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MASS MOBILIZATION FOR DEVELOPMENT: WATER CONSERVANCY IN CHINA*

by

Chan Ying-keung

* Since 1976 the Social Research Centre of the Chinese University of Hong Kong has been undertaking a project to study the role of the People's Communes in the social and economic development of China. The project is supported by a grant from the Trustees of Lingnan University. Professor C.K. Yang of the Sociology Department of the University of Pittsburgh has provided substantial intellectual guidance and various supportive efforts to the research team at the Social Research Centre, of which the author is a member. The project's first coordinator was Mr. S.L. Wong, Senior Lecturer in sociology at the Chinese University of Hong Kong until 1977. The present coordinator is Dr. Rance P.L. Lee, Director of the Social Research Centre. During the first field trip taken in December 1976, two communes in Guangdong Province were visited intensively, namely, Huancheng Commune of Xinhui County and Dali Commune of Nanhai County. In the second field trip taken in May 1978, the research team visited these two communes again and also two other communes: Doushan Commune of Taishan County and Logang Commune in the suburban area of Guangzhou (Canton). This paper has used mainly the data collected in the above mentioned field trips.

MASS MOBILIZATION FOR DEVELOPMENT: WATER CONSERVANCY IN CHINA

"Taking agriculture as the foundation, and industry as the leading factor" is China's general policy for the development of her national economy. However, building up of the "foundation" and ensuring all-round development relies heavily on the improvement of production conditions. Water conservancy, usually regarded as the "lifeline of agriculture", is one of the most important prerequisites. Observing from abroad, we have the general impression that China has successfully developed many water conservancy schemes in the past two decades. But what is the real picture?

In the 1950s, development in water conservancy, which had long been urgently needed in China, was characterized by the scarcity of capital, machinery, materials, technical experts, but abundance of manpower. Making full use of the available resources, particularly manpower, was the only way to carry out construction widely and efficiently. The slogan of "the mass, while being organized and united together, equipped with pooled local resources, is well capable of completing a lot of construction" indicated among the Chinese leaders the belief in transforming "population size", very often regarded as a limiting factor, into a

facilitating factor in the course of development. But how could it come about?

As a general policy, construction for water conservancy in China was mainly small-scale, with medium-scale projects as supplements. However, large-scale projects were also carried out provided that conditions were appropriate and demands for them were urgent. Usually, at the same time new projects of multi-purpose capability were developed, existing facilities and installations were also strengthened (The People's Press, 1958: p. 632; Jiangxi Ribao, 9-8-1957). The rationale behind it is that to commence with large-scale, centrally-run schemes which would require high levels of concentration and utilization of various scarce resources are unrealistic. It is much easier to concentrate a limited amount of resources and to organize them building up small-scale projects quickly. Linked into a system, small-scale local projects can be expected to function like large-scale ones. Thus, the development of small- or medium-scale local projects from the start may well be the solution. However, there remains the basic question -- "Under what organizational framework and how, can the resources for construction be acquired, the manpower potential be fully developed and rationally utilized, in order to achieve the developmental goal?" This paper, with special reference to examples in

Guangdong Province, will examine how construction of various scales was achieved.

The People's Commune as the Basic Unit

Under the general policy of starting with small-scale projects, the basic administrative unit in the rural sector -- the People's Commune -- became the basic unit in water conservancy. The reason is that the establishment of the People's Commune in the rural sector in the late 1950s provided not only an organizational framework, but also created favourable conditions for the realization of much construction.

