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A N N U A L R E P O R T

(July 10, 1965 -- July 9, 1966)

Farmers' Service Division

CHINESE AGRICULTURAL TECHNICAL MISSION TO VIETNAM

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Farmers' Service Division Chinese Agricultural Technical Mission to Vietnam

The subject contract year of the Mission has seen the Division's activities carried out under three principle categories, i.e., demonstration teams, rural development services, and the "Improved Village Program", a program which was agreed upon in the Third Sino-Vietnamese Economic Conference held in Taiwan in October 1965.

I. Demonstration Teams

With the support of the GVN Ministry of Agriculture and US AID/Vietnam as well as the concerned agencies at the central and local levels, the Mission has maintained the operation of six demonstration teams stationed in Hue, Phan Rang, Bien Hoa, Can Tho (later An Giang), Gia Dinh and Dalat, plus a supporting roving team. The goals and principles of these teams are set as follows:

A. Goals

- 1) To increase unit production;
- 2) To improve people's livelihood;
- 3) To increase the production of exportable farm products;
- 4) To carry out field demonstrations at village level to support the counter-insurgency efforts;
- 5) To attain social and economic progress and stability through developing local leadership and effective manpower among the farmers; and

- 6) To explore and utilize natural resources so as to create more job opportunities for the rural people.

B. Principles

- 1) To carry out projects as jointly agreed upon by the concerned Vietnamese, American and Chinese agencies;
- 2) To start activities first from places where security condition is good;
- 3) To initiate activities fulfilling the urgent needs of the farmers;
- 4) To accomplish projects that have already been started but not yet completed;
- 5) To undertake projects requiring less cost but yielding more beneficial results; and
- 6) To start working first in areas where enthusiastic local leadership is available.

C. A Resume of Activities

Generally speaking, all the above mentioned field teams under the jurisdiction of the Farmers' Service Division of the Mission have scored successes in expanding their scope of activities and in winning the active participation of more farmers. However, due to a number of factors, the Division has maintained the flexibility of these teams to adjust to the environmental needs. For instances, because of the prolonged political unrest in Hue area in 1966, the Hue Team was temporarily evacuated in conformity with the GVN and US AID decision and then resumed its activities at a reduced scale. To cope with the needs of a long-range "priority area development program" in An Giang Province as sponsored by US AID/Vietnam and the concerned GVN authority and the "Improved Village Program" to be launched in the province, the Can Tho Team was moved in An Giang in April 1966 to undertake a host of activities under these programs. Technical manpower of the Bien Hoa Team as well as of the Mission headquarters has

also been directed to the establishment of the first "Improved Village" on Hiep Hoa Island in Bien Hoa Province. Due to the difficulties encountered in installing adequate irrigation facilities for a large acreage of crop fields planned by the Gia Dinh Team for demonstration purpose, the Team was deactivated in early 1966 with its members shifted to An Giang Team to reinforce its technical strength. The following is an area-by area summary of the operations of these teams:

C-1) Hue Team

In view of the vegetable shortage in Hue area depending on supplies from elsewhere in the country, this team has established at various localities a great number of demonstration plots on improved varieties and cultural practices of more than 30 kinds of vegetables as a means to promote the local vegetable production. The outcome of this undertaking has proven to be very rewarding; and a total of 44 ha. of demonstration/extension acreage have been planted by the farmers with on-the-spot assistance from the team members. Some of the farmers have made a fortune by adopting the varieties and cultural practices demonstrated to them; and the prices of vegetables on the local market have dropped considerably to the benefit of the consumers. Meanwhile, technical assistance was also given to farmers in the multiplication of seeds of the introduced varieties by themselves for future use.

In the past, soybean production was virtually non-existent in Hue area, with the consumption needs met by supplies from southern parts of the country. In view of this need, the team has introduced from Taiwan such improved soybean varieties as Kaoshiung 5, Taichung 32 as well as Palmetto for trial planting in the area. A total of 32 demonstration plots at a gross acreage of 3.4 ha. have been set up, and harvests have already been obtained with the per hectare yield reaching as high as 2,107 kg. Two ha. of seed farms have also been set up for multiplying seeds of Taichung 32 and Palmetto by the farmers themselves for their future use. Demonstrations plots on improved cultivation of corn have also been operated by the team members with the active participation of the growers; and improved corn varieties such as USDA-34 and Pajinaca have also been placed under extension for increased production. In order to increase the feed supply in the local area, trial planting of drought-tolerant sorghum variety introduced from Kinnmen (Quemoy) of China was

conducted at selected localities with the per hectare yield averaged at 920 kg.

In view of the shortage of fruit supply in Hue area, improved watermelon varieties such as Sugar Baby, Congo and Phu Quang have been extended in the area reaching a total acreage of 21.4 ha. The weight per fruit was averaged at 8-9 kg. as compared with the 1 kg. of the local variety; and the harvest from each hectare is valued at as high as 100,000-120,000 piastres. Furthermore, the watermelon growing season in Hue area lasts from January through July; and all these have indeed promised enriched income source for the farmers.

To augment the rice production in the area, integrated demonstration plots were established at selected localities to demonstrate to the farmers such improved cultural practices as fertilizer application, community pest control, improved spacing, weeding, etc. As a result, the yield per hectare has been substantially elevated by 40.25% for the first crop and 34.66% for the second crop. In the meantime, in order to minimize the grain losses after harvest, improved drying grounds, totalling 880m² in size, were constructed at several places on a demonstration basis with the technical assistance of the team members. Rice threshers were also introduced from Taiwan for the local farmers' adoption to replace the conventional method of tramping by cattle.

With a view to promote the local livestock production, efforts were exerted by the team's animal husbandry specialist to improve the poultry and hog raising practices of the farmers. Electric hatchers were improvised to adapt to the local need, receiving enthusiastic response from the farmers. Such a simple and efficient equipment has 100-400 electric bulbs and is equipped with a temperature-adjusting device. The hatching rate with the use of this equipment is averaged at 80%; while the material cost amounts to only VN\$300. Meanwhile, assistance has also been rendered in the hybridization of chickens with some 40 head of New Hampshire breeding stock provided to selected model farmers by the Thua Thien provincial animal husbandry service. Up to the present, more than 3,000 head of hybrid chickens of the first generation have been propagated, thereby improving substantially the local chicken species. Concerning hog raising, progressive farm households were selected for the propagation of hog of superior origin such as those of the Yorkshire species. Five households each of the villages in the area were contracted to propagate piglings for use by their neighboring farmers; and vaccination of such piglings was carried out with technical instructions given before they were distributed. Lectures on the control of roundworm of hogs which

was found rampant in the area, were also given at farm discussion sessions, with effective drugs from Taiwan distributed to the participating farmers to arouse their interest and awareness in controlling this hog disease.

Irrigation-wise, customary pumping service was rendered to the local farmers during the dry season by the team with its own pumps; and technical assistance was also provided them in setting up 17 pumping stations complete with irrigation facilities. A total of 1,250 meters of irrigation and drainage ditches were installed; and three concrete reservoirs were made available at various localities. Demonstrations on the proper use and maintenance of these pumping stations and irrigation facilities were also conducted, with a total of 94 farm households benefited.

