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EXPERIENCES IN RURAL DEVELOPMENT

Occasional Paper No. 6

**ANALYSIS OF EXPERIENCES OF SELF-HELP AND
PUBLIC PARTICIPATION IN RURAL WATER SUPPLIES :
THE CASE OF MEXICO**

by

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Occasional Papers on Experiences in Rural Development

The O.E.C.D. Development Centre initiated this series of occasional papers due to an increasing commitment to field work and research activities in this subject and an awareness that much of the background material and lessons derived from field experience is frequently not documented or accessible. These occasional papers are preliminary working documents written by the specific authors and they do not necessarily represent the views and opinions of the O.E.C.D. or the Member Governments.

A series of occasional papers concerning the subject of industry and technology in developing countries is also available upon request from the O.E.C.D. Development Centre.

PREFACE

In March 1976, the Development Centre of the OECD convened a meeting of experts to discuss socio-economic research priorities in the field of water resources planning and management in developing countries. A comparative analysis of experiences with self-help and public participation in rural water programmes was a subject which received considerable attention. It was felt that the most fundamental lack of knowledge concerns those socio-economic characteristics of communities and population groups which are most likely to participate in such programmes. Special emphasis was placed on the need for more innovative field research, especially as it relates to national programmes in rural potable water systems.

Having advocated a case study approach to investigate this subject, a select panel of experts met to discuss the types of methodologies and hypotheses necessary to articulate a research project design. Eng. Francisco Leon de la Barra Rowland, Eng. David Donaldson of The Pan American Health Organisation, and Dr. Duncan Miller, Chief, Economics Section of the Development Centre, met subsequently to elaborate on these hypotheses and to establish detailed plans for a case study in Mexico. A debt of gratitude is owed to Eng. Donaldson, for without his continuous encouragement and guidance, this project would not have been undertaken. Implimentation of the field survey was conducted under the supervision of Eng. de la Barra Rowland and a team of Mexican social scientists. Their devotion to this arduous task merits special praise.

Eng. de la Barra Rowland is a graduate of Stanford University, School of Civil Engineering. From 1972 to 1976, he was the Director of Rural Water Supply, CCIS/SSA. He is now Director (Vocal Ejecutivo) of Rural Development at CONASUPO (Comisión Promotora Conasupopara el Mejoramiento Social).

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CHAPTER I

INTRODUCTION AND BACKGROUND INFORMATION

A. Socio-Economic Hypotheses: Self-Help and Public Participation in Rural Water Supplies

As mentioned in the Preface, the overall objective of this study is to measure concretely the implications, positive as well as negative, of self-help and public participation within government programmes in the field of rural water supplies. Attempts to articulate a concise and operationally-meaningful definition of the terms self-help and public participation were abandoned in light of the multifarious aspects of their connotation. A less restrictive, and hopefully more relevant, approach of itemising hypothesised action components was adopted as will be explained below. For present purposes, a possibly more generic term, that of user involvement is employed.

The fundamental hypothesised benefits and drawbacks of voluntary user involvement discussed at the OECD Development Centre Expert Meeting may be summarised as follows:

Benefits:

- a) User involvement will lead to better and cheaper maintenance.
- b) User involvement will lead to community motivation and institution building.
- c) User involvement will provide water supplies at a lower cost per capita to public funds.
- d) User involvement will catalyse other development action in the community.
- e) User involvement will lead to more efficient collection of water rates.

Drawbacks:

- a) User involvement will cause inefficiencies and dis-economies in the implementation phase.
- b) User involvement will therefore, cause fewer water supplies to be built at a higher cost in any given time.
- c) User involvement will cause a poor technical standard of construction that will lead to more frequent breakdowns.

