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AN OUTLINE PROPOSAL FOR A SYSTEMATIC APPROACH  
TO THE DEVELOPMENT OF RAINFED AREAS OF THE NEAR EAST

By

N.R. Carpenter <sup>1/</sup>  
Chief

Farm Management and Production Economics Service  
Agricultural Services Division  
FAO - Rome

1. INTRODUCTION

All national or world plans and programmes on any aspect of agricultural development stress the urgent need for rapid and large increases in agricultural production. This emphasis is understandable. At the beginning of the present century, world population was approximately 1 500 million. By 1959, it was 2 500 million and by 1975, world population had reached 4 000 million. By the year 2000, it is expected to reach about 6 300 million, of which about two-thirds will be in developing countries. To feed this increased number of people, even at the present inadequate levels of nutrition for the masses, will require agricultural production of 150 percent of 1975 production. To improve world supplies to essentially eradicate hunger and malnutrition, which has been set as a world goal, will require at least 200 percent or a doubled agricultural production in a short 25 years, four of which are already past with less than spectacular results.

The goals of development, in general terms, may be defined as:

- i. To eliminate the possibility of famine.
- ii. To eradicate poverty from both the urban and rural areas;

and, as a means of fulfilling (i) and (ii),

- iii. Doubling or, in some cases, trebling the yields of many agricultural enterprises, intensifying land use; adding new enterprises; establishing agro-based industries; etc.
- iv. To eventually have specialized agricultural enterprises for certain commodities which would benefit from economies of scale, such as dairy and poultry products, beef or sheep fattening, etc.

To accomplish the above goals in the developed world required a trial and error process of over a period of almost two hundred years. If the developing world is required to accomplish these same goals in a short period of 50 years, of which only 21 remain to year 2000, maximum use must be made of the experience gained during the 200 years of development in the so-called western world. The key and most applicable experience, in the judgement of the author,

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<sup>1/</sup>In the absence of the author, it was presented on his behalf by Dr. L.T. Kadry, Technical Officer (Environmental Studies), AGL - FAO, Rome.

has been the complementary relationships that eventually evolved between all agricultural disciplines, as well as between the farmers, researchers, university teaching, extension services and the government policy-makers. Each separate discipline made vital important breakthroughs in terms of improving the quality of inputs, methodology and productivity related to each component of agriculture; however, lasting and rapidly improving development did not occur until most all components were assembled together in a development framework through which farmers could, and would use all components simultaneously both to achieve increased production and maintain or improve the land and water resource base. Furthermore, government policy-makers, bureaucratic administrators and institutional field workers were required to act both as advisors to and servants of the farmers. Constraints identified were removed as rapidly as possible. Unless a similar complementary approach is consciously used in the developing world, there is little hope of achieving the production and social goals mentioned earlier.

The project proposal presented in the following few pages provides a framework which would, if implemented, bring about this complementarity and would effectively involve all levels of society in a team approach which at present is lacking throughout the developing world. The first activity described is the formation of a multi-ministerial committee which is considered vital both to mobilize political will for agricultural development and to re-orient administrative institutions into a servicing facility for farmers as opposed to their present function as persons who issue "directives" to farmers.

The balance of the document explains a sequence of elements, example problems and general contents of a total programme which should be implemented in a selected area as a means for all personnel involved in development, from ministers to farmers, to learn how to work together effectively as a team. The experience will also provide valuable coefficients to use in planning for other areas as well as skilled manpower to improve efficiency in development in subsequent years.

## 2. ACTIONS TO BE UNDERTAKEN

### 2.1 Establishing a Multi-Ministerial Committee for Direction/Implementation of Activities

It is recommended that Government appoint a development committee as follows:-

- i. Specialists of agronomy, crops range management and horticulture, livestock, soils, irrigation, agricultural engineering and farm management economics.
- ii. Representatives of extension, university teaching institutions and a practising knowledgeable farmer producer.
- iii. A senior representative of each of the Ministries of Agriculture, Planning, Finance, Cooperatives, Commerce and Rural Development.

Specialized consultant representatives from other disciplines or agencies could be designated and seconded to participate as required.

The terms of reference of the Committee would be as follows:

- To select an area for development in accordance with criteria set forth under 2.2 below.
- To select national teams to be responsible for completing the field work described in this proposal.

