

AGRICULTURAL AND RELATED TRAINING FOR  
THE VILLAGE DEVELOPMENT PROGRAM  
IN THE STATE OF BHOPAL, INDIA

by

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## TABLE OF CONTENTS

|                                                                              | <u>Page</u> |
|------------------------------------------------------------------------------|-------------|
| LIST OF TABLES                                                               |             |
| INTRODUCTION                                                                 | 1           |
| PART I. BACKGROUND INFORMATION ON THE STATE OF BHOPAL                        | 3           |
| Topography and Soils                                                         |             |
| Climate                                                                      |             |
| Cropping System                                                              |             |
| Agricultural Practices                                                       |             |
| Agricultural Production                                                      |             |
| Distribution of Population                                                   |             |
| Literacy                                                                     |             |
| Religions                                                                    |             |
| Governmental Structure                                                       |             |
| Languages                                                                    |             |
| Social Structure of Villages                                                 |             |
| PART II. AREAS OF DEVELOPMENT IN BHOPAL STATE                                | 9           |
| Agricultural Development                                                     |             |
| Roads                                                                        |             |
| Education                                                                    |             |
| Health and Sanitation                                                        |             |
| Social Education                                                             |             |
| Seasonal Employment of Villagers                                             |             |
| PART III. THE PLAN FOR VILLAGE DEVELOPMENT IN BHOPAL STATE                   | 29          |
| PART IV. PROGRESS IN AREAS OF DEVELOPMENT FOR ONE<br>COMMUNITY PROJECT BLOCK | 39          |
| PART V. AGRICULTURE AND EXTENSION TRAINING IN THE<br>DEVELOPMENT PROGRAM     | 44          |
| Extension Training Center                                                    |             |
| Training Center Staff                                                        |             |
| Trainees                                                                     |             |
| Course of Study                                                              |             |
| Other Training                                                               |             |
| SUMMARY AND INTERPRETATIONS                                                  | 56          |
| BIBLIOGRAPHY                                                                 | 58          |

## LIST OF TABLES

| TABLE |                                                                                                  | PAGE |
|-------|--------------------------------------------------------------------------------------------------|------|
| I.    | Crops Grown in Bhopal, Acreages and Yields For the Year 1953-54 . . . . .                        | 5    |
| II.   | Classification of Land in Bhopal State, 1950-51 . . . . .                                        | 11   |
| III.  | Livestock in Bhopal Based on Statistics of 1950-51 . . . . .                                     | 18   |
| IV.   | Percentage of Literates Based on 1951 Statistics . . . . .                                       | 20   |
| V.    | Progress in the Number of Teachers and Students in Bhopal State . . . . .                        | 22   |
| VI.   | Graduate Medical Doctors and Graduate Nurses in Bhopal. . . . .                                  | 24   |
| VII.  | Estimated Cost of an Extension Training Center in Rupees . . . . .                               | 45   |
| VIII. | Actual Allocation of Expenditures of Bhopal Extension Training Center by Agencies (Rs) . . . . . | 46   |

## LIST OF CHARTS

|     |                                                                           |    |
|-----|---------------------------------------------------------------------------|----|
| I.  | Organization of a Community Development Block . . . . .                   | 33 |
| II. | Organizational Chart of the Bhopal State Development Department . . . . . | 36 |

AGRICULTURAL AND RELATED TRAINING FOR THE VILLAGE  
DEVELOPMENT PROGRAM IN THE STATE OF  
BHOPAL, INDIA

The purpose of this study is to describe agricultural and related training for the program of Village Development in India with emphasis on the program in the state of Bhopal. Never before in the history of the nation has such a vast program of village development through democratic means been undertaken.

The scope of the problems that faced India when she undertook this program were staggering to the imagination. There were the many separate and sovereign states to be welded into one nation. The problems of language, religion and regionalism of the people are tremendous.

The idea of village development is not a new idea in India. Many agencies have had programs of such nature over the past centuries. The "good" Princes of the states tried these programs as did the British through their representatives, and the missionaries of the Western Countries had their programs. Most of these programs were short lived and the sponsors gave up in disgust. Some of these programs of rural uplift were successful, but their area of influence was small. These programs of the past had little chance of becoming established. They failed to make the development program that of the people themselves. It was provided for the people rather than developed by the people. The present development program embodies the following two basic principles:

1. The only lasting progress is one of "self help."
2. The village is a complete social structure and should be approached as a whole.



Recognition of the previous factors are the basis of community development in the state of Bhopal under the present plan.

This study presents background material and analysis of the development program in the following areas:

1. Background information of the state: how terrain, history and social structure influence the development program.
2. The areas of problems for development.
3. The plan for development.
4. The progress made in problem areas.

PART I  
BACKGROUND INFORMATION ON THE STATE OF BHOPAL

The State of Bhopal lies in Central India on the large Malwa Plateau of this region. It has natural geographic boundaries of rivers and hills. The State has a land area of 6,878 square miles. The State has an estimated population of 900,000 people.

Topography and Soil

The State is characterized by its heavy black cotton soils, its rolling grasslands and low hills covered by Scrub Jungle. The valleys between the hills are wide, running from 1/2 mile to ten miles in width. The soils of the valleys have great depth with the same structure for as deep as 40 feet. The small valleys or basins in the hills have a more shallow soil, but still usually 15 or 20 feet deep.

Climate

In climate the State is of the tropical monsoon type. The hot season lasts from early March until mid June. At this time of the year, temperatures range up to 114 degrees. At mid June the rains start and continue on through July, August, and to mid September. The average rainfall in the State is 45 inches, though it goes as high as 60 inches. In December or early January winter rains are usually received. On an average these rains are only two or three showers, yielding two to four inches of precipitation. From September until March is the fall and winter season. The weather at this season is cool and pleasant at night and warm during the day. Frost is known in Bhopal but considered a rarity.

Cropping System

From the point of agriculture the year is divided into two seasons, the "Kharif" or wet season from June to October and the "Rabi" or winter season from October to March. Crops grown in the wet season are sorghums,

mung beans, peanuts, sesamum for oil, rice and cotton. The crops of the dry season are edible legumes, wheat, and linseed.

### Agricultural Practices

Agricultural practices in the State are based upon centuries of tradition. When the lands are being prepared for the winter season crops, a small sub-surface tillage tool is used. This tool is the bakkhar and could well be the forerunner of Great Plains sub-surface tools. The bakkhar does an efficient job of cleaning the fields of weeds and leaves the soil receptive to the moisture of the winter rains. The plow is also used in preparing land, especially during the rains if there is a lull. It is necessary to control the heavy vegetation at this time. The plow and bakkhar are used to prepare the land for the wet season crops. The plow used is a simple wooden tool tipped with mild steel. All of the tools used are made in the village by the local carpenter. The practice of line sowing is followed by most good cultivators, though there is still a great deal of broadcasting of such crops as sorghums, cotton, and large seeded legumes. Most interculture of crops is by hand. The rows are about a foot apart, and the laborers use the short flat bladed hoe peculiar to this region. Row seeding is done by attaching a drop tube to the plow. This tube is fed by the wife as she walks alongside. Crops are cut with small hand-sickles and are then brought to the threshing floor where they are trampled out by four to ten bullocks hitched abreast. The grain is then winnowed and the straw or "busa" stacked for feeding to livestock.

The cultivator is very much dependent upon his bullocks. These, together with the hand labor of his family, are his only source of power.

The bullocks usually are a small wiry type of cattle of indeterminate breed, but referred to as the "Malwa" type.

### Agricultural Production

Bhopal has always, in times of good rains, been an exporting State. She produces enough food grains for her own needs, and the surplus is the basis for cash crops. Transportation into the interior and to importing states is the limiting factor. Charcoal produced in the State and retailing for Rupees 1/ 5-0-0 per maund 2/ sells for Rupees 10-0-0 in New Delhi 450 miles away. The crops grown, their acreages and yields are listed in Table 1.

Table 1.  
CROPS GROWN IN BHOPAL, ACREAGES AND YIELDS  
FOR THE YEAR 1953-54.

| Crop              | Acreage | Yield in Tons |
|-------------------|---------|---------------|
| Wheat             | 55,338  | 87,185        |
| Sorghums          | 242,075 | 47,595        |
| Edible legumes    | 295,958 | 43,899        |
| Milletts          | 140     | 23            |
| Maize             | 22,017  | 3,350         |
| Rice              | 32,192  | 4,899         |
| Sugar cane        | 4,223   | 3,668         |
| Peanuts           | 3,545   | 562           |
| Linseed           | 35,633  | 3,445         |
| Sesamum (oilseed) | 58,227  | 4,625         |
| Cotton            | 70,294  | 7,818         |

Bhopal is a wheat producing and wheat eating state, differing in this respect to the rice eating areas of eastern and southern India. Wheat and legumes are the staples of the diet of all classes. Wheat is eaten in

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1/ The Rupee is the basic Indian coin and has an exchange rate of approximately 21 cents U.S.

2/ The maund is the basic unit of weight and is equal to 82 pounds.

the form of "Chappatis" or unleavened bread.

#### Distribution of Population

The distribution of population by occupations shows that 65.5 percent are engaged in agriculture as compared to the national percentage of 73 percent. Small industries engage 10.5 percent, while commerce, transport, and services employ the rest.

