we have described. Griffin has described one case study of two institutional alternatives:

"In Pakistan only 4 per cent of the tubewells as of 1969 were installed on small farms, the great majority, viz. 69 per cent, being placed on farms larger than 25 acres. This investment in modern technology, by giving the dominant landowners even more control over scarce resources, increased the political power of faction leaders in the community and tended 'to undermine further any possibility of organizing agricultural institutions that could aid small farmers'. In Comilla, in contrast, several co-operatives have been organized to install and manage tubewells and the distribution of the benefits of technical change among the members of the co-operatives has been equitable. Equally important, 'the tubewell has been a powerful instrument in solidifying . . . community organizing activities . . . and in providing the middle and small peasant group with sufficient resources to break the economic hold of the large farmer-trader-moneylender group. In addition, the green revolution in Comilla has supported a variety of other development programmes with positive dis-

<sup>28</sup> K. Griffin, *op. cit.*, p. 26.

<sup>29</sup> *Ibid.*, pp. 90-91.

tributive effects (primary education, health, adult literacy, training for women, etc.) built on a solid base of increasing agricultural productivity.”<sup>30</sup>

Griffin’s prescription of co-operatives to turn a vicious circle into a virtuous circle is well taken, though hardly new. But, I must add, there is more to the problem of local organization than “co-operatives,” for these often fail, or are too weak to overcome the trends we wish to resist. The reasons for this are not well understood, though they are often lumped under the heading of “management failures”. They are also connected with the so-called “soft state” problem the impediments of which to development have been argued by Myrdal,<sup>31</sup> but again, exactly what contributes to “softness” is not clear, though Myrdal does make some arguments (mistaken, I will suggest) that “discipline” and “compulsion” are needed. Consequently, the result currently chosen is to make half-hearted efforts to invigorate public institutions—central governments, local governments, co-operatives—without really understanding what is wrong.

Beyond this, there are many other elements of the complex phenomenon which contribute to the grip in which the small farmer of today may find himself, which we shall dissect in the next section, where we deal with solutions to this dilemma. I will argue that these problems are all of one piece.

<sup>30</sup> K. Griffin, *op. cit.*, pp. 221-222. Internal quotations from Carl Gotsch, “Technical change and distribution of income benefits in rural areas”, *LTC Newsletter* (University of Wisconsin, Land Tenure Center), No. 35, December 1971 – March 1972.

<sup>31</sup> Myrdal observes:

The national community is also characterized by a number of institutional conditions unfavourable for economic development: notably a land tenure system detrimental to agricultural advance; undeveloped institutions for enterprise, employment, trade, and credit; deficiencies in national consolidation; imperfections in the authority of government agencies; instability and low effectiveness in national politics; low standards of efficiency and integrity in public administration; ineffective organs for provincial and local self-government; and a weak infrastructure of voluntary organizations — the institutional conditions which together constitute these national communities as “soft states” in our terminology. At the root of all these institutional debilities is a low degree of popular participation and a rigid, inegalitarian social stratification. (Gunnar Myrdal, *Asian Drama* [Harmondsworth, Penguin Books, 1968], p. 1863).

Myrdal adds at another place a view which has a kernel of validity but is apt to be dangerous without a fuller understanding of the “soft state” problem:

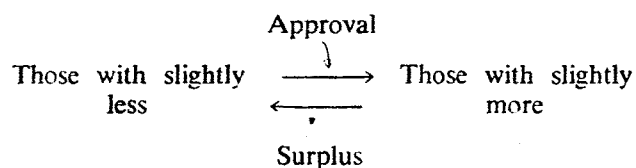
The real and very serious dilemma covered up by this verbal fuzziness about the ideal of voluntariness is that there is little hope in South Asia for rapid development without greater social discipline. To begin with, in the absence of more discipline — which will not appear without regulations backed by compulsion — all measures for rural uplift will be largely ineffective. In principle, discipline can be effected within the framework of whatever degree of political democracy a country can achieve; in the end nothing is more dangerous for democracy than lack of discipline. But the political and social conditions in these countries block the enactment of regulations that impose greater obligations; even when laws are enacted they cannot be easily enforced. (*ibid.*, p. 895.)

### 3. Helping the small farmer through technology transfer and institutional reform

Our basic insight is that the small farmer who does not innovate fails to do so because he cannot, given the constraints under which he lives. Coupled with this is the further insight that these constraints continue because they did, and still do, serve the cause of perpetuating peaceful inequality. The purpose of the preceding section was to demonstrate the validity of this second point, since it finds little place in the literature on small farmer problems, but is absolutely essential, in this author’s view, to understanding what to do about the problem. To some extent, these constraints are hangovers from the past, which present-day elites in the third world are unwilling to cast off. One difficulty is that because of the complexity of the problem, it may not be apparent what steps are best to take; hence, in this section, we will explore solutions.