- To review the draft project to be presented for financing and identify sections requiring improvement/amendment; to approve the document.
- To submit, through proper channels, the project proposal to a financial agency, requesting the agency's expression of interest to provide financial assistance for the project proposal; once a financial agency has expressed interest and agreed to participate in final preparation of investment proposal for financing.
- To designate a team of specialists to complete the feasibility studies and final proposals for the financing agency.
- To review and approve the feasibility study and final investment proposals before submission to the lending agency.
- To implement adjustments in Government policies, regulations, etc. which are acting as constraints to development.
- To periodically review progress, once loan approved, and recommend adjustments required during implementation procedures or technical specifications as required.

Committee meetings should be held in the selected area with local representatives, including farmer leaders, at least once - preferably twice - per year.

## 2.2 Selection of an Area for Rainfed Agricultural Development Programme

Criteria to be used to identify a pilot development area should be as follows:

The area should include a significant amount of each type of land resource used by farmers throughout the rainfed areas of the selected zone, i.e. shrub forest lands, communal grazing land, and privately owned land used for the production of wheat, fodder, miscellaneous pulse and oilseed crops.

Both short- and long-term solutions to the myriad of problems to be identified in the zone will require a development process which provides a system of remunerative complementary uses between these three types of land and which simultaneously halts the rapid deterioration of the total land resources with the resulting siltation of streams and dams. The area should lend itself to a comprehensive integrated watershed development approach, as outlined in document AGS/Misc/77/2. This approach is based on a systematic control of the soil and water regimes from the top of the watersheds to the agricultural lowlands and is implemented by a phased programme of development for one or more sub-watersheds at a time.

The area should have a variety of representative crops and livestock enterprises with sufficient productive land area to test the feasibility of launching a viable development programme in the rainfed areas of the zone.

## 2.3 Draft Programme

The long-term objectives of the development programme should be those established in Governments' development plans, which will usually include:

- To reduce the growing socio-economic disparity between the less developed and more favoured regions.

- To enable rainfed areas to contribute to, as well as benefit from national economic growth and development.
- To establish more stable forms of land use to overcome the detrimental effects of over-use caused by expanding populations and thus preserve and maintain the productive capacity of the land resources in these environments.

The general immediate objectives could be:

- To ensure that the development programme in selected rainfed areas is acceptable for large-scale investment, both from internal and external sources, and that the expected results of such investment are realized.
- To prepare a project for financing for development of the selected area.
- To implement the development programme after development funds are obtained until an evaluation by the development committee indicates the programme has established a satisfactory demonstration of comprehensive integrated watershed development in rainfed areas.

#### 2.4 Preparation of Project to be Presented for Financing

The outlines used by the FAO/IBRD Cooperative Programme for projects to be presented for financing should be used. The general outline for this purpose would be as follows:

\* Summary:

- I. Introduction
  - II. Agricultural Background
  - III. Project Area
  - IV. The Project
    - A. General
    - B. The Purposed Works, Measures and Policies
    - C. Cost Estimates
    - D. Finance
    - E. Organization and Management
    - F. Increase in Farm Production and Farm Income
    - G. Debt Repayment and Financial Results
  - V. Economic Justification
- List of Tables and Annexes.

#### 2.5 Identified Problem Complex, Based on Previous Work in the Region Requiring Solution

##### Natural Resource Constraints - Erosion, Low Soil Fertility and Water Losses

Attempts to correct this constraint in the past have met with limited success in localized areas. Factors contributing to the continued degradation of most areas are: overgrazing by animals, especially goats, destruction of forest shrubs by animals grazing and by humans for fuel and building materials; small size of holding which makes it difficult to plan proper conservation measures, especially when voluntary cooperation of populations/land owners is required; vast areas to cover by limited number of conservation and forest staff; insufficient budgets; lack of forage in crop rotations; land tenure arrangements for communal lands which prevent use of this area for forage crops to relieve livestock pressure on forest areas while simultaneously slowing water runoff; unawareness/unconcern of populations in the area because agriculture is not their primary source of income.

## Human and Social Problems

High Population Growth. Male youth often leave the areas but maintain their families there. Participation of local women in development activities is practically non-existent. Development personnel and their wives live in population centres which have most of the basic amenities, therefore, have little impact on the uplift of women and birth control. Recreation facilities which might provide competitive attractions away from continuous child-bearing are non-existent.

Unemployment. The absence of employment opportunities in the rainfed areas is the greatest single reason for emigration of the male youth. Investment in agricultural development activities will provide employment opportunities for the short-run; however, exploitation of mineral resources, establishing appropriate labour intensive industry, the modernization and diversification of agriculture, labour-intensive farming, etc., will all need to be developed to sustain these areas as viable over the long term.