#### Literacy

The illiteracy rate for rural and urban population, male and female, is 90.09 percent compared with the national rate of 85.6 percent.

#### Religions

The State is considered the second Islamic state of India and has been a Muslim State (Moslem in some countries) since the eighteenth century. Despite the fact that it has been a Muslim State, its population is predominately Hindu, 700,381 Hindus compared with 128,672 Muslims.

All religions in this state are guaranteed freedom of worship under the National Constitution.

#### Governmental Structure

Indian states are classified as Parts "A", "B", and "C" states. Part "A" states are those former British States and are governed by themselves. Part "B" states have as their titular head a Rajhpurmukh, who is the highest ranking of the princes of that state. Part "C" states are administered by the Central Government with a large share of expenses coming from the national coffers. Bhopal being a small, isolated, and relatively backward state is a Part "C" state. The Chief Commissioner of the state is appointed

by the Government of India. The legislative assembly is elected by adult franchise. Since there were over 600 Sovereign States in India before Independence, many of these states have been combined to form the present 28 states. Bhopal is an exception to this rule as its boundaries have remained the same since the time of the Nawab. This is largely due to geography and the unity of the language and culture. In October of this year the States will again undergo re-organization forming only 17 larger states.

#### Languages

In India there are 15 major languages spoken with many other dialects. This is one of the major problems facing India. The Government has adopted Hindi as the official language of the nation, and there is a limit of time given to learn to speak and write Hindi. In Bhopal the languages are Hindi and Urdu. These languages are closely related except in the written form. Hindi uses Nagari characters and is written from left to right. Urdu is written in the Persian script from right to left.

#### Social Structure of Villages

The rural and non-urban population of Bhopal lives in the 3,268 villages of the State. The social structure of these villages is based on tradition, religion, and position. The pattern is firmly entrenched and will be slow to change. Where a person fits into his place in the society of the village is largely determined by caste. Economic position may offset this somewhat. All occupations are traditional and almost all are hereditary. The villages as a rule are self contained units depending upon little from the outside. As work progresses and desires are created,

outside influence will be more felt. All people in the village from the money lender to the landless are inter-dependent. The cultural structure is usually dependent upon their religion and the status they have in this religion. The Brahmin (Priest or teacher caste) of the village may be the school master and the reader at the temple. While his economic status may be lower than the shopkeeper, his over-all status would be higher. The joint family system is the bulwark of village life. In a village situation this has its advantages, but when taken to urban areas it becomes a major social problem.

## PART II

### AREAS OF DEVELOPMENT IN BHOPAL STATE

As Bhopal State's economy is based on agriculture and the majority of people live in villages, the primary emphasis in the Five Year Plan is toward rural development. This follows the national plan of upgrading of village life and agriculture. The problem areas and programs for development are:

1. Agriculture
2. Roads
3. Education
4. Health and sanitation
5. Social education
6. Seasonal employment of villagers

#### Agricultural Development

Bhopal State has never had the pressure of population on land that is present in other states. This is due to the terrain, the dense jungle, the system of land tenure, and relative isolation of the state.

In Bhopal, while the problem of land is not one of population pressure, it is still one of the major problem areas:

1. As density of population was low, allocations of land under the Nawab 1/ were freely made. These allotments were made to followers of the court and as awards for service to the State. This tended to create large holdings by individuals who farmed the land with tenants.

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1/ The term Nawab means "great King" and is applied to Muslim rulers. The ruler of the greatest Muslim state in India bears the title Nizam meaning "Ruler." The distinction of "guns" was given by the British, Hyderabad was entitled to 21 guns while Bhopal received only 19.



2. Infestation of cultivable lands by Kans grass. 2/ This either caused the abandonment of the land or lowered the efficiency of the land to such a point that production was not economical.
3. Much of the land that is considered waste could be utilized for cultivation if cleared of scrub.
4. Jagirdari system of land tenure. The Jagirs of the state were created by the court to act as collectors of revenue and as administrators for rural areas. These Jagirdars held vast areas of land not in ownership but in fief (as feudal over-lords).
5. Due to the comparatively large holdings of villagers (5-30 acres), farming was done less intensively. This caused serious soil losses and offered no incentive for better cultural practices, the holder feeling that more acres offset poor practices.

These problems of land were among the first encountered in the development program.

The large holdings held by the followers of the court are still held. In some instances where these Muslim landlords fled to Pakistan after Partition, the lands were seized and re-allotted to the landless or turned to the State. The Nawab's holdings were cut down to his actual proven ownership. He has kept as personal property his farms and gardens and areas of jungle reserved for his shooting. He no longer controls the vast areas of State and undeveloped lands that he did as ruler.

The first popular legislature of the state introduced and passed the Bhopal State Jagirdari Abolition and Land Reform Bill in August, 1953.

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2/ Kans grass--Saccharum spontaneum or wild sugar cane. It is a serious problem on the heavy clay loam soils of Central India and infests 10 million acres in this region.

This was the first of many Indian land reforms. The Jagirdars gave their consent to this bill under social pressure. They were awarded a cash annuity for life. In the states where the Jagirs were taken by force and no compensation was paid by the State, there has been considerable trouble from these feudal lords.

Table 2.  
CLASSIFICATION OF LAND IN BHOPAL STATE 1950-51

| Classification                                | Area in Acres |
|-----------------------------------------------|---------------|
| Total classified                              | 4,350,000     |
| Occupied land                                 | 2,200,000     |
| Under cultivation                             | 1,300,000     |
| Fallow                                        | 900,000       |
| Unoccupied land                               | 1,250,000     |
| Cultivable                                    | 340,000       |
| Cultivable waste                              | 910,000       |
| Area under irrigation                         | 20,000        |
| Number of villages                            | 3,268         |
| Population                                    | 838,107       |
| Ratio of land to people<br>(acres per person) | 5.2           |

The World Bank has underwritten a large program of reclamation of Kans land. This program is carried on through the Government of India's Central Tractor Organization. This organization owns the largest fleet of heavy tractors in the world. If Kans grass is plowed to a depth of 18 inches and the roots allowed to desiccate on top of the soil during the hot dry season, it may be controlled. Re-plowing is necessary in five years. The State of Bhopal has its own tractor organization with a large fleet of smaller tractors of the D-4 class. This organization works at jungle clearance, drainage, and field bunding. <sup>3/</sup> These two organizations have worked in Bhopal

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<sup>3/</sup> Field bunds are upright terraces of earth approximately 2 feet high and 18 inches thick. They hold the water in rice fields and prevent run off from gentle slopes.

state since 1952 and at that time have reclaimed and brought into production 300,000 acres in the state.

The four land problems just discussed have been worked on at state and national levels through legislation and heavy equipment. The fifth problem, that of inadequate and poor practices, has been a major concern of the development blocks and will be for many years to come. Improved techniques in agriculture are stressed through result and method demonstrations in the villages. Demonstration farms are attached to all blocks and annual field days and tours are held. The village level worker lend the Block 5/ and State Specialists spend most of their time in field problems with the villagers. Education of village people for better methods is a long term enterprise to be accomplished through means of extension and agricultural education methods used in the United States. Especially effective are audio-visual aids and result demonstrations.

As an example of the role of education in rural development, the Japanese have always produced three and four times the yield of rice from their land that India did. Their method of culture was studied and adapted to Indian conditions. By an intensive campaign of demonstrations, meetings, and other methods this Japanese method has been adopted by Bhopal cultivators in the last three years. Yields of rice have gone up from an average of 5 maunds per acre to over 20 maunds with some reporting 40 maunds per acre.

While distribution and utilization of land are the major problems there are other serious problems to be faced in the Development Blocks:

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4/ Blocks are administrative divisions of a state and district and established for development work.

1. Development of irrigation
2. Agricultural techniques and practices
  - a. Improved varieties and pure seed
  - b. Cultural practices
  - c. Use of farm manures
  - d. Use of commercial fertilizers
  - e. Improved implements
3. Plant protection
4. Marketing
5. Credit facilities
6. Animal husbandry
  - a. Useless animals
  - b. Pressure on range and forage
  - c. Nutrition
  - d. Breeding
  - e. Low milk yields
  - f. Culling
  - g. Diseases
  - h. Poultry

The people of Bhopal because of their comparatively large holdings and fertile lands have never seen the need for irrigation. In times of drought and failure of winter rains, lack of irrigation has brought famine and starvation. While the program does not intend to build large irrigation projects, its aim is to increase the amount of land under irrigation as much as possible through small projects. This will increase the productivity of the land, raise the standard of living, and insure against drought.

Most of the work in the blocks has been done through cooperative action of the villagers in building small structures and digging wells. The State has built several small irrigation projects watering 500 to 2000 acres. Most of the emphasis however has been placed on the small holdings of villagers. Improved methods of water lifting such as Persian wheels and diesel

pumping units have been made available. These are usually bought through small cooperatives and are paid for on a long term loan. Tanks are built by villagers not only for irrigation but for stock water as well.

The methods and practices of agriculture in Bhopal are based on generations of traditions. Like farmers the world over, they are slow to abandon the old accepted ways until the newer ways are proven. In every Block there is a demonstration farm. Here varieties recommended by the agriculture department are tried out.