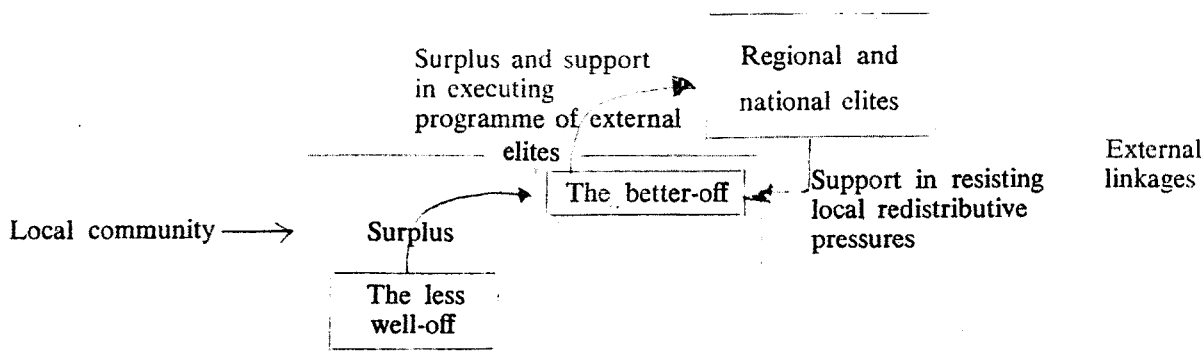
The basic nature of the problem is that some farmers innovate, while others do not. How can backward technology exist side-by-side with modern, high-productivity agriculture for extended periods of time? I suggest that there are six kinds of bars to innovation working against those who fail to innovate: lack of information (differential access to education); lack of investible resources (differential access to capital, including land); inability to organize new production methods (differential access to management); inability to co-ordinate the activities of the required number of people (differential power); inability to deal with market or government institutions (differential status); and inability to take the required risks (differential risk preference). It would be practical to study any one of these issues by itself, and that is the way the problem is generally handled, but our insight is that these form an interlocking chain net, “failsafe” so to speak, so that if one constraint “fails”, others still hold the potential innovator back. This phenomenon accounts for the stability of socio-economic inequality, and the persistence of our small farmer problem. These differentials appear within both local and national institutions, so we will address these before dealing with the constraints proper.

In the earliest communities, there is rough equality because those with slightly more (say from skill in hunting) give their surplus to others, to gain esteem, and to avert violence against themselves if they did not give—since there are no outsiders with whom they can form alliances to protect themselves against members of their own communities. Thus, there is an exchange system like the following:



The remarkable property of this system is that surplus is transferred through explicit redistributive mechanisms from those with more to those with less. There is little inequality in material values: the communities are rich and poor together and would have no problems with the six kinds of differentials we have just noted as hindering technology transfer to our present-day small farmers.

With the coming of commercialization and the promise of profitable new technologies, the social mechanisms also arrive which prevent many from employing them. The outside linkages permitted by improved communications enable the local "better-off" to ally with regional and national elites to avoid the community redistributive pressures, as in the following diagram.



This system is remarkable in that it reverses the flows that existed under the earlier non-linkage system: rather than surplus flowing from the better-off to the worse-off, it is extracted from the worse-off and transferred to the better-off. Inequality such as existed in the closed corporate community was largely random over time, with individual differences in temperament, skill and diligence averaging out. (Hence the Vietnamese saying, "No one rich for three generations, no one poor for three generations.") However, the new system permits inequality (and hence the differentials we are concerned with) to be institutionalized — transmission is hereditary.

By now it should be apparent that this is a politically sensitive prescription, and a willingness to implement such measures is the true test of a national government's commitment to the cause of small-farmer advance, as opposed to technical advance in general. The kinds of measures which will be required will work an immediate change in the local political balance, and in economic relationships as well (for example, a decrease in the availability of "free" wage labour to be hired by wealthier farmers). In due course, important changes in the national political balance can also be expected. We have no reason to expect national governments to favour the disadvantaged who, by definition, have few pressures to bring to bear. Yet we should not be so cynical as to say that this would never happen; it is after all only just, and some governments are committed to justice. Furthermore this commitment may be stiffened by finding easy, or relatively easy, means to achieve this goal, and by judicious urgings from international agencies.

The principle we infer is that there must be compensatory transfers to those left behind, as there were in the closed corporate community. However, the institution which does this cannot be (solely) the local community, since we must accept commercial production (i.e. production for the market), and this necessarily generates sufficient external linkages to attenuate if not destroy community-levelling pressures. Moreover, many of the essential differentials (e.g. of educational opportunity) are not decided/enforced by the local communities anyway, but by an emerging national community made possible by the same improvements in communications which brought on commercialization in the first place. Thus, we infer that there must be a new redistributive loop from the national level to deprived local individuals to replace the now disintegrated local redistributive loop which existed prior to the commercial revolution. A second point, which has important implications to be discussed below, is that this new redistributive mechanism must be people-specific. It must focus directly on the deprived individuals; macro-economic measures are not the answer (e.g. more gross investment, agricultural subsidies etc., welcome as these may be on other grounds).