Firstly, the "sufficiently large" size, in terms of population and area,[1] and the "higher degree of collective ownership" of the commune allow it to plan comprehensively and rationally projects within its boundary, and to concentrate sufficient resources for the implementation of plans (Su, 1976: pp. 91-93). The large population size facilitates the mobilization and concentration of manpower, so that construction can proceed speedily without damaging routine production operations. Before Land Reform, arable lands were owned by rich landlords but rented or leased to tenants. The absentee landlords did not involve themselves in production and thus had no long-term planning in land and water

conservancy. The tenants, who were generally very poor, could hardly have the capital to improve the production conditions (Huang, 1976: pp. 86-87). The private ownership of land, together with other factors such as blind faith in "feng-shui",[2] family and kinsman ties, cliquism etc., also hindered the development of water conservancy. The establishment of the collective ownership system minimized the effects or even eliminated some of the hindrances, and at the same time allowed the communes to unify planning operations while facilitating the mobilization and concentration of local resources.

Secondly, the commune is a total political and social entity, under the Commune Party Committee's guidance and the Revolutionary Committee's management. Very often, the cadres have a multiplicity of responsibilities -- party cadres are at the same time administrative committee cadres, production team and brigade cadres are members of the commune level committees, or one person has to head two or more functional divisions, etc. Hence state policies can be smoothly, flexibly carried out, as the structure facilitates the information flow, carrying out of instructions, ideological guidance and coordination. Besides, the participation of cadres in the production frontline -- commune level cadres have to participate in production work for at least sixty

days per annum and lower level cadres are fully involved in production -- deepens their understanding of the actual situation in the commune, brigade and production team, and also increases the interaction, and strengthens the linkage, between the cadres and the masses.

Certainly, water conservancy is both a local and a central responsibility, but projects carried out by different authority levels must be well coordinated, and the construction of large-scale projects by higher level units relies much on the support from lower level units. The three-level system of collective ownership, responsibility and administration (communes, brigades, production teams), and the subordination of lower level units to the higher level ones, are favourable to the working out of comprehensive water conservancy projects. By the principle that plans of lower level collectives are subject to approval by high level collectives, projects of various scale which are the responsibility of different units can be well-coordinated. The coercive force within the three level system also facilitates the mobilization of resources for necessary constructions.

Therefore, under the Commune Institution, small local projects can be carried out independently by brigades or production teams. By pooling their resources, the communes

may take charge of cross-brigade projects through which brigade projects can be linked to form better systems, and may assist in the construction of large-scale cross-commune or cross-county projects as well.

Achievement: Some Examples

As the basic unit in the development of water conservancy, the People's Commune has many advantages. But what has been achieved in the past two decades? Here are some examples of projects of various sizes which we visited in our trip to the south of Guangdong Province, the Zhujiang (Pearl River) Delta and adjacent areas in 1976 and 1978.

(A) Huancheng Commune in Xinhui County located at the lower reaches of Tanjiang has long been affected by floods and waterlogging. To fight the way for agriculture, the commune fortified the embankments, replaced the original earth embankment with stone structures in some areas (in total, the commune has 46 km. of major embankment and 500 km. of supplementary embankment), and reclaimed fields from marshland (in total 300 mu).[3] The most important job is that the commune mobilized its members, divided its land into six sections (dawei), and from 1975 on, harnessed one section during the off-season of each year. Work included the complete reorganization

of the irrigation and drainage system, construction of water locks and pumping stations, strengthening embankments and dredging water courses, land reclamation and reformation, setting up high and low voltage distribution system for electricity. By now, the construction in Gonlu Dawei and Dongjia Dawei has been completed. The major construction work of the Gonlu Dawei was carried out in the off-season of 1975/76. At that time, the commune mobilized a working force of 23,330 people, and finished the work in 23½ days. After improvement in production conditions had been made, agricultural production in Gonlu Dawei increased by 10% in 1976, and, on average, the paddy fields yielded 800 to 900 jin per mu, some even increasing to 1,100 jin per mu.[4]

As the irrigation and drainage problems have been solved, farmers can practise, more intensive farming. For example, winter wheat is raised in paddy fields after the autumn harvest, fruits and other cash crops are grown on embankments. Land reformation and the setting up of electricity distribution system also facilitate the mechanization of farming operations. Currently, farming in 60% of the fields in the commune has been mechanized. The replacement of human labour by electricity in pumping also saves considerable

manpower.[5] In addition, the improvement of inland navigation also facilitates the transportation of agricultural products.

