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AN APPROACH  
TO  
SPATIAL PLANNING  
FOR  
RURAL DEVELOPMENT

Working Group on the Rural Poor  
United States Agency for International Development  
Washington D.C.

D R A F T

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WORKING PAPER ON  
REGIONAL PLANNING FOR RURAL DEVELOPMENT

The organization of space for economic growth facilitates development in a number of ways. It is needed to raise agricultural productivity.

It is a guide to the geographic location of investments and institutions and, in combination with institutions, facilitates participation. While the FAA, 1973 enjoins AID to support participation as much as possible, it must also be said that the developing countries themselves must decide how much participation will be stimulated or restrained.

Spatial organization is a guide to industrial decentralization and, in combination with labor-intensive investment, helps accelerate job creation, thereby helping to improve income distribution. Since many of these jobs will be created in towns and small and medium-sized cities, spatial organization can slow down migration to large metropolitan centers.

The organization of space is also a guide to the location of infrastructure.

In the political sense, spatial organization is a guide to the difficult and ever sensitive subject of decentralization because it is a way of identifying the level to which specified activities can reasonably be delegated.

Finally, the analytical methodology of spatial organization is intersectoral. It both requires and facilitates the coordination of diversity of activities and emphasizes relationships among sectors.

The organization of space for economic activities is one of several subjects underlying the Foreign Assistance Act, 1973 (see the Legislative History of the Act issued by AA/LEG June 4, 1974) has been

overlooked by foreign aid agencies and all but a handful of developing countries.

Spatial organization can be studied in a number of academic disciplines, including regional planning, economic geography, economic history, marketing and a branch of sociology relating to the organization and development of communities. Regional planning is the most comprehensive treatment of the subject and, hence, is the framework for this Working Paper. Like other working papers being prepared by the WGRP, this Paper is intended to be a thinkpiece. The issues involved in regional planning for rural development are presented in the form of a model of an "Agricultural Region". In application, the model would, of course, need to be adjusted to a host of political, economic, social and cultural conditions which are country specific. However, it should be noted that this model will be found in practice in a small number of developing countries, among them China, Taiwan, Yugoslavia, and Egypt. It is also a model whose application has begun recently in a few countries, e.g., Sri Lanka and several Central American countries.\*

The theory of regional planning covers the whole of a national economy. In a simple model (a small country) there would be five levels - national, geographic region, agricultural region, district and locality. In larger countries there will be more than these five levels. The

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\*The WGRP is working on two other papers which are an elaboration of issues covered briefly in this overview of regional planning, the first on market price relationships and spatial organization, the second on rural industry.

marketing system and other elements of the economy will be more complex in a number of ways. However, the agricultural region will still be the area for organizing rural economic activities. It is the systematic organization of the agricultural region that has been neglected in so many developing countries. This region in most countries is roughly equivalent to a province of a few hundred thousand people. It is subdivided into "agricultural districts", which in turn are subdivided into "farming localities."

The vertical linkages among the various levels of a national economy is one part of regional planning theory. These linkages flow almost entirely through urban based activities and institutions. Hence, the system of cities and towns in any country is a totality. There are a number of linkages and interdependencies between the essentially rural based urban centers at the lower end of the urban hierarchy and the larger cities in the urban system which ought to flow in both directions, up and down the hierarchy. However, in many countries the linkages are essentially downward only because the lower levels of the national economy are not yet effectively organized for sustained agricultural advance. It is in the three-tiered agricultural region, with its smaller agricultural districts and still smaller farming localities, that there needs to be a variety of services, supplies, institutions and certain types of infrastructure if a modern, high productivity agriculture is to emerge. Hence, this Working Paper is emphasizing that part of regional planning theory which applies to rural development.

In most LDCs economic development has been concentrated at the highest levels of the economy i.e., big factories, big infrastructure and other activities which are primarily big-city oriented. As a consequence, in Mexico, Pakistan, Brazil, Morocco, Kenya and other countries, half or more of the industrial jobs are located in the capital or other major city even though these metropolitan centers may have only 5 or 10 percent of the total population. Such concentration of industrial jobs in just one city is not an inevitable consequence of economic growth but the result of development policies.