To return to the point raised a moment ago, the need for people-specific compensatory redistribution implies the need for effective local institutions which are capable both of discriminating the deserving from the undeserving, and of executing government policies to overcome the handicaps. Yet, as we noted earlier, the same secular factors which bring on rapid technological change also tend to disintegrate local community cohesiveness and to rob rural areas of talent on behalf of the cities. Moreover, as we have also suggested, effective, cohesive local organs may be perceived as a threat by centralizing national leaderships, and are for this reason frequently discouraged. Beyond this, effectiveness in general is a major problem for third world governments, as Myrdal has suggested in his discussion of "soft states". Thus one of our major recommendations is the invigoration of local institutions; the specific means to do this and the

specific local objectives of this measure will now be discussed.

I should note in advance that numerous observers have identified the vitality of local (as opposed to national) institutions as being somehow important to agricultural change. We might begin by citing John Montgomery's classic study on the relationship between effectiveness of land reform and the means for carrying it out: centralized, if done by the national level bureaucracy; decentralized, if done by several different bureaucratic systems; and devolved, if done by local political leaders. Montgomery's conclusions deserve repeating:

"Many agricultural experts point out that reforms in land ownership alone are unlikely to produce increases in productivity. The findings of this study suggest that with devolvement, land reform is more likely to increase peasant income than technical aid and credit institutions in combination (agrarian reform). Extensive and effective programs of agrarian reform occurred in sixteen of the land reform cases covered here. . . . Of these sixteen cases, only eight resulted in improved peasant income—not an impressive showing for the effort involved. More significantly, in those countries where substantial agrarian reform took place, the peasant income increased in only one of the six countries that used centralized means of conducting land reform, and in only two of the five decentralized cases, but in all of the five devolved cases. Again among countries using devolved processes of achieving land reform, there were eight in which peasant income definitely improved, although only five of the countries had introduced significant agrarian programs. Two of the countries showed an increase in peasant income without substantial agrarian reform, and both had implemented land reform through devolvement.

"If the objective is greater distributive justice through income increases among small farmers, rather than general agricultural productivity increases, programs of devolved land reform show a better record than programs of new agrarian services. There is no reason to assume that both goals could not be served if both types of programs—devolved land reform and new services and technical supports to agriculture—were undertaken."<sup>32</sup>

A comparative study by the Overseas Development Council (ODC) of five developing countries in Asia and Latin American lends weight to the view that local institutions are important. The ODC study finds that there is a particular bundle of characteristics which seem to relate (presumably causally) to lower un-

employment, improvement in the distribution of income, high growth rates and a favourable capital-output ratio. These characteristics are: land reform; high investment in rural education; effective population control programmes; and extensive co-operativization.<sup>33</sup>

Still another very recent study finds a striking relationship between the extent of local organization and a number of indices of gross welfare, technological advance, and equity.

"From our case studies and analysis we find there is a strong empirical basis for concluding that local organization is a necessary if not sufficient condition for accelerated rural development, especially development which emphasizes improvement in the productivity and welfare of the majority of rural people. Those cases in which there was more organization reaching down to the local level, accountable to the local people, and involved with rural development functions—cases which we subsequently refer to as "more organized"—have accomplished rural development objectives more successfully with respect to the available resource base than have those with less rural organization.

.....

#### "Agricultural Productivity

"We considered three measures of agricultural productivity to get a more rounded assessment of agricultural performance: (a) *absolute* comparisons in terms of average cereal yields per hectare; (b) *relative* comparisons of increases in average cereal yields over a 20-year period; and (c) *comprehensive* comparisons of increase in *per capita total agricultural production* over that period. We found the more organized cases very clearly ahead on all three criteria, and moreover, the more organized cases generally achieved much higher percentage increases from their already high level of production.

.....

#### "Improved Technology

"... It is clear from the yields attained in the more organized cases that they have been more progressive in technological innovation and adoption.

.....

#### "Employment

"With a few exceptions, the more organized cases have less unemployment and underemployment in their rural sectors.

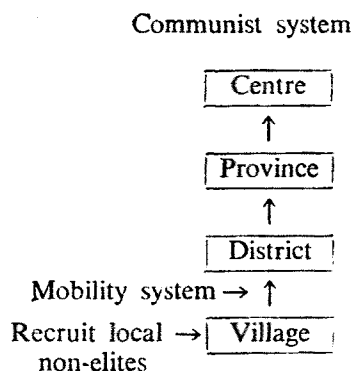
<sup>32</sup> John D. Montgomery, "Allocation of authority in land reform programmes: A comparative study of administrative processes and outputs", *Administrative Science Quarterly* (March 1972), pp. 62-75; reprinted as an Agricultural Development Council RTN reprint, March 1974.

<sup>33</sup> Robert E. Hunter, James, P. Grant and William Rich, "A new development strategy? Greater equity, faster growth, and smaller families", ODC Development Paper No. 11, October 1972.

their own ends) are used by revolutionary governments to bring about social change, or to accomplish labour-intensive infrastructure projects without the use of money wages.