In order to promote the use of organic wastes, a methane gas generator was constructed at a selected farm household with the technical instruction of the team for sanitary disposal of the human and animal excrements, for fertilizing the nearby field with the sludge derived therefrom, and for generating methane gas to provide fuel for cooking and illumination purposes.

Nine kinds of tropical grass/legume introduced from Australia have been trial-planted at selected locations for observation of their adaptability under the local environmental conditions.

Regarding training and education activities, lectures on improved cultural techniques coupled with field demonstrations were given by the team members at two sessions of training classes conducted by the provincial agriculture service for agricultural cadres from various districts. More lectures and demonstrations were given at four times of farm discussion sessions conducted by the same service on such topics as the use and maintenance of improve farm implements, vegetable cultivation, fertilizer application, hog pest control, etc., with a total of 173 farmers and agricultural students participating. Furthermore, field days were frequently conducted at the demonstration fields established in various districts and villages, totalling 28 times in the year and thus enabling nearby 800 farmers to witness the remarkable performances of such field demonstrations.

C-2) Phan Rang Team

Except for onion and garlic which can be produced in abundance locally, Phan Rang area has long experienced with the shortage of vegetables, depending on supplies from Dalat. In order to improve this situation, the team has placed emphasis on promoting vegetable production in the area; and during this contract year, a total of 292 demonstration plots has been operated with the active participation of the provincial agriculture service, the local US AID office and the farmers. These demonstration plots add up to a total acreage of 13.88 ha. and cover as many as 68 varieties belonging to 26 kinds of vegetables. Adaptable and improved varieties from Taiwan were introduced to the farmers and improved cultural practices for such varieties were demonstrated to them in a down-to-earth manner. Cauliflower of extra early maturity was first introduced for planting, and the result has been so successful to promise a per hectare income of VN\$400,000 - VN\$600,000 for the growers. Extra early cabbage from Taiwan and Wisconsin All Season from the U.S. also achieved the same encouraging result as cauliflower; and Taiwan cucumber was observed to be most adaptable for planting during the drought summer season in Phan Rang area. Other vegetable crops under extension included purple-tip yard-long bean, eggplant, small cabbage, lettuce, radish, etc. inviting the keen interest of the local farmers. To safeguard the healthy growth of the vegetable crops under extension, strengthened technical assistance was rendered by the team in cooperation with the provincial agriculture service in promoting the pest control measures for the benefit of the farmers. Meanwhile, with a view to ensure the seed supply of the vegetables, farmers were taught the proper methods of seed multiplication covering such crops as yard-long bean, cucumber, snapbean, lettuce, eggplant, tomato, etc.; and well-isolated localities were selected for this purpose so as to avoid the possible varietal pollination.

The rice cultivation in Ninh Thuan Province was rather extensive in the past. In order to promote the rice production in the area, the team has, in cooperation with the local agriculture service, conducted a series of integrated demonstrations covering introduced varieties and such improved cultural practices as adequate fertilizer application, pest control, seedling beds, transplanting, weeding, irrigation and drainage, etc. On the demonstration plots, an additional amount of 200 kg. of mixed fertilizer was applied; and as a result the per hectare yield was increased from 2,456 kg. to 3,250 kg., marking an increase by 32%.

Meanwhile, with a view to promote the production of such field crops as sweet potato, peanut, corn and cassava in the area, a total of 89 demonstration plots were established and operated by contract farmers with the technical instruction of the team, totalling 10.21 ha. and covering more than 10 varieties.

With the dry season in Phan Rang area lasting from January through August, melon crop production promises increased income to the local farmers. In cooperation with the provincial agriculture service, the team has exerted great efforts in promoting the extension of water-melon of such superior varieties as Sugar Baby, Phu Quang and Congo at a planned goal of 45 ha. By the end of June 1966, a total of 139 demonstration plots has been conducted over an acreage of 27.78 ha. The extension acreage amounted to 35.77 ha. with some 141 farmers participating. The sales proceeds obtainable from each hectare ranged from VN\$80,000 to VN\$150,000 depending on the technique of cultivation practised by the farmers. However, considerable damage has been inflicted by aerial sprays of defoliants. Seedless watermelon, yellow gold melon, muskmelon, etc. have also been trial-planted and the results are very promising, especially due to the sandy soil in the area.

To promote the use of effective farm tools and implements, those such as power tiller, rice thresher, rice miller, corn sheller, corn **crusher**, potato **slicer**, power **sprayer**, peanut sheller, etc. imported from Taiwan have been introduced to the local farmers with the proper use and maintenance of them demonstrated by the team members. Farmers were also urged and advised to establish a maintenance system of their own for more sophisticated implements such as power tiller and power sprayers.

With the on-the-spot service of the food processing specialist of the roving team, three sessions of training classes were conducted on the methods of processing peanut butter, tomato catsup, hot pepper paste, soy sauce, etc., with seven cadres and 33 farmers participating. Assistance was also rendered by the team to the local agriculture service in conducting training sessions for Montagnard farmers on the improved cultural techniques. One session each of this kind of training was conducted in May and June 1966 with a total of 51 farmers benefited.

To promote the utilization of organic wastes, a cylindrical **type** of methane gas generator was installed at a Montagnard farmer's farm in Du Long District, with the technical assistance of the team and the

cement supplied by the local US AID office. Improved latrine and pig sty were also built alongside this generator for human and animal excrements needed as the ~~raw~~ material.

In cooperation with the local agriculture service, the team provided a series of lectures on the improved cultivation of soybean, peanut, corn and various kinds of vegetables at four sessions of cadre training with a total of 67 cadres participating. Two ~~times of~~ lecture sessions on improved watermelon and vegetable cultivation, coupled with field observations, were conducted for the farmers with a total audience of 105 persons.

C-3) Bien Hoa Team

Area-wise, the vegetable demonstration/extension program undertaken by the team during the subject contract year may be briefly presented as follows:

C-3)-a) Tan Hiep area -- Demonstration plots were established at four hamlets with such cash earning crops as cauliflower, kohlrabi, cabbage and radish of introduced varieties placed under intensive cultivation. Nearby 100 farmers participated in this activity; and it is estimated that the cash value of the harvests obtained from a total acreage of 18,563 m² cultivated by the farmers amounted to as high as VN\$1,826,630. Worth special mentioning is the remarkably high yield of kohlrabi, marking a 50% increase over the local variety. Other quick growing and profitable vegetables include Taiwan cucumber and purple-tip yard-long bean.

C-3)-b) Hiep Hoa area -- All the crop extension activities in this island village of Bien Hoa have been included under the "Improved Village Program" as stated hereunder, with watermelon, yellow gold melon and some kinds of vegetables thriving well on the island.

C-3)-c) Tan Van and Di An areas -- Introduced to these areas by the team are such crops as watermelon, cauliflower, cabbage, cucumber,

beans, etc. which had seldom been grown there before. Five demonstration plots have been set up in these areas; and technical guidance as well as seeds and fertilizers were made available to the local farmers.