(B) Dali Commune in Nanhai County has constructed reservoirs, reorganized its irrigation and drainage system, set up electricity transformation plants, electrical pumping stations and mobile pumping units since the establishment of the commune in the late 1950s. The Commune, in joint efforts with other communes in the area, has also strengthened embankments and built water gates to relieve threats of flood from the tributaries of Zhujiang. For example, the Beicun Gate (128 m. long, 8 m. wide, with 21 sliding doors) was jointly constructed by Dali, Lishui, and Yanbu Communes to prevent floods from Zhujiang. The construction was completed within a period of six months in 1959 with the participation of over 10,000 people. When finished, more than 100,000 mu of fields in the area benefited. The Beicun Gate, together with Shakou Gate near Fushan City, keep away Zhujiang and Xijiang floods from the Dali Commune.

In 1974, the Commune again organized over 10,000 members, and completed the Changhongling Project. Major components of the project include a pumping station and

a 9 km. long aqueduct. The pumping station brings water from the Xianxi Reservoir to a service reservoir 38 m. higher on a hill; from there, water flows around eleven hills along the aqueduct. Thus the irrigation problem in the eastern hilly area of the Commune was solved, slopes were transformed into terraces (in total 1,300 mu) for the plantation of oranges and mandarins, and immensely increased the acreage of cultivated lands.

The Commune has overcome many problems in irrigation and drainage in the past two decades. To further increase the acreage of fields and to prevent the loss of irrigation water caused by evaporation, the Commune is now planning to develop an underground irrigation system in the future. The development of water conservancy, land reformation and the mechanization of farming operations (now in 80% of the Commune's land) have improved the production conditions. The per unit area output of foodstuff has been tripled as compared to the pre-liberation period (1,400 jin per mu at present). In addition, more and more manpower has been released from farming, and diverted to production operations in other sectors.

(C) Doushan Commune in Taishan county had long been suffering from drought and tidal floods from Nanhai

(South Sea). Between 1955 and 1962, eight reservoirs were constructed within the Commune's area (6 at commune level and 2 at brigade level, with a total capacity of approximately 7,500,000 m^3). At the same time, the Commune participated in the construction of four county level reservoirs (1 in 1960, 2 in 1961 and 1 in 1973, with a total capacity of approximately 32,000,000 m^3). At present, 54,000 mu of cultivated lands in the Commune benefit from these reservoirs as the supply of 1,000 m^3/mu yearly can guarantee sufficient irrigation water for crops growing even in years of long drought.

Dalongdong Reservoir is the largest reservoir in the area (catchment area: 148 km^2, capacity: 250,000,000 m^3, increased to 35,000,000 m^3 in 1977). The Reservoir was constructed in 1958, jointly by Doushan, Guanghai, Chonglou and Duanfen Communes. Over 10,000 people were mobilized by the four communes in the off-season; apart from that 1,000 to 1,500 people stayed on site during the whole construction period of thirteen months. This reservoir is multi-functional. Besides its flood detention and irrigation functions, hydro-electric power (a station of 2,500 kilowatt capacity), fresh-water fishery (30,000 jin of yield yearly), and forestry (100,000 mu of plantation) have also been developed in the area.

As a matter of fact, Dalongdong Reservoir is a major component of the Fenghuojiao Water Conservancy Scheme which is a county level project. The Scheme, with twelve reservoirs of various sizes, services a total area of 270,000 mu of cultivated land in the six communes of the region.

Another major component of the Scheme is the Fenghuojiao Gate at the estuary of Sanhehai, 17 km. from Doushan Town. The Gate has forty-eight sliding doors (each 3.2 m. wide) operated by motors. At one side of the Gate, locks let ships pass up to 2,000 tons. It was constructed in 1959, by joint-efforts of members of Doushan, Guanghai, Chonglou, Duanfen, Doufu, Chixi Communes, as well as factory workers, soldiers, administrative cadres in the region. After two years of work, the Gate was built. As a result, 275,000 mu of cultivated land in the six communes has been protected from tidal floods in the typhoon season.