There are a few countries, such as Turkey, Colombia, Iran, Peru, Venezuela which have supported regional projects which, in name, at least, appear to have the same objective as the activities discussed in this Working Paper. However, the characteristics of most "regional planning" projects have been to (1) promote industrialization in the second largest group of cities in a country and/or (2) construct the infrastructure of a large area - the major roads of a geographic region, power plants, a dam if irrigation is feasible and so on. However, the type of regional planning for rural development discussed in this paper has not been a part of economic development theory as it has been taught and practiced. Perhaps for this reason it has not been practiced much, though there are a few exceptions, as noted previously.

In contrast to a systematic organization of space, in most countries the organizations of rural development have been based on

individual villages - the village council, village cooperatives, and so on. There are two crucial weaknesses in this approach. First, villages generally are too small to support at a reasonable unit cost services needed for economic development. The amount of economic activity in individual villages, such as the quantity of fertilizer used, the amount of surplus production available for marketing, the volume of financial transactions, is too small to meet the tests of economies of scale. Thus, if the local cooperative is organized in individual villages it is likely to be too small to be economically viable. If the unit cost of a farmer's business and production operations is too high, he cannot be competitive. Further, villages usually are too small to have enough children for a school system, or enough patients for adequate medical services, or enough customers for a low cost system of retailing, or to support the overhead costs of a local government, and so on.

Secondly, the vertical linkages between farm villages and the structure of taxes which support them and link them to the national economy have been neglected.

Both of these weaknesses can be dealt with by applying regional planning theory, the first by dealing with villages in groups; the second by organizing rural development activities in the three-tiered hierarchy of the agricultural region.

An exception to the generalization that rural development has been based on individual villages will be found in the environs of big

cities, such as the capital, where agricultural diversification often is well advanced. However, if these prospering farming areas are analyzed carefully, they will be found to have the characteristics of farming localities (see below), beginning with the city as a market for surplus production. Since the influence of a city market is limited, the whole of a country's agriculture is not likely to be modernized on the basis of one or several big cities. At least this has not happened. Hence, it should be assumed that a high productivity, commercial, diversified agriculture cannot be achieved nationwide without creating the kind of nationwide system for involving farmers which regional planning for rural development provides.

#### The Agricultural Region

An agricultural region is an economic microcosm in its own right. As farm incomes rise, production and trade rise and specialization increases. Some of this increased trade will be with the capital city (and other metropolitan centers in countries where there is more than one) and perhaps also with overseas markets. However, the scope for increasing production and trade within agricultural regions is greater than is sometimes realized and is a potential for economic growth that is still not sufficiently tapped in most countries. There is also considerable scope for increased trade between agricultural regions within a country without regard to the capital city (and other metropolitan centers, if any).

As agricultural income rises the economic structure of the agricultural region is transformed. The proportion of non-farm economic

activity and employment rise. Gradually, the independent farm village of the subsistence economy becomes the dependent farm village of a high productivity agriculture. Whereas the subsistence farmer is almost totally independent of the outside world, the scientific farmer is almost totally dependent upon the outside. Improved production inputs, such as agricultural chemicals, and technical knowledge come from the outside world and mostly from urban factories and institutions. It is also to the urban market that the farmer sells his increased production. And the financial institutions which he uses are also organized and managed in towns and cities. In this context, rural development can be considered to be the expansion of creative linkages between farm village and urban centers, linkages that are weak or absent in many countries now.

Creating the linkages between farm and town requires that an agricultural region be structured consciously both horizontally and vertically. The word "horizontal" refers to the process of linking a number of farming villages or hamlets with a small urban center in which are located the economic activities needed to involve farmers in a modern agriculture. The word "vertical" refers to the linkages between the hierarchy of towns needed to serve agricultural communities, in this model, the farming locality town, the district town, and the regional city.

The public and private institutions involved in regional planning commonly are organized, as a matter of convenience, within the same boundaries as the region, the district and the locality. We should note,

however, that the market area of economic organizations usually is not identical with the boundaries of political or administrative areas.