In this discussion we will limit ourselves to discussing power as an alternate currency to motivate effective local institutions, or, put differently, the opportunity for social mobility into power positions. There are two means of doing this.

The first means is simply for central governments to enhance by legislation the decision-making authority of local institutions. I emphasize decision-making authority, such as decisional authority over spending or tax rates, not administrative responsibilities such as record keeping, which only enhance workloads but not decision-making authority. This step will increase the attractiveness of positions in local organizations.

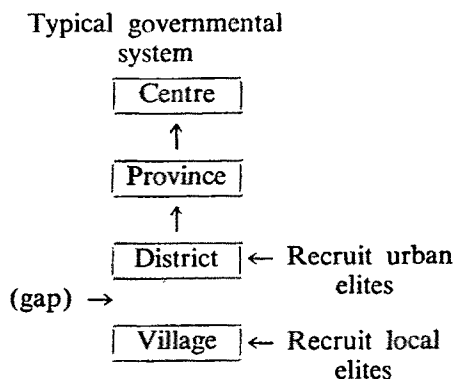


The governmental structure represented here is the one that has typically evolved in Asia out of centralized bureaucratic systems which rule over and extract resources from the countryside on behalf of the cities. The lowest expansion of the central bureaucracy will be a district officer who is a member of the national administrative service, and he rules in his bailiwick over scores, perhaps hundreds, of farmer villages, headed by chiefs selected by villagers themselves. In this typical governmental system, there is no mobility path from one system to the other, and thus no matter how hard a local official works, he can probably never aspire to anything more than his current position, since the central administrative system (which generally retains most decision-making authority) represents a separate career system open largely to urban elites (not explicitly, but on the basis of educational certification, which effectively restricts entry to this group).

The contrasting structure does all its recruiting from the bottom, with a continuous promotion system up through ever higher levels to the national centre.

holding salary scales constant. We should note, however, that this "currency" of power is not "free": these powers must be taken away from the central bureaucracy, or at least not given to the central bureaucracy in any contemplated programme expansion. Hence, as we have emphasized earlier, a measure to enhance the effectiveness of local institutions, as a means to improve technology transfer to small farmers, works directly against the elite structure of the society.

The second and even more effective means is to provide explicit mobility mechanisms for members of local institutions to move into higher-level positions in the national system, on the basis of effective performance locally. This is one of the "secrets" of the effectiveness, for example, of local organizations in the Chinese or Vietnamese communist systems. The following diagram, comparing communist revolutionary structures with typical third world governmental structures, illustrates graphically this difference:



Thus, the greater opportunities for upward mobility in such a system inspire greater expenditure of effort or, in our terms, more vitality.<sup>38</sup>

Again we should note that the potentially vast increase in the vitality of local institutions available through adoption of this mechanism can be had at no financial cost, but it does have a very real "cost" to elites in terms of their continued monopoly on access to positions of power, and to urban political dominance in general.

Supportive of technology transfer to local organs — extension, credit, veterinary etc. — will be the institutions of the national Government, but these often fail to perform to desired standards in third world countries. A second prescription must therefore relate to enhancing the work capabilities of the organs of central power. Again, this can be done with little or no cost in material resources, contrary to the widespread belief

<sup>38</sup> For a more extensive theoretical discussion of these points, see Jeffrey Race, "Toward an exchange theory of revolution", in John W. Lewis, *Peasant Rebellion and Communist Revolution in Asia* (Stanford, Stanford University Press, 1974).

that the only answer is training, foreign fellowships, foreign advisers, more capital goods (motor vehicles, projectors) etc.

Again, this alternative strategy for institutional reform requires dealing with a "currency" which finds no place in the discipline of economics; again, it also deals with sensitive social and political problems: who is going to benefit by the current social arrangements, who will compose the government at various levels, and what kinds of psychic rewards they will receive.

Let us look at a couple of typical developmental problems from the current perspective and see what the bottlenecks are. First, take the case of a government trying to bring about the adoption of new seed varieties among farmers. It wants to use agricultural extension agents and the framework of existing co-operatives. Let us assume for the moment that the technology is proven. Innovation will follow the well-known "S-curve," with the better-off adopting first. The process may never even get beyond the bend in the "S" and the people who most need the innovation to improve their incomes may never adopt it. The reasons for this are well known: the better off are not going to rely on the extension agent — they get their information from reading about the innovations, relying on seed dealers in the cities etc.; they also have the independent capital to put into the effort, enough land, and a surplus for survival in case of crop failure or price fluctuation. These people then are relying for their information on the market structure and the things that come with it, and they have the resources (financial and otherwise) to deal effectively with this system. They innovate, make profits and further consolidate their own economic and ultimately political position.

The government effort is intended to provide a parallel but different structure for the less well off, particularly for the farmer who is not yet in the market, or in it but little. The personal contact between the extension agent and the farmer is intended to replace the market as a source of information. Central institutions (e.g. government agricultural banks) are intended to replace the rich farmer's access to capital, and other institutions might provide some management inputs and some risk insurance.