C-3)-d) Other areas -- Upon requests of the concerned agencies, the team also rendered technical assistance in vegetable gardening at such institutions as the Bien Hoa Mental Hospital, Thu Duc Military Training Center, and the Bien Hoa Political Reformatory. The crops introduced for planting in these institutions included cucumber, sweet corn, yard-long bean, cabbage, snapbean, watermelon, eggplant kohlrabi, etc.

Although Bien Hoa is virtually not a rice producing area, fragmentary pieces of paddy fields are raised by the farmers. Since August 1965 a total of 900 m² of demonstration fields have been operated by contract farmers with improved cultural practices such as land preparation, seedling raising and transplanting, spacing, weeding, fertilizer application, pest control, etc. demonstrated by the team members for the benefit of the local farmers.

Field crops such as sweet potato, corn and soybean have also been placed under demonstration this year in Tan Hiep, Tan Van and Hiep Hoa areas. Outstanding sweet potato varieties from Taiwan, i.e., Tainung 55 and 57, have become very popular to the farmers and thousands of vines of these varieties have been supplied to the farmers to promote their planting. Ample amounts of corn seeds of the Pajimaca variety and soybean seeds of the Palmetto variety have been distributed to the local farmers through the provincial agriculture service.

To promote hog and poultry raising by the farmers, the team's animal husbandry specialist has rendered technical assistance to the farmers extensively covering more than 150 farm households. Advices were given on the improved raising and management methods; and disease treatment and prevention measures were performed for the farmers on a demonstration basis covering such diseases as traumatic inflammation and rinderpest of cattle, swine plague, bacterial enteritis, tetanus, cholera and ascariasis of hog, and Newcastle disease, fowl pox, coryza and ascariasis of chickens. Regular visits were also paid to two commercial poultry farms and a number of model farmers in the area in cooperation with the provincial livestock service.

With a view to promote a community development program in Tan Hiep District, a dam for hydraulic rams has been completed in June 1966 with the design and technical supervision provided by CATM engineers under the support of the concerned GVN quarters and the local US AID office. This small irrigation project comprises a permanent seat to accommodate six units of TL-3 hydraulic rams with a spillway and an earth dam, capable of providing 180 GPM of irrigation water on a year-round basis to irrigate an approximate crop acreage of 20 ha. The local farmers' association has been entrusted to take care of the management and operation of this irrigation device; and currently underway by the team is a series of survey for laying out some 2,000 m. of irrigation ditches for most useful and economical water distribution.

To promote the use of efficient farm tools and implements for time- and labor-saving purposes, power tiller, improved plow, tooth harrow, rice thresher, rice miller, etc., mostly of Taiwan origin, were demonstrated to the farmers by the team. Special training sessions were conducted by the local extensionists with the team members instructing. The proper maintenance and repair of such useful implements were also illustrated to the farmers by members of the team and the roving team.

With the leader of this team specialized in rural housing himself and with the cooperation of the rural works specialist of the roving team, several kinds of rural constructions have been undertaken at various selected localities in Bien Hoa Province on a low-cost and self-help basis. Characteristic of such constructions is the use of the new Cinva-ram cement-soil blocks to replace the conventional bricks. Mostly, the cement needed is provided by the local US AID office. Completed during this contract year are one multi-purpose building for the Hiep Hoa Farmers' Association, three units of cement drying grounds, one hog sty, one cattle barn, one composthouse and one water pond.

In order to safeguard the crop planting in this general area, the team's plant protection specialist has made a series of survey of the situation of insect and disease infestation in Tan Hiep District, revealing that downy mildew and root-knot nematode are the most prevalent menaces in the field. Remedial measures on the application of proper kinds of pesticides have been recommended to the farmers for adoption. Meanwhile, regular inspections and on-the-spot instructions were also performed by this specialist to help the farmers protect their crops from pest devastation.

Regarding training and education activities, training classes and group discussions were organized and lectured by the team members in addition to home visits and field discussions. Such group training covered various topics as improved rice cultivation, seed selection, vegetable cultivation, fertilizer application, use and maintenance of power tillers and other farm implements, food processing, etc. Field days were often conducted at the demonstration plots established at various localities to enable the farmers to witness the superior performances of the introduced varieties and cultural practices. Farmers were also assisted in reclaiming more wasteland in Tan Hiep, Tan Van, Tan Mai, etc. for planting such crops as sweet potato, corn, beans and radish with the use of power tillers and improved plows. Meanwhile model farmers were also selected to serve effectively as extension media between the team and the farmers in general.

In addition to its regular activities, the team has also rendered interim services on case basis upon requests of various quarters. For instance, technical assistances were given to: 1) the PWs interned at the III Corps PW compound in vegetable gardening; 2) U.S. military units in Bien Hoa in planting about 1.5 ha. of grass on sandy and dusty compounds; 3) an ARVN artillery academy in Gia Dinh in vegetable gardening; and 4) the local farmers' associations in marketing farm product and managing irrigation facilities.

Pursuant to an important resolution of the Third Sino-Vietnamese Economic Conference held in Taipei in October 1965, an "Improved Village Program" was to be launched in three strategically selected locations in Vietnam for establishing three "improved villages" to introduce to this country all the rural improvement measures that have been realized in Taiwan during the past decade or so. The first "improved village" has been established jointly on Hiep Hoa Island of Bien Hoa Province, and the subject team of CATM stationed in province was assigned with the additional responsibility of carrying out the program in cooperation with the Vietnamese counterpart. For detailed information on the progress of this program, please refer to a separate section as presented hereunder.

Due to its convenient accessibility, the team has received an influx of visitors during this year including the U.S. Vice President, Deputy Secretary of the U.S. Department of National Defense, Chairman of Food &

Agriculture Committee of the Australian Parliament, Economic Minister Economic Goodwill Mission and Legislator from the Republic of China, GVN high ranking officials, foreign press/radio/TV reporters and photographers, hundreds of farmers from elsewhere in the country, agricultural students, and those from various organizations such as US AID, IVS, CARE, etc...

C-4) An Giang Team

The An Giang Team has formally designated as the Can Tho Team stationed in Phong Dinh Province and had its station moved to An Giang Province as of April 1, 1966 to cope with the rising needs. However, field activities previously initiated in Phong Dinh Province have still been taken care of by the team up to the present time; therefore the activities undertaken by the team during this contract year may be presented in a geographic order as follows:

C-4)-a) Phong Dinh Province --

In cooperation with the local agriculture service, the team has established a great number of demonstration plots on selected farms to demonstrate the superior performances of the introduced varieties and improved cultural practices. Such demonstrations included paddy rice, vegetables, melons and field crops; and the results turned out to be very promising. The per hectare yield of rice from the integrated rice demonstration plots scored as high as 4,233 kg. as compared with the 2,133 kg. obtained from the check plots. Vegetables placed under demonstration included such crops as cabbage, cauliflower, yard-long bean onion, snapbean, mustard cabbage, Chinese cabbage, tomato, kohlrabi, etc.; and the bumper harvests obtained from the demonstration plots have stimulated the keen interest of the local farmers in planting vegetables for added income and for enriched vegetable supplies otherwise needed from Dalat and elsewhere in the country. Upon introduction and demonstration by the team, the Sugar Baby watermelon variety has enjoyed a spectacular boom in the province. The extension acreage has reached 75 ha. totalling 389 places; and the highest hectare income enjoyed by the farmers scored as high as VN\$230,000. Continued technical assistance

in promoting the watermelon production is being extended by the team in cooperation with the provincial agriculture service. As regards field crops, soybean was also introduced to the province for trial planting and demonstration. The high yielding varieties Palmetto and E-32 were given special emphasis with the latter striving better in the field but with some degree of rat damage.