#### Regional Planning and Migration

One of the objectives of the regional planning is to slow down the congestion in metropolitan centers that is so prevalent now by creating large numbers of non-farm jobs in urban centers other than the big metropolitan centers. The experience of countries which have practiced regional planning theory, such as Taiwan, Yugoslavia, Israel, Egypt suggests that non-farm jobs need not be concentrated in a handful of large metropolitan centers. Rather, non-farm jobs, and hence relatively more of the urban population, can be located in smaller urban centers, ranging from regional cities to very small market towns. By urbanizing the countryside in this way it ought to be possible to reduce the growth rate of very large cities.

The amount of evidence which supports the probabilities expressed in the previous paragraph is still less than conclusive. The following table on the location of industrial jobs in Taiwan and Colombia is one example of how the spatial planning of rural development facilitates industrial decentralization.

**Distribution of Industrial Employment between Large Cities and Rural Towns—  
Taiwan, 1961 and Colombia, 1964**

	Taiwan	Colombia
Proportion of Population Living in Capital Plus Regional Cities	22%	21%
Proportion of Industrial Jobs in Capital Plus Regional Cities	34%	75%
Ratio of Industrial Jobs to the Population Living Outside of Capital Plus Regional Cities	1 Job per 19 People or 1 Job per 3 Families	1 Job per 49 People or 1 Job per 8 Families

Note: The major cities on which the calculations on the first two lines are: Taiwan-Taipei, Kaohsiung, Tainan, Taichung, Keelung. Colombia-Bogota, Cali, Medellin, Barranquilla.

Source: Taiwan—Derived from *Census of Industry and Commerce, Taiwan 1961*, UN Demographic Yearbook, 1963; *Statistical Abstract of the Republic of China [Taiwan]*: (Taipei; Directorate-General of Budgets, Accounts, and Statistics, 1962); Colombia—Derived from ILO, *Towards Full Employment*, (Geneva: ILO, 1970), p. 97, and UN Demographic Yearbook, 1964.

Taiwan's ability to create non-farm jobs in intermediate and small-sized cities and towns is presumed to be the reason that the metropolitan area of Taipei has been expanding at only half the rate of capital cities in many countries. We would also note again the concentration of industrial jobs in many countries in the capital and other major cities mentioned above.

The influence of regional planning for rural development on the geographic distribution of the population is thought to be this (the evidence is incomplete but suggestive): where regional planning is being applied the proportion of the urban population living in towns and the smaller cities, up to, say, 100,000 people, is increasing. In countries where industrialization is concentrated in a handful of big cities, the proportion of the urban population living in the smaller urban centers appears to be relatively unchanging. In both kinds of countries, people

are leaving their farm communities in large numbers. In the countries which have applied regional planning, many of these migrants are able to find productive jobs in market towns and small cities. Relatively fewer move all the way to metropolis. In the concentration countries, there are fewer jobs in market towns and small cities. Hence, relatively more of the migrants gravitate to metropolis, thus causing the extraordinary 6 - 8 percent growth rates of many large cities.

#### Pre-Conditions of Regional Planning

The first pre-condition is very simply that regional planning needs to be understood and accepted as a process that links local and regional projects and institutions to a long-term national strategy for balanced rural and urban development at all levels of the national economy.

The second pre-condition is that relevant and output-increasing technology must be available to small producers at the local level.

The last pre-condition relates to profitable technology. Output-increasing technology may be available but lie unused if price policy limits its profitability. Indeed, there are recorded instances of the use of improved technology actually being unprofitable because of price policy.

In many countries price policy tends to favor urban-oriented, capital-intensive production, frequently through artificial exchange rates, non-market interest rates and other devices for subsidizing the use of capital. Such policies need to be re-examined in order to assure that the terms of trade between farm and non-farm products are not weighted

unreasonably against agriculture. A reasonable balance in the terms of trade does not, however, mean that urban food prices need be high and perhaps politically unacceptable. Taiwan, Egypt and historical Japan have demonstrated how this balance can be achieved in practice. In very oversimple terms, these three countries have used effectively administered minimum commodity price support programs for major crops to assure the profitability of output-increasing farm technology. Farmers know at planting time the minimum profit they are likely to make at harvest time (except when there is an unpredictable crop-damaging catastrophe).