B. Focus and Outline of the Case Study in Mexico

The Construction and Sanitary Engineering Commission of the Ministry of Health and Welfare (CCISSSA) has the primary responsibility for rural potable water supplies in Mexico. User involvement is an important component of their operations. As will be elaborated later, other government departments, such as the Secretariat of Public Works and Administrative Committee for the Construction of Public Schools, also utilised various aspects of self-help and public participation in their activities. The following components of self-help and public participation have been identified based upon programme agreements with various communities and interviews with departmental officials:

1. Work petitions
2. Donation of necessary land for the implementation of the system
3. In construction:
 - a) Unskilled manual labour
 - b) Primary regional materials
 - c) Cash contributions
 - d) A combination of the preceding factors
4. Formation of community committees for local development
5. Work administration
6. Project operation
7. Project maintenance
8. Project rehabilitation
9. Project enlargement

For better comprehension and analysis, these points have been assembled into five different groups, as follows:

- A) 1 and 2 refer to work petitions and land donation, forming the first group.

It has been observed that these conditions appear in practically all cases, and are therefore considered as constant or fixed. Therefore, in the evaluation and analysis which willow, they would not be considered in detail.

- B) Number 3 refers to construction, with its variables, and constituting the initial factor of self-help, should, therefore, be considered of great importance. It will be fully investigated in its four variables, to obtain percentages by participation degrees against all variables contained in the questionnaire.

This group is considered the origin or cause of actions detected in numbers 5 to 9 (Group D) below,

- C) Number 4, formation of community committees for local development, is considered separately because the existence of committees reflect (or should reflect) an organised interest for community development. Committees are considered the appropriate tool to conceive and direct actions that result in self-benefit (Self-help).
- D) This group considers numbers 5 to 9 referring to the administration, operation, maintenance, rehabilitation and enlargement of the works. This group will be studied principally as a result, whether positive or negative, of the actions of self-help initiated within the variables of construction in group B.
- E) This group will encompass in percentages all other information that does not appear in the nine concepts previously mentioned.

Clearly, a multitude of disparate factors can contribute to the incidence and impact of self-help and public participation. Given the practical and policy-oriented nature of this study, we have classified them into two groups:

- 1) Those factors susceptible to be controlled and measured with some kind of validity, and
- 2) Those that are not.

The factors susceptible to scientific verification and that also conform to the hypothesis postulated above can be grouped or classified under three major titles:

- a) Technical factors,
- b) Socio-economical factors, and
- c) Financial factors.

This study will address only those factors within these three areas. The factors not susceptible to exact measurement, such as the political factor, human factor, regional idiosyncrasy, rates of demographical mobility, etc., will be mentioned only where additional, independent data are available.

This study has been undertaken in three separate stages: (1) an analysis of current self-help and public participation programmes and practices, (2) an evaluation of the experiences obtained through self-help in Mexico, and (3) an examination of retrospective and prospective data collected to test the hypotheses explained above.

Mexico's general policies for the formulation of self-help programmes will be explained for background information with emphasis given to the particular programmes of the following institutions:

	Representative of:
Secretariat of Public Works	Roads
Administrative Committee for the Construction of Public Schools	Schools
Construction Commission and Sanitary Engineering	Water and Hospitals

In this analysis the policies and practices of CCISSSA will be described as representative of those currently in force in Mexico. They will also be used as a point of comparison to those others listed above.

In terms of the statistical data base, the general universe (statistical population) can be subdivided into two parts:

1) Institutional Universe:

This universe will be investigated and analysed from three points of view which are measurable: technical, socio-economical, and financial. This will include opinions of the highest officials in CCISSSA (policies, planning, decision-taking and programming), opinions of a percentage of residents and supervisors (qualified evaluation in the field from an institutional point of view), opinions of the Technical Committee for operation and maintenance, and opinions of a certain number of contractors who deal directly with the practical aspects of self-help and public participation.

2) Population Universe:

Within this universe, research will be carried out basically from the technical and socio-economical points of view to measure the present implications that self-help programmes have had in participating and non-participating communities. Data will be collected which reflect opinions of the inhabitants who in one way or another have been in touch with the self-help phenomena.

Secondly, prospective data will be collected as to how inhabitants think future self-help programmes should be arranged for better functioning. We consider this of importance due to the necessity of avoiding unilateral programmes that will always be defective when not considering the interest of those who really provide self-help and receive the benefits of their own effort. We hope through this programme to detect data that will allow recommendations tending to break the marginality of the people in this type of involvement.

C. Summary and Conclusions

In view of what has been stated above, we wish to emphasize the concepts that this study aims to develop, as well as those that it will not.