C-4)-b) An Giang Province --

The main objectives of moving the team from Phong Dinh to An Giang area: i) to help implement the agricultural phase of the "An Giang Priority Area Development Program" as jointly planned for by US AID and the concerned GVN authority; and ii) to carry out in An Giang Province the "Improved Village Program", a joint undertaking as agreed upon in the Third Sino-Vietnamese Economic Conference. For these two programs, the team has participated actively in formulating the program plans in cooperation with the concerned U.S. and Vietnamese quarters. To carry out the multitude of activities under such programs, the team has assigned 1-2 members to work in each of the four districts in the province in close cooperation with the cadres of the provincial agriculture service.

For promoting the vegetable production in the province, numerous demonstration plots have been set up in these districts to demonstrate the improved varieties and cultural practices of such vegetable crops as yard-long bean, cucumber, mustard cabbage, bush bean, corn, radish, small cabbage, edible rape, etc. The outcome of this demonstration activity has proved to be very satisfactory as evidenced by the high yields from the demonstration plots. Worth special mentioning is that these vegetable crops are mostly quick growing and adaptable under the local environmental conditions, thereby promising inexhaustable income source for the farmers. Field days are often held right on the demonstration plots to enable the farmers to observe the performances of the varieties and cultural practices demonstrated to their advantage. To ensure the seed supply for future use, farmers are also assisted in the multiplication of the introduced varieties. Group training sessions were organized for large groups of farmers and cadres with the aim of further promoting the vegetable production in the province.

An Giang is situated in the Delta region which is known as the "rice bowl" of Vietnam, the lion's share of the rice acreage in the province is planted to the "floating rice", which is harvested only once each year. With a view to augment the rice production in the province, the team has, in cooperation with the local agriculture service, established four demonstration fields to introduce to the local rice farmers the double cropping system. Emphases of the demonstration were placed on the methods of raising and transplanting seedlings, land preparation, fertilizer application, pest control, etc. At the time of this reporting, transplanting has been completed on two of the demonstration fields with farmers invited to get familiarized with the transplanting process. Meanwhile, it is planned that a total of 273 ha. of the existing rice acreage will be converted into double crop fields as an initial goal to boost the local rice production.

Soybean extension has been in full swing in An Giang Province with the full support of US AID. Seeds of the superior variety Palmetto were airlifted from Taiwan through the arrangement of US AID. The initial extension goal was set at 550 ha.; but the actual acreage planted thus far has come to the neighborhood of 1,000 ha. A total of 19 demonstration plots were established; and 10 sessions of training classes on improved soybean cultivation were held at seven villages with a total of 313 persons participating. Cultural pamphlets were distributed and home visits were paid by the team members and the local agricultural cadres. Field days have also been conducted to impress the farmers with the vigorous growth of soybean in the field.

Under the mentioned "Improved Village Program", the second village has been decided by the concerned GVN authority to be established in My Thoi Village of Chau Thanh District, An Giang Province. A demonstration center sized at 4 ha. has been well selected. The team has been designated to undertake all the preparatory work in cooperation with the responsible agencies. For details please refer to a separate section on the subject program as presented hereunder.

With the team stationed in the Delta region, it has also rendered advisory service in agricultural development in other provinces in the region upon request of the concerned agencies. For instance, one member of the team was dispatched to Phu Quoc Island off-shore the

southwest coast to help the refugee settlers on the island improve their farming, with training session conducted and seeds, fertilizers and simple farm tools/implements introduced to them.

C-5) Gia Dinh Team

Until early 1966 when it was temporarily suspended to strengthen the technical manpower of other teams, the team had concentrated its efforts in vegetable demonstration/extension in Gia Dinh Province with the primary objective of lessening the vegetable shortage situation in the capital region. This undertaking was carried out through two steps, one to augment the production from the existing vegetable acreage and the other to help develop new vegetable plantations.

Quick growing vegetables such as edible amaranth, yard-long bean, green-stem small cabbage, etc., which are especially adaptable for planting during the rainy season, were introduced to the existing vegetable growers for increased production. Growers are also assisted in the use of chemical fertilizers, including foliage spray of urea, and the practice of effective pest control to enhance the growth of their crops. A 15-ha. new vegetable plantation was projected to be established in Dong Tam Hamlet #4 in the province, with a 30-meter deep well complete with an irrigation system to be made available to facilitate this development project. Some 60 small demonstration plots, each being 1 meter in width and 6-8 meters in length, were set up at the selected localities to demonstrate to the local cadres and prospective growers the improved varieties and cultural techniques of such crops as cauliflower, lettuce, mustard cabbage, tomato, eggplant, kohlrabi, watermelon, etc. as a preparatory measure for the forthcoming development work. Field days were frequently held at the demonstration plots for the farmers and cadres; and lecture sessions coupled with field exercises were often conducted on such improved practices as raising of seedlings, pest control, fertilizer application, using of farm implements, etc.

Notwithstanding the above efforts, the construction of the said deep well, which was indispensable to the 15-ha. vegetable development project encountered repeated difficulties in getting through the administrative procedures as required by GVN quarters. To maintain the

60-some demonstration plots on the site, the tremendous watering job had to be done by the team members themselves and some hired hands. As a consequence, the team had to be temporarily suspended with its members re-assigned to strengthen the technical caliber of other teams.

C-6) Dalat Team

Dalat is well known as a vegetable producing center in this country. Therefore, the vegetable improvement work undertaken by this team is carried out at a higher tempo as compared with other teams. For varietal introduction and trials, a total of 38 varieties belonging to 29 kinds of vegetables have been trial-planted on 438 plots, totalling 30.7 ha. in acreage, with 268 farmers participating. In cooperation with the Dalat Flower & Vegetable Experiment Station, cultural demonstrations were conducted at Tung Nghia and Van Thanh Hamlets on improved cultivation of garlic (10 varieties) and potato (4 varieties). To ensure the seed supply in the future, growers were assisted in the seed multiplication of nine kinds of vegetables and seven kinds of beans, mostly in Dam Bao and Van Thanh Hamlets, with a total of 55 kg. of seeds collected from an area of 2,000 m² thus far. Effective pesticides were introduced to the growers together with the improved application methods for developing a community pest control system. And information on the seasonal occurrence of various kinds of insects and diseases were constantly collected for formulating control measures.

In Dam Bao Hamlet inhabited mostly by Montagnards, field crops such as soybean, red bean, mung bean and peanut have been trial-planted with the technical instruction of the team members. It is to be noted that the yield of the local soybean variety proved to be even higher than Palmetto when planted during the winter, scoring a yield of about 1,600 kg./ha.