At the same time, however, the governments of these countries have wanted relatively cheap food prices for urban consumers. Hence, the price relationships in agriculture (the cost of production inputs as compared to prices of outputs) have been tilted somewhat against farmers. The incentive of an assured minimum profit (or, stated negatively, government removal of virtually all of the risk involved in farming) has outweighed the disincentive of high-cost fertilizers.

Even if improved technology appears to be profitable, it still cannot be assumed that geography has no effect on national price policies. In addition to a national policy sustaining reasonable and fairly stable terms of trade for farmers, the terms of trade between regions also need to be analyzed. If it turns out that prices are biased against farmers in particular regions, government action may be needed. For a variety of reasons relating to history, geography, climate, transport, and regional and local marketing conditions, the terms of trade between regions may

be different from the national policy on price relationships. As a result farming may be less profitable in one region than another; conceivably, farming could even be unprofitable because of regional or local distortions in what appears to be a satisfactory national price policy. It is because of the importance and possibility of geographic variations in prices that a separate paper on the relationships between regional planning and price policy is being prepared by the WGRP.

#### Definitions

This section sets forth the definitions used in this Working Paper to present a generalized concept of spatial planning for rural development.

Geographic Region: A geographic area composed of several Agricultural Regions and having a population of one to a few million people. Such regions are usually readily recognized -- e.g., Central Thailand, Western Nigeria -- often they are not administrative areas, yet they may correspond to statistical regions of a country.

Agricultural Region: This is an economic entity, which, in many countries corresponds to a Province having several hundred thousand to, in very crowded lands, as many as several million people. In countries with very large provinces, or states, such as Brazil or India, the agricultural region would correspond to a smaller administrative unit than the province or state. The region consists of a large number of farming settlements served by a three-tiered hierarchy of urban centers,

the regional city, district town and locality town. The regional city in this hierarchy is likely to have a population of 20-50,000. If this city is also a supra-regional center of industry, transport, education and other non-agricultural activities, the population may be very much larger than 50,000.

District: This is the primary unit of an agricultural economy consisting of several to as many as 15 farming localities. It is roughly akin to a county. The area may vary from a few hundred to several thousand square miles, the population from 50,000 to as many as 10 times that number in the densely populated countries. However, the optimum population, which may, indeed, be a practicable planning guide in a number of countries, is considered by regional planners to be 150-300,000.

District Town: The urban center of the district. It is the impression of the WGRP that most countries are already sub-divided into local administrative units, such as the municipality of Latin America, and that the urban center of these units will usually turn out to be the "District Town" of regional planning for rural development.

Farming Locality: The smallest organized spatial area, roughly akin to an American township. It should not exceed about 100 square miles in area. Population may vary from several thousand in sparsely populated areas to as much as 25-30,000 people in densely populated countries.

Locality Town: The small urban center of a farming locality. In the beginning the locality town may be a farm village that is the site of the weekly market or some other trading activity in a local area.

Market Towns: The term "market town" is commonly used indiscriminately to refer to both Locality Towns and District Towns. Since it is necessary to distinguish between the functions and activities of these two levels of towns, the term will not be used again in this Working Paper.

Village or Hamlet: A farm community which is not a trade center of the local area.

#### Choosing Regions for Development

Because the approach to rural development put forward in this paper is a national one, instituting regional planning involves a tentative "grading" of major urban centers by their expected probability for sustaining economic growth. Although certain positive criteria may be applied to this exercise, such as the transport connections of any given city with all other urban places, existing infrastructure, administrative functions, and population size, it may be easier to proceed by the progressive elimination of those cities that, for one reason or another reasons, should be excluded from further consideration as regional growth centers. The remaining set of cities may then be classified as growth centers of certain rank.

The second step in this procedure involves the identification of the areas of agricultural regions on the basis of the geographic extent of their influence, taking into consideration marketing patterns, areas of material supply, central service areas, and migration sheds, as well as historical factors. Alternatively, governments may choose to begin with existing administrative subdivisions simply because it seems easier. In general the proper identification of a regional center would seem to be more immediately important than the precise identification of its boundaries. Regionalization is a device for focusing interest. The actual region will define itself through the spatial pattern of activities and through repeated use.