In addition these farms are used to multiply and reproduce proven varieties. The village level worker through his demonstrations and village education is able to convince the cultivators of the worth of these varieties. These are then supplied at cost or on a replacement basis. The old custom of selecting the poor wheat or corn for seeding is giving way. By the process of field selection the cultivators are able to improve their yields. Hybrid seed corn has been effectively demonstrated and reproduction farms started in North India. If these sources can meet the demand for seed, this technique will be quickly adopted.

Cultural practices followed have not changed in the last several centuries. Line sowing instead of broadcasting has proven its worth in wheat, mungbeans, cotton, and sorghums. There needs to be more work done on inter-culture of row crops.

Dung is the chief product of the livestock of this state. It is used mainly as fuel because it is plentiful, easily prepared and transported. As the organic content of the soils is very low this dung could be effectively used as fertilizer. Composting of human and animal wastes is a major demonstration. Compost is readily accepted in areas where speciality crops are

grown for gardens and in villages near enough to the jungle to obtain fuel there. In an effort to provide a source of fuel other than dung, villages are encouraged to utilize waste land for afforestation.

Commercial fertilizers have been well demonstrated and are accepted where price is in reason and a supply is assured. Where sugar cane is grown for crushing, the cultivators are demanding that their blocks supply them with fertilizers. This fertilizer is usually ammonium sulfate or a phosphate fertilizer. The cultivator purchases the fertilizer from the Block and is granted short term credit to pay for it. Use of fertilizers makes excellent and effective demonstrations. The import of fertilizers into India grows every year, and in addition the Government of India has constructed and is enlarging her own fertilizer plants.

Implements in Bhopal agriculture are probably the same used in the time of the Moghuls. The basic implements are the hoe, the plow, and the bakkhar. The plow and bakkhar have been described. The hoe is a short handled tool twelve inches long with a blade that is used flatwise to the ground. The hoeman squats on his haunches and weeds ahead of him as he goes down the row. Advancements in implements have been made in the past few years. Notable among these is the CARE plow, a simple 4 or 6 inch moldboard plow pulled by bullocks and utilizing the beam and one handle of the indigenous plow. This plow has met with slow acceptance except where the demonstrator has been well versed in its adjustment. It shows much promise, and when the idea of a level land slide is established in the minds of the cultivators, it is proving effective. Six row wheat drills are being manufactured now and are coming into the demonstration areas. Hand tools such as the rake, the hoe, and the shovel have been



placed by CARE but have met with little utilization by village folk. The chief objection seems to be that the tools are brightly painted and very attractively boxed so that the people are hesitant in using them.

The term Plant Protection as used in India means both plant pathology and entomology. Bhopal is fairly free of plant diseases but there are many insects and other pests. One of the most important economically is the leaf hopper of sugar cane. This crop is very difficult to treat by hand, and the insect has become a serious thing in the best cane areas.

The Plant Protection Department did some aerial spraying of cane in the winter season of 1955 and again in 1956. This is the first time planes have been used on other than locust control work in India. Rats are another serious pest in Bhopal. They do damage in the fields during the crop seasons, and come into the villages during the monsoon. These rodents are a problem in stored grain, as most of the grain is stored in mud bins and the rats can easily enter.

In Bhopal far more than in the United States the farmer is at the mercy of the buyer. Contrasting to the wheat areas of Montana where the largest amount of wheat is sold shortly after harvest, the Bhopali cultivator sells his wheat just before seeding time. At that time he knows how much is needed for seed and food until harvest. The wheat that is sold is surplus to his food needs. The village money lender and the landlords receive their share at harvest time and sell at once. The money lenders and merchants try to purchase as much grain as possible in the village and sell to grain buyers that come to the village. Much grain is transported by bullock cart to the big markets. The grain that comes in by cart usually comes

from a distance of only two or three days' travel. The grading at the markets is very basic, usually concerned with only weight and insect damage. The system of periodic checks of scale weights is not followed in the villages and very seldom in the towns. The Blocks have encouraged formation of storage cooperatives where grain of an entire village may be stored. This enables the cultivator not only to have less loss from damage but gives enough volume to attract buyers to the village. These co-ops are also the basis for grading. Wheat going into the bins must be of good quality and free from foreign material and insect damage.

As in most agricultural regions the need for short term credit is acute. In Bhopal where the villager has been at the mercy of the money lender for generations this is one of the serious problems. The Blocks may grant short term production loans secured by land or chattels. These loans are for such things as improved seed, fertilizers, irrigation equipment, new wells, bullocks or equipment. Where the money lender charged an interest rate often as high as 200 percent or 300 percent the government interest will be fixed and reasonable. Usury has never been regulated by law. While the money lender has served the useful function of extending short term credit and carrying villagers through difficult times, his rates have been inexcusable. The cooperatives formed in the Blocks such as commodity co-ops, multi-purpose co-ops, irrigation development, marketing, storage and artisans co-ops may secure credit at the Bhopal Bank for Cooperatives.

The livestock problem of Bhopal as in all of India is a tremendous problem. The great pressure of number of head on amount of graze limits the quality of grass and forage. The average milk cow yields less than



2 pounds of milk daily and has a lactation period of only a few months. The old or dry animals are turned out to forage for themselves and necessitate day and night watch in the crops on the part of the cultivator. Hoof and mouth disease, tuberculosis, rinderpest and intestinal parasites are common among livestock.

Table III  
LIVESTOCK IN BHOPAL BASED ON STATISTICS OF 1950-51

| Livestock                | Numbers |
|--------------------------|---------|
| Cattle                   |         |
| Breeding bulls           | 41,817  |
| Other males              | 234,187 |
| Females over three years | 76,739  |
| Young stock              | 208,958 |
| Buffaloes                |         |
| Bulls                    | 3,838   |
| Other males              | 2,612   |
| Breeding cows            | 70,933  |
| Other cows               | 25,266  |
| Young stock              | 61,243  |
| Sheep                    | 12,409  |
| Horses and ponies        | 7,961   |
| Young horses             | 2,256   |
| Mules                    | 47      |
| Donkeys                  | 2,940   |
| Camels                   | 10      |
| Swine                    | 3,408   |

Work cattle are usually fed and cared for much better than other cattle. They are fed the straw from threshing and some of the surplus grain such as linseed. This ration is usually supplemented when they are at work by crude molasses of the palm trees or sugar cane. As religious

sentiment of the people is so strong concerning cattle, very little progress has been made in animal husbandry. The Key Village Schemes have been started in the state and are now established throughout Bhopal. Under this plan the Government furnishes good quality draft bulls and dairy bulls. The village agrees to castrate or allow to be castrated all low quality male animals. The Key Village Scheme does the breeding of cattle through artificial insemination or natural service. If this plan proves successful over a long period of time the quality of cattle will be up-graded and the numbers decrease. Segregation Centers for old and useless cattle have been established in jungle areas. There cattle may live out their lives at state expense. An attempt is also being made to improve the quality of poultry, but due to the caste system it is having little success.

#### Roads

Roads in Bhopal usually follow the outline of field boundaries and as a result are very tortuous. They are for the main part dirt roads only. In all of Bhopal there are only 425 miles of all-weather roads. Since monsoon season lasts from June to September and depressions carry water until October and November, it means that the village in the interior can have little intercourse with urban markets from June through November. All transport in these areas must be carried on by pack horse and back packing. This denies the villager a market for his crops and forest products for months at a time. This in turn causes short supply and higher prices in urban areas. Law enforcement, transport, communications, medical programs, and services of the government are denied these people for long periods.

In all of the Blocks there are intensive programs of road building under way. The villagers volunteer their labor and transport and the Blocks furnish the trucks and overseer. These roads are simply shallow pans of about one foot depth filled with large rocks, coarse gravel, and finally a wear coat of weathered and friable rock. There the Blocks have been in operation for any length of time, the villagers have been encouraged to build approach roads to the highways. These roads enable transport to move even during monsoon season. This program has been very popular and there have been hundred of these roads constructed.

Table IV  
EDUCATION  
PERCENTAGE OF LITERATES BASED ON 1951 STATISTICS

| People        | All Ages<br>% Literate | Excluding Children<br>0 - 4 years<br>% Literate |
|---------------|------------------------|-------------------------------------------------|
| Urban         |                        |                                                 |
| Males         | 34.52                  | 39.53                                           |
| Females       | 15.34                  | 17.85                                           |
| Total persons | 25.48                  | 29.39                                           |
| Rural         |                        |                                                 |
| Males         | 9.25                   | 10.57                                           |
| Females       | 1.06                   | 1.25                                            |
| Total persons | 5.35                   | 6.14                                            |
| Total         |                        |                                                 |
| Males         | 8.40 <sup>5/</sup>     | 15.31                                           |
| Females       | 3.37                   | 3.88                                            |
| Total persons | 8.66                   | 9.91                                            |

The state percentage of illiteracy for male and female excluding children 0-4 years, urban and rural population, is 90.09 percent. The problem of education in Bhopal concerns not only youth but adults as well. Lack of qualified and interested personnel is one of the large problems.

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<sup>5/</sup> From 1951 Bhopal State Statistics, probably should read 18.40 rather than 8.40.

