

RESOURCE SYSTEMS MANAGEMENT IN AGRICULTURE -- A FRAMEWORK

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The idea of resource systems management starts with the basic assumption that community resources should not be taken and treated singly for the simple reason that they are always interactive and complementary. In fact, the many failures experienced in the field of rural development could easily stem from a lack of understanding of the interactive and complementary nature of community resources. The consciousness of such relationship can be obtained in two ways, namely: intuitive and rational. Intuitive consciousness is essentially experiential and generally based on a history of trial and error. The patterning of such consciousness is historically developed and institutionalized. It, therefore, becomes the standard by which community problems are confronted and solved. Such pattern is then transmitted from one generation to another, making it an obligation for others to use in confronting their day-to-day problems.

The same process occurs in the field of agriculture and this is the very reason why it is recognized that a given tradition exists in it. Failure to recognize this tradition would lead to a number of problems which an innovator may not be aware of. The traditional pattern of farm management has been historically generated and institutionalized resulting in a concrete farm management culture which is handed down from one generation to another. Most of these traditions are transmitted through apprenticeship among the members of a given kinship. Since these are imperatives to action they become a system of obligations among the members of a community. Their survival is essentially dependent upon the members' adherence to such tradition.

Although man can survive through the application of traditional farm management, his survival becomes subject to many limiting factors resulting in very poor survival opportunities. He generally faces a number of hazards, the most notorious of which is famine. As a result of this, man's life expectancy is greatly

reduced and severe malnutrition is a common occurrence. These phenomena are common among the African countries. In view of the universality of such threat to human survival, science and technology have been actively mobilized to improve the quality of human survival. International financial resources have been mobilized to support researches promotive of such improvements. International researches in the field of health have resulted in a number of major breakthroughs, the most famous of which is the worldwide eradication of smallpox, among others. Since food is basic to health, the international science community was likewise harnessed and major breakthroughs in this field have been accomplished. Some of the traditional, and perhaps more perennial, problems in the field of agriculture such as poor variety, pest, and poor quality of soil have already been overcome with the application of scientific agricultural technologies.

With the availability of these improved agricultural technologies, transferring them to the farmers has been a paramount concern of the scientific community. The main reason for this is not only the survival of individual farmers but the whole society as well since production of adequate food supply depends entirely on improving agricultural production. Hence, the farmers as producers do not only produce for their own needs but must also have some surplus which will be allocated to the needs of society in general. It is perhaps for this reason that agriculture takes a new meaning since to engage in farming is now taken as an occupation from which a farmer can earn an income. However, unlike other occupations, agriculture is generally affected by three major constraints and these are agro-climatic conditions, prices and market. It can be said that, perhaps, agriculture is one occupation that contains a very complex social structure and the fact that activities are generally done in remote areas means that regulating these forces, such as prices and market, are very difficult to handle, resulting in enumerable exploitative conditions to the poor farmers. The periodic revolt of farmers throughout the world only testify to this fact.

The main issue, therefore, is how the farmers can produce more and obtain fair prices for their produce so that farming becomes a worthwhile occupation from where they can earn a decent living. Through this, there will be some assurance that the

food requirements of society will be met and the additional surplus can be shared with the international community so that in the end world hunger can be overcome. Hence, if the production of military hardware, in spite of their potential to wipe out the entire universe, is tinged with morality in terms of guaranteeing human survival, the more food production as an occupation should be seen with a strong sense of morality because it is tasked with ensuring the quality of human survival.

In order, therefore, to attain a farmer's profitability, it is imperative that agriculture should be improved through rational management. The main strategy for this is sound and rational resource management. What is needed is not merely an intuitive knowledge of the interaction and complementation of resources in agriculture but a rational one. There are two commonplace ideas that will capture the notion of rational management and these are, first, the whole is greater than the sum of its parts, which means that the positive interaction and complementation of the different phases of a whole production cycle will produce more than when the components are treated singly. The other is the best for less. In other words, the farmers should receive the highest return for his farm investments.