This alternate government-sponsored structure is relatively less effective than the market structure under current circumstances for several reasons. The government's central institutions themselves — the agricultural extension services, credit facilities etc. — are subject to all the debilities that Myrdal speaks of: lack of bureaucratic accountability, failure to carry out orders, tardiness, failure to provide information to higher echelons, occasional financial improprieties and so forth. A second difficulty, as we mentioned above is that local institutions such as co-operatives (as opposed to the central superstructure) do not function to the

required level of effectiveness, for the reasons we discussed. A third and entirely different problem is that extension agents, as government officials, often have difficulty in dealing with low-status people like farmers.

Let us look at another example. Exploitation of many new kinds of technologies, for example existing kinds of new rice seeds, requires complementarity of other inputs, often capital inputs such as improved irrigation and drainage facilities. Concurrently, there is an abundance of labour power available at various times during the year in one-crop rice areas. It would be desirable to marry the two, so that all could adopt the new techniques, rather than only those who can afford their own supplementary capital inputs. Cash payment? That would be a drain on the national budget, and if it were done on a large scale it might have an inflationary impact as well. From the conventional economic viewpoint, there is no good solution, except to "wait for the funds to become available" — or have foreign donors bear the cost!

Though this is framed in terms of the specific examples, the problems are more general. The kinds of institutional immobilities which hinder agricultural innovation hinder innovation in general; similarly the financial calculus applies across the board in trying to motivate large numbers of people. If we could break down the institutional blocks, or find a supplement to cash incentives, we could get economic and social change for less financial cost; or alternatively, we could get more change for given levels of capital investment.

To understand the principle behind the poor functioning of central institutions in many third world countries, consider the following scene, taking place say in the United States of America, Canada or the United Kingdom. A high-ranking civil servant or military officer is walking down a corridor in a government office building. From the opposite direction a subordinate approaches. Courtesy dictates that the subordinate say "Good morning" or, in the military, "Good morning, sir," as he passes the superior.

What would this scene look like in a third world country? In the case a military location, the subordinate, say a corporal or sergeant, would have to stop, stand at attention, and bow, as the superior drew near. The norms for a civilian environment are a bit different, but convey the much greater difference in deference in the third world country as compared with the Western context.

This example has an important moral. Western advisers coming to third world countries may be flattered and pleased by the far greater signs of respect they receive, but they should also realize that societies with this kind of deference behaviour are ones prone to have poorly functioning public institutions. Just



why is not hard to understand once one thinks about it a bit. It is a well-known sociological relationship that status differentials impede communication, and the greater the differential, the less the communication. For example: fill a room with strangers, say 50 people, who bear obvious status marks, e.g. some wear neckties and some do not; some speak with upper-class accents and some do not. After 30 minutes, look into the room to see what kinds of spontaneous groups have formed. Another example: as an employee, do you feel an inner reluctance to walking in on your boss? On his boss? As a student, did you feel an inner reluctance against walking in on your professors, or on the chairman of your department?

The answers are obvious in these cases, because we have all internalized the same norms. Status, like money, is one of the rationing mechanisms which societies—all societies—use to allocate values. Money can easily be used to allocate material goods, less easily intangibles. Status differentials are the means societies use to ration time and attention in situations where money does not work or is for some reason inappropriate (e.g. it would be too crass, or there is an emotive content to the relationship).

Thus, one can see that, since institutions require communication to function, social norms enforcing more stringent deference behaviour are going to make bureaucratic institutions less effective. In addition, the reluctance to walk in on superiors who are perceived to be far higher in status accounts for the lesser display of initiative in such situations. In such situations the paperwork is not going to flow very well, things will not move too fast, and the boss will not be able to find out whether orders have been carried out. Likewise, error-correcting is poor in such institutions, because subordinates are reluctant to pass bad news on to socially distant superiors.

The solution to this cause of organizational ineffectiveness is to reduce status differentials. In the West this happened gradually, over a long period of time, more in some places (the United States of America) than in others (France, Spain). This development took place partly due to the equalization of education and income, and partly for reasons of religious doctrine. Such changes can also be brought about more rapidly, as a policy matter, to eliminate the external signs of exaggerated deference behaviour. For example, several years back the army of the Federal Republic of Germany abolished on deferential term of address for officers. Revolutionary governments, at the extreme, abolish all deferential terms of address (remember the French Revolution: everyone was "citizen"), as well as differences in dress. The purpose is to alleviate the rationing effect of status differentials so as to apply one more lever to reduce inequality—in this case inequality in the flows of information as between different social classes. Capiti-

alist business enterprises also use "organizational intervention" to improve the flow of internal communications, increase productivity, and enhance worker satisfaction. There are many means to this end. The point is to accept the principle that this is one of the essential elements of institutional reform at the national level which countries with this debility must undergo. One may respond, "But if a government is so weak as not to be able to enforce its tax laws, how can it enforce such measures on social norms?" The answer is that "soft governments" can still do some things. What they must do is put their scarce resources into high-leverage areas, and status differentials is one such area to make public institutions work better.