The realization of the Fenghuojiao Scheme, together with the construction of the reservoirs within the Commune's area, has basically solved the difficulties in irrigation and flood control faced by Doushan Commune in the past. To further improve production conditions, Doushan Commune has also undertaken a series of operations.

These include reorganization and dredging of its irrigation and drainage system, strengthening the embankment, division of cultivated lands into small portions (wei) of 100 mu each (one portion for each production team), surrounding each portion with embankments, installation of more electrical pumping stations and mobile pumping units, land levelling and reformation, etc. Due to efforts the Commune has made, the acreage of cultivated land has increased immensely, from 36,000 mu in the pre-liberation period to 68,000 mu at present, of which 62,000 mu are paddy fields. All single-crop fields have been changed to double-cropping, and, on the average, the multiple crop index is currently 233%. In 1977, the production of foodstuff per mu was 1,051 jin on the average, three times that in 1958. In the old days, Doushan area could never produce sufficient foodstuff for local consumption, but now, there is a surplus for export.

(D) The Dashahe Reservoir, lying between Kaiping, Xinxing, and Enping Counties is a cross-county project. Under the supervision and coordination of the Kaiping County authority, the joint-effort of eight communes in the area brought the Reservoir to completion. The construction, started in August 1958, was completed in 1959.

The eight communes mobilized, at the peak-time of construction, over 12,000 people to participate; and on the average, 6,000 people were working daily when the dams were under construction.

With a catchment area of 237 km^2 and a water surface of 28 km^2, the major functions of the Reservoir are irrigation and generation of hydro-electric power. 145,700 mu of cultivated land in eight communes (77 brigades, or 860 production teams) is irrigated by the Reservoir; another 60,000 mu has been relieved from threat of flooding. The four hydro-electric power stations of the Reservoir have in total a capacity of 2,140 kilowatts, supplying electricity mainly to their own region. Besides the development of the above functions, forestry (over 2,000 mu plantation), freshwater fishery (200 mu of water surface, 300,000 jin of yield yearly), farming and livestock raising are carried out within the administrative boundaries of the Reservoir.

After the completion of Dashahe Reservoir, a significant improvement in agriculture has been observed in Kaiping County. In the past, fields would be flooded whenever 200 mm. precipitation was recorded in a day. The production of foodstuffs satisfied local consumption only for three months. But now, floods are being controlled, and there is surplus in the production of foodstuffs.

(E) The Heshan Hydro-electric Power Station in Kaiping County is one of the nine major components of the Jenjiang Water Conservancy Scheme. The completion of this station which is under the management of the Fushan District Water Conservancy Bureau also relied on the joint-effort and support of communes in Kaiping and Enping Counties. In late 1970, the authority organized more than 23,000 people of the two counties to start the work. In September of 1974, basic construction work was completed, These included opening a new waterway (880 m. long and 6 m. wide) and construction of a concrete dam (with 4 gate doors, each 5.3 m. wide) on the new waterway, an inflatable nylon dam on the old course, a shiplock, and a hydro-electric power station of 1,250 kilowatt capacity.

This multi-functional station protects the region from floods and its electricity supply also facilitates the electrification of the irrigation and drainage system. Most paddy fields in the area have been changed from single-cropping to double-cropping, and their production has increased rapidly, from 100-200 jin to 1,000 jin a year per mu. Stream boats up to 50 tons can sail easily through the Heshan Gorge, and the motor road on the watergate bridge links the two sides of the river banks.

Thus, communication and the transportation of agricultural and industrial products as well as raw materials have been greatly facilitated.

These water conservancy projects are predominantly multi-functional as they may involve irrigation, flood control, drainage, hydro-electricity generation, transportation, etc., in combination with land reformation, reclamation of new arable lands, and the setting up of electricity distribution systems. Such development not only creates favourable conditions for the mechanization and modernization of agriculture, but also puts water resources to full use in industrial and commercial sectors.