Within each of the regions designated as having priority claims for investment in the determination of national policy, districts may be chosen for launching intensive programs of rural development. Again, the first step is a study of the relevant conditions that, at a minimum, should include the following: distribution of the population; language, culture, and ethnicity of the population; prevailing conditions of health; ecological variations at the scale of normal district size; farm size distribution; land tenure relationships; type of farming area; transport networks and accessibility; location of existing services and rural industries; traditional marketing patterns; central place hierarchies; migration; and rural commuting. The object of this study is to delineate rural development areas according to three basic considerations: (1) a

criterion of centrality, (i.e., relation to a district town), (2) a criterion of homogeneity with respect to ecological conditions, type of farming, land tenure conditions, size of farms, ethnicity, etc., and (3) a criterion of size. As will be discussed in the Working Paper on base level organizations, involving these organizations in doing these initial studies is a way in which participation can be initiated. And, once the regional cities and district and locality towns are selected, government agencies should locate their facilities and services in these urban centers, as discussed below.

One of the perplexing questions of regional planning is the allocation of funds between high and low potential agricultural areas. Some experts argue that investment should be concentrated in the areas with the highest potential for economic growth. In areas with a low growth potential investment would initially be concentrated in physical and social infrastructure. If this preference for the high potential areas is combined with reasonably effective tax policies, then governments can transfer resources from high to low potential areas to help the latter. The other side of this argument is that regional planning is sometimes advocated as a way of re-dressing regional imbalances by accelerating investment in the poorer regions in the array of facilities and services needed to increase rural productivity. In the academic community there is no consensus on how to resolve this dilemma. Operationally, the dilemma is likely to be resolved through political decision.

The Farming Locality\*

This discussion of a farming locality, and the agricultural district which follows, is concentrated on getting the two local levels organized in the first instance. The changes that are likely to occur as both levels evolve are important, of course, and some comments on change are included. However, the Paper is aimed at the first steps involved in applying regional planning theory because the two local levels are not yet effectively organized in most countries.

"A farming locality is a rural area sufficiently small that a farmer anywhere within it can, with the means of transport available to him, go from his home to a market center (the locality town) where the off-farm facilities he needs are available and return home certainly within the same day"\*\*. The locality is also the area of "horizontal" linkages, that is, the area in which farmers are linked to the national economy through the facilities and institutions situated in the locality's urban center.

Given the approximately 2 1/2 mph speed of the forms of transport available to most farmers - walking, animal carts, "country boats", bicycles - 2 1/2 or 3 hours in each direction is the maximum amount of time a farmer can use for transportation and still have several hours to do his and his family's business in the locality town. This maximum

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\* This section, and the one which follows on the Agricultural District, are drawn primarily from EAJ Johnson and Arthur D. Mosher

\*\* This is the definition used by Arthur Mosher in "Creating a Progressive Rural Structure", p. 3.

radius of 6 to 7 1/2 miles (most of the authorities say that 7 1/2 miles, or the 150 square mile area that goes with this radius, borders on being too far) means the locality towns are needed every 12 to 15 miles. The farming locality can, in fact, be much smaller than this. In densely populated Taiwan, for example, the farming locality is only 45 square miles (a radius of 3 3/4 miles).

It is the facilities and services located in the locality town that make up the first step in linking a farmer to the national economy. These can be divided among economic activities related to increasing productivity, consumer goods and services, and human resource development.

The minimum production-related facilities needed in a locality town are a market place (which, in the beginning, may be nothing more than an open space designated for the purpose) providing markets for farm products and retail outlets for farm supplies and equipment, a financial institution (which may be the branch office of the financial institution at the district level), storage and agricultural extension. This set of activities, plus a local road network, can be described as the threshold for the entry of a farming locality into a modern economy. Though they are few in number, all must be present. Some or all of them could also be the content of an AID-supported "Locality Towns" project.\* How quickly

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\*Projects of this sort to finance facilities needed in farming localities probably would be funded through a central institution such as a Ministry of Local Government or a bank. Funds would be transferred to regional or local entities through some kind of a loan-in-aid or grant-in-aid system.

locality towns can be electrified depends on the demand for productive uses. Where pumps are used in irrigation, the prospect for economic rural electrification may be very high.

The locality town should eventually have paved streets, other utilities, a primary school, a clinic, insurance, and a post office, though how quickly these can be added will depend on the rate of increase in production and incomes, tax collections, and trained personnel. Several or all of this combination of facilities could also be a "project".

