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THE NEGLECTED MIDDLE SCALE: Implications of Size

Thomas W. Dichter

Thinking about International Development

TECHNOSERVE

Technoserve is a private, nonprofit organization. We provide training and technical assistance to enterprises comprised of large numbers of rural people. We call them "community-based enterprises."

These community-based enterprises principally relate to agriculture; our training helps them to increase productivity, improve their marketing, and enhance their overall management.

The results of this assistance include job creation, increased levels of income for needy people, and overall improvement in living conditions, without creating dependence on outside assistance.

Technoserve was founded in 1968. We work in Africa and Latin America. We currently have a staff of over 150 persons, made up primarily of highly-qualified citizens of the nine countries where we operate.

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The solutions to the problems of the small farmer do not have to be small.

INTRODUCTION

As a Peace Corps Volunteer in Marrakech, Morocco 20 years ago, I walked to work each morning through one of the most touristic parts of the city. Regularly I would be confronted by a small, slight boy who looked 7, but was probably 15. Tugging at me, he would halfheartedly try to cajole me into engaging his services to show me around the city. With a wink, he would invariably repeat the same line, in English: "Mister, Mister, small guide, small price."

The wink is what I remember. Was he winking at our familiar ritual, or was he winking at the hidden non sequitur beneath the surface of his syllogism? After all, size of guide has nothing to do with size of price, and he and I both knew it. Market forces determine the latter, just as genes, nutrition and the passage of time determine the former. But his surface logic was inescapable. It was compelling enough for him to keep using it, and it always gave me pause.

In recent years, our small guide's logic has surfaced within the development field. With the shift from large scale interventions to much smaller, local projects, there is the belief that the technologies we transfer should also be radically scaled down.

In a recent publication of the United States Office of Technology Assessment, we read:

"Technologies should account for the particular needs and constraints of the low-resource producer: Emphasis shall be placed on use of relatively smaller, cost-saving, labor-using technologies most appropriate for small farms, small businesses, and small incomes of the poor."[1]

The idea here is to match the "particular needs and constraints" of the poor with "relatively smaller...technologies." Because the small farmer or other "low-resource producer" operates on a very small scale, so too must our assistance be "small."

There is a sense in which this like-to-like logic is sound. You would not do a market analysis of tomatoes for a farmer who owns one hectare

of land and produces perhaps five saleable bushels each season. Nor would you suggest that he employ very costly machinery on his hectare.

But would you improve his lot with a new plough?

Because the small farmer and other low-resource producer is small does not mean that "small" solutions will seriously improve his state. They may, in fact, only perpetuate a marginal existence.

That, at least, is what the history of agriculture suggests. The long historical record of agricultural growth, as well as the empirical reality of development assistance to the Third World today, both indicate that small solutions, however appropriate they may seem at the time, are not very effective, lasting, or efficient.

If farmers in the Third World are marginal members of their national economies, then giving them a donkey or a bag of seed only helps them not to starve; it does little to bring them into the mainstream economy, or to improve their lot over the longer run. They are often marginal because they are small, because they scratch the earth for subsistence, because they are rarely in control of any of the factors which affect them. They are eternal players of catch-up ball.

The small farmer, alone, on the margin, uneducated, undercapitalized, lacking confidence, really has little chance to break out of where he is, no matter what small or appropriate technology is applied to him at his level. True, we must deal with him where he is. But we must not leave him there.*

Some say, all right, give the farmer a market, help him with incentive prices. What happens when this is done? The small farmer, sure enough, produces more tomatoes—say, even a surplus—and does so with the same old tools more often than not. But pretty soon everyone around is producing tons of tomatoes—there is a glut, the price goes down after several years of this, and the surplus rots in the field. The small farmer has lost again.

And he is likely to go on losing until he can get a handle on the system—a system which is, as he quickly learns once he tries to act in it, quite tricky. To get a handle on that system, to be able to take advantage of it rather than the other way around, is not just a matter of production. It is a matter of business and management. As he alone cannot suddenly learn to be a modern agribusinessman, he must get in a position where he has access to that kind of acumen. The small farmer has to find ways to achieve or take advantage of economies of scale. One way or another, he has to break out of smallness.

This does not mean he has to become big. Bigness, or larger scale, does not have to be geographically bound or tangible in

*An often used presumption in development is that there is a fundamental difference between the internal motivational make-up of the small holder or peasant in the Third World and that of the large producer. A recent FAO publication stated for example: "Peasants, unlike capitalists, are not interested in making enormous profits; they do not believe in production just for production's sake, once their own needs are satisfied."[2] We believe this statement is wrong. Our observations of humans in the world today suggests that almost everyone wants to go beyond subsistence. Peasants and small holders, no less than others, are acquisitive and are as capable of economic rationality as others.

terms of land or number of head of cattle. It can come about through alliances, new kinds of nexuses—associations of farmers, coops, enterprises, limited liability companies, marketing associations, service societies, anything that is of sufficient a scale to enable him to have access to a complex system. But whatever form it takes, it is clear that the record of agricultural growth throughout history show a continuous, logical, rational relationship between need, growth, and economy of scale.

THE HISTORICAL RECORD: AGRICULTURAL GROWTH IN WORLD HISTORY.

Why is it that those who see the future of the Third World in the hands of the small holder ignore the development of agriculture in the industrialized world? For, in our own backyard, the trend from the last third of the 19th century on, has consistently been running strongly against the small holder.

Historical analysis of the dynamics of agricultural growth points to a future world agriculture evolving along lines similar to those experienced in the past. Since the underlying dynamics do not appear to have changed, it would seem sensible to guess that past trends towards intensive land use, and greater economy of scale will continue.

These trends do not come about by themselves of course; there are reasons. From the mid 60's on, theorists of the origins and growth of agriculture (e.g., E. Boserup,[3] and M.N.Cohen,[4]) seem to have put the pieces of the puzzle together.

The so-called agricultural revolution occurred between 10 and 12,000 years ago. For the first time in the roughly 2 million years of human existence on this earth, we switched from hunting and gathering as a source of food, to cultivation. Why? Interestingly, the new theory goes counter to what had been thought for decades. We did not make the switch because cultivation was an easier, a more attractive, or inherently better system, but because we had to, due to the stress of population pressure. That pressure, archaeologists have found, occurred in similar ways almost everywhere, at about the same time (due to the fact that population growth had reached the point where migration and movement to new, unpopulated areas was no longer a feasible option). Hence we had to stop hunting and gathering, and start planting, and domesticating animals.

The dynamic here is quite revealing. Domestication of plants (agriculture) was not discovered suddenly. The record indicates that we knew how to grow food

long before we turned to doing it. As Cohen states it: "Man did not need education as much as he needed motivation."[5] In other words prehistoric man would have preferred to remain a hunter-gatherer, and demonstrated that preference for millennia.

Because of our western belief in "progress" and the marvels of the new and modern, we tend to assume that humans have always moved from old, inefficient and difficult ways of doing things to newer, more efficient and easier ways. So we have made the assumption that hunting and gathering was really a "hard" way to get food. In fact, it is just the opposite. In early man's own terms, turning from hunting and gathering to cultivation represented a high "opportunity cost"—it was a lot

more work—and so he did not make the change until the conditions changed enough to alter that calculus.

The same dynamic continues later after agriculture begins. The methods of agriculture change when they have to, when there is pressure on the cultivator.

Over the long run the main pressure seems always to have been population growth. This, Cohen states, has been the real engine driving the growth of agricultural economies, and has been throughout history and prehistory. Contrary to the old view that population seeks an equilibrium, the present theory is that human population (indeed the whole dynamic of the rise of civilization) has been based, inherently, on a growth model. (This does not mean that population will always grow, but only that this has been the trend). Cohen again: "Human population has been growing throughout its history and...such growth is the cause, rather than simply the result of much human "progress" or technological change, particularly in the subsistence sphere."[6]

Once agriculture began, the key trend has been the intensification of agriculture. By about 2000 years ago, the agricultural revolution was over—almost everywhere humans were growing food. The next phase began, again pushed by the same engine—population growth. As Boserup has shown in her ground-breaking study (1965), the movement, since about 2000 years ago, has been towards increasing intensification of land use—in general, from "long fallow" cultivation (in which clearing was done by slash and burn, followed by cultivation for 2 or 3 harvests, then letting the field go back to secondary forest and clearing again on that piece 20 or more years later) to the various types of land use, until we get to an increasingly widespread use of multicropping—no more shifting land use and no more than perfunctory fallow periods. This reached its culmina-

Like it or not, the small holder is increasingly tied to a world market system. The reality is that the small holder will need to adapt to that system rather than the other way around.

tion in Europe, for example, in the mid 18th century—about the time the industrial revolution began.

The general trend has been towards greater and greater intensification, and this has meant that the longer fallow types of land use dropped away as time went on (though we do see remnant examples of some of them still in use in the Third World today).

It is important to recognize that these changing patterns of land use were not inventions. People who practiced long fallow slash and burn were aware of other ways of growing things. Again, the key is motivation. Studies have shown that slash and burn is easier than hoe or plough culture, and yield per hectare is greater. Being no fool, why should the farmer change, unless the pressure is on him? Why should he change, unless population pressure dominates, unless land runs out?

Now we come to the present in the Third World. The same dynamics are still at work—population growth, the intensification of agriculture, and the same motivational make up of the farmer. We have seen the latter in fact. The African farmer, in many places, has resisted the plough, not because he is a traditionalist, but because for him it has not been worth it. He is a master of opportunity cost. In order to take up the plough, he must give up other things (either time, or energy, or money, or land (for fodder), and the return may not be worth it in his calculus. We have also seen him not plant what he could, method aside, simply because the price he could get wasn't right. That fact, much waved about these days, is just another example of the farmer's fundamentally sensible outlook.

But now there is something new—a complicating factor—the juxtaposition, in the Third World, of a basically primitive agricultural system and a modern market system more and more geared to a world-wide agro-industrial business system. U.S. and European agriculture grew up along with that system, and so were able to adjust to it and learn its ways in a basically organic way. Many of the agricultural economies of the Third World have not had that leisurely luxury. But the modern system is here. It is at their doorstep—in their back yards. That modern system, for all its failings, will not go away. Inevitably, it will be the primitive, small holder, marginal and subsistence agricultural system that will have to adapt, rather than the other way around.

Judging from what we see taking place in the Third World, the small farmer is already quite attracted to the new system. In a sense, he knows that he has to adapt to it. Many of his number are voting with their feet, and taking up an option which did not exist for their ancestors—they can go to where the modern agro-industrial market business system lives—to the city. This complicates things further. And yet even this movement to the big city (the bane of many Third World economies) begins to resemble, in a kind of cracked way, the movement which took place in the transition from the agricultural economies of the West to the industrial economies.

In short, we may not be able to keep 'em down on the farm. And we ought not to romanticize about either them or the farm. Perhaps we ought not to even try

to keep all the small holders there. We'd do better by helping those small farmers and small holders who can be helped, to upgrade, to band together in larger units, so that they can break into the agro-industrial business and market system.

"SMALL AS APPROPRIATE" AND THE APPROPRIATE TECHNOLOGY MOVEMENT

For argument's sake, let us assume that the reader is convinced: the farmer and small holder must break into the modern agro-industrial business and market system. His only way out is to join the system: to be "mainstreamed," in effect.

Why, then, has the Appropriate Technology Movement resisted or not really considered economies of scale? Why, in fact, does the small-as-appropriate ethos turn out to pretty much reject most advanced Western technologies *and* business strategies out of hand?

It seems clear that, in part, the Appropriate Technology Movement has reacted to the failures of large-scale interventions, and believes (we think rightly) that more modest projects, usually run by PVOs, make more sense. But, as the ATM's critique of the old (1950's and 60's) development framework evolved, it increasingly swept up in it the notion that what we in the Western industrial nations had to offer to the Third World was not good, because it was not value-free. Thus our bigness, our mainstream tendencies, could contaminate. Wignaraja (1984), a proponent of this school, sums up the situation: "It was assumed that this technology of the industrialized nations was value-free. Today it is clear, not only that technology is not value-free, but is also a carrier of cultural codes."[7]

Once advanced technologies are linked with "cultural codes," it is not hard to see where this leads. For cultural codes read (in effect) Coca Cola—the world of big business, capitalism, the West.

By scaling down its technologies—by keeping to the small—it would appear that the ATM is also attempting to sidestep this large "Coca Cola" world. Therefore, when bamboo well casings, for example, are used instead of cast iron, the intervention is "appropriate," not only because it is cheap, but also because it is "natural," pre-industrial. As it happens, bamboo tube well casings do work very well in areas with shallow aquifers, and they have provided wells to people who could not have afforded other technologies. But the bamboo tube wells have a three to four year life expectancy.[8] Although they satisfy an immediate need, there is no substantive evidence that they contribute to long-term growth, or help bring our

Sometimes our own romantic nostalgia for a simpler past gets in the way of our judgements about what is an appropriate technology or scale.

marginal farmer more enduringly into the mainstream. It may be that part of why such approaches are used is because of the romantic image of the use of simple tools for plain folks of a gentler persuasion than ours.

Similarly, "alternative" energy sources—solar power and windmills, to name two—are favored over other mainstream energy sources. Indeed, as Heller (1985) defines them, the technologies referred to as "appropriate" are often grouped under the generic term "alternative." "Alternative technologies" is the term used to "describe a whole array of technologies that are viable substitutes for mainstream, usually modern, technologies."[9] Non-modern, non-mainstream—the romance (once again) of the primitive.

Part of the appeal of the primitive is that it is presumed free of the values that go along with advanced technological transfer. As Heller describes it: "The evidence seems to suggest that, at least in the longer run and despite some resistance, technology recipients, especially in developing countries, have been "buying" not only Western hardware and software but, with them, the consumer-oriented values underlying the predominantly capitalistic economic systems turning out these products and processes. These economic systems stress advanced industrialization, a highly consumer-oriented society, the profit motive, a "business culture," and even the English language that goes with it and all of which is diffused by the Western technology. . . . Whether such an evolution, if it is occurring, adds up to cultural imperialism undermining local identities, values and lifestyles and, if so, whether such a trend is indeed undesirable are still being debated in a general way. However, there is no question about it among those who belong to the appropriate technology movement."[10]

In the Appropriate Technology Movement there is "no question" about the connection between "a business culture" and "cultural imperialism" and, consequently, efforts are often made to keep intervention strategies on a primitive level, in order to keep the natives "pure," or as uncontaminated as possible.

There are some obvious ironies here and a new kind of paternalism at work. For, who is to decide which interventions are value-laden and which not? Surely, nothing touched, used, owned, proposed, adapted or made by humans is or can be value free? Surely the entire development endeavor, since it began in earnest in the 1960's, is based on the transfer of something of value from donor to recipient? Intervention, any intervention, produces change, a reaction that has an effect on local values.

We can try, of course, to be sensitive to the genuine needs of our target group, and not confuse our own values with theirs. But this effort is far more complicated than a swing of the pendulum. Because large scale projects were often unworkable *and* insensitive, does not mean that "small" is the inevitable answer. From large to small, top-down to bottom-up, culturally imperialistic overlay to appropriate technology, whatever changes we make should be meant to avoid our past mistakes.

But I think it is clear that new

mistakes are being made. Nor can these claim immunity from culture. If, as the many advocates of small-as-appropriate seem to believe, past development projects reflected a post-industrial complex of Western life, then their own ethos—a valuing of small farmers using simple tools and strategies—is, of course, equally Western. Only, this time, the values that are being promoted are those of the old counterculture.

Is the small farmer, the woman or man with a hoe, the urban street vendor, a new counterculture hero?

Is he or she valued as much because they are small as because they need real help? Being *under*developed, as one of the few critics of the Appropriate Technology Movement, Sociologist A. Emmanuel argues, can come to seem a good thing. Because underdeveloped, the poor farmer is "authentic," another version of the unspoiled native. "Cultural authenticity," as Emmanuel puts it, "is also the touristic picturesqueness of underdevelopment"[11]

The romantic version of the poor but picturesque native is not a straw man issue. It is real and can do real damage. When small-is-appropriate solutions are applied to the small farmer, there can be a kind of defeatism built into the concept: it tends to condemn the poor to something (smallness) they do not view as romantically as we. Such solutions tend to relegate the small holder and small farmer to smallness and poverty forever.

ECONOMIES OF SCALE

There are good historical and ideological reasons to question the emphasis on the very small solutions to rural agricultural production. At the same time, the problems of the very large are well documented—dangers of control, inefficiency, bureaucratization and unmanageability are obvious ones.

Yet, the two extremes have been widely pursued, while the middle-scale agricultural enterprises are neglected. From what we have seen, these latter hold the promise for the immediate future. As the traditional wisdom has it, there is strength in numbers and, when medium sized, the enterprise is still not unwieldy.

(We are being quite intentionally vague about what numbers here. For Technoserve, medium-sized enterprises have run from 25 members to 1600—they can only be defined by context. For the World Bank, a quick rule of thumb (arbitrary, dollar-centric) is as follows:

	Assets	Turnover	Employees
Small	5–150 K	3–120 K	3–30
Medium	150–750 K	120–500 K	30–100
Large	over 750 K	over 500 K	over 100

Here, we can take our cue from current discussions about the implications of size in the United States. One central theme in current management theory is the functional breaking up of the huge corporation into smaller medium size, strategic units, or the changing of the firm's culture so that units within it can act as if they were autonomous. The huge firm in the private sector, Americans are discovering, along with the huge bureaucracy in the public sector, begins to encounter diseconomies of scale. Operations can become inefficient, and the firm's ability to change with its market environment gets stale, stodgy and slow. So, the middle size unit seems to be on its way back.

While "middle scale" is of course relative, a moderate point between small and large is both manageable and can still benefit from economies of scale. It may well turn out to be the long term tendency for most organizations.

Those who are making it in the industrial economy of the 80's are the firms which are able to create, establish, and/or maintain new kinds of relationships to their environment, who can respond to changes in conditions. Since even the giants (e.g., IBM) have found that they can accomplish this by first breaking the company down into small units, it appears that being of medium size may be a key to this process.

The analogy between this movement in the U.S. and what would make sense with respect to the dismantling and privatization of large parastatal entities in the Third World is obvious. But this is also a sensible strategy for Third World Agriculture in general. While the huge parastatal seems to be counterproductive, in part because of size, we must also let go of thinking of the single farmer (the micro and small level of intervention) as the future. In the small to medium-sized enterprise, owned and run by a number of small holders, lies the best chance for significant agricultural growth in the Third World.

How can we help encourage more middle-scale enterprises in Third World agriculture? By starting with people who are already motivated and on the road to economies of scale. We cannot create them. Rather, the key is to find groups that are already organized, or ready to organize themselves into an enterprise. Having reached this critical point and being highly motivated (whether by actual pressures of starvation or simply low production), such groups are willing to go to work. They are excellent candidates for the assistance we can provide. (For specific examples of middle-scale enterprises at work, the reader is referred to Technoserve's 1986 Case Study Series.)

Also, with the seeds of enterprise already planted, or even growing, the question of whether or not business culture is "appropriate" becomes moot. The recipient seems to want it and asks for it.

A group of peasants who never controlled anything in their lives, once organized into a co-op or

other corporate form, suddenly realizes that they do not know how to make the enterprise turn a profit. They want to break through the barriers that separate them from the mainstream economy, and they are quick to see that scale is the answer. It is that scale which gives them some collective economic power, and which puts them in a position to operate along modern business lines.

That scale is also such that it enables a "systems" approach to be used.

INCREASED AGRICULTURAL PRODUCTIVITY WILL DEPEND ON A SYSTEMS APPROACH TO THE GROWTH OF THE ENTERPRISE—THE BIG PICTURE vs. THE SMALL.

Recently, the representative of a development organization was asked if his work made any difference in Africa. His reply: "What you must do—what I must do—is forget the big picture and focus on individuals. You help this one, that one—those ones, one by one. And for those people you can make a difference... If you look at the current situation in Africa you can easily get discouraged... Taken as a whole, things do not seem to be getting any better. There are just too many people, not enough resources."[12]

This is an attractive escape. It *is* painful to look at the big picture, and certainly more encouraging to see very small changes and improvements take place before one's eyes. But the time is over for that minimalist approach to development. First of all, we are recognizing that some of the premises are wrong. For example, it is by no means universally accepted now that the problem is "too many people" and "not enough resources." In fact, there is no "correct" ratio of people to resources. What counts is how those resources and people work in relationship to each other—the *system* in which people and resources find themselves.

Acknowledging the systemic nature of things means seeing and acting within the big picture. And while the big picture may not mean that our actions must be big; inevitably, it does mean that we must integrate our actions at higher levels and at larger aggregations than the individual, the micro level all by itself.

The development, in recent years, of what is called Farming Systems Research is a step in this direction. The concept of farming systems research is basically very simple: it is to take a look at the small farm as a system—looking at "interactions within the system."[13] But, by 1985, it was beginning to be recognized that the small farm itself was part of a larger system,

If small is successful it will grow and become more integrated into a larger system. A pro-small bias can prevent thinking about that stage of integration.

and that cutting it off at its own boundary and declaring the system closed was counterproductive to the theory. Little (1985) says, for example, that it is time to see that the "delineation of the external environment is equally important."[14] In other words, the farm is a system, but it is part of a larger system in its turn.

It seems that, in the excitement of discovering the small farm as a system, the sense of urgency to draw conclusions from the theory required that one close one's eyes to the place of the small farm in a larger system, or the possibility that the small farm could be integrated into a larger system. This is something like the story of the man who looked for his lost wallet under the street lamp, not because that was where he lost it, but because the light was brighter in that spot. Fortunately, this limited view is now changing.

The farm is part of a large market system and national economy or, more accurately, it ought to be, if it is to survive. It is known, for example, that in the analysis of the constraints on farm labor and on product marketing, the keys may even lie at the national and international levels.

Once the small farmer and his farm are viewed in this light, the "appropriate" interventions may change and take on a larger scale. As William Duncan has suggested: "Once you understand an industry and begin evolving a strategy for intervening, you may find that the levers you need to grab are only available on some other level of aggregation."[15*]

This "other level," the scale that makes sense, can only be discovered inductively and in a specific context. By insisting, in advance, on the "smaller, cost-saving, labor using technologies"—as the Office of Technology Assessment has it—we are prevented from placing a particular agricultural project in perspective. This, in turn, means that we may blind ourselves to technologies that are indeed transferrable, once the medium-sized enterprise is the focus.

Just such blindness has occurred in the Office of Technology Assessment. The OTA report cited earlier states categorically that "Technologies to help these low-resource producers are largely lacking, especially in developed countries such as the United States ... U.S. agricultural technologies—both equipment and management systems—generally do not exhibit the characteristics most needed by low-resource producers."[17]

The report recommends therefore, that: "Perhaps AID should model the scale of its programs after some private and voluntary organizations' small-scale efforts, which many experts regard as a particularly effective approach."[18]

The familiar bias again: Only

*A similar recognition that the micro level and the macro level are not exclusive, but are in fact very much related, occurs in a forthcoming book on Appropriate Technology where the author suggests that one of the main reasons for the relative lack of success of "AT"—in terms of actual on-site investment—has been the almost exclusive focus on the micro level intervention. The author also suggests that any such narrow focus, to the extent that it ignores the macro economy (the "system" as a whole) which is where most of the resources are being used, will result in a very ineffective application of the appropriate technology being promoted. The author seems, in effect, to be exhorting the AT Movement to get its head out of the sand and look around at the larger world.[16]

small is appropriate for the small farmer. It is assumed that the U.S. has little to offer from its traditional technology set. The *only* things we have to offer, the theory continues, are the few small-scale efforts, mounted by a few organizations in the U.S., at the small and micro levels.

But, in fact, we have far more to offer *if* we move up to middle

scale agricultural enterprises. Here, certain US agricultural technologies have precisely the characteristics needed by low-resource producer. Only when the producers are not part of a group, when they remain marginal, low-density figures, are our modern management systems inapplicable.

MANAGEMENT AND BUSINESS KNOW HOW MAY CONSTITUTE A VERY APPROPRIATE TECHNOLOGY FOR THIRD WORLD AGRICULTURE.

Management systems are never applicable to a single individual. Management implies an enterprise and enterprise implies a degree of scale.

Once a group of farmers bands together to form a co-op, or a limited liability company, a modern management system, which includes the concept of planning, record keeping, analysis of inputs and outputs and decision making based on the above, is entirely appropriate. This is a technology badly needed in Third World farming.

Nor must we fine tune management systems for different contexts. Although it is wise to allow for variations appropriate to different contexts, the bare bones of good management are not that arcane. The real quest is not for the right management system, but for targets of significant enough scale and enough predisposition, or motivation, to take advantage of management technology.

THE RELATIONSHIP BETWEEN SCALE AND POLICY.

In Technoserve, we have worked with middle-scale enterprises of between 25 and 1600 owner members. In our experience, they not only can succeed, but they can help turn around the thinking in their region, even nation. This medium scale can be the key to the systemic integration of the "top" and the "bottom."

This is because a medium-sized enterprise is more visible than the work of a single farmer and its results often more positive. When successful, people notice. This means that, on a national level, some policies begin to change and, on a local level, attitudes toward farm life also change.

American business and management technology can be very appropriate for many Third World enterprises.

Such attitudes are crucial since, with each passing year, more and more rural young people are leaving the farms and going to the cities. Their motives vary and for many, perhaps the farm can never again compete with the lights of the city. But for some, farm life will be chosen, *if it is perceived as viable and with a real future.*

Small loans and small technologies have not made the farm look viable to the small farmer's sons and daughters. But a co-op enterprise of significant scale, or a limited liability company with thirty or forty small farmer-owners, does have a future. The young see this. They recognize possibilities of employment and of equity growth that had not existed before. MORE begins to look possible—more education, more technical assistance, more loans and better equipment. And this promise of future programs—offshoots of the enterprise's success—are a magnet and a catalyst for small farmer growth.

FOOTNOTES

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6. Ibid., page 14.

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8. Fricke, Thomas., "High Impact Appropriate Technology Case Studies," Appropriate Technology International, 1985., Page 41.

9. Heller, Peter B., *Technology Transfer and Human Values*, Lanham, Maryland, University Press of America, 1985, Page 41.

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15. Duncan , William., "Economic Development Strategy: What Next?", Unpublished paper, (Mountain Association for Economic Development, Berea, Ky.)

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18. Ibid.

REPLICATION & DISSEMINATION PROGRAM

Technoserve's Replication and Dissemination Program combines research with an effort to document our experience and apply the results in a number of new settings.

The fundamental thrust for R & D activities remains strongly consistent with that of the history of Technoserve to date—continued self-examination and learning so that our work of improving the lives of low-income people can become more effective.

The papers in our *FINDINGS '86* series as well as the *CASE STUDY* series are meant to share our experience and stimulate debate and dialogue with others who are concerned with Third World problems.

TECHNOSERVE R&D PUBLICATIONS

General Editor: Thomas W. Dichter

Findings '86

A Primer of Successful Enterprise Development—I Principles

A Primer of Successful Enterprise Development—II Practice

Demystifying "Policy Dialogue"

Who Runs The Show?

The Neglected Middle Scale: Implications of Size