The colleges and universities produce an astounding number of unemployed graduates each year. These graduates are mainly in the arts, philosophy, and abstract sciences. Not enough young people are educated to fill the needs for engineers, health people, education, and agriculture. To fill the need for personnel the government has seized upon the scheme of hiring the educated unemployed as rural school teachers. These young men are less than eager to accept these posts but are forced by economic pressure. Most of them lack training in education and a good many lack interest. They are poorly adapted to meet life in the villages. Most of these young men come from the areas in Northern and Southern India where education is more common than in Bhopal. The educated man in India is very conscious of his class. This is breaking down as boys see that there is more demand and higher salaries for men trained as mechanical engineers, etc., than for those trained in philosophy. The teachers in villages face a great many hardships such as lack of support, lack of facilities, low salaries, minimum living conditions, and isolation. The educated man is held in great respect by the villagers and everything possible is done by them to make these people welcome and comfortable. They can rise to positions of village leadership in a short time if they so desire. Every effort is made by the development department to train these young men in the philosophy and methods of village development. Many villagers are building quarters for the village level worker and the school teacher and encourage both of these men to bring their wives and to become part of the village. It is worthy of note that the pattern of development in the communities of Bhopal has been:

1. The villagers first want a school for their children.
2. They then want a dependable source of drinking water.
3. They then want an approach road from their village.

Many of the villages first built a one-room school. Now these same villages are building two and three teacher schools and quarters for the teacher and the village level worker. For these village schools the Blocks furnish skilled masons, cement, timber, and roof tile. The villagers furnish the site and the labor to be supervised by the mason; they burn their brick and transport the material.

Table V  
PROGRESS IN THE NUMBER OF TEACHERS AND STUDENTS  
IN BHOPAL STATE

|                    | <u>1949-50</u> | <u>1950-51</u> | <u>1951-52</u> | <u>1952-53</u> | <u>1953-54</u> |
|--------------------|----------------|----------------|----------------|----------------|----------------|
| Number of teachers | 738            | 925            | 1,100          | 1,297          | 1,886          |
| Number of students | 15,632         | 18,883         | 20,708         | 26,521         | 30,898         |

It was one of the dreams of Mahatma Ghandi to shift the emphasis in education from books to a closer relation with the daily lives of people. This he called "basic education", and it has proven to be the only radical change from the system transposed by the British.

A Basic Education School, either primary or secondary, attempts to teach not only the regular subjects of village schools but also the arts and crafts of the village. In Bhopal the emphasis has been placed on agriculture. As a part of every school there is a small plot of land of from one to ten acres. This the students cultivate and manage under the leadership of the school master. On this school farm they learn fundamental agriculture and have simple method and result demonstrations. The

Department of Agriculture and the Blocks work very closely with these schools. The success of the program depends entirely upon the interest and ability of the master. This has been the limiting factor in Bhopal State for most of the teachers are from other states and are not village boys. Then, too, many are jealous of their class position. There have been basic "school wings" started at teacher trainer institutions to bring about a change of these problems. All new primary schools being built now in the villages are provided with land. Adult education in Bhopal is synonymous with adult literacy. There have been a number of programs tried in this state to raise the number of adult literates and neo-literates. The "Laubach method" of literacy has met with the greatest success. The World Literacy Council has trained teachers and lay trainers in this method. All extension workers, basic school teachers, and village teachers are given training in this method. Using this method an illiterate villager becomes a neo-literate in one month. A number of campaigns have been started to teach villagers to write their own names.

#### Health and Sanitation

The problem of health in Bhopal is basically that of pure water. Most of the communicable diseases are water borne. Such diseases as dysentery, diarrhea, cholera, and typhoid and the parasites are spread by water. Disposal of human waste and village sanitation are major factors in the health program. The problems facing the Development Blocks in the field of health and sanitation are:

1. Provision of safe water.
2. Disposal of human excreta.

3. Control of malaria, cholera, typhoid, typhus, dysentery, plague, small pox, tuberculosis and parasites.
4. Education of the people toward sanitation, control measures, and prevention.
5. Child welfare.
6. Pre-natal care.
7. Nutrition.

Table VI  
GRADUATE MEDICAL DOCTORS AND GRADUATE NURSES  
IN BHOPAL STATE

|         | 1950 | 1954 | 1956 |
|---------|------|------|------|
| Doctors | 55   | 65   | 87   |
| Nurses  | 40   | 65   | 108  |

The shift has been made from a health program based on curative medicine to that of a preventative program under the Development Plan. The malaria control program has been national in scope and has had marked success. This program of the Government of India has been assisted by the World Health Organization and the United States Technical Cooperation Mission. By spraying every village with DDT and cleaning up breeding places of mosquitoes, the prevalence of malaria has been lowered over 90 percent. The enlarged spleen is no longer common among school children, which indicates the measure of control. By control of malaria on the national level the population has been increased 11 percent. Other control programs are in smallpox and mass testing for tuberculosis by B.C.G. All development workers are trained in the proper construction of village wells. The approved type well has a parapet and apron for water to drain



away from the well instead of in. Provision is made for bathing places near the wells with the water being carried a short distance. The villages that are more progressive are being encouraged to cover the wells and install hand pumps. Latrines have never been used in Bhopal villages. The villagers have always used the lanes and near-by fields. A water seal type of latrine is recommended and is slowly being accepted. This consists of a simple concrete slab and goose-neck costing ten rupees. The excreta is flushed into a pit where it is composted and later used as fertilizer. Ignorance and superstition of the village people toward health and sanitation are being met through education and demonstrations. All extension personnel are given intensive training in public health, first aid, and sanitation. By tradition the position of midwife has always been held by widows or low caste women. These women are being trained now, and their social status and clients have benefited. An intensive system of nursing education under the State Department of Health is making progress. Due to caste restrictions and the restrictions placed on Muslim women, almost all nurses are South Indian Christians. Clinics have been started in all of the Blocks for the service of the people. During the seasons of the year when the roads may be traveled, mobile dispensaries go into the interior.

Proper nutrition is a major health problem among all classes of Bhopalis. Orthodox Hindus receive no animal protein other than the milk in their tea. Lower caste Hindus and Muslims will eat meat when it is available, though never beef or pork. The average villager of Bhopal eats two to three meals a day. If he is a landlord or a money lender, he will eat more often.

#### First Meal

Paratha - Thin unleavened wheaten cake fried in some edible oil.  
Tea - Always with milk and sugar.

#### Second meal

Boiled rice  
Chappatis - Unleavened wheat cakes.  
Vegetable curry - Boiled vegetables in oil highly seasoned.  
Boiled lentils  
Tea

#### Third meal

Usually the same as the second.

Fruits are taken at all times when in season. Very rarely are vegetables eaten without boiling. The diet is lacking in quality proteins, minerals, and vitamins. A large program of promotion for family gardens and planting of fruit trees is underway in most Blocks. By demonstration and making available low cost vegetable seed by subsidization, it is hoped that the diet of the villager, and thus his health, will be improved.

#### Social Education

The problem of social education in Bhopal has no counterpart in the United States unless it is in the rural slums of the South. The overcoming of the inertia and lethargy of the village is the area of the social education organizer. The creation of desires and the motivation for group action is the prime mover for the entire village development program.

The social education organizer in the Blocks is a specialist in group dynamics. If his work is done well he is able to turn over to the agriculturist or health officer a village that is organized and eager for action. As problems are solved in the villages through individual or group action and the villager witnesses progress, new desires will be created.

Seasonal Employment of Villagers

Here the problem in Bhopal may be compared with speciality areas of Montana. Both the cultivator in Bhopal and the wheat farmer of the Northern Great Plains have many months of enforced leisure. In Montana with large acreages, good prices, and moisture this is not too serious a problem. In Bhopal, where the cultivator is utterly dependent upon nature for his food, idle time is a serious problem. If the time of leisure may be put to productive use, all concerned will benefit by improving standards. The India that Ghandi envisioned was based on self-contained villages, where every man was employed either on the land or in small cottage industries producing for the village. If the people are retaught their old crafts and skills, they are not as dependent upon sources outside the village for commodities. The things now considered necessary in a village such as kerosene and flashlights could be purchased from the sale of surplus village goods. To further this goal and to provide training in crafts new to the village, community projects have started training centers for village artisans. These trainees have functioned as artisans in their villages, their crafts being taught them by their fathers. At the training center they are taught new skills, improvements on their present craft, and given a chance through cooperative credit to purchase new tools and equipment. The men are given training in such things as soap making, weaving, smithy, carpentry, and tailoring. They return to their village after the six-months training with improved knowledge in their trade and the fundamental skills of another.

A central cooperative market is operating to market the surplus of these cottage industries. In areas where there are special skills such as bead workers, mat workers, etc., co-ops are formed to purchase supplies and market the goods produced.

PART III  
THE PLAN FOR VILLAGE DEVELOPMENT IN BHOPAL STATE

The problems that faced India in her early days following independence were of tremendous magnitude. She had just emerged from World War II when she was given independence from the United Kingdom. The partition of India with Pakistan followed at once, and India was torn apart. There were great shortages of foods with resulting famines.