These facilities at the level of the locality town, or "country town", will be of the smaller and simpler sort. For example, cold storage is rarely found in locality towns until some agricultural advance has already taken place. Similarly, a locality town may eventually be the site of a secondary school, but not until there has been a good deal of advance in education. The same point applies to technical personnel. Especially in the early stages, when there is a serious shortage of trained staff, persons working at the level of the locality town are likely to have only vocational training. For example, even today in Taiwan, one of the developing world's outstanding examples of agricultural advance, there are only a handful of college trained agricultural extension agents working with the Township (locality) Farmers' Associations. Taiwan's college-trained agricultural staff work at the level of the district or higher.

In addition to these facilities in the locality town, the locality area needs a simple road network (a possible project) linking all of the farm villages to the locality town. These roads can be and often are single lane, dirt roads costing only hundreds of dollars per mile. Even today in the United States there are still more than half a million miles of dirt "farm-to-market" roads. In addition, the locality needs at least one all-weather road (usually but not always surfaced) usable by at least small trucks, connecting the locality center to the outside world, which usually means the district town.

Finally, the farming locality is the level of "local verification trials".\* Especially in the early stages of agricultural advance, an important part of the process of encouraging farmers to innovate is to make sure seeds and other production inputs and also cultural practices developed elsewhere are both technically sound and profitable under local conditions. LVTs should be carried out under the supervision of the extension agent. They should also be recorded since they are a basic source of data for both agricultural information services and agricultural scientists in research station.

The locality towns needed for rural development typically already exist. They are the villages which now are trade and transport centers for their local area. It may be that government officials are often unable to identify them, but the people in local communities who trade in them can

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\*Arthur Mosher's term

identify them. If this local knowledge is combined with the transport and size criteria discussed earlier, then the locality towns of a modern agriculture can readily be identified. Further, the emergence of fully-developed locality towns does not mean that already strained government budgets must be increased to finance them. Some of the investment needed in these towns is already taking place. Governments are building schools and clinics, but these and other facilities should be located together in locality towns rather than scattered at random about the countryside as is happening in some countries now. Other on-going investments, such as farm-to-market roads and rural electrification, should be subject to the location criteria inherent in spatial planning. The economic activities of locality towns are in the long run, self-sustaining, though there are instances (Yugoslavia, Taiwan) in which governments have used subsidies at the beginning of town formation programs. For the most part, however, transforming village trade centers into locality towns should be self-financing through a combination of higher taxes which rising incomes make possible and local private investment.

Is there a minimum set of conditions, such as population or amount of agricultural production, that are necessary for the organization of a farming locality? Very recent experience suggests that the answer to this question, rather than being affirmative, as common sense might suggest, is that unusual adaptations of regional planning theory can be made for unusual situations. For example, new projects in the Sahel include market

centers for semi-nomadic herdsmen even though most other characteristics of a farming locality, beginning with permanent settlement, are absent.

### The Agricultural District

The agricultural district serves farming localities in much the same way that the locality serves individual farmers. It is in close enough proximity to be "local" in the minds of villagers, but is big enough to provide specialized services not available in locality towns. The farming locality is, of course, even more "local" to villagers than the district, but it is too small to meet the tests of economies of scale for many of the investments and services needed in rural areas. For example, both a locality and a district are big enough to support the costs of a general agricultural extension agent, but a locality is too small to support specialists in horticulture, animal husbandry, water management, land management and others who are needed as agriculture becomes more scientific and specialized. The district, however, is big enough.

The following discussion of the productive services needed at the district illustrates the vertical linkages between lower and higher levels of the economy that emerge as agriculture is modernized. To begin with, government technical staff at the district level will not work much directly with farmers. Rather, they will work primarily with extension agents, paramedical personnel and others assigned to the locality towns and with the officers and other representatives of local organizations, such as co-ops.

The basic economic and technical facilities and services needed in a district town to get agricultural modernization underway are:

1. Wholesale Markets - Farm products often cannot be shipped economically direct from locality centers to the major urban markets or seaports of a country. It is frequently more economical to assemble large lots at the district town and from there trans-ship them to larger central markets. The same process works in reverse with production inputs that usually originate in city factories or seed multiplication farms.