Many strategies have been developed through the years in order to achieve farmer's profitability, but perhaps, the most dramatic is the development of a farming systems approach to agriculture. While it is true that there are a number of competing definitions of what constitutes farming systems, perhaps the most comprehensive is the one developed by David Norman which states that "The scientific farming systems adopted by a given farming household results from its members, with their managerial know-how, allocating the three factors of production (i.e., land, labor and capital) to which they have access, to three processes (crops, livestock and off-farm enterprises) in a manner which, within the knowledge they possess, will maximize the attainment of the goal they are striving for." (D. Norman, p. 25) Implied in this definition is the need to look into agricultural production from a total farm concept. The interaction between on-farm, off-farm and non-farm activities should be well delineated. From one point-of-view, this may not be too complex to understand because the main focus of concern is still the farmer's on-farm activities. In other words, the

crop-based orientation of planners is still the most appropriate point of departure in agricultural planning. The basic strategy used in farming systems is resource systems management since the interaction of crop, livestock and off-farm activities are consciously taken into consideration. As a matter of fact, approaches to crop-livestock integration are now being firmed up so that the income of the farmers will surely increase.

International agricultural centers have undertaken massive programs intended to promote farming systems developed by devising alternative cropping patterns through farming systems research and development. All approaches have incorporated the human factor by making the farmer an active and direct participant in the development of farming systems. In spite of the well-meaning intentions of the scientists to develop efficient and effective farming systems approaches, it has its own cynics who feel that, to a certain extent, farming systems approach may be unrealistic because it is global in nature. In other words, the concept is too broad to implement at the field level. Many times, farming systems resource management is easily designed on paper but applying it at the field level is another matter. It seems that the real situation of the farmers is really too much removed from the ideal. Perhaps the wide gap between the two can be bridged not only on the basis of a farmer's participation but on something more basic.

It is important to clearly recognize that farming as an activity has a long history, and, therefore, has its own tradition and culture. Imbedded in agriculture are institutional patterns to which farmers have to adhere in meeting their production activities. There are defined and specific reciprocities covering the entire range of production cycle which are obligatory. This traditional farm management has led to a number of intuitive knowledge about agriculture. It can be said, therefore, that regardless of the hazards faced by the farmers, they will survive using such traditional farm management skills. The total allocation of farm resources, including human labor, is always viewed from such intuitive resource complementation.

The relative isolation of many farming communities from the centers of agricultural research and development has resulted in

the perpetuation of dominant traditional farm management practices. With the development of strong agricultural extension systems, modern technologies have penetrated these isolated farming communities. However, the transfer of modern agricultural technologies did not lead to an overnight success. In fact, many extension workers experienced severe traumas attempting to impose such technologies on the farmers.

Based on this experience, there is now a need to re-think the current approaches to sound resource systems management at the field level. More than anything else, the issue of land tenure should be attended to because however much motivated a farmer is, if he has no right to make any decisions on the land, then promoting agricultural development will be very limited. The management style of the farmer is always influenced by his tenurial status. His sense of commitment and responsibility to properly manage the farm is invariably affected by his tenurial status. Over and above this crucial factor is the need to recognize the pervasive role of traditional farm management in managing the total production cycle.

The main problem, therefore, is how to complement rational farm management with intuitive farm management. Experience has shown that however good the promise of a new agricultural technology, it cannot be imposed on the farmers. This is the main reason why the strategy of farmer participation has been incorporated in planning agricultural development. While such participation is undeniably fundamental in facilitating the transfer of agricultural technologies, it is not without problems especially when farmers are taken as individuals. Such a strategy is perhaps a result of a concept in agricultural development which states that its orientation should be focused on the "whole farm." Unmistakably, the focus of attention in this concept is the "whole farm" of a given farm household. This, of course, is a valid point of entry in agricultural development. However, the one important danger in such an approach is the unintended orientation of the extension workers to work with individual farm households even though in the training several households are gathered for the purpose of group or mass education. It is probably through this kind of conceptualization that a number of problems in agricultural development emerge. Basic among these is the entire range of

problems associated with the failure of technology transfer. Many times such failure is lodged in the lack of education of the farmer, his negative attitudes and his traditional farm management. It would be utterly wrong to completely deny the effect of any one or a combination of these factors. However, to simply focus the analysis and explanation of technology transfer on the behavior of a farmer or on the psychology of the farmer is to deny him the sociological nature of his agricultural activity.