We attempt to analyse:

- 1) At an informative level, a document which will contain the bulk of Mexico's present line of action, in respect to self-help and public participation, exclusively within the field of action of the institutions in charge of the problems of basic rural infrastructure. CCISSA's criteria will be considered as representative and typical of this case, and those of other departments as reference frame.
- 2) At an Institutional level and within CCISSA exclusively, we will verify (based on their own experiences) the opinion of qualified officials in the self-help phenomenon, as well as the financial and technical repercussions that this phenomenon has caused in the institutions. The figures corresponding to financial and technical information would be obtained from the files of the institution concerned.
- 3) A document that on an institutional level, will furnish the opinions of all those experts who have experience with the self-help phenomenon, regarding its potential, what criteria or policy they suggest for the future, in what field do they think self-help would be beneficial and in which of a disadvantage, suggested actions to break with the marginality of the communities, what factors in their opinion propitiate the appearance of the phenomenon, etc.

In short, we here try to establish the possible future of self-help, from an institutional point of view as well as devices or tools proposed for its control, optimising and to propitiate its development as much as possible. This is validated through the institutional experience and it is quantified through the frequency of response method. The evaluation and the resulting thesis will be based on this quantification.

- 4) The opinion, the socio-economical and the primary implication that participation in the projects produced by the inhabitants of receptive communities, The effects created by the form of participation will be studied as well as the movements of attitudes that emanate from this participation. This point will be directly investigated in the field and would have statistical validity by reference.

- 5) The opinion of the communities reflects that of their inhabitants as to what would be the ideal form from people's point of view of participation and self-help in future programmes. This point of the investigation attempts to motivate the people to express their interests and desires of participation in programmes that can be beneficial and that can help to break their present marginality.

This opinion will be measured by means of direct survey and will have statistical validity by inference.

Due to the abstract nature of the working hypotheses, the project will limit its study exclusively to the five groups mentioned above and to the described procedures because they are considered as the only ones susceptible of having validity.

Factors of an abstract or imponderable nature, such as political, regional, idiosyncrasy, etc. will only be considered as existing and will be pointed out. Neither is it pretended to measure the benefit produced by the work itself, because this measuring is considered to correspond to another type of investigation. Changes of any type in the socio-economical structure of the community that could be considered as an effect of the implantation of the tap water system are equally excluded from the study.

CHAPTER II

CASE STUDY METHODOLOGY

A. Objectives

The objectives of this investigation are twofold:

1. General:

To know and to evaluate the technical, economical and social implications of self-help in the communities where a programme of tap water was established.

2. Specific:

To determine the financial, technical and social advantages and/or disadvantages of self-help.

To evaluate the programmes of self-help in Mexico.

B. Hypothesis to be Tested

The hypotheses used to examine the points above are those presented at the OECD Development Centre conference. The hypothesis which posits that public participation furnishes water supply at a lower per capita cost could not be corroborated due to lack of information.

C. Independent and Dependent Variables

The basic variables employed in this analysis are listed below:

Independent Variables:

Degree of participation:

1. No participation
2. Participation in pre-construction committee
3. Participation in unskilled hand labour
4. Participation with local materials
5. Participation with money in cash
6. Combined participation

Socio-economical aspects:

1. Sex
2. Age: 15 - 25; 26 - 35; 36 - 45;
46 - 55; 56 on
3. Monthly income: No income
One time the minimum wage (*)
From 1 to 1.5 times
From 1.5 to 3 times
More than 3 times the minimum wage
4. Occupation: No occupation
Day labourer
Peasant
Worker or artisan
Merchant
Employee
Housewife
Student
Professional

*) On average, the rural minimum wage in the investigated states of the country is \$62.70 pesos daily, ranging from \$40.00 to \$89.00. The equivalent average in U.S. dollars at a rate of exchange of 1 dollar = \$23.00 pesos is 2.70.