The benefits of such institutional reforms as these are manifold. The use of other kinds of currency than money—i.e. power and status—would, first of all, save scarce capital, which could be devoted to the areas where only it will work. Secondly, the diffusion of power and reduction of status differences would make the public institutions work better. Thirdly, these steps would at the same time lead directly to greater social and political equality. Fourthly, the lesser reliance on the market mechanism would lead to greater economic equality than reliance solely on cash incentives.

#### 4. Specific measures for helping small farmers

##### *Specific Measures*

We have suggested earlier than the "small farmer problem" consists essentially of a series of interlocking constraints which, due to redundancy, are highly effective in preventing the advance of the affected class of farmers. In this section I will make observations on some of the more specific measures which may be taken to relax these constraints.

Education leads the list because of our belief that mental chains are the most effective, and seldom cause any annoying clanking noises. From our viewpoint, the most powerful consequence of education is that it produces a sense of engagement with reality, a confidence in one's ability to master nature (and, by implication, the complex management operations needed for new technologies), or a feeling of "subjective efficacy." Sophisticated sociometric studies have demonstrated this relationship consistently.<sup>39</sup>

Education also enhances the effectiveness of communication, both from bare literacy and through more advanced work, which improves one's ability to deal with abstract concepts and one's information base.

<sup>39</sup> For an early work, refer to Daniel Lerner, *The Passing of Traditional Society* (Chicago, The Free Press, 1958); Lerner introduced the concept of the "mobile personality", open to new experience.

percentage which remains being young people who just miss the newly implemented universal enrollment in the primary school system. At the same time this strategy also produces a smaller percentage of university graduates. Thus the bulk of the working population is found in the primary-education group.

“Under the assumption that the incomes of those with primary education do not fall relative to those with higher education as their weight in the population grows and the uneducated group diminishes in number, we find that strategy A leads to a more rapid growth in incomes earned. Income inequality rises somewhat initially but quickly levels off and falls gradually thereafter. Under strategy A there are fewer young workers. These have contributed to income dispersion and dragged down the average under the B strategy. With more people getting some elementary schooling the rise in income is achieved by raising the floor rather than the ceiling of the education and income distributions. A larger number of people have some schooling rather than a selected few having even more. It is to be expected therefore that strategy A would imply much less income dispersion than B.

“In terms of income per capita the A strategy is initially inferior. Its overall labor-force participation rate is consistently somewhat below that for the B strategy since in general the rate is greater in the higher educational classes which characterize the B strategy. Although the mean of the income logarithms rises faster under A, reflecting the high rate of return to primary education, the lower variance at first keeps the arithmetic mean below that of B. However, the trade-off between the level and dispersion in income finally pays off with the A strategy. The faster growth in the income-logarithm mean eventually makes up for the smaller variance to provide a higher per capita income, even with a slightly smaller overall labor-force participation rate.

“... Alternative A is a viable alternate to strategy B since the social costs of educating a cohort are the same. Under it a more rapid growth in incomes will be experienced. Only in the first few decades does the conflict between the level of the income logarithms and the variance result in a lower per capita income. At a later stage a higher level of income per capita is possible under strategy A in spite of the lower level of income inequality. Whether one is interested in raising the standard of living or discouraging inequality, therefore, a strategy aimed at giving everyone a primary education is preferable to one which concentrates resources on the elite.”<sup>44</sup>

Investigators in widely different situations report a linear relationship between adoption of innovations and family income.<sup>45</sup> The rationale for this linear relationship is as follows:<sup>46</sup>

(a) Economic production risks, because they are often not divisible or because they require complicated organization, call for an investment that is inversely proportional to the level of resources. Hence, those with greater resources adopt new technologies more readily and, in fact, such technologies may be created specifically for those with higher resources;

(b) Not only is knowledge greater among those with higher economic resources, but perceived risk is lower because the confidence in sources of knowledge (such as government agencies) is higher. However, there may be thresholds in the effect of education on innovation — thresholds that differ by type of innovation;

(c) The risks necessary to maintain present resource levels may not be equal across ranks since innovation behaviour at the lower status levels can affect the subsistence needs of the family as well as general “status”;

(d) While no individual is theoretically protected from loss of resources (rank), the magnitude of proportionate differences in the investment necessary to innovate protects the rich. So too does the anchoring of status in family background and inheritance, and the privileges that commonly accompany such status.<sup>47</sup>

Let us consider each of these in turn. First, even assuming that the new technologies are not “landlord-biased” in Griffin’s terminology, they will require a higher level of supporting services and therefore better organization and control. But systems of organization and control are “landlord-biased” regardless of the characteristics of the technology; hence those at the bottom of the scale will be more reluctant to innovate, in the knowledge that they have less influence over supporting inputs. Hence improved organization specifically of small farmers (e.g. in co-operatives) will address this difficulty, but, as we have noted, the organizational weakness of small farmers is one of the ways societies perpetuate peaceful inequality. Of course, as we shall note shortly, in addition, technologies may be specially designed to favour the larger farmers.