The slope-land areas near Dalat are considered ideal for pasture development. To try out this possibility, several batches of grass/legume seeds have been introduced from Australia through the arrangements of the Australian Embassy in Saigon. As of present, such seeds

as planted at the Dam Bao Montagnard Training Center are growing well; and seeds and cuttings may be obtained therefrom for planting in other places. Another batch of 11 kinds of pasture grasses have also been trial-planted at the same Center recently. Upon request of a Catholic institution through the provincial agriculture service, the team has rendered assistance in planting 0.2 ha. of grass including clover, lentil, lotononis and pangola on its poultry farm.

For promoting mechanized farming, farm implements such as power tiller, improved plow, power sprayer, rice huller, corn grinder, etc., which are mostly introduced from Taiwan have been demonstrated by the team members to the hamlet people, especially those in the Montagnard hamlets, thereby arousing the keen interest of the farmers in adopting the use of such implements.

Regarding rural works, two units of methane gas generators, the usefulness of which has been stated in the foregoing paragraphs, are now under construction with the technical assistance of the team and the roving team at the Dam Bao Center and Thanh Binh Hamlet. Also in Thanh Binh Hamlet a silo for sweet potato chips has been constructed on a demonstration basis.

Training and education activities completed during this contract year included the organizing of four plant protection teams (48 farmers), and conducting of eight sessions of training classes for Montagnard farmers (300 persons) and 18 farm discussion sessions (350 farmers).

C-7) Roving Team

The roving team is organized as a supporting unit to the various demonstration teams performing a variety of rural activities in a trouble-shooting manner. This mobile unit is staffed with specialists on a) food processing, b) vegetable development, c) small irrigation, d) rural housing, e) chemical engineering, f) cold storage and fish processing, g) pasture development and h) rice milling and rural works. The performances of these specialists completed during this year may be summarized as follows:

C-7)-a) Food processing -- With the assistance of the various provincial agriculture services and the CATM demonstration teams, training sessions on food processing have been conducted in Bien Hoa, Tuyen Duc and Ninh Thuan Provinces totalling 20 sessions with the participation of some 200 farmers and 140 home improvement cadres. On-the-spot illustrations were also conducted at a total of 96 farm households. Of the training sessions conducted, eight of them were held at various villages in Bien Hoa Province, another eight in Tuyen Duc Province, while the remaining four in Ninh Thuan Province. Items of processing covered soy sauce, peanut butter, tomato catsup, hot pepper paste, fruit jam, and various kinds of pickled squash and vegetables. Assistance was also given to vegetable growers in Dalat area in the preservation and marketing of chayote, a squash product abundantly produced in the area, by entering into contract with canneries. For promoting the canning industry, technical advices were given to: i) the Evergreen Farm in Dalat on the manufacture and canning of plum, waterchestnut and strawberry jam; ii) Vinh Ky Cannery in Saigon on streamlining its production facilities such as the automatic vacuum seamer; and iii) My Chau and Intraco Cannederies upon request of US AID Industry Division on the quality control of military rations being processed by them. In cooperation with the Food Technology Service of the Directorate of Research, experiment was successfully undertaken on the processing of "aspergillus oryzae", a necessary medium for the manufacture of soy sauce. Cooperative experiments were also made with the same Service in processing juice of various kinds.

C-7)-b) Vegetable development -- On-the-spot assistance have been rendered to the Bien Hoa and Gia Dinh Teams in raising seedlings of various kinds of vegetables through elaborate management of nursery beds. Placed under this cultural undertaking are such vegetables as cabbage, mustard cabbage, small cabbage, lettuce, cauliflower, kohlrabi, onion, tomato, eggplant, radish, watermelon, etc. Statistically, the total areas of such nurseries and the numbers of seedlings raised therefrom amounted to i) 232 m² and 348,000 pieces in Gia Dinh in last November; ii) 300 m² and 360,000 pieces in Bien Hoa in last December for the "Improved Village Program"; and iii) 75m² and 90,000 pieces in Bien Hoa in last February at the demonstration center established under the Program. Trips were taken to Hue, Dalat, An Giang and Bien Hoa to assist the demonstration teams there in helping the local farmers set up seed farms for multiplying the introduced varieties, which are proved adaptable for extension under the local conditions. Meanwhile, lectures on improved cultivation of various kinds of vegetables were delivered at

several group training sessions conducted by the respective provincial agriculture services of Gia Dinh and Phong Dinh for the local cadres, farmers and agricultural students. Germination tests were also conducted by the subject specialist on the imported seeds before their distribution to the local agencies for use.

C-7)-c) Small irrigation -- As mentioned under the paragraph for the Gia Dinh Team, a deep well complete with irrigation facilities was to be made available for a 15-ha. vegetable development project. Survey of the projected area was undertaken by the subject specialist in late July 1965, and the subsequent designing work was completed by him in early September of the year. However, due to the difficulties encountered in the administrative procedures required by the GVN quarters, this deep well construction has not yet been started up to the present time. Upon request of the Bien Hoa provincial agriculture service, survey and designing work was performed at Tan Van Village during July-August 1965 for installing a pumping station to irrigate a large acreage of vegetable fields in the area by utilizing the water from the nearby Dong Nai River. In Tan Hiep Village of Bien Hoa, the construction of a hydraulic ram irrigation project was started in early March and completed in early June 1966 with such technical aspects as designing and supervision fully undertaken by the subject specialist and the water management specialist of the Mission in cooperation with the concerned GVN quarters. For further description of the project, please refer to the statement under "Bien Hoa Team". Following the completion of this irrigation project, further survey of the farmlands in the area is currently underway for laying out irrigation ditches with the objective of materializing a multi-purpose community development program in Tan Hiep Village.

C-7)-d) Rural housing -- With the cement subsidized in kind by the local US AID office, a low-cost self-help type of model farm house was built for the Hiep Hoa Farmers' Association with the technical assistance of the rural housing specialist of the roving team. Characteristic of such construction is that improved Cinva-ram cement-soil blocks are used to replace the conventional bricks. Another model farm house, being 38 m³ in size, was also built in Gia Dinh Province with the support of the US AID office in the province.

C-7)-e) Chemical engineering -- Work emphasis of this specialist is placed on the "utilization of organic wastes" project by erecting methane gas generators at selected localities throughout the country. Up to the time of this reporting, five units of generators have been completed and another five units are now in the process of being constructed. Different designs are devised (cylindrical, square and rectangular) for such generators to suit the environmental needs on the farms. Of the said 10 units of generators, two are located in Hue, two in Phan Rang, two in Dalat, two in Gia Dinh, one in Long Khanh and one in Can Tho. As said before, this rural improvement device has the advantages of: i) improved environmental sanitation by profitably utilizing the human and animal excrements; ii) enriched soil fertility of the nearby crop field with the sludge derived therefrom; and iii) fuel supply for cooking and illumination purposes. To ascertain the fertilizing value of the sludge, crop trials were laid out at a selected farm in Tan Hiep of Bien Hoa comprising four comparison plots, i.e., sludge plot, sludge/chemical fertilizer plot, chemical fertilizer plot and check plot. The yield from the trial plots planted to rice reached 1,940 kg./ha. from the sludge plot as against the 250 kg./ha. from the check plot; while that from the plots planted to cucumber scored 22,600 kg./ha. as compared with the 8,040 kg./ha. from the sludge/chemical fertilizer plot.