5. Scholastic Situation:

Illiterate
 Read and write only
 Incomplete gradeschool
 Complete gradeschool
 Secondary school or commercial courses
 Preparatory school or technical courses
 Professional

6. Number of economically dependent persons:

None; 1; 2 - 3; 4 - 5; 6 - 7; 8 or more

Dependent Variables:

1. The technical implications on the tap water work due to self-help:

Functioning
 Maintenance
 Management

2. Social implications of self-help in the community:

Motivation
 Community development

3. Factors conditioning self-help:

Infrastructure
 Need
 Interest
 Propensity to work in a collective form
 Leadership

4. Financial implications:

Costs
 Payment of quotas

D. Sample Selection

The degree of participation in self-help programmes was estimated according to a 67 per cent proportion sampling method. Each and every one of the 458 relevant communities^{1/} fall within one of the two possible types of alternatives:

- 1) They did participate = 69
 2) They did not participate = 31

^{1/} They represent the communities susceptible to being researched, due to the existence of the necessary data for designing the sample. These localities belong to the programme of new work of CCISSA for 1974, 1975 or 1976.

It was decided in advance to accept a margin of error of 6.5% in the ratio estimated "P" of units belonging to the alternative 1, that is to say, that the estimate will be included in the percentage interval (60.5 - 73.5%), inferior and superior limits respectively, with a probability coefficient of 95%. This means that in every 100 cases, 95 will be included within the interval $67 \pm 6.5\%$.

In this way the size of the sample was estimated upon the basis: precision = liability x standard error

with: $n = \frac{NZ^2PQ}{Nd^2 + Z^2PQ}$ (1) where:

- N = the number of communities
- Z = the reliability coefficient
- d = precision (margin of error)
- P = ratio of communities that did participate
- Q = ratio of communities that did not participate

Using the c p f (corrector for finite populations) where the fraction of sampling is not insignificant:

$$n = \frac{No}{1 + \frac{(No - 1)}{N}}$$

where:
 N = the number of communities
 No = the size of sample that is estimated in (1).

giving:

n = 137 communities to survey with a precision of 6.5% and at a confidence level of 95%, corresponding to 94 communities with participation and 43 without participation.

During the period 1974 to 1976, the economically active population (ages 12 to 54 years) which probably participated in these self-help programmes was 140,602 inhabitants. Given an even distribution over the 458 localities, an average of 307 inhabitants per community, or a total of 42,059 inhabitants would be the possible participants in the 137 localities:

In this way $\frac{n = NZ^2PQ}{Nd^2 + Z^2PQ} = 2021$ and using cpf gives:

$$n = \frac{No}{1 + \frac{(No - 1)}{N}} = 1928$$

which if fairly distributed should yield: 14 interviews per locality or selected community to measure the degree of participation according to the development of self-help programmes.

The 137 localities, 94 with participation and 43 without participation were selected at random in the following States: Chiapas, Jalisco, Estado de Mexico, Morelos, Oaxaca, Puebla, Tabasco, Tlaxcala, Veracruz and Yucatan. These States represent the three different levels of development existing in Mexico. (*)

Individuals (14 per community, 1928 as a total) were selected at random covering all possibilities of participation. At the same time heterogeneity in age, sex, schooling, income, occupation, and number of economical dependents was selected in the sample.

The distribution of the sample by State is presented in Table 1 and shown geographically in the map which follows.

*) The Secretariat of Hydraulic Resources has classified the 31 states and the Federal District into three different degrees of development.