There is no denying that the farmers are the ultimate actors in their own farms. However, any action taken by the farmer is not a unique psychological act but one which is heavily influenced by the social conditions prevailing in the farm. The very idea of traditional farm management clearly reveals that there is a prevailing culture surrounding the various phases of the agricultural production cycle. These are patterned ways of solving problems affecting the management of the farm. These solutions have always worked for the farmers, and are, therefore, transmitted from one generation to another. While some of these solutions can be implemented on an individual capacity, most of these require the involvement and participation of other farmers in the community. In the entire range of the production cycle, i.e., from seed selection to the marketing of the produce, there exists within the community historical patterns of reciprocities which the farmers take with a strong sense of commitment and responsibility. Two local examples can be cited which will readily reflect such social structure of traditional farm management. These are the traditional water management of Zanjera in Ilocos and the traditional planting rotation among farmers. Both structures reflect specific arrangements which involve active role obligation in the distribution of water and planting schedules. The latter directly involves the allocation and distribution of labor so that within a given specified period of time, all the farms in the community are planted. Of course, there are many other reciprocities affecting the total production cycle. The stability and perpetuation of traditional farm management are entirely dependent on the farmers in a given community subscribing to the varied obligations linked to traditional farm management.

What is clear from the foregoing is that traditional farm management is not an activity only of a singular farmer but a commu-

nity of farmers having a precise social structure governed by a set historically generated culture which has been institutionalized. In other words, any decision undertaken by a given farmer is always influenced by the values imbedded in the culture of traditional farm management. Any given pattern of traditional farm management cannot be understood outside of the institutional arrangement in the total agriculture production cycle. Thus, the "whole farm" approach would be meaningless if approached from an isolated perspective. The idea of "whole farm" must be contextualized within the perspective of the comprehensive social structure of traditional farm management involving a community of farmers. The different institutional structures must be well identified and fully delineated so that whatever problem is facing the farmer will be properly situated within the prevailing socio-cultural context of agriculture.

On the basis of the foregoing, it must be recognized that any attempt to formulate an efficient and effective resource systems management in agriculture must in all cases take the prevailing traditional resource systems management into serious consideration. It is important to fully comprehend the internal structure of traditional farm management in terms of how resources are actually utilized in the total production cycle. The entire range of the social structure of production within the context of the "whole farm" must be identified and fully delineated. Among others, attention should be focused on the access and constraints in a number of basic resources needed in production such as land, labor, capital and allied services. The position of a given farmer within the total context of the social structure of production will certainly affect his access to resource opportunities and the problems attendant thereto. The type of farming systems of whatever kind used by a given farmer is always influenced by the social structure of production.

It is within the context of such social structure that any attempt to improve the existing resource systems management will have to be made. In other words, the traditional farm management of the farmer must be the point of departure toward any improvements in his management. To do so, it is important to be cognizant of the interaction of development and change. In any process of improvement, one must always be conscious of those

elements that can be improved and those that should be changed. The identification of these elements should be with the direct and active participation of the farmers concerned. It must be the farmer who should be able to identify how his resource allocation in agriculture is affected by the prevailing social structure of production. It must be the farmers who should describe and explain his patterns of access to needed resources for his production. The full range of problems associated with production should also be within the perspective of the farmer. The primary role of the technician in this context is to assist the farmer in discovering ways by which his management can be improved and where changes should be undertaken. In this connection, it is important that the patterns of access and problems associated with the production activities of a given farmer should be seen within the context of the social structure of production. In view of this, the community of farmers must be mobilized in any attempt to improve farm management. It must be reiterated that agriculture is a joint activity of farmers in a given community and any improvement must, therefore, be within the context of such a collectivity.