Lack of Social Institutions. Many village communities today stand de-structured; every individual is on his own working for himself and his personal family. Most people either have hopes to leave the area following their sons/husbands or to merely exist in the area. The cohesive village structure, which existed a few decades ago, has disappeared and local leaders do not appear interested in reviving community forces to revive the area.

Areas where village communities have been restructured into other forms of collectives, corporations, cooperatives, etc. are experiencing a similar exodus or, if forced to remain in the structure, are doing so with less enthusiasm for production and maintenance of natural resources.

### 2.6 Recommended Programme/Activities to be Completed as Part of the Investment Proposal Preparation

Community Development Surveys. A detailed explanation of this survey is contained in document AGS/Misc/77/2 entitled "A Comprehensive Integrated Watershed Development Approach", pages 18-19.

Farm Management Surveys. Investment planning requires knowledge of existing conditions, the possibilities for improvements, and the production relationships and behaviour attitudes at the producer level. This knowledge is provided by farm management, which is concerned with the organization and operation of farms and the effective utilization farmers' resources with the aim of providing a satisfactory level of farm earnings. To achieve this, farm management itself - as is investment planning - is in need of reliable information which can be used to realistically plan for improved farm income and more rational land use.

Farm management surveys will, therefore, be completed to:

- Ascertain more precisely present farm organizations and income positions of farmers in the project area.
- Project, for various stages of project implementation, production patterns and income status of farmers by using progressive farmers' data, as well as research findings for determining the adjustments required to improve the economic position of farmers.
- Monitor the implementation of the project.
- Help evaluate project achievements by comparing farm data at the

pre-project stage and at various steps of its implementation.

Data of both primary and generated nature will be used for farm programming, which in its aggregate form, seems to be one of the most useful tools in investment planning. Input/output coefficients of various enterprises will be extracted for average farms, best farms, or fertilized, mechanical situations, which together with (or without) hypothetical and/or research findings and proper settings of constraints, can be used for linear programming, which determines the optimum resource and activity combination for maximizing returns (under the constraints imposed). This can be coupled with assumed changes in price/cost relationships in order to test the sensitivity of the farm organization to such changes.

Survey of Land Resources and Land Use Capability. Appraisal and mapping of the soils will provide a basis for the establishment of land capability classes in the selected area. This is necessary to enable the planning and application of a package of agronomic, cultural, soil and water conservation practices appropriate for each land use class. The information developed through this activity, will be used by the farm management and other multi-disciplinary personnel to prepare farm plans for the development of the selected area and by other discipline expertise to recommend cropping patterns, reforestation programmes and range improvement and management plans.

Range Development Survey and Planning. This activity should be completed simultaneously with the land resources surveys. The objectives of this activity would be to: (i) determine the carrying capacity of the areas used for grazing, including communal and shrub forest areas now being used; (ii) specify the form of land use and the animal species appropriate for the area, including a grazing/management system suited to both the maintenance of the land resources and the economic production of livestock; and (iii) determine the appropriate size of development unit which would be large enough to be viable both in economic terms as well as attaining a stable ecological balance.

Planning Viable Livestock Systems. This activity should also form a part of the two activities above. Some areas in Pakistan are increasing the emphasis on the introduction of Teddy goats to replace the large goats which are destructive browsers. Reportedly, the Teddy goat will be more suitable to these areas both in terms of meat production and range/forest area management. A higher offtake of all livestock should be a major consideration in many areas but especially sheep and goats to both increase the meat supply and reduce the pressure on rangelands. A stratification of the livestock industry is recommended to accomplish these goals, i.e. the establishment of a chain of feedlots in the irrigated areas adjoining the rangelands wherein range livestock can be fattened before slaughter. It is also recommended, where feasible, to use the Australian ley-farming system, including the introduction of self-regenerating forage legumes, such as medics.

Livestock specialists, in cooperation with the range, forest and soil conservation specialists, will, therefore, be required to plan the livestock systems for the selected area with plans for transition from the existing system. The plans will then be tested by the farm management economist for their economic viability; capital/credit requirements; and the effects on labour utilization.