Among the above examples, some are commune level projects, while others are under the management of the county authority or even the district authority. The realization of the former relies considerably on the efforts of the commune concerned, but the construction of cross-commune or higher level projects also depends on the support of individual communes. As a basic unit in water conservancy, how is it that the People's Communes can mobilize their manpower and resources so effectively?

Organization, Mobilization and Realization of Construction

The People's Commune Institution has created favourable conditions for water conservancy development, but still the communes have to face the difficulty of limited resources. As illustrated by the examples in the previous section, the communes are found well capable to cope with such problems and to realize construction on the basis of self-reliance. Obviously, they do not rely on investment from outside, but instead depend on their own labour force and the maximal utilization of their other limited resources. (Guangdongsheng nongtian jibenjianshe zhihuibu bangongshi, 1976: pp. 17-29.) However, whether the potential of the communes can be fully developed depends upon "how works are planned and how well the masses are organized".

Here are the major characteristics of work organization in water conservancy construction as they appear at present.

(A) Localization

Water conservancy projects are mainly local. Every administrative unit is responsible for construction within its boundary. Taking the communes as an example, they are the basic planning units which plan independently with regard to their needs and particular environments. At the same time, the communes should also coordinate

individual construction carried out by brigades and production teams within their administrative boundaries, and they have to contribute to projects undertaken by higher administrative level units which lie within the commune boundary or which may benefit the commune as well.

For their water conservancy projects, the local people usually participate actively in the whole process. Their participation usually begins at the very lowest level and at all stages of development, from planning to implementation, to maintenance. They are not simply workers for a certain project, they are also members of responsible collectives with real power.

Aside from the leading cadres and the masses, the technical personnel participating in the construction are mainly native technicians. The work undertaken also rely greatly on native methods. This reliance on native technical personnel who can be brought up in number and in speed by experienced technicians in the commune may satisfy the urgent need for technical personnel; and the employment of native methods is often most relevant to the particular situation of the commune while Western methods which necessitate more investment in machinery and installation may be unrealistic.

Localization of water conservancy motivates the people to work for the collective, facilitates the mobilization

of the masses and the concentration of resources, thus enabling the communes to assume responsibility. In addition, dividing responsibility according to administrative boundary or geographical criteria and allowing regional organizations to coordinate functional programmes in an area can minimize the conflicts between functional organizations (James and Lee, 1971: pp. 137-140).

(B) Ideological cultivation

The peasant culture, behavioural conservatism, fatalism, familism and superstitions, etc., all hinder the development of water conservancy (United Nations, 1976: pp. 22-24). Efforts made by the cadres in ideological guidance (as they should: first, criticize; second, work; third, lead) (Guangdongsheng nongtian jibenjianshe zhihuibu bangongshi, 1976: p. 21; Zhong, 1976: pp. 44-52) may remove such ideological impediments. At the same time, members are also directed to take interest of the whole into account instead of aiming at individual material rewards. Furthermore, the high demonstrability of collective strength in water conservancy may also bring about better ideological cultivation of the masses.

(C) Integration of water conservancy organizations with administrative organizations

Organizations involved in water conservancy construction may be divided into two types, namely "established" and "task-oriented" organizations. The former include water conservancy offices at different administrative levels. For example, at the commune level, there is the water conservancy society which is made up by technical personnel. And, in some communes such as Doushan, there exists also a "battalion for basic construction of farmlands" which is a militia form of organization specializing in water conservancy and related construction, and a consultation committee on water conservancy and farmlands. The "task-oriented" organizations include the "command" set up on construction sites, "specialized teams", and the masses organized in the forms of "battalions" and "companies" which are formed for only a specific period of time and for a specific construction task. Organizationally, the water conservancy society is a unit under the commune administration. "Specialized teams", "battalions" or "companies" are also administrative-unit based organizations, and led by administrative cadres. Although these organizations may differ in form, responsibility and capability, through the

three-in-one method (under the leadership of cadres, assisted by local technical personnel, with the participation of the masses) in both planning and implementation stages, they are well integrated, coordinated and supervised by the commune administration. The cadres form the nucleus of leadership. The technical personnel from water conservancy offices assist in planning and on construction sites. The masses work with the militia acting as the organizational nucleus. These three groups are integrated into one powerful unity which makes easy the smooth implementation of plans.