In addition to this activity, this specialist has also rendered advisory service on the following upon request of the US AID Industry Division and other related agencies: i) quality improvement of the salt manufactured in Phan Thiet area; ii) expansion plan for the peanut oil extraction mill existing at the Hoc Mon District Fa in Gia Dinh Province with the material support of the CARE Mission; iii) quality improvement of edible oil to be procured by the GVN military; iv) improvement of sugar refineries in Bien Hoa and Ba Xuyen; and v) desalination of fish sauce residue for feed purpose.

C-7)-f) Cold storage and fish processing -- This specialist has worked in close coordination with the Directorate of Fisheries. Cooperative experiments undertaken with the Directorate included: i) desalination of fish sauce residue with lining method for feed purpose; ii) agar agar manufacture; iii) manufacture of military rations with fish products; and iv) dehydration of soy milk and fish sauce for

military use. Upon request of the US AID Industry Division as well as other related quarters, technical assistances were also rendered to: i) the establishment of an agar agar plant by designing the entire factory layout; ii) construction of a refrigerated storage for a frozen shrimp factory; iii) installation of automatic vacuum sealers for several canneries; iv) study of ice plants in Phan Thiet for further improvement; and v) designing of a dehydrated fish sauce plant.

C-7)-g) Pasture development -- Various kinds of pasture seeds introduced from Australia have been trial-planted in selected locations in the country for possible development. These trials are concentrated in Dalat area where fragmentary trials are also conducted in the vicinity of the capital area at various localities in Bien Hoa and Gia Dinh, and also in Thua Thien and Ninh Thuan Provinces to observe their adaptability under the local conditions. Sweet potato of the variety Tainung 55 was placed under extension in Bien Hoa and Gia Dinh for fodder purpose. Green manure and cover crops such as centrocema, sunn hemp and cowpea are also being extended on a trial basis. Lecture on the importance of grass and legume to dairy farming was delivered at a training session conducted by the Gia Dinh provincial agriculture service for some 14 dairy farmers in the province. Assistance was also given to grass planting in U.S. and ARVN barracks upon request and concurrence of the concerned quarters. To ascertain the fertilizing value of the sludge derived from the methane gas generator, a series of field trials has been conducted on a model farmer's farm in Tan Hiep of Bien Hoa Province by intensive cultivation of such test crops as watermelon, rice, pastures, vegetables, sorghum, etc.

C-7)-h) Rice milling and rural works -- The rice milling rate in this country is found generally low. The rice millers and polishers used are mostly of the "vertical emery disc type which are more bulky in size requiring greater generating power. The broken percentage as investigated ranges from 30% in Bien Hoa area to 40-80% in An Giang area. To improve this situation, a "horizontal screw type" of rice miller, which is more convenient and efficient for household use, was introduced from Taiwan; and demonstration on the operation and maintenance of this implement was conducted by the subject specialist at various rural localities in the country. The milling rate through the use of this type of rice miller proved to be considerably higher than that from the

conventionally used ones, let alone the saving of expenses otherwise needed for shipping the grains to and from the farm households and the rice mills. This has aroused the keen interest of the farmers in adopting the use of this implement. Regarding rural works, model farm houses were constructed with the assistance of this specialist in cooperation with the rural housing specialist as mentioned above; and other rural constructions erected with their efforts during this year include cement drying ground, pig sty, cattle barn, compost house, water reservoir, etc. at various localities in Bien Hoa Province.

II. Rural Development Services

In addition to field demonstrations, the CATM also maintains several branches of rural development services under the jurisdiction of its Farmers' Service Division. Such services comprise: marketing, extension, fertilizer distribution, farmers' association, farm tool/machinery and water management. The performances completed during the subject contract year under these categories may be summarized as follows:

A. Marketing -- With a view to promote the export trade of agricultural products from Vietnam, effort has been exerted by the marketing specialist in effecting a trial shipment of Vietnam soybean to Taiwan involving many concerned agencies. After repeated negotiations, two tons of soybean were eventually shipped to Taiwan in late May this year, serving as a milestone in Vietnam's export of agricultural products. To foster the marketing activities of the local farmers' associations, assistances were rendered to the Hoc Mon District FA in Gia Dinh Province in the expansion of its peanut oil extraction mill and the Huong Tra District FA in Thua Thien Province in the establishment of a vegetable marketing center in cooperation with the concerned FA specialist.

B. Extension -- Extension activities under this category may be divided into two sectors, i.e., crop extension and education and training, as briefed in the following:

B-1) Crop extension --

B-1)-a) Soybean -- A 100-ha. extension program has been launched in Long Khanh in cooperation with the local agriculture service, with 10 farmers selected to serve as supervisors upon a 2-day refresher course. Improved cultural practices such as spacing, fertilizer application, weeding and pest control were effectively introduced to the farmers; and contacts were conducted among the participating farmers with prizes in terms of cement awarded to the winning contestants for drying ground use. The varieties under extension are the high yielding Palmetto, Sanku^o and E-32 varieties to replace the local Nam Vang variety; and the per hectare yield of Palmetto and E-32 reached 1,200 and 1,900 kg., respectively, as against the 400 kg. obtainable from Nam Vang. These varieties have also been extended in Thua Thien, An Giang and other provinces as well. To ensure the seed supply in the future, a 50-ha. seed multiplication program is also underway, with 30 ha. and 20 ha. planted to E-32 and Palmetto, respectively.

B-1)-b) Vegetables--- A large scale extension program has been launched chiefly in lowland provinces to promote the production of vegetables popularly consumed in this country. For instances, heat-tolerant cauliflower (var. Fengshan Extra Early) was extended over 10 ha. in the Delta provinces; cabbage (var. Marion Market, Taiwan Early and Wisconsin All Season) was profitably grown in Bien Hoa, Long Khanh, Dalat and Delta provinces; onion (var. Texas Early Grano #502 and Granex) was placed under demonstration in six Delta provinces; yard-long bean (var. Purple Tip) proved to be the most popular vegetable introduced from Taiwan, which can be grown all the year round on any type of soil; kohlrabi (var. Early Purple Vienna) was extended over 40 ha. in Bien Hoa, Long Khanh and other provinces striving in excellent condition; lettuce was also extended in Bien Hoa, Long Khanh and other provinces over some 20 ha.; and other vegetable crops which can be grown on a year-round basis included small white cabbage (var. green stem), edible amaranth (var. Red Tip), edible rape (var. 60 Days), white radish (var. Chuta and Short Winter Gourd), and cucumber (var. Shuanghsi).

B-1)-c) Watermelon -- A large scale extension program was successfully launched in 11 Delta provinces to extend the superior watermelon variety Sugar Baby, with Phong Dinh Province taking the lead to score an extension acreage of 70 ha. As a result the market in Saigon

was flooded with Sugar Baby watermelons during the Lunar New Year season. The cash income obtainable from each hectare is estimated at VN\$250,000, and the gross income obtained by the farmers through this extension program is figured at around VN\$40,000,000

B-1)-d) Yellow gold melon -- Introduced into this country in 1963, yellow gold melon has been quickly adopted as an essential popularity. It has been widely extended in the Delta provinces, with the yield increased from 6,000 kg./ha. to 20,000 kg./ha. through improved management. Maturing in about 55 days the per hectare income is estimated at around VN\$100,000.