INVESTIGATED STATES

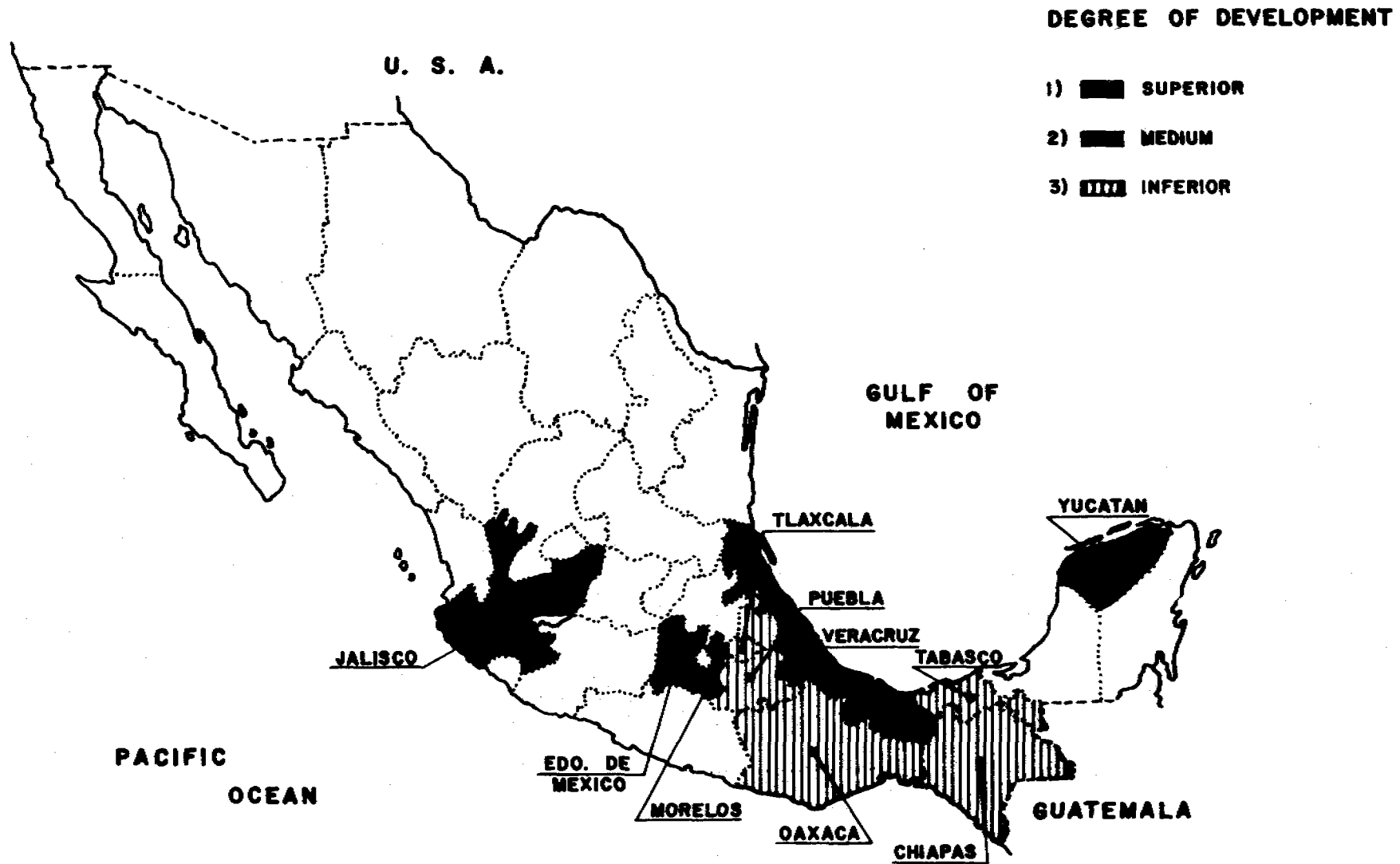


TABLE 1

Communities Investigated
(State, Number of Communities and Population Range)

<u>State</u>	<u>With Participation</u>		<u>Without Participation</u>	
	<u>Number</u>	<u>Population range</u>	<u>Number</u>	<u>Population range</u>
Chiapas	10	500 - 1000	-	-
Jalisco	10	400 - 2200	7	250 - 750
Mexico	-	-	14	500 - 2500
Morelos	10	500 - 3500	3	600 - 700
Oaxaca	10	500 - 2000	6	500 - 2500
Puebla	10	300 - 1700	5	500 - 1400
Tabasco	12	200 - 1050	-	-
Tlaxcala	9	500 - 2000	5	500 - 2500
Veracruz	10	500 - 2500	6	500 - 1000
Yucatán	10	500 - 2000	-	-
	<u>Total:</u>	91	<u>46</u>	

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CHAPTER III

SELF-HELP PROGRAMMES IN MEXICO

A. Institutions with self-help programmes

Among the Departments with self-help programmes, the following are the most important:

- Ministry of Public Health and Welfare, through the Construction Commission and Sanitary Engineering
- Ministry of Public Works' Programme of Labour-intensive Rural Roads Construction
- Ministry of Public Education through CAPFCE

B. Existing Policies and Institutions

The institutions mentioned above consider self-help as the participation of the community to carry out a project for the common welfare; they usually consider rural communities as the focus of self-help and within these, the peasants, authorities and teachers are the usual target groups.