(D) Militarized organization

When the masses have to be mobilized to participate in construction work, the brigades are usually taken as basic units of organization. Under the leadership of a "command" set up on site, participants are organized into battalions and companies. Militia and Party Cadres from "break-through teams" are to handle difficult and dangerous tasks. Different types of operation are labelled as "general mobilization", "combat disposition", "exterminating combat" and "surprise attack" etc. The employment of military terms and forms of organization can strengthen the organization of participants, ensure

discipline, efficient mobilization and close coordination of all.

(E) Unification, centralization and flexibility in operation

The communes, through coordination of industrial, agricultural, trade, educational and military affairs, through unification in ideology, command, timing, action and planning, and through centralization in leadership, manpower, capital, materials and tools, may better solve the problems related to resources and manpower. Under the coordination of the commune, various sectors unite to give assistance in addition to their contribution of manpower. For example, manufacturing industries provide more raw materials and tools, commercial units ensure commodities and material supplies, high school pupils with basic training in surveying participate on construction sites, etc.

Since the shortage of machinery must be remedied by manpower, two forms of task-oriented organizations have been adopted: (a) Forming brigade-based specialized teams which do not draw much manpower from production, (usually 10-15% according to Guangdongsheng nongtian jibenjianshe zhihuibu bangongshi, 1976: p.15) to work all year round. (b) For construction which needs abundant

labour, the brigade is taken as the basic unit which provides the manpower. Depending on need, a number of brigades are centrally mobilized during the off-season. Through unified action and timing the construction work can be completed within a short period of time.

Thus the manpower can be rationally utilized to full capacity: the production work is not affected, and water conservancy projects can be realized in an orderly way.

(F) Reciprocity based on equality and mutual benefit

Financial assistance may come from the county (e.g., the total expenditure for the Gonglu Dawei project in Huancheng Commune was 530,000 yuan, among which, 8,000 yuan came from Xinhui County), but more often, the commune itself is responsible for capital, material and manpower needed for constructions within its boundary (same for brigades and production teams). However, some units, particularly at the brigade or lower levels, may have difficulties in concentrating enough manpower or even other resources to complete their own project within a sufficiently short period of time that normal production work is not affected. In such cases, other units may come to their aid provided that some reciprocity is extended in the future.

Let us take the Gonglu Dawei Project again as an example. If the eight brigades of Gonglu Dawei relied only on their own manpower it would take at least four years to complete the job. That would imply a loss of 720,000 jin yield per harvest. However, with the participation of other brigades in the commune, the basic construction was completed in one off-season, without affecting other production activities. Of course, the brigades in Gonglu Dawei have to contribute in their turn to construction in other sections (dawei) later.

Work done by each brigade is recorded. When the construction in all the six sections (dawei) is completed, the commune administration will compare the relative contribution of each brigade. Any imbalance will then be rectified.

For other collective projects, whether they are commune-level projects (e.g., the Changhongling Project in Dali Commune), cross-commune, or cross-county projects (e.g., the Fenghuojiao Water Conservancy Scheme and the Dashahe Reservoir), the units involved all contribute in proportion to the benefits expected. It is through the cooperation of different collectivities that the water conservancy projects of various scales can be carried out efficiently.