<sup>45</sup> John W. Gartrell, E. A. Wilkening, and H. A. Presser, “Curvilinear and linear models relating status and innovative behavior: a reassessment”, *Rural Sociology* Vol. 38, No. 4 (Winter 1973), p. 409, reporting their own work and that of other investigators.

<sup>46</sup> Extracted from John W. Gartrell, E. A. Wilkening and H. A. Presser, *loc. cit.*

<sup>47</sup> *Ibid.*, pp. 408-409.

<sup>4</sup> *Ibid.*, pp. 95-97.

Secondly, the effects of education are two fold; first, it gives increasing knowledge, which directly enhances the ability to exploit new technologies which require more complex management and more linkages with an obstructive outside world; and secondly, it provides increased status, which, being another social rationing mechanism, increases access to the various institutions surrounding the small farmer, which are dominated by higher-status individuals with whom he is otherwise reluctant to interact. Consequently, as we indicated in the previous section, compensatory education is called for.

Thirdly, those with fewer assets have a lower risk tolerance, since a production or price risk of equal magnitude would have a proportionately greater impact on them than on their better off fellows. As a consequence small farmers must frequently choose extremely low-risk technologies, despite the existence of new technologies with higher mean returns but with higher variances about the mean, since even a single crop failure could be catastrophic for the family's physical subsistence and moral standing in the community. The solution here is to find some institutional means of risk sharing. Unfortunately, with the disintegration of the "closed corporate community" at the onset of commercialization, the earlier institutional means for risk sharing disappear, just when, from our viewpoint they are most needed. There are several solutions possible here. One is a simple crop insurance scheme run on an actuarial basis as in developed countries. Objections to this are the dangers of shirking and malingering, and the costs of administration. The first objection is an important one, and I feel the best solution is to make administration of the insurance scheme a community responsibility (or at least with a significant community input) since the goldfish-bowl nature of village communities makes it apparent to neighbours who is shirking.

As for the problem of administrative costs, there are non-financial ways to handle this which are discussed below.

An alternative is some form of joint responsibility for crop loans, such as is used by the Bangkok Bank, Thailand, with cosigners (also farmers producing in the same season) covering losses incurred by neighbours. This system effectively shifts the burden of enforcement from the lender to the local community, which is very desirable from the lender's viewpoint, but it does not address the possibility of catastrophic losses in an entire community or over a wide geographical area.

The best solution therefore seems to be a system of crop insurance: (a) administered by local organizations; (b) using the non-financial incentives noted below; (c) using locally collected premiums in the first instance; and (d) reinsured by a central institution such as an agricultural development bank.

It should be emphasized that correcting the other constraints on small-farmer innovation — education, credit, local organization — will contribute to reducing the production risk as well. As we have had frequent occasion to observe, it is the interrelated nature of the constraints which makes the problem so intractable and societies so stable and rewarding from the viewpoint of elites.

Fourthly, compensatory local organization can contribute greatly to the loosening of the ties between status and family background and inheritance and the privileges that commonly accompany such status. The small farmer in traditional agriculture has few, zero or negative net assets, probably has the next year's or two years' income already committed to money lenders, and no reserves, financial or human, to fall back on. The desperate acts which people in such circumstances will commit, suggest the agony and anxiety of such an existence. Retaliation is not however the usual response rather it is apathy, resignation and compliance with the wishes of "superiors". Compensatory organization would provide, in addition to risk-pooling, an emotional support which would have important consequences for behaviour. One of these consequences, of course, would be to make those at the lower end of the scale less compliant to elite desires, an outcome which would appear in the form of increased political power of small-farmer groups and in fact increased political participation generally.

The existing system of credit allocation is another mechanism one of the consequences which is to preserve peaceful inequality. It also has a production consequence: since small farmers will pay a higher-than-market cost for their credit, they use insufficient capital and hence produce less output than they would under economically optimal conditions.<sup>48</sup> There are thus adverse consequences of this rationing mechanism both in production and distribution.

There are two separate problems we should distinguish here in devising a set of institutional reforms to enable small farmers to use credit for new technologies. The first of these is that there is an objectively greater production risk for the class of people we are interested in helping: they have less education, hence less knowledge to cope with the complexities of new technologies and less of a psychological orientation to grapple with them; they have less land and hence a smaller area over which to average out risks; being smaller and hence having fewer assets and less "power," they have less control over the inputs — physical, administrative, human — which go into ensuring the success of their efforts; they have less access to good management. Since all of these debilities work to reduce future income streams, they have less income with which to repay loans, less margin for error, and

<sup>48</sup> Griffin, *op. cit.*, p. 48.

hence a higher objective risk. Thus, the costs of credit to this class of people will be high because, at least in part, the risks are high—not solely (if at all) because of monopolistic money markets.

In this regard we can say that the money markets are doing their job properly in reducing the flows of credit to those who, for whatever reason, show promise of producing less output for a given input. The solution is not to make more capital available through some subsidized programme, but to relax the constraints which make this disadvantaged group of farmers less productive.