The survey data indicated that the main reasons why authorities consider self-help beneficial for the realisation of their programmes are:

1. 30.2% To encourage the development of the community.
2. 17.0% Because the project is or will be the property of the community furnishing self-help.
3. 15.1% To provide employment opportunities to the community.
4. 13.2% To reduce labour costs.
5. 9.4% Because their work is for the benefit of the community supplying self-help.
6. 9.4% Because that is what bi- or tripartite agreements have established.
7. 5.7% To facilitate the obtention of non-specialised labour.

Of the institutional informants 62% reported that self-help was included as a participating factor in the planning stage. The other 38% reported the opposite, arguing that these communities lack qualified personnel for this stage, and that programmes are decided at a superior level where only political, economical and technical factors are considered.

Within the implementation stage, self-help has contributed in the following ways:

Unskilled manual labour	96%
Local materials	63%
Committees created	46%
Land donated	38% (*)
Cash	30%

Once the project is completed, 96% of the informants reported that self-help relates mainly to the management, maintenance, preservation and enlargement of the water supply.

In 50% of the cases self-help was not contemplated originally as part of the project. The main reasons given were:

Due to the nature of the work	31.2%
Because the community tries to obtain working sources only	25.0%
Due to the lack of interest of the population	18.8%
Due to political and economical restrictions	18.8%
Due to a lack of adequate agreements	6.2%

In exchange for participation, the institutions offered:

Only the benefit resulting from the project	54.0%
Technical advice	29.0%
Money	25.0%
Reduction of economical contributions	21.0%
Food rations	13.0%

88% of the informants stated that, a prior investigation was carried out to detect the potential for participation. Usually this investigation was carried out through a socio-economical survey and through group meetings to determine the type and propensity of participation.

As far as village leaders are concerned, the procedures that are taken most often into account are the following:

They are made aware and sensitive so that with their influence there is more co-operation from the people	50%
They are attracted through remuneration for their participation and collaboration	30%

*) There is an apparent contradiction between this result and the previous explanation that land donation by the community was present in all the self-help programmes. This may be explained by the fact that here we are considering informants supplied by various institutions, whereas in the former result, we were taking only about the case of CCESSA.

The procedures that the institutions use to motivate the communities to accept the project and to participate, are the following:

General group meetings are promoted and the nature of the project, degree of participation required, and the benefits to be obtained are all explained	100%
Technical advice is given	83%
The concept of property is handled as a motivating factor	75%

As a general policy, the institutions try to form a Pre-construction Committee constituted of leaders and persons who are interested. The completed project is then handed over to the same committee. Unfortunately for the most part, there are no training programmes so that the community can manage, operate and maintain the work properly. In few cases the state governments intervene in this aspect.

C. A Policy-oriented Evaluation of Self-Help Programmes

According to the experience of the institutions interviewed, the advantages and disadvantages created by self-help are the following:

<u>Benefits or Advantages:</u>		62.1% (total)
<u>Factors</u>		<u>% Distribution</u>
1. Facilitates institutional actions because labour problems are reduced:		29.5%
2. Creates community development:		27.3%
3. Improves maintenance and preservation of the project mainly because the community feels their ownership of the work:		22.7%
4. Generates employment		11.4%
5. Allows more possibilities of constructing, more works at any given cost:		9.1%
	Total	<u>100.0%</u>

<u>Drawbacks or Disadvantages:</u>		37.9% (total)
<u>Factors</u>		<u>% Distribution</u>
1. Delays the construction phase:		59.3%
2. Promotes paternalism:		14.8%
3. Impedes technical quality of the project:		14.8%
4. Intensifies conflicts between those who participate and those who do not:		7.4%
5. Requires more supervision:		3.7%
	Total	<u>100.0%</u>

87.5% of the informants were of the opinion that community need for the project, as well as the participation of the community in the construction stage, are determinants for a better operation, management and preservation; moreover, 62.5% were of the opinion that a community should participate in all development programmes, be they Federal or State programmes.