The Government of India under Prime Minister Jawaharlal Nehru called for the setting up of a Planning Commission to chart the course of the nation. The best men of India in all fields were called to serve on this commission with the Prime Minister as chairman. In July, 1951, they submitted their Draft Outline on the First Five Year Plan for the period of five years from April 1951 to March 1956. 1/ Working closely with the men of the Planning Commission were advisors of the United States Technical Cooperation Administration and Ford Foundation.

The Commission had agreed that the major emphasis of the First Five Year Plan was to be given to agriculture. The plan calls for every means of development to make India self-sufficient in food. With the goals and objectives fixed, the planners evolved two basic concepts for Community Development work and established several guiding principles for the program.

The basic concepts established were:

1. It is to be a peoples program. 2/ Desires and wishes come from

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1/ Planning Commission Government of India, The First Five Year Plan, A Summary, New Delhi, India, Government of India Press, December 1952, pp.149.

2/ Planning Commission Government of India, First Five Year Plan, Peoples Edition, New Delhi, India, The Publications Division, November, 1952, pp. 263.

the Village rather than orders coming down from some authority.

2. It is an integrated and comprehensive program rather than a program confined to the narrow margins of departmental responsibility and interests.

Some of the principles that have guided the rural program development may be reviewed briefly below. 3/

1. The most important principle is the emphasis on developing people, so that they can rise up to do things for themselves either individually or in groups. "The aim (of community development)", said the Five Year Plan, "should be to create in the rural population a burning desire for a higher standard of living, and the will to live better."
2. The people should feel that development projects are theirs and for their own benefit and not something imposed on them. To accomplish this, the people should participate not merely in the project execution but in its planning as well.
3. The principle of self-help is always upheld. In the words of the Five Year Plan: "Programs largely dependent on expenditure by the government, in which the elements of self-help and mutual cooperation on the part of the villagers are present only in a nominal degree, are short lived."
4. A comprehensive program of development is needed. As the Five

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3/ Chang, C. W., The Community Development Program in India, Bangkok, Thailand, Food and Agriculture Organization of the United Nations Regional Office for Asia and the Far East, September, 1955, p. 2-5.

Year Plan pointed out, "that all aspects of rural life are inter-related and that no lasting results can be achieved if individual aspects of it are dealt with in isolation."

5. In order to be effective, community development work should be carried out intensively rather than on an extensive widespread basis.
6. There should be provisions of adequate supplies of seeds, fertilizers, farm tools and equipment, and credit within easy reach of the farm people, together with ready technical guidance in solving farm problems.
7. There should be a multi-purpose extension worker at the village level to serve as an agent between the villagers and the government agencies for coordination of the government effort and to avoid confusion in the minds of the village people. In this connection, the Five Year Plan has this statement:

"When different departments of the government approach the villages, each from the aspect of its own work, the effect on the villages is apt to be confusing and no permanent impression is created. The peasant's life is not cut into segments in the way the government's activities are apt to be; the approach to the village has, therefore, to be a coordinated one and has to comprehend his whole life. Such an approach to the village, has to be made not through a multiplicity of department officials but through an agent common at least to the principal departments engaged in rural work, whom it is now customary



to describe as the village level worker."

Ford Foundation was able at this time to step in and underwrite the program until the mechanism of the Government of India and of the Technical Cooperation Administration could be put in motion. The Foundation, in cooperation with the Government of India and of the various states, established fifteen Pilot Development Projects together with fifteen Extension Training Centers to train personnel for the project work. Bhopal was one of the fifteen states to be selected for the Pilot work. The Pilot projects served as a laboratory in trying out new methods of teaching, extension methods, and organization. Through this early work a pattern of experience was established where there had been none previously, and a cadre of men versed in the philosophy of the program was set up for staffing of later Development Blocks. At a later stage the United States Technical Cooperation Mission supplied technical assistance together with dollar aid. It might be pointed out that the contribution of the United States is approximately only 7 percent of the entire program.

From the start of the first Community Project Block and Extension Training Center in 1952, there has evolved the system of administration that is being used today.

Basically the Development Program centers around the system of Blocks in the state. A Block, as planned by the Commission, is roughly an area of 150 to 200 square miles, 50,000 acres of cultivable land, 100 villages and a population of 66,000 people. In Bhopal State most of the Blocks exceed the number of villages, the area, and the land, but few come up to the population figure due to the low population pressure on land as compared with other sections of India.

CHART I

ORGANIZATION OF A COMMUNITY DEVELOPMENT BLOCK

Block Development Officer

Extension Officers

One Social Education Organizer  
One Agriculture  
One Animal Husbandry  
One Cooperation and Panchayats

Village Level Workers  
10 Village Level Workers

One Accountant  
One Clerk  
Three Peons  
One Driver

(This is only intended as a guide and is adjusted to  
meet local conditions of population, terrain, etc.)

To staff the Block there are ten multi-purpose village level workers. Each of these V. L. W.'s serve an area of two Revenue Circles of from 5 to 20 villages.

A Block Development Officer is in administrative and technical charge of the Block and its staff. He is usually a graduate of an agricultural college. To assist the Block Development Officer (BDO) and to act as specialists in technical matters are Extension Officers (EO's) in:

Agriculture

Animal Husbandry

Cooperation and Panchayats 4/

These Extension officers are drawn from existing departments and may in turn request assistance from their parent Department. As an example, a VLW has the problem of rinderpest among his village cattle. He discusses the problem at the scheduled Block meeting. If the Block Animal Husbandry-man fears an outbreak of the disease that he would be unable to handle, he requests the State Animal Husbandry Department to give assistance. The State Department of Animal Husbandry then sends men and medicine to control the disease.

On the State level, administration follows pretty much the same pattern, but is of course much more complex. The State Development Commissioner is responsible for the Development Department of the State. The Heads of Departments in Agriculture, Community Development, Training, Animal Husbandry, Fisheries, and Cooperation and Panchayats are an integral part of the Department and responsible to the Development Commissioner.

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4/ Panchayats - Literally, council of five. These village elders form the basis for village government.

Other Departments such as Health, Education, Public Works, Power, Forests, Trade and Commerce, Industries and Information are considered to be part of the Department when the over-all Development plan is drawn. Each of these department heads is responsible for the integration of his programs into the State-wide plan.

# CHART II

## ORGANIZATIONAL CHART OF THE BHOPAL STATE DEVELOPMENT DEPARTMENT

### Development Commissioner

Collectors (2)  
District Development Officers (2)

| Agriculture                                                                                                     | Community Development                                                          | Training                                                                                            | Animal Husbandry | Fisheries                                                                      | Director of Cooperation Panchayats |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------|------------------------------------|
| Research<br>Education<br>Dir. of Agr.<br>Deputy Director<br>Research<br>Field staff<br>Extension<br>Field staff |                                                                                | Agr. Institute<br>Extension Training Centers<br>Basic Agr. School<br>Home Economics Training Center |                  |                                                                                |                                    |
| Community Projects<br>Project Executive Officer<br>3 C.P. Blocks<br>3 Block Development Officers                | Community Development Blocks<br>4 C. D. Blocks<br>4 Block Development Officers |                                                                                                     |                  | National Extension Service Blocks<br>5 N.E.S. Blocks<br>5 Blocks Dev. Officers |                                    |

Operating at the State, District, and Block levels are Advisory Committees. These committees are especially valuable at the District level where personnel have only a background of revenue experience. Enforcement of law and orders from above and the collection of revenue was done through force and coercion. The development program is based on education, cooperation, and self-help. It was difficult to reconcile these two philosophies; therefore, checks against the "Revenue Mentality" were placed in the form of the District Development Officers and the Advisory Committees. It is surprising to see how well the collectors who have an experience of fifteen or twenty years of almost absolute authority accept the new order.

The three types of Blocks mentioned in the chart are confusing to those not intimately associated with the program.

Briefly the differences are:

1. Community Project Blocks.

These Blocks were started to gain experience and to give impetus to the movement. The work is very intensive and their budget is larger. They have more equipment, facilities, transport etc. These will go out of the picture next year (1957).

2. National Extension Service Blocks.

These Blocks are very extensive and slow moving. They operate on a budget about half of the Community Project Blocks. They lack equipment and facilities, but achieve their goals through education and movement of the people.

3. Community Development Blocks.

Midway between the two other Blocks in budget. If a National Extension Block does well, it may be up graded to a Community Development Block.

For all practical purposes the Blocks are staffed by the same amount of trained personnel and the administrative organization is basically the same.



PART IV  
PROGRESS IN AREAS OF DEVELOPMENT FOR ONE COMMUNITY PROJECT BLOCK

This presentation has thus far been an examination of problems, procedures, and purposes of the Community Development Program. In this section one of the twelve blocks in the state of Bhopal is summarized as to program and progress. In order that the statistics might be more meaningful, comments and explanations are given.