From the above observations, it may be said that water conservancy construction in China does not depend on heavy investment from the state, i.e., it is not capital-intensive. Instead, it relies greatly on the mobilization of local manpower and resources. While the large rural population is certainly important in bringing water conservancy construction to pass, this task cannot be regarded as entirely labour-intensive. With plans and definite principles, the leaders systematically mobilize and organize the masses, concentrate the resources efficiently, and spur construction teams into action. It is through this organization-intensive method[6] that the people's commune can develop its potential, solve problems in manpower and resources, and obtain positive results in water conservancy.

Discussion

Progress and economic development of a society depend much on rational planning and the efforts of the people. However, social development and economic growth cannot be treated separately, but must be integrated at all levels for sustained development. Improvement in the national economy and the livelihood of individuals relies on how problems in social structure and relations are handled. To eliminate

inequality in terms of wealth or opportunity and constraints of all types in traditional society, and to mobilize the masses to participate actively are all essential as social change is being planned and induced. Unless there are solutions to these problems, all-round development can never be attained.

The example of water conservancy construction in China may demonstrate the necessity for integrated social and economic planning to achieve development objectives. Water conservancy is a means to enhance the development of rural economy from its base. The establishment of the communes as political and social units greatly changes the structure of human relationships in rural communities, and makes possible the above-mentioned form of organization in water conservancy works. Obviously, the methods adopted by the communes in such construction are neither capital-intensive nor simply labour-intensive, but rather organization-intensive. Organization intensity implies labour-intensity and maximized utilization of available resources, but these operate under an organization framework which serves a guiding function. The highly integrated working force can ensure efficiency and allow a large degree of operational flexibility, thus enabling the communes to coordinate and carry out water conservancy projects within

their boundaries and assist in building up large-scale state-run projects.

It is questionable whether the organization-intensive method can completely solve such problems as shortages in resources, difficulties in work coordination, and lowering of production during the construction period. It is also difficult to assess the durability of construction completed by native methods and to determine whether they should be replaced by modern installations in the future.

At the present stage, however, we can see that the communes have made "all-round" water conservancy possible. The advantages of these constructions can be counted not only in primary but also in secondary benefits. Water conservancy transforms manpower capital into fixed capital (Huang, 1976: p. 22). It brings forth full uses of arable land and facilitates mechanization, electrification and application of chemurgy; it also helps to develop sideline production, economize manpower utilization in the agriculture sector, as well as provide energy and transportation facilities. The rise of productivity in agriculture increases individual income and collective capital accumulation. It also provides more raw material, manpower, and markets for industry. The increase in acreage of cultivated land, the development of industry and other sideline

production can absorb the relative labour surplus, including seasonal surplus and underutilized labour. Thus, the basic contradiction of modernization, mechanization, and manpower utilization is solved.

So far, it is still difficult to assess quantitatively how much water conservancy has contributed to the production rise in various sectors. However, it is undeniable that since favourable conditions are being created, agriculture and rural enterprise may pick up speed in development. Furthermore, rural economic growth leads to a rise in collective income. Thus, the collectivities can give more assistance to less-developed lower level units. Consequently, the difference among collectivities (between rural communities, rural and urban, industrial and agricultural) may be reduced.

The success in water conservancy is only one way to illustrate the dynamic nature of the communes. It reveals the validity of the proposition that social change and economic construction must be integrated at all levels in order to achieve success. It will be of great interest to find out the applicability of the organization-intensive model to other developing countries scarce in all resources except manpower.

Footnotes

1. The population size and area of the communes visited are as follows: Dali - 69,000 persons and 72 km^2, Doushan - 57,934 persons and 115 km^2, Lokang - 28,000 persons and 95 km^2, Huancheng - 53,700 persons and 68 km^2.

2. The Chinese science of geomancy or the influence of landscape on people and their fortunes.

3. 1 mu = 1/15 hectare.

4. 1 jin = ½ kilogramme.

5. To irrigate one mu of paddy field by human labour requires 8 man-days per cropping on the average; but it requires only 0.05 man-days by electric pump (Huang, 1976: p. 158).

6. A concept suggested by Dr. C.K. Yang, Professor in Sociology, the University of Pittsburgh, U.S.A.

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