On the other hand, 30% were of the opinion that communities should participate only in programmes of direct benefit to them. Everyone contacted agreed that the promotion preceding the project is essential for self-help to work for the institution as well as for the community that is the beneficiary.

The objectives of self-help most often listed by the opinions of institutional informants were:

- To develop human relationships
- To increase development-oriented projects
- To create the sense of responsibility and union
- To avoid paternalism

Of those interviewed, 80% were of the opinion that rural communities in Mexico are "marginated". Marginality is defined as a lack of opportunities to participate in the development of society. Most people agreed that in order to change this situation it is necessary to give communities the opportunity to participate and increase investments in the infrastructure of the rural areas.

D. Financial and Technical Implementation of Self-Help Programmes

According to their previous experience, 77% of the informants were of the opinion that participation affects work calendars mainly in the sense that they are delayed. As far as the impact on the technical quality of work due to users involvement, the following results were reported:

It is not affected in any way, since they only participate with unskilled manual labour:	46%
Plan specifications and work construction are not strictly respected. Labour is deficient:	20%
It is affected due to a lack of technical training:	13%
It is not affected in any way at all, because they receive the proper technical training:	17%
Other factors:	4%

Regarding the financial implications, the results found were the following (Table 2):

Table 2

Institutional Savings due to Self-Help
(% respondents who identified type and degree of savings out of total investment by self-help components)

<u>Factor Reported</u>	<u>% Institutional Savings</u>				
	<u>0</u>	<u>1-5</u>	<u>10-15</u>	<u>Over 15</u>	<u>No Answer</u>
Unskilled manual labour	21	8	17	24	30
Local materials	21	38	4	8	29
Land donation	8	30	4	-	58
Cash contributions	8	38	17	-	37

Most of the informants declared that there is a lack of necessary information in order to make an estimate of the average cost per project with participation, compared with the average cost per project without participation.

Only the Ministry of Public Works (SOP) reports the average cost of the rural roads, in which are the following estimates:

Communities with user involvement	\$45,000.00 pesos per Km.
Communities without user involvement	\$65,000.00 pesos per Km.

In general, lack of information also applies to a comparison of the cost of maintenance in communities with participation and those without participation; however, the SOP reports the following:

Average cost of annual maintenance in communities with participation:	\$ 4,000.00 per Km.
Average cost of annual maintenance in communities without participation:	\$ 5,000.00 per Km.

If the SOP data are correct, self-help does not raise the cost of projects as might be hypothesised. On the contrary, it allows savings for the public sector.

E. Institutional and Social Implications of the Self-Help Programmes

Institutional informants agreed that self-help creates a developmental spirit in the communities which accrue social and economic benefits. The main consequence of this in the long term is that communities are in a better position to obtain the construction of other development-oriented projects.

CHAPTER IV

ANALYSIS OF THE INCIDENCE AND IMPACT OF SELF-HELP

A. Socio-Economic Determinants of Self-Help

Data compiled from household questionnaires are reported in the following sections. These data are utilised for three purposes: (1) to document and describe those persons (and their socio-economic characteristics) who have shown a high propensity to become involved in self-help and public participation schemes, (2) to test the impact hypotheses articulated in Chapter I, and (3) to seek policy guidance as to the orientation of future programmes.

Sex: 93% of the participants were male

Age: The distribution by age classification of the persons who participated was the following:

15 - 25 years	12%
26 - 35 "	23%
36 - 45 "	28%
46 - 55 "	22%
56 and more	15%

Out of the total persons interviewed from 15 to 25⁶ years of age, 47% participated; from 26 to 35 years of age, 49%; from 36 to 45 years of age, 56%; from 46 to 55 years of age, 64%; from 56 years on, 66%. That is to say that persons between 15 and 25 years of age are those who participated the least, followed by those from 36 to 45 years of age. Thus, we can state that as age increases, participation increases. This is probably due to the fact that as age increases, the need for water increases. A similar pattern occurs according to the number of economical dependents, which is also a function of age. Simply put, there are more people to take care of.