2. Research - Although few districts will have an agricultural research station, the district is an important link in agricultural research and information systems. The district agricultural staff should be responsible for disseminating research results coming down from research stations, supervising LVT trials in the localities, and reporting up emerging research needs to research stations.

3. Agricultural Extension - The farm locality extension agents, whose training is likely to be "vocational", need three types of services routinely from district level extension agents, who ideally are college-trained, that is, they should have some knowledge of the science of agriculture as distinct from the practice of agriculture.

- a. A steady flow of information with respect to new technology.
- b. Instructional materials used in farmer training.
- c. In-service training

In addition, the locality extension agents may sometimes need the help of subject matter specialists. These specialists may, in fact, come from research stations or university faculties. However, district agricultural officers should be charged with watching out for situations when such specialists are needed.

4. Banks: Whether commercial or cooperative in form, banks are needed to integrate locality savings and credit systems into the national financial system. (This subject will be covered at some length in the Working Paper on Financial Development.)

In addition to these four economic activities, (several or all of which could also be a "project") directly related to increasing agricultural production, the district town should have consumer goods and personal service industries and also schools and medical facilities, all of which will be larger and more sophisticated than those in the locality town. They should have some professional personnel, for example, qualified doctors in private practice or on the staff at the clinic. The latter should have beds for in-patient care. This clinic is likely to become, as a country advances, a small hospital.

The road network of a district (another possible project) linking locality towns with each other and with the district town should be suitable for trucks. Paving will often be economically justifiable once agricultural modernization starts moving.

### Land Improvement

The scope for improving land as one component of higher agricultural productivity is considerable in many developing countries, especially tropical areas that are irrigable. Land projects do not, of course, follow the artificial boundaries of the agricultural areas discussed above, but the contours of the land. Hence, the omission of this subject in the discussion of the activities that fit the level of agricultural regions and districts and farming localities. However, several countries Japan, Taiwan, Egypt, and many Western nations have demonstrated that the concepts of regional planning can easily be applied to the natural size and contours of irrigation systems and other types of land improvement through specialized local organizations such as irrigation associations and soil conservation districts, set up for the purpose. The extent to which such specialized organizations are involved in design and construction and at what level, depends on the size and sophistication of the project. However, such organizations are commonly involved in operating and maintaining land improvement projects, or the local level and collecting the rates. Where the economic potential is high, land improvement can be a major investment activity carried out in the context of regional planning for rural development.

### Local Industries\*

As incomes rise in an economy an increasing proportion is spent on non-farm products. A transformation occurs gradually in the structure

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\*This section is based on papers prepared for the WGRP by Dr. Arthur Gibb.

of production in rural communities from one that is predominantly agricultural to one that is increasingly non-agricultural. Such a structural transformation occurs within the economy of an agricultural region and is reflected in the emergence of towns and "local industries."

Even in the traditional autonomous village non-agricultural production engages a significant proportion of economic resources. At present the proportion of the labor force commonly engaged in non-agricultural activity at the district level at relatively low levels of development may be around 20 percent. In areas such as the Punjab in India or Central Luzon in the Philippines the proportion rises to as high as 30-40 percent. In some areas of Latin America, such as southern Brazil, it is higher. Although there may be displacement of labor from traditional non-agricultural activities in the village as manufactured substitutes are adopted (e.g., textiles, roofing materials), these losses should be more than off-set by the expansion of other types of non-agricultural production and employment in locality and district towns. Although the process of structural transformation in the rural district could conceivably take the form of town growth with village impoverishment, this is not the general pattern.

Local industries at the district level encompass a wide range of activities characteristic of the larger economy, the eight major industry groups being the familiar: commerce, transportation, manufacturing, public services, personal services, construction, utilities, and business and financial services.