B-2) Training and education -- In cooperation with the Extension Service of the Ministry of Agriculture, a series of training materials have been compiled including the "4-T Local Leaders Handbook", "4-T Judging Handbook", "Activities of Farm Discussion Groups", etc. The subject specialist was also invited to deliver lectures at various training sessions at Bien Hoa, Gia Dinh, Can Tho and Chau Doc with the audiences comprising farmers, agricultural cadres, vo.-ag. teachers and students, etc. Speeches were also given at two nation-wide agricultural conferences on extension and for provincial agriculture service chiefs, respectively. Technical assistance was given to organizing educational tours to enable 4-T members, cadres and farmers to get acquainted with the fertilizer, food processing, livestock and vegetable programs underway in various parts of the country. Regarding 4-T activities, trips were made to various provinces from Quang Tri in the north to the Delta provinces to provide advices in an on-the-spot manner. A 12-man group comprising provincial agricultural and 4-T extension workers was organized through the assistance of the subject specialist to take an observation tour to Taiwan. A great number of farm discussion groups on various topics were also organized for more than thousand of farmers in different provinces with the technical counsel of this specialist.

C. Fertilizer distribution -- The fertilizer program in Vietnam has its calendar year starting from March 1st to the end of February of the next year. The total fertilizer imports to be effected by US AID for the 1965 program amounted to 100,000 M.T.; however, due to inadequate

transportation facilities, distribution of fertilizers to remote areas has always posed as a serious problem, resulting in the idle storage of some 65,000 M.T. of the said amount pending trans-shipments. The subject specialist participated in all the central level meetings with the sponsorship of the Central Fertilizer Committee now under the National Agricultural Credit Office. Including the carryover from the 1965 program, the fertilizer stock for the 1966 program amounts to 153,600 M.T.; and technical advices have been provided by this specialist on the unloading, transportation, warehousing and distribution aspects. Trips were made to Da Nang in company with the concerned counterparts to supervise over the unloading process. Regarding fertilizer education, the subject specialist has: 1) attended a seminar sponsored by the NACO for all provincial branch chiefs; 2) compiled a pamphlet on "The Advantages of Using Urea" which was approved by the Central Fertilizer Committee and printed in 50,000 copies for nation-wide distribution; 3) formulated fertilizer education programs for 1965 and 1966 with approximately 30,000 farmers to be benefited each year; 4) drafted textbooks for extension cadres in cooperation with the Soil Service; 5) helped organize 3,000 extension discussion groups in 43 provinces; and 6) attended two trainers' training sessions in My Tho and Bien Hoa. In addition to the above, he has also rendered on-the-spot assistance in a rice collection operation in a VC-infiltrated area in Binh Tuy Province upon request of US AID Agriculture Division.

D. Farmers' association -- During this contract year, two FA specialists are assigned to work with the Directorate of FA. One is responsible for promoting the FA activities north of Darlac and Khanh Hoa Province, while the other is responsible for provinces south of Tuyen Duc and Ninh Thuan, with emphasis of their work placed on 2-3 selected demonstrative FAs under better security conditions. For the northern sector, the specialist has: 1) studied the operational status of various district FAs in Quang Tri and Thua Thien Provinces and provided recommendations for improvement; 2) initiated a collective watermelon marketing system to be undertaken by the Huong Tra District FA with the cultivation of Phu Quang watermelons profitably promoted by the CATM Hue Team; 3) helped strengthen the hog raising center operated by the Thua Thien Provincial FA.; and 4) provided technical advices to a contract production and marketing system to be undertaken by the Buu Son District FA in Ninh Thuan Province for supplying vegetables to the U.S. military

units stationed in the area, a project actively participated by the leader of Phan Rang Team who is now heading the Dalat Team. Meanwhile, specialist responsible for the southern sector has: 1) formulated operational plan for 1966 for the Binh Chanh District FA in Gia Dinh Province; 2) rendered assistance to the Hoc Mon District FA in Gia Dinh Province in the expansion of its peanut oil extraction mill; and 3) attended a series of conferences sponsored by the Directorate of FA.

In addition to the above, all the FA and other concerned specialists of the Mission have been engaged in a discussion group to formulate improvement measures for the sound development of FAs in Vietnam. As a result, a 20-point statement presenting detailed recommendations has been finalized and forwarded to the relevant GVN quarters for reference.

E. Farm tool and machinery -- Two specialists have been working under this category, one on farm tool/implement supporting the activities of the various demonstration teams, and the other on deep well and other heavier machinery working with the Directorate of Agricultural Machinery and also rendering support to the field teams. Power tillers and other farm tools and implements existing at the demonstration teams were constantly maintained and repaired to ensure their serviceability, while the local farmers and cadres were thus enabled to become acquainted with the proper methods of maintenance and repair. Technical performances were also rendered in the mechanical aspect of the hydraulic rams installed in Long Khanh and Bien Hoa Provinces for crop irrigation purpose. At several training sessions conducted by the concerned provincial agriculture services, lectures were also given on the use and maintenance such farm equipment as power tillers, power sprayers, etc. The other specialist specialized in deep well has also rendered technical assistance to various demonstration teams in helping the farmers explore groundwater resource for irrigation purpose. As stated under "Gia Dinh Team", a 35-meter deep well was designed for a 15-ha. vegetable development project in Dong Tam Hamlet #4. On selected farm in Gia Dinh and Bien Hoa, survey and designing work was completed for laying out the desired pumping facilities. While at the Directorate of Agricultural Machinery, technical advices were provided for strengthening its workshop including the repair of a deep well, installation of a submersible pump for vehicle washing purpose, operation of pumps by utilizing generating power from small tractors, formulation of preventive maintenance system for track tractors, etc.

F. Water management -- Surveying and designing work has been completed by the water management specialist for a number of small scale water supply projects in various provinces. In Tuyen Duc Province, a drinking water supply system was planned for installation at Da Me Hamlet for 300 families embodying 2,000 inhabitants. A similar system was also designed for the Montagnard farmers at the Dam Bao Hamlet and others at the Da Ro Hoa Hamlet with the use of gasoline engine pump and concrete reservoirs. Also in Tuyen Duc Province, a hydraulic ram project was designed for the Evergreen Farm for irrigating some 140 ha. of its plantations. Assistance was also rendered in designing a deep well for a 15-ha. vegetable development project in Gia Dinh Province. In Long Khanh Province, in addition to the hydraulic ram installation that has already been erected in Doc Mo Hamlet, three more similar projects have been designed to be constructed at Phuc Nhac, Gia Yen and Doc Mo Hamlets with the installation of check gates, stoplogs and different numbers of TL-3 hydraulic rams. In Binh Thuan Province, a diversion weir has been designed to divert water from the Long Song River for irrigating a planned acreage of 2,000 ha. As mentioned previously, a multi-purpose hydraulic ram project has been completed in Tam Hiep of Bien Hoa Province for a community development program to be launched in the area. The subject specialist, together with the small irrigation specialist of the roving team, took care of all the processes such as surveying, designing and supervision during the course of constructing the Tam Hiep hydraulic ram project.