I. Community Project Block Sehore

A. General Information and Data

|                                                                                                                       |                 |
|-----------------------------------------------------------------------------------------------------------------------|-----------------|
| 1. Area                                                                                                               | 391,478 acres   |
| 2. Population                                                                                                         | 98,068 "        |
| 3. Cultivated area                                                                                                    | 215,043 "       |
| 4. Net cropped area                                                                                                   | 176,840 "       |
| 5. Double cropped area                                                                                                | 5,293 "         |
| 6. Un-occupied area                                                                                                   | 82,167 "        |
| 7. Occupied area                                                                                                      | 277,549 "       |
| 8. Cultivable waste                                                                                                   | 71,160 "        |
| 9. Sugar cane area                                                                                                    | 2,943 "         |
| 10. Irrigated area                                                                                                    | 8,534 "         |
| 11. Reserve forests                                                                                                   | 31,762 "        |
| 12. Villages                                                                                                          | 308             |
| 13. Pucca irrigation wells<br>(Pucca is brick, cement, masonry)                                                       | 486 nos.        |
| 14. Irrigation tanks                                                                                                  | 11 "            |
| 15. Canals                                                                                                            | 18 miles        |
| 16. Irrigation barrages<br>(Dams, to be taken out during<br>monsoon, replaced at end of<br>monsoon, to impound water) | 10 nos.         |
| 17. Project started work                                                                                              | October 2, 1952 |

II. Report of Progress Under Program of Work for the Four Year Period, October 2, 1952-October 2, 1956.

A. Roads

|                                                            |                      |
|------------------------------------------------------------|----------------------|
| 1. Approach roads                                          | 5 miles 4 furlongs   |
| 2. Kutcha roads and lanes<br>(Kutchas means country built) | 224 miles 2 furlongs |
| 3. Street pavement                                         | 5 furlongs           |
| 4. Paved dips (in lieu of bridge)                          | 1 furlong            |
| 5. Foot path and dam                                       | 5 nos.               |

B. Irrigation

|                                      |          |
|--------------------------------------|----------|
| 1. Pucca barrages completed          | 4 nos.   |
| 2. Pucca barrages under construction | 6 nos.   |
| 3. Earthen dams                      | 64 nos.  |
| 4. New wells                         | 89 nos.  |
| 5. Wells under construction          | 120 nos. |
| 6. Repair of old wells completed     | 110 nos. |
| 7. Old wells under repair            | 36 nos.  |

C. Land Improvement

|                                                                     |           |
|---------------------------------------------------------------------|-----------|
| 1. Bunding (small dams at base of slope)                            | 67 acres  |
| 2. Tractor ploughing (shallow)                                      | 324 "     |
| 3. Deep ploughing by Central Tractor<br>Organization (Kans control) | 37,938 "  |
| 4. Ammonium sulphate supplied                                       | 484 cwt.  |
| 5. Complete fertilizers supplied                                    | 941 "     |
| 6. Green manuring                                                   | 465 acres |
| 7. Compost pits dug                                                 | 1587 nos. |

D. Agricultural Methods

|                                             |           |
|---------------------------------------------|-----------|
| 1. Supply of improved pure seed             |           |
| a. Rice                                     | 512 lbs.  |
| b. Cotton                                   | 7708 "    |
| c. Wheat C-591                              | 74,360 "  |
| d. Moong T-1 (mungbeans)                    | 410 "     |
| e. Sugar cane (CO-421)                      | 16 tons   |
| f. Mango and citrus grafts supplied         | 4468 nos. |
| g. Packets of garden seed                   | 989 "     |
| h. Trees planted (in addition to<br>grafts) | 4462 "    |
| 2. Improved implements                      |           |
| a. Moldboard ploughs                        | 10 "      |
| b. Irrigation pumps                         | 62 "      |
| c. Bund formers                             | 13 "      |
| d. Persian wheels                           | 45 "      |

|                                    |                                                            |            |
|------------------------------------|------------------------------------------------------------|------------|
| 3.                                 | Agricultural demonstrations                                |            |
| a.                                 | Number held                                                | 873        |
| b.                                 | Number of persons attended                                 | 4569       |
| c.                                 | Agricultural fairs                                         | 20         |
| 4.                                 | Plant protection                                           |            |
| a.                                 | Insecticides                                               | 195 lbs    |
| b.                                 | Zinc phosphide (Rat control)                               | 50 "       |
| c.                                 | Agarson packets<br>(Treatment enough for 26,424 acres)     | 8808 nos.  |
| 5.                                 | Seed multiplication plots                                  | 900        |
| 6.                                 | Tree fertilizer plots (Demonstrations)                     | 45         |
| 7.                                 | Adoption of Japanese method of rice cultivation            |            |
| a.                                 | Full                                                       | 23.5 acres |
| b.                                 | Partial                                                    | 47.0 "     |
| E. Animal Husbandry and Veterinary |                                                            |            |
| 1.                                 | Veterinary help against contagious disease                 | 4355 nos.  |
| 2.                                 | Veterinary help against non-contagious disease             | 1073 "     |
| 3.                                 | Number of artificial insemination                          | 2          |
| 4.                                 | Castrations of scrub bulls                                 | 981 "      |
| 5.                                 | Number of services of improved and purebred bulls          | 67 "       |
| 6.                                 | Inoculations given                                         | 27,823 "   |
| F. Drinking Water Supply           |                                                            |            |
| 1.                                 | New wells completed                                        | 67 "       |
| 2.                                 | New wells under construction                               | 31 "       |
| 3.                                 | Repair of old wells completed                              | 39 "       |
| 4.                                 | Old wells under repair                                     | 19 "       |
| 5.                                 | Piped water supply, new                                    | 1 "        |
| 6.                                 | Piped water supply, repair                                 | 8 "        |
| G. Village Sanitation              |                                                            |            |
| 1.                                 | Drains completed                                           | 1763 "     |
| 2.                                 | Soakage pits constructed                                   | 31 "       |
| 3.                                 | Latrines constructed                                       | 4 "        |
| 4.                                 | Disinfection of wells                                      | 1669 "     |
| 5.                                 | Smokeless chullahs<br>(Smoke carried out of house by pipe) | 74 "       |
| 6.                                 | Cattlesheds cleaned                                        | 5439 "     |

H. Health

|                                              |          |
|----------------------------------------------|----------|
| 1. Medical examinations of students          | 242 nos. |
| 2. Dispensaries in progress                  | 5 "      |
| 3. Medicine chests distributed               | 68 "     |
| 4. Patients attended by doctors              | 1844     |
| 5. Midwives visits to homes                  | 892      |
| 6. Pregnant women examined                   | 409      |
| 7. Maternity cases attended                  | 258      |
| 8. Persons inoculated or vaccinated          | 10,477   |
| 9. Number of villages served by health units | 250      |
| 10. Houses sprayed with DDT                  | 49,738   |

I. Cooperation

|                                        |      |
|----------------------------------------|------|
| 1. Multi-purpose societies             | 8    |
| 2. Grain depots                        | 2    |
| 3. Industrial societies                | 6    |
| 4. Farming societies (Irrigation etc.) | 2    |
| 5. Total membership                    | 275  |
| 6. Share capital collected Rs.         | 2515 |

J. Education

|                                      |    |
|--------------------------------------|----|
| 1. Existing schools                  | 78 |
| 2. New schools opened                | 11 |
| 3. New schools buildings in progress | 22 |
| 4. Conversion into basic schools     | 22 |
| 5. New school buildings completed    | 13 |

K. Credit

|                                          |         |
|------------------------------------------|---------|
| 1. Taccavi (Government short term loans) |         |
| a. Bullocks (Rs)                         | 129,370 |
| b. Irrigation (Rs)                       | 381,175 |

L. Social Education

|                           |      |
|---------------------------|------|
| 1. Number of classes held | 97   |
| 2. Attendance by adults   | 2158 |
| 3. Adults made literate   | 419  |
| 4. Village libraries      | 40   |
| 5. Youth clubs            | 198  |

M. Recreation

|                       |      |
|-----------------------|------|
| 1. Sports exhibitions | 18   |
| 2. Participants       | 974  |
| 3. Community singing  | 92   |
| 4. Attendance         | 1921 |
| 5. Social programs    | 69   |
| 6. Average attendance | 178  |

N. Poultry

|                             |    |
|-----------------------------|----|
| 1. Purebred birds placed    | 28 |
| 2. Purebred birds purchased | 11 |

O. Villagers Contribution

|               |         |
|---------------|---------|
| 1. Cash (Rs)  | 22,933  |
| 2. Labor (Rs) | 109,901 |

PART V  
AGRICULTURE AND EXTENSION TRAINING IN THE DEVELOPMENT PROGRAM

Extension Training Center

In 1951 there were only seven men in the state of Bhopal who were graduate agriculturists. The envisioned need for men trained in Development was estimated at 500. The problem of training these men in as short a time as possible and yet give them adequate training was considered first priority in the program. Bhopal was selected by the Ford Foundation as one of the states to start a Pilot Project in Community Development and an Extension Training Center. The training was to be based on actual field experience and the needs of the villagers.

This coordinated program of a village approach and training for village work was started August 16, 1953. The one Block has grown to twelve, and the 60 trainees of the first group are a part of the 663 men who have received training since 1953.

When training first started, the groups were trained for only six months. Later the period was extended to one year and for the past two-year period, the time was extended to 18 months. To meet the demand for personnel, the center at one time operated on a double shift basis, but is now operating only a single shift.

Many states operate Basic Agriculture Schools where the training is for one year. The trainees are then moved to the Extension Training Center and given six months of extension training. Bhopal has functioned with extension and other development courses running concurrently. This has saved duplication of staff and administration.