Measuring economic activity in terms of employment, the composition of non-agricultural activity within the district is significantly different from the impression often held of the nature of "rural industries." Generalizing in very approximate terms on the basis of the research studies that are available, at a level of development at which 30 percent of the labor force is engaged primarily in non-agricultural production:

a. Agro-industries (handling, initial processing and transporting of agricultural products) engage less perhaps one-sixth of the non-farm work force, public service perhaps one-fifth, and production for household consumption, the remainder, that is, around two-thirds.

b. Since the household consumption industries are predominantly in the nature of services, service trades (retail trade, recreational services, light transport services, tailoring, bakeries, furnishings manufacture, and housing construction services), most of them are not highly susceptible to substitution by the products of big city industrial enclaves.

c. The tendency in development literature to equate rural industries with manufacturing is largely responsible for service industries and trades having

been overlooked. The latter, in fact, are more important than agro-industries for job creation, are highly income responsive and are relatively labor-intensive.

The location of local industries -- whether in the village, the locality town, or the district town -- is a function of market reach and its corollary, minimum market size.

It is important to distinguish factory-sized agro-industries that manufacture the more complex inputs and perform the final processing of agricultural products from "local industries" producing for local markets. The former are more appropriately located at the regional center or higher, though occasionally such an enterprise will be found in a district town. The agro-industries found in district towns are very small, such as the making of hand tools, grain mills and oil presses. Thus, programs to foster factory-type agro-industries are not a substitute for programs needed to support small, often tiny, non-farm enterprises in district and locality towns.

The variety of small scale agro- and consumer industries that grow up in response to rising farm output and income are highly labor-intensive. Using again the simplifying assumption of a level of development such that 30 percent of the district labor force is engaged in non-agricultural activity, such activity might be distributed as follows:

District Town: At the district town would be found distinctively: the smaller scale agro-industries as noted above, milling, sorting, packaging and handling the products being exported from the district, most commonly foodgrains and vegetable oils; public services including administration, education (possibly a high school), and health services (public and private); specialized retail trade outlets; wholesalers of agricultural supplies; restaurants; a movie house; agricultural and transport equipment repair facilities; formal establishments for manufacturing clothing, leather goods, furnishings, and housing construction components and materials (mill-work, cement products); and small construction contractors. At an earlier, lower level of economic development these services are available at the regional center, serving a region-wide market. At a later, higher level of development many of them will begin to emerge as industries of the district or locality towns, resulting from the district or locality market becoming large enough to support them.

Locality Town: The comparable set of industries that would be found in the locality town at the 30 percent level of structural transformation for the district as a whole might include: agro-industries serving the locality market (storing and processing the product to be consumed locally such as a grain mill and an oilseed press but perhaps no others); general retail trade outlets, "eateries" as opposed to restaurants, possibly a tailor or bakery shop, a variety of individual craftsmen, mechanics, or artisans working more or less full time at their trades, and public services

such as elementary schools, midwives and dealers in medicinal preparations.

Village: At the village level would likely be found a variety of part-time barbers, craftsmen, traders, home-handicraft producers, and cart or carriage operators. As the locality market for more and better quality goods and services grows, some of these village services gravitate to the locality town in a process of "formalization" to become full-time enterprises. They may be replaced as village-based activity to some extent by light transport services and agricultural produce (meat, vegetable, fruit) marketing activities undertaken by village residents from the locality towns.

#### Institutions

A separate Working Paper on base level organizations, farmers associations, local government, and so on, is now being prepared by the WGRP. However, it should be noted here that base level organizations are part of the pattern of district and locality areas, and also that the extent to which the facilities and services that can be created through regional planning actually benefit small producers depends very considerably on the extent to which institutions actually do increase participation.

If governments want a great deal of participation the local government will play a major role in planning and organizing public services. However, in societies that have been highly centralized, a more common

pattern is the combination of public planning processes by government officials while participation is encouraged more in economic organization, such as cooperatives and small business. Whatever the extent of participation, decisions on public investments are best made at the level at which the investment is to be made, i.e., investments of a regional character at the regional level, and so forth.

#### Conclusion

This Paper summarizes the main premises of regional planning as it applies to rural development and the advantages of using this approach. We would emphasize again that the paper presents a model and that flexibility in application is simply assumed. In most LDCs the structure of urban centers in agricultural regions is readily discerned and provides the logical focus for efforts to foster rural development. A few LDCs - Taiwan, Egypt, historical Japan, Yugoslavia, China, Israel- have already demonstrated that the model described herein helps make development a nationwide phenomenon and facilitates participation by millions of small producers

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