The second difficulty is that there are larger overhead costs in handling a multiplicity of small loans. This problem is unresolvable within the framework of conventional analysis, short of using financial subsidies to equalize the costs of making small and large loans.

The solution to this second difficulty is to employ the non-financial currencies discussed in the section on reform of local institutions. Specifically, the administration of small-farmer loans can be made a responsibility of reformed local institutions. By motivating local officials with non-financial incentives, the overhead cost of small-farmer loans may be made equal to or less than the cost of ordinary commercial loans. The "costs" of this line of action are the sharing of power and status. But these so-called "costs" are desirable in themselves for the greater social and political equality they imply, and desirable for their consequences, namely enhancing capital flows to disadvantaged small farmers.

We have earlier suggested that one of the obstacles to small farmers employing new technologies is that these technologies often require extensive and precisely timed inputs of supporting services and goods; and the inability of small farmers to control these inputs with certainty makes them reluctant to embark on a risky innovation, especially one requiring borrowed capital. One obvious answer to this problem is the co-operative organization of small farmers, but, powerful co-operative organization is a rarity compared at any rate with competing commercial organizations concerned primarily with profit making. An important contributing element to this state of affairs is that co-operatives suffer from poor management. The reason for this is not that management skills do not exist, but that they are scarce, and they go elsewhere to seek higher financial returns in free-market economies.

The principle operating here is the same one Lenski identifies as appearing early in the evolution of human societies: elites hire retainers to protect themselves against redistributive pressures from below and to assist in the physical extraction of surplus from cultivators. As we have explored in previous pages, this system suffers from its obviousness and from a number of other disabilities. Much preferable is the situation

which develops with commercialization: elites hire "managers" to operate their economic enterprises, where the mechanism for extracting and transferring surplus is a differential access to technology rather than a differential access to violence. The results are the same (though there is more latitude in the former for the development of a middle class) but the system as a whole is more stable, more productive, and appears less exploitative.

How can the ability of elites to outbid their economic subordinates for the scarce supply of managerial talent be overcome? This is a very difficult problem having to do with the entire balance of incentives in the society. We can say that the use of non-financial incentives to motivate co-operation at the local level is one possible solution and, most importantly, this implies some convergence of village-level political organizations with village-level productive organizations. In other words this approach would be most effective if village-level government were combined with co-operative organization. Even so, for reasons too complex to go into in a paper of this length, there are significant limits to the effectiveness of this step alone. This nexus of management is, however, a crucial element in any strategy to bring small farmers into full partnership in the adoption of new technologies.

Technology is not neutral in its consequences for income distribution. A variety of technologies for producing the same product might differ on at least the following dimensions, and possibly others: technical sophistication; divisibility; cost; reliability; and the extent of the supporting network required for inputs (parts, repairs etc.). It is such dimensions as these which determine the distributive consequences of the application of the technology. Gotsch's classic study of the application of a particular basket of technologies in then East Pakistan illustrates what happens to society when these dimensions are all skewed in a particular direction, in what Griffin calls a "landlord-biased" technology.<sup>49</sup>

But such technologies are not accidents, or at least, not always accidents, as students of the problem have shown. In the words of Charles Cooper:

"People who discuss science and technology policies have almost invariably seen the problem in terms of reorganizing the science system itself in the underdeveloped countries. They have been nearly exclusively preoccupied with the supply side—the supply of science and technology for the productive system. The assumption is that all would be well if only one could get an adequate supply of the right kind of scientist and engineer.

<sup>49</sup> Carl Gotsch, "Technical change and the distribution of income benefits in rural areas", *LTC Newsletter*, No. 35, in K. Griffin, *op. cit.*, pp. 51-52.

. . . What (this approach) leaves out completely is the possibility that the relationships between science, technology and the productive system are conditioned by the way the economy works."<sup>50</sup>

Cooper looks at a number of case studies and concludes that demand for certain kinds of technologies is an important variable in affecting what is produced. This logically is affected by which social groups can make their weight felt in the polity and in the economy. Thus

“. . . the problem of linking science to production — and producing more appropriate technologies — probably cannot be solved by ‘science policy’ measures as they are usually conceived. . . . There are important influences external to the

‘science and technology system’ that have a critical effect on it, and ‘science policy’ institutions cannot be successful unless they can examine the implications of these external factors (like dependence on foreign technology and the whole set of economic and social conditions that tends to sustain this dependence).”<sup>51</sup>

We are not in a position here to prescribe a solution to this complex issue, only to point to its importance and hint at the path along which a solution lies: enhancing the political power of disadvantaged groups and the linkages they have with the ‘science and technology establishment’. There are realistic possibilities for doing this however, given sufficient top-level support.

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<sup>50</sup> Charles Cooper, “Science policy and technological change in underdeveloped economies”, *World Development*, Vol. 2, No. 3 (March 1974), pp. 55-56.

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<sup>51</sup> *Ibid.*, pp. 63-64. This entire issue of *World Development* was devoted to treating the problem of technology and contains numerous worthwhile articles of relevance to our subject. Of particular interest also is Frances Stewart, “Technology and employment in LDC’s”.