The dynamics of development and change must always be within the context of the internal structure of such a collectivity. It would then appear to be clear that many problems associated with technology transfer can readily be explained by the failure of the technician to relate the technology within the context of such a collectivity. In order to overcome this problem, it is now imperative that the farmers must be organized. But is a new organization necessary? On the basis of the foregoing discussion, it would appear that the answer is definitely negative. This negation must be qualified however. It must be readily known that the collective management of agriculture is based on a complex set of informal arrangements among the farmers. The various patterns of expectations and obligations which are binding among the members is informally arranged. Such arrangement is activity-specific where obligations are invoked whenever a given activity is to be undertaken and laid dormant when the activity is completed. This is best shown during periods of crises and celebrations like the fiesta. When death strikes a family, the resources of the community are mobilized and, all of a sudden, a dormant structure comes alive in terms of providing assistance to the aggrieved family. The operation of such an organization is very smooth and role performance

is systematically undertaken by the members. Recruitment does not constitute any problem because the members are fully aware of role obligations during such a crisis. At the end of the crisis, the organization once again lays dormant until another crisis befalls the community. The same phenomenon occurs during fiesta celebration. The community will set up appropriate organizational structures needed to carry out such a celebration successfully. The various committees are mobilized and put into action. At the end of the celebration, the organization becomes dormant. Clearly then, the activation of any organization in the community is always activity-specific and ceases to exist at the end of the activity. However, while these organizations are generally deactivated periodically, their dynamics and their corresponding requirements are always present in the minds of the members of the community and these can be activated any time. The same structural dynamics are present in the entire agricultural production activities of a community.

The need to organize the farmers must, therefore, begin from a concrete mapping out of the informal social organization of production which plays a very active role in the continuity of traditional farm management. What is needed in organizing the farmers is to strengthen the traditional organization so that it will become efficient and effective in the total management of farm resources. The entire process of organization development must be premised on formalizing the traditional farmers' organization not only in terms of making the expectation more binding but more in terms of ensuring the maximum utilization of existing farm resources and opening up new access to opportunities, thereby reducing, if not eliminating, the problems being faced by the farmers in their production activities.

It is in this connection that the training of farmers takes on a new meaning not only in terms of providing them with new skills but more on improving their institutional capabilities through a well-designed program of institution building. It must be pointed out that the stability of what the farmers will learn from the technician will only be possible if, and only if, appropriate institutions are designed and promoted. However, it must always begin from the already existing traditional structure and what must be done is only to strengthen it. Again the idea of institution building.

or development takes this notion very seriously. Thus, the uses of what a farmer learns must have relevance to what he is already doing and to which he is committed to perform. The main focus here is on improving his capabilities but these must always be seen in the light of the existing social organization of production. The validity and legitimacy of the improvement must be supported and facilitated by others who are directly involved in agricultural production. It must be emphasized that whatever a farmer learns is not uniquely personal but always has relevance on the actions of others. If the latter do not facilitate such improvements, they will not link them to their action system and their value will amount to nothing. Hence, the institutional consequences of any improvement must be fully underscored in any attempt to improve the skills of the farmers.

There are two other issues that must be faced in the process of institutional development. These are institutional change and innovation. While from one point-of-view, the issue of change can be a very complex problem, it need not be so provided that that which will be changed is always in the service of improvement. For instance, based on technological advancement in the field of agriculture, it cannot be denied that there are traditional practices of the farmers that need to be changed. Such change is always seen in terms of increasing farmers' profitability. While this goal is admirable, it may not be realistic in all cases because of the problems associated with changing some of the traditional practices of the farmers. For example, the failure of the farmers to accept alternative cropping patterns is not idiosyncratic to them or merely a function of their negative attitudes. This latter point has been identified by extension workers whenever the farmers failed to adopt a given technology. While the judgment of the technician can have some validity, what appears to be more central in the failure of change is the technician's failure to situate that which is being changed within the context of the current social organization of production. If the change does not fit the organization of production, a farmer may recognize the value of change but may still refuse the change since it will cut him off from the existing patterns of reciprocities associated with resource allocation in the total production cycle. Hence, risk aversion of the farmer should not only be seen in terms of economics but, more importantly, sociological. Sociologically speaking, losing the

support of other farmers in the community may be far more crucial to the farmer than losing some of his income potentials. In order to avoid this kind of problem, it is important that changes in agriculture should always subserve the existing social organization of production.