Forestry for Community Development. Most of the forests in many rainfed areas would be classified as sub-mountain shrub forests. These forests have a multiple role to play in the area, i.e. provide fuel; serve as a soil and water conservation aid; provide limited construction material; serve as a refuge for wildlife; provide browsing for animals; beautify the area and protect the areas from winds, etc. Rehabilitation plans and management systems for the forest

areas, where they exist, need to be developed as an integral part of the range and livestock plans outlined above. Multiple use plantings are desirable in most locations. Most countries have adequate knowledge on all aspects of forest planting and management but all programmes to-date have been plagued by the lack of controls in livestock numbers grazing/ browsing and uncontrolled cutting by local populations for fuel and other uses. It is, therefore, considered mandatory that the programmes mentioned above be totally synchronized and evaluated economically and socially in order to ensure the practicability of the programmes for implementation under local conditions.

Establishing Local Development Advisory/Leadership Committees. This will likely be one of the most critical activities in the entire programme. Unless the local communities are stimulated, motivated and develop an attitude to work towards a self-reliant and stable community, all other efforts may be wasted. Responsibility for leadership in organizing these committees will rest with local development personnel. Development personnel who are acting as participating experts from outside the area will, however, need to spend sufficient time in the villages and with these committees to ensure the planned activities are fully accepted by the local populations.

Local committees will need to play a strategic role in overcoming many types of development constraints which do not have a "technical base" but rather a "socio-political-administrative" barrier to the rapid implementation even of those activities which appear profitable and desirable by the local populace.

The terms of reference of the village committees should include certain identified responsibilities for essential actions in development as an integral part of the development programme administration and management, such as:

- To be assigned an active role in coordinating the activities of all disciplines, departments and services in the area.
- To serve as assistant extension agents since most regular civil servants cannot, or will not, presently live in the villages of the rainfed areas to be developed.
- To promote balanced development, i.e. encourage equal emphasis on better living simultaneously with increased output (better living relates to improved sanitation facilities, communications, health, education and recreation, etc. ).
- To help plan and implement alternative organizational forms of land use, acceptable to local populace, such as joint farming or cooperative arrangements, large-scale farming through rental lease agreements or others.
- To create awareness among local population of the deterioration occurring and the need to solve the multitude of problems.
- To play a very active role in promoting population control.
- To advise/counsel government authorities on needed changes in local administrative procedures which would speed-up and increase efficiency of development efforts, i.e. decreasing bureaucracy.

Government officers will need to train the local leaders to perform effectively in the above tasks.



Additional Technical Expertise Collaboration to be Identified/Quantified during Course of Project Development. The above planning and analysis will certainly identify many constraints related to a variety of disciplines which have not been adequately defined in previous activities. Additional expertise most likely to be required, both for investment planning and programme implementation, are identified below:

Marketing: If the initial analyses indicate a substantial increased output of all commodities, there will be a need to establish market points throughout the area and additional management personnel will need to be trained. Price policies may also need to be established for certain commodities recommended, before farmers will accept the change in their farming pattern.

Credit: An agricultural credit system is usually in operation and probably sufficient for the present intensity of production. If large amounts of additional funds were to be siphoned into the area, several adjustments in policies, institutions and regulations may need to be made.

Agricultural Engineering: Labour constraints during peak period will undoubtedly become a major problem when agricultural production is intensified. Once these constraints have been identified, agricultural engineers will be required to design the most appropriate system of mechanization, service and training centres.

Water Harvesting and Minor Irrigation/Farm Pond Development: Part of this activity may be dealt with under the paragraph concerning erosion control but it is likely that a special programme for these activities will be required during the project preparation.

Food and Agricultural Industries: Two specific activities need to be examined in depth as a part of development planning for any rainfed area, i.e. bio-gas plants and hides and skins industry. Silk and mushroom production may also be relevant to some areas. Each of these activities appears to be promising to both add employment opportunities in the area and to increase the value and more rational utilization of such items as hides and organic manures. Bio-gas plants could both relieve pressures on the forests as a substitute fuel source and permit the organic wastes to be returned to the soils.

The Role of Women in Development: Most governments are aware of the important role of women in agriculture and the need for certain changes in their role in the village areas. Any changes will need to be examined in terms of the effects on family stability; on population control and on the total agricultural production processes. Women may participate in practically all activities from the growing of crops to animal husbandry; however, this will vary from household. Certain areas also have a considerable number of girls in schools through the secondary level. Other areas appear to have a much lesser number. The expertise input with respect to this subject will probably be more clear once the activities of women are defined and the analysis of village production systems has been completed.

Adjustments in Government policy, streamlining requirements for national and local administrative procedures, adjustments in institutional regulations. The majority of constraints to development resulting from these components in the development system, will be identified during the completion of activities described above. Actions to remove these constraints will need to be taken by the recommended ministerial committee described as the first action to be taken in each country.