### Training Center Staff

The staff is drawn from existing departments of the states, from colleges outside the state, and from the Union Public Services Commission (Civil Service Commission) in New Delhi.

All of the teaching staff are college graduates, most with Masters degrees in their field. They are supplemented by assistants who teach basic skills and village approach. Only two of the staff have lived in villages. The instructors average Rs. 250 per month and the assistants Rs. 150. In addition to the salary, the center furnishes quarters, water, and lights. Only two of the staff had previous teaching experience.

The popular method of classroom instruction is by lecture. The staff members prefer to be called lecturers in their field rather than teachers.

Table VII  
Estimated Cost of an Extension Training Center in Rupees

|                                                 | Total cost<br>For 4 years<br>(Rupees) |
|-------------------------------------------------|---------------------------------------|
| I. Non-recurring costs                          |                                       |
| 1. Land and buildings (provided by State Gov't) |                                       |
| 2. Repairs and maintainence                     | 50,000                                |
| 3. Transport equipment                          | 20,000                                |
| 4. Equipment, plant and material                | 50,000                                |
| 5. Miscellaneous                                | <u>10,000</u>                         |
| Total                                           | 130,000                               |

| II. Recurring costs                                               | Cost per<br>year<br>(Rupees) | Total cost<br>for 4 Years<br>(Rupees) |
|-------------------------------------------------------------------|------------------------------|---------------------------------------|
| 1. Staff                                                          |                              |                                       |
| a. Training in charge (1)                                         | 6,000                        |                                       |
| b. Agriculturists (2) @ Rs 4000 per annum                         | 8,000                        |                                       |
| c. Public Health 2 @ Rs 4000 per annum                            | 8,000                        |                                       |
| d. Educationalists 2 @ Rs 4000 per annum                          | 8,000                        |                                       |
| e. Veterinary aid 1 @ Rs 4000 per annum                           | 4,000                        |                                       |
| f. Co-operation and Panchayat 1 @ 4000 per annum                  | 4,000                        |                                       |
| g. Village housing 2 @ Rs 400 per annum                           | 8,000                        |                                       |
| h. Secretary, clerks 2 @ Rs 1,200 per annum                       | 2,400                        |                                       |
| i. Stipend, training allowance and other allowances for trainees: |                              |                                       |
| 1. For Gov't employees 50 @ Rs 50 per month                       | 30,000                       |                                       |
| 2. Non-Gov't employees 50 @ Rs 75 per month                       | 45,000                       |                                       |
| j. Training aids                                                  | 3,000                        |                                       |
| Totals                                                            | 126,400                      | 505,600                               |
| 2. Other charges                                                  | 1st yr 2nd yr 3rd yr 4th yr  |                                       |
| a. Repairs to buildings                                           | 10,000                       | 10,000                                |
| b. Equipment & material                                           | 20,000                       | 20,000                                |
| c. Fuel, oil, et.                                                 | 6,000 6,000 6,000 6,000      | 24,000                                |
| Totals                                                            | 6,000 36,000 6,000 6,000     | 54,000                                |
| Grand Total -- Non-recurring and recurring                        |                              | 689,600                               |

Table VIII  
Actual Allocation of Expenditures of Bhopal  
Extension Training Center by Agencies (Rs)

|             | U.S. TCM | Ford Found. | Govt. of India | State of Bhopal |
|-------------|----------|-------------|----------------|-----------------|
| First year  | 30,000   | 120,830     | 100,000        | 6,000           |
| Second year |          | 123,180     |                | 36,000          |
| Third year  |          | 62,920      |                | 68,910          |
| Fourth year |          | 42,920      |                | 91,840          |
| Totals      | 30,000   | 349,850     | 100,000        | 202,750         |

For all agencies, the total in Rs is 682,600, or \$32,476.19.  
Average per year for four years in Rs is 170,650.



### Trainees

These men come to the training center from all over India in response to advertisements that candidates are wanted as village level worker trainees. The majority of men that are in training and that have been trained in the Bhopal Center come from other states. Only 5 percent of these men are native Bhopalis.

These men appear for interviews in large numbers. Each training group contains approximately 120 men and there are usually 400 to 600 candidates for the posts. The prospective trainees are subjected to very rigid pre-selection tests in order to get the best men for the job. The Ministry of Food and Agriculture of the Government of India, Ford Foundation, and the Technical Cooperation Mission together with principals of training centers have established several criteria for selection of trainees.

1. Health
2. Age
3. Village background
4. Leadership ability
5. Education

Follow-up evaluative work by the ministry is being carried out to determine if these criteria are adequate to forecast job success.

The men are then given pre-selection tests or elimination tests of from 3 to 5 days. Some of the tests given are:

1. Run at a jog trot for 5 miles.
2. Walk 15 or 20 miles.
3. Perform menial and degrading labor usually done by only low castes.

4. Eat together in a common mess. This determines caste consciousness, for an orthodox high caste would never eat with lower caste people.
5. Agricultural and village knowledge are tested - plowing, seeding, etc.
6. Social programs, relations with others, singing, dancing, group dynamics, speeches, and debates.

These rigorous examinations tend to eliminate those boys who are not used to work and hardships. The boys who are very orthodox usually are eliminated also. At the end of this testing period they appear for interviews before a board of senior officers where their background, intentions, general knowledge, and fitness for the work is judged. The men not selected return to their homes and the new trainees are started in classes at once.

In an extensive analytical study undertaken by the Ministry of Food and Agriculture 1/ it was found that the average trainee (based on "personal history" schedules of 1223 trainees in 18 training centers) is a young man of about 24 years of age. He is probably married, but 62.9 percent have no children.

He is usually a matriculate or better in education and has spent the past three years since finishing school as an "unpaid family worker" on the family farm. He has lived in a village his entire life (73.9 percent) or has never lived in a village (2.8 percent).

This trainee enters his 18 months' period of training with the agreement that he will endeavor to the best of his ability to complete his training and to serve as a village level worker in the state for a period of three years.

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1/ Ministry of Food and Agriculture, Government of India, Gram Sevak Trainees, New Delhi, India, August 1953, pp.35.

Judgment on the selective process and trainees' determination may be formed by the analysis of 1901 2/ trainees from 24 centers who had completed their training before July 1, 1953. Of these trainees, 1,741 or 92 percent completed the required training and were employed in Development Blocks.

Only 99 boys dropped out of their own volition while 61 trainees were "plucked" (failed). While figures are not available after the boys enter service it is estimated by Development Officers that less than 10 percent fail or drop out after entering work.

The trainees are given a stipend of rupees 50 per month while in training. From this they pay for their food and clothing and other expense. At this time they are expected to assemble a small field kit of information booklets, charts, etc. Upon graduation they are issued rubber boots, a satchel, record books and forms, first-aid kit, medicine kit, canteen, and if funds permit a rain coat. They are also issued a "national dress" uniform of a short black wool coat and white Jodphur pajamas. As the trainees are servants of the government, they are housed at State expense and all hospital and medical bills are paid by the State. During training at the Bhopal center the trainees manage their own cooperative mess. They purchase supplies, assign details, and do the serving. There is a small cooperative canteen run by the trainees where tobacco, shaving supplies and other small items are purchased. Their quarters and facilities are spartan in nature to accustom them to village conditions. The food is plain but plentiful; almost all trainees gain weight in training.

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2/ Ibid, p.3.

When they enter the service of the Community Development Program, they receive a base pay of rupees 80 per month plus a cycle allowance of rupees 10 and a "dearness allowance" (allowance made for wife and children) of rupees 18. On the job they purchase their own bicycle and maintain it. During the wet season they make their rounds of villages by foot or by rented pony.

#### Course of study

The village level worker is the connecting link between Government and the village. Through him the findings of research and the recommendations of departments are put into practice in the village. Through him the villagers channel their problems and make known their desires to the government.

To effectively perform their duties, the village level workers must be as well trained as possible. They must thoroughly understand the job that they are to do, and they must recognize the problems they will encounter in doing this job.

The workers must have skills and knowledge greater than the people they will work with. If they are to succeed in the village, they must be able to convince the villager of their desire to serve and have the necessary skills to carry out the work.

The men who come to the training center are lacking in scientific knowledge in agriculture and the other fields. They must be given a basis of knowledge and mature judgment superior to the villager.

The curriculum 3/ of the Bhopal Extension Training Center lists as the objectives of training:

1. To change the outlook of the trainees and train them to lead a progressive village life.
2. To help and guide the trainee to develop his personality, his ability to get along with the villagers, his willingness to listen to them, his humility and complete absence of snobbishness.
3. To impart to them knowledge in agriculture and other allied subjects.
4. To train them in the up-to-date extension methods and techniques.
5. To turn them into multi-purpose men and personalities.
6. To enfuse in them the dignity of labor.
7. To train them in a democratic cooperative way of life.

The working statement by which these objectives in training are to be achieved are thus stated: 4/

1. Students must have at least sixty percent of their training in the field as practical work, consisting of demonstrations, learning new skills, and becoming acquainted with the villagers to help determine felt needs, learn more of the villagers way of life, as well as formulate ideas as to what Gram Sevak's (literally village servant, title of the village level worker) responsibilities are.
2. Forty percent of the time is essential to study basic knowledge in the fields of a multi-purposed worker since previous training was in fields other than agriculture.
3. Some of the students have never lived in a village over one year. Those who were reared in villages have a limited knowledge of farm skills or village leadership.
4. None of the students are familiar with nor have experience in imparting knowledge by extension methods.
5. It is essential that the students receive the larger portion of their basic knowledge at the beginning of the course to enable them to do effective village work toward the end.

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3/ Staff, Curriculum and Lesson Breakdown of Ford Foundation Extension Training Course, Bhopal, State Press, April 1953, pp. 55.

4/ Ibid, pp. 2.

6. Students should be placed in a village, "on their own," for a period of at least fifteen days (30 days are preferable) during which time they devote full time to the village.
7. Basic knowledge and demonstrations in agriculture are more effectively taught if taken up in season.
8. Adult education classes are of a continuous nature, therefore, must be taken up on an evenly distributed basis. (Trainees are assigned specific villages in which to conduct adult literacy classes).
9. It is impossible to follow any set plan for the entire period. It is much more useful to revise plans to meet unforeseen circumstances.

To serve as a laboratory for practical work, the training center has a small farm. Here the trainees do all the work of seeding, cultivating, and harvesting. Small varietal and fertilizer demonstrations are conducted by the trainees under the supervision of the staff. The farm is stocked with working bullocks and dairy cows. A poultry unit gives experience to the trainees and also serves as a source of breeding stock for the Blocks.

Attached to the center are twelve villages. The trainees do all villages work here under supervision of the project officers. They carry out result and method demonstrations, conduct literacy and health programs, and help with the organized cooperatives.

The course of instruction for the eighteen months\* training is given below. Only the major items are given here. This includes theory and practicals.

#### AGRICULTURE

|                                    |                                |
|------------------------------------|--------------------------------|
| Soils                              | Farm management                |
| Soil management                    | Tillage and tillage implements |
| Elementary botany                  | Crop production                |
| Irrigation                         | Marketing                      |
| Horticulture and vegetable farming | Plant protection               |
| Agricultural engineering           | Climatology                    |

### ANIMAL HUSBANDRY, DAIRYING, AND VETERINARY

|                        |                    |
|------------------------|--------------------|
| Types of livestock     | General management |
| Diseases and parasites | Castration         |
| Milk management        | Nutrition          |
| Goats                  | Sheep              |
| Poultry                | Bee keeping        |
| Fish breeding          |                    |

### EXTENSION

|                                  |                           |
|----------------------------------|---------------------------|
| Community development            | Philosophy and principles |
| Duties of an extension worker    | Villagers participation   |
| Rural life and culture           | Rural customs and manners |
| Methods of approach to villagers | Felt needs                |
| Surveys                          | Programs of work          |
| Supply                           | Administration            |
| Cooperation of departments       |                           |

### SOCIAL EDUCATION

|                         |                                             |
|-------------------------|---------------------------------------------|
| Education               | Puppets                                     |
| Recreation              | Music                                       |
| Adult literacy          | Flannelgraph                                |
| Adult psychology        | Village surveys                             |
| Village approach        | Organization of fairs, religions, festivals |
| Writing                 | Wall newspapers                             |
| Follow up               | Setting up village libraries                |
| Books for new literates |                                             |

### VILLAGE HOUSING AND ROADS

|                              |                      |
|------------------------------|----------------------|
| Study of existing structures | Selection of site    |
| Drawing plan                 | Lay out              |
| Foundation                   | Concrete and mortars |
| Brick work                   | Stone masonry        |
| Roofing                      | Tools                |
| Accounts                     | Survey of roads      |
| Maintenance of roads         | Building roads       |

### HEALTH AND SANITATION

|                       |                    |
|-----------------------|--------------------|
| Infection             | Disease            |
| First aid             | Epidemics          |
| Preventative measures | Village sanitation |

### COOPERATION AND PANCHAYATS

|                                |                              |
|--------------------------------|------------------------------|
| Principles of cooperatives     | Cooperative credit           |
| Purchasing and marketing coops | Organization of cooperatives |
| Panchayat duties and powers    | Preparation of budget        |
| Accounts                       |                              |



### Other Training

The need for training in Bhopal State is not confined to village level workers. There is a comprehensive but loosely coordinated program of training reaching to the village level.

Village leaders are given training so that they may assume responsible role of development in their village. These men are assembled in camps where they are given indoctrination into the ways of the development program. There are organized tours to areas where villages have progressed. The demonstration and research farms hold field days for these village leaders.

Village youth are encouraged to assume a role of leadership. There are organized camps and tours for these young men. When they return to their villages they assist the village level worker in organizing youth into demonstration, project, and service units. An outgrowth of the village youth program has been the villagers' caravan. Here young men from villages where there has been good progress assemble in their bullock carts and tour from village to village. They tell the story of their village, what it has done, and the problems encountered. As a mass education media this device has proven very effective.

The village Panchayats are given training in their duties and responsibilities. They are trained in methods of administering and developing their villages. These village elders are highly respected and have a great leadership potential. They have been able to reduce the number of court cases by settling disputes in the village. These men assemble the villagers for all work involving cooperative action. In building a new school for the village they assign so many days of labor to each family; they form an "ad hoc"



advisory committee for the village level worker. Their effectiveness and leadership has been improved by the five days training given each year.

The village women are given training in family camps. In these camps the entire family is urged to attend. The men are given training by field staff in agriculture, animal husbandry, and cottage industries. The women are given training in home science, nutrition, soap making, health, etc., by women workers of the project. The children, if old enough, attend classes and demonstrations with their parents. Younger children are taught group games, singing, etc. by a lady worker.

Training in specific fields is given by the Development Department by short courses held in the field. When irrigation pumps became available to villages, men were selected from each village to receive training as pump drivers. Palm Gur (sugar from the sap of the palm) specialists organize short courses in areas where Gur is an important item of the diet. Cottage industry specialists go from Block to Block organizing villages in production of small items. Courses are given by departmental subject matter specialists in writing and preparing material for villagers. All departments are being given in-service and on-the-job training so that they may better serve the needs of the people.

## SUMMARY AND INTERPRETATIONS

In April, 1956, ended the first "five year plan" of India. What has it accomplished? At the start of the plan in 1952, the villages of Bhopal state as in all of India were in bad circumstances.

1. Yields of crops were lower than any other country of Asia.
2. Consumption of food was lower than any other country of Asia.

In the first five year plan we have seen the yields of food grains increase tremendously due to increased acreage, better methods, use of manures, improved seed and irrigation. The consumption of food has increased also. The per capita consumption of food in 1950-51 was 1666 calories per day. 1/ In 1953-54 consumption had increased to 1857 calories per capita per day. For the first time India feels that she is self sufficient in food and is not dependent upon imports.

General prosperity of the villages of Bhopal is reflected in many ways. There are more items being brought in from the cities now, and they are meeting with acceptance in the villages. Kerosene, flash lights, umbrellas, and household vessels are no longer considered as luxury items. The sale of milled cloth has gone up. Another indication of the rise in income is reflected in the sales of the village silver merchants.

These indications of success in the development program are gratifying to all workers. The most important change though has been in the thinking and attitudes of the people. At the start of the program the people were

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1/ Technical Cooperation Mission, New Delhi, India, Unclassified Report to Foreign Operations Administration, Washington, D. C., May, 1955, p. 3.

suspicious of Government, they were reluctant to accept the workers and new ideas. This then is the great change. If people build a school because they want that school for their children, if they build it at their own cost and with their own labor, it will stand as a symbol of what group action and cooperation can accomplish. Bhopal's greatest resource is her people, if these people can be directed away from factionalism and communalism (in this sense religious orthodoxy) toward self-help the program will have achieved much. In the early days when workers went to a village, the people ran and hid. There were cases where workers were "set upon" by villagers and beaten. The villagers did this because they feared the Government and could not conceive of a State being interested in their welfare. This has changed now and the workers are met with confidence and asked to help solve village problems.

There is a great danger in Bhopal that the workers may become so enamored with achieving physical goals that they will forget the basic concepts of the program. It doesn't matter how many schools, roads, pounds of seed, or other goals a worker achieves. The important thing is how this was done. Did the people want and accept these improvements or did the village worker force the changes on the people?

There is danger in Government also. At the present time there are many political parties but only the Congress party wields great power. Will these people become so firmly entrenched and corrupt that the right of a constitutional government be lost? It will avail the people of India little if they have thrown out the British and the princes and instead have established a hierarchy of others.

BIBLIOGRAPHY

- Chang, C. W., The Community Development Program in India, Bangkok, Thailand, Food and Agriculture Organization of the United Nations Regional Office for Asia and the Far East, September, 1955.
- Ministry of Food and Agriculture, Government of India, Gram Sevak Trainees, New Delhi, India, August, 1953.
- Planning Commission Government of India, The First Five Year Plan, A Summary, New Delhi, India, Government of India Press, December, 1952.
- Planning Commission Government of India, First Five Year Plan, Peoples Edition, New Delhi, India, The Publications Division, November, 1952.
- Staff, Curriculum and Lesson Breakdown of Ford Foundation Extension Training Course, Bhopal, State Press, April, 1953.
- Unclassified Report; Technical Cooperation Mission, New Delhi, India, to, Foreign Operations Administration, Washington, D. C., May, 1955.