III. Improved Village Program

Pursuant to an important resolution of the Third Sino-Vietnamese Economic Cooperation Conference held in Taipei, Taiwan, in October 1965, an "Improved Village Program" (IVP) was to be launched in Vietnam with three (3) "improved villages" to be established in strategically selected locations in the country under the joint efforts of the GVN Ministry of Agriculture and the CATM. The primary objective of this program is to introduce to this country all the rural improvement measures that have been realized in Taiwan in the past decade or so through the operation of these villages in an integrated manner. The basic spirit behind this program is that, in the realm of agriculture,

Vietnam and Taiwan (Republic of China) share many features in common, e.g., climate, farm holdings, varietal adaptability, farming habits and so forth.

The agency responsible for the execution of this program on the Vietnamese side is the Directorate of Rural Affairs of the Ministry of Agriculture, while the CATM assumes the role of a sole Chinese counterpart in Vietnam with the logistical support from the related authorities in Taiwan. To accelerate the progress of the program and to attain better coordination, the CATM has organized among its concerned specialists fifteen (15) technical sub-committees to conduct surveys and formulate work plans in cooperation with their respective counterparts. These sub-committees cover: 1) rice, 2) field crops, 3) vegetables, 4) plant protection, 5) corn and fertilizer distribution, 6) farm implement and machinery, 7) crop extension, 8) water management, 9) fisheries, 10) animal husbandry, 11) farmers' organization, 12) education and training, 13) chemical engineering, 14) rural housing and 15) sericulture.

The sites for the three "improved villages" are preferably to be selected at places where CATM demonstration teams are stationed so as to better utilize the readily available technical manpower from the Chinese side and where the security condition is good. Up to the present, the first village has been established on Hiep Hoa Village of Bien Hoa Province, the second one has been selected to be established in My Thoi Village of An Giang Province in the Delta region, while the exact location for the third village is yet pending to be decided by the GVN authority. To facilitate the implementation of the program, the said Directorate of the MOA has appointed one supervisor to be stationed at each of the two villages in Bien Hoa and An Giang to work in close cooperation with the CATM demonstration teams working there.

For the first one in Bien Hoa, a demonstration center has been established within the village for laying out demonstration plots complete with irrigation facilities to acquaint the village farmers with the highly rewarding performances of the improved varieties and cultural practices. For the second one in An Giang, a survey of the selected location has been completed by the mentioned sub-committees in cooperation with their respective counterparts; and work plans for the operation of the village have been formulated and are now in the process of being finalized.

Meanwhile, in an effort to ensure the eventual success of the program, logistical supplies from Taiwan including crop seeds, farm implements and machineries, agricultural pesticides, veterinary medicines and equipment, etc. are also provided at a total value of NT\$9,320,000 (including NT\$1,400,000 for training purpose), as donations from the Government of the Republic of China. At the time of this reporting, shipment of such supplies are being received from Taiwan for distribution to the respective villages.

The actual work progress in implementing the program at the first village on Hiep Hoa Island of Bien Hoa may be briefly reported as follows:

A. Demonstration center -- The center office is staffed with six members from the Vietnamese side including the supervisor and is regularly assisted by about four members of the CATM Bien Hoa Team. Specialists from the MOA and the CATM headquarters are constantly dispatched from Saigon to provide the needed advices and assistances. Crops trial-planted at the center include rice, field crops (corn, peanut, sweet potato, mungbean, etc. with corn already harvested), vegetables (cucumber, yard-long bean, etc. totalling 23 kinds of 54 varieties), and melon crops (watermelon of Sugar Baby, Phu Quang, Congo and Seedless varieties and cantaloupe of Yellow Gold, Edisto, Delicious and Honey Dew varieties).

B. IVP crop demonstration/extension -- Extension teams have been established at various demonstration areas in the village to undertake a host of extension activities. Seedlings of yard-long bean, eggplant, etc. were distributed to the team members for planting. In cooperation with the provincial agriculture service, 10 ha. of cucumber have been planted in Binh Tu area; and in the areas of Tam Gian, Binh Tu, Binh Xuong, Long Quoi and Binh Hoa, an additional acreage of 22 ha. has been planted with cucumber, yard-long bean, eggplant and other vegetables by a total of 33 farmers. Up to the end of June 1966, a total of 85 farmers have been benefited and a total acreage of 60 ha. has been planted to various secondary crops. Cash income received by the farmers has exceeded one million piastres. To facilitate the farmers' crop production, crop seeds, mixed fertilizer, pesticides, sprayers, pumps and power tillers have been made available to them by the center with the proper methods of operation

and maintenance demonstrated. Demonstration plots have also been under operation in various demonstration areas, Binh Tu and Binh Xuong for instance, planted to such crops as corn, yard-long bean and cucumber, with all of them attaining a vigorous and rapid growth.

C. Animal husbandry -- A livestock farm is to be established at the demonstration center with the land preparation work already completed. With the assistance of the technicians from the Directorate of Animal Husbandry, farmers have been given adequate instructions to construct improved pig stys and chickens pens. Veterinary medicines and equipment have also been allocated by the said Directorate to the demonstration center for distribution to the farmers. Preventive vaccination of chickens and hog has also been underway at the various demonstration areas.

D. Fisheries -- Carp fry was distributed in April 1966 and are growing vigorously, readily winning the acceptance of the farmers. Technicians from the Directorate of Fisheries were dispatched to the demonstration center to conduct a survey of the site for the fish pond, which is planned at 2,159 m² in size, and to give instructions to the concerned farmers on the necessary preparatory work. A working committee was organized comprising the IVP supervisor, general manager of the Hiep Hoa FA and representatives from the named Directorate, with 1,050 fish fry distributed to the farmers. Farmers are also escorted by the Directorate's personnel to make an observation tour of a number of public- and privately-owned fisheries.

E. Home improvement -- Twenty-six classes have been organized for training on food processing, household sanitation, sewing, house repair, etc., embodying a total of 87 persons. The food processing classes were mostly lectured by specialist from the CATM roving team covering such items as soy sauce, hot pepper catsup, pickled vegetables, etc. Home visits have also been frequently paid by home improvement cadres to provide on-the-spot advices. Modern knowledge on nursing and rearing of children was also disseminated among the village women.

F. Field days and trips -- Groups of farmers have been organized and escorted to the demonstration center to get familiarized with such improved farming practices as land preparation, laying out of irrigation

ditches, weeding, fertilizer application as well as other cultural practices. In June 1966 some 30 farmers were escorted to Long An and Dinh Tuong Provinces to observe the cultivation of double rice crop and various kinds of vegetables.

G. Irrigation -- The island village of Hiep Hoa has a total land area of 519 ha. with a crop acreage of 432 ha. To ensure the availability of irrigation water to all the crop fields, four pumping stations with a total of 30 HP and irrigation ditches 26,407 m. in length are planned to be set up to provide 5,405 GPM of water on a year-round basis. The surveying and designing work has been completed with the effort of the CATM irrigation specialists in cooperation with their counterparts. The total budget for such installations is estimated at VN\$19,000,000 and has been approved by the concerned GVN authority.

-- E N D --