Monthly income: The distribution by income levels of the participating persons was as follows:

Without income	35%
Up to one time minimum wage	50%
From 1 to 1.5 times	9%
From 1.5 to 3.0 times	5%
More than 3.0 times	1%

The previous distribution does not imply that the persons with a greater propensity for participation are those who earn up to one time the minimum wage. It only means that from the total number of participants, 50% of them were persons with an income equal to the minimum wage. This is due to the fact that it is those persons who are the most numerous in rural areas.

Analysing the results from another stand point, e.g. taking income levels as different universes, we find that the persons who participated most were:

- 1) The persons with more than 3 times the minimum wage, since from the total of these interviewed persons, 74% affirmed having participated.
- 2) The persons with monthly incomes equal to the minimum wage and those with 1.5 to 3 times the minimum wage with 66% and 64% respectively.
- 3) The persons with incomes of 1 to 1.5 times the minimum wage with 59% participation.
- 4) The persons without incomes with only 50% reported participation.

It can be concluded therefore that those persons who have a higher income are those who participate the most, followed by persons with incomes equal to the minimum wage. It is surprising to see that those persons who participated the least, are those without income. We can presume that other intervening variables (most likely endogenous) can explain this phenomenon. Probably the principal variable is the social role that the unemployed sector of the Mexican society, mainly peasants and Indians, has played throughout Mexico's history. The non-participation, marginalization and alienation in which they have lived, have created an autistic apathy with evident signs of self-destruction. A survey conducted to prove this hypothesis could show very interesting results.

Occupation: 47% of the total persons without occupation participate
64% of daylabourers participate
65% of peasants participate
63% of workers participate
67% of merchants participate
48% of employees participate
24% of housekeepers participate
54% of students participate
46% of professionals participate

In terms of a descending rank order, merchants, peasants, daylabourers and workers were those who participated the most. Housekeepers were those who participated the least.

Schooling: 55% of the total illiterate people participate
 62% of those who only know how to read and write participate
 59% of persons with incomplete grade school participate
 55% of persons with a complete grade school participate
 47% of persons with secondary school participate
 44% of persons with preparatory (high school) school participate
 56% of persons with professional studies participate

Those participating the most were persons who only know how to read and write, those with an incomplete grade school and professionals, in that order.

Number of Economically Dependent Persons: Only 40% of persons without any economically dependent persons participated in comparison with the persons having economically dependent persons from which 60% to 65% participated.

Participation in Self-Help Programmes prior to the Tap Water Programme: 61% of the participants in the Tap Water Programme, belong to communities where there has already been user involvement. Only 6% of the participants in the Tap Water Programme have not participated in previous self-help programmes. This means that participation in prior programmes sensitises people to participate in a collective manner.

Institutional Behaviour: The way in which the Committees pre-construction were constituted, affects the degree of participation.

The constitution of the Committees was made up as follows:

By CCISSSA	39%
By decision of the majority	30%
By leaders of the Community	11%
By the State Government	7%
It was already constituted	2%
Unable to give any data	11%

Of the Committees constituted by the State Government, 56% participated. Of those constituted by CCISSSA, 63% collaborated. Of those formed by the leaders of the community, 71% participated. Of those formed by the decision of the majority, 62% participated and of all those which were already constituted, 71% participated. This means that the Committees formed by the leaders of the community and those which have been previously constituted, are those having higher possibilities of participation and of not being disintegrated before the work is started. The less effective committees are those constituted by the State Government.

In 79% of the cases there was a pre-construction orientation of the advantages, benefits and ways of constructing the tap water system. In 62% of the times, this orientation resulted in the participation of the community and in 24% of the cases it was counterproductive.

The ways in which the participants were selected included the following:

By popular decision	55%
Volunteers	6%
By the Committee	5%
By CCISSSA	4%
By the State Government	1%
By other leaders	0%
Unable to give any data	29%

Within each category no determined influence exists as far as who elects the participants. On the other hand, there is a high propensity of people to participate once they have been selected to do so. The main difference detected was that 68% of the people selected by the State Government participated while those selected by the Committee had a participation percentage of 78%.

The strength of the propensity to participate may be seen