While change and innovation can be taken synonymously for the purpose of this framework, innovation will be treated more specifically in terms of adding something distinctively new to the traditional practices of the farmers. There are many innovations in agriculture specifically in the area of cropping patterns. For instance, a farmer may be using rice-rice-fallow. If the pattern is changed to rice-rice-mungbean, then an innovation has been instituted. Something "new" has been added to the existing pattern. As a general rule, the technician would view the innovation as an instance that will be promotive of farmer's income. The truth, however, is that this is not always the case because of the failure of the technician to locate the innovation within the context of the existing social organization of production. That which is "new" may, in fact, be revolutionary since it may require restructuring the existing production relations among the farmers and the failure of accepting the innovation may be a result of the inability of the farmers to adjust their production relationship. Hence, to facilitate the acceptance of agricultural innovation, it must always be linked to the existing social organization of production and whenever the innovation will unduly reconstitute such an organization, strategies should be devised in order to facilitate organizational adaptation to the innovation.

In the foregoing, substantial attention was given on the internal structure of the social organization of production. However, agriculture is not simply an internal activity of a community because it is directly linked to forces outside it. In fact the variations among these forces have direct consequences on the nature and structure of the agricultural production. Among these forces, only two will be highlighted in this discussion. One is the provision of support services to enhance agricultural production. These services come not only from one government agency but from others as well. Sometimes such services are at cross purposes, leaving the poor farmers confused and disoriented. In order to avoid this, it is necessary that the internal management of agricul-

tural production must be completed with an efficient and effective management of external resources. More than anything else, such services must be relevant and timely to the needs of the farmers and must always be extended subject to the conditions of the existing social organization of production. These services must always be responsive to the needs of the farmers as a whole. This means that their needs must always be viewed from the needs of a collectivity. In other words, even though each farmer singularly identifies his "own" needs, these must always be treated within the context of a community of farmers with whom they are presently linked in terms of total agricultural production.

Thus, a careful needs assessment program should be undertaken. The identification of these needs should always be within the context of the social organization of production in the community and not from the perspective of unique farmer's need. The main reason for this is to facilitate the priority setting of such needs. The more collective the need is, the more priority is to be given to them. In cases where the need is uniquely individualized, such should also be given appropriate attention. However, its implications to the social organization of production should be carefully considered. The provision of external services should likewise be within the context of internal resources available to the farmers. Hence, internal needs assessment should be complemented by resource potentials assessment that can be mobilized within the community. Internal capability building should be the foundation of agricultural development and the extension of external services must be facilitative of promoting internal resources capability.

While it is a fact that a number of external services to agriculture come in the form of concrete technologies such as seeds, fertilizer, equipment and machineries, their precise social aspects should be carefully underscored because of their direct consequence on the structure and process of agricultural production. For instance, when a given agricultural activity is infused with modern technologies, the production style of a farmer will change, leading to changes in his relations with other farmers in the community. His ultimate success is not only dependent on the continuity of external support but more on the continuity of social support provided by other farmers in his community. More

generally, the institutional implications of technology transfer should be carefully delineated so that a farmer who accepts such a technology will not be dislocated from his agricultural community.

In the foregoing, the dynamics of the social organization of production were discussed in terms of internal and external systems. Methodologically speaking, this should be done so that all the forces interacting within each system can be fully delineated. The next procedure is to identify and establish the complementation of the internal and external system with the end in view of strengthening the capabilities of the internal system. It is in this connection that while the three major processes of development, namely, improvement, change and innovation were treated separately in order to visualize their internal processes, in reality, these processes, in fact, go together. This makes the development process highly complex and its achievement is entirely dependent on the extent that these three processes are carefully identified and their innovation isolated in order to promote stronger institutional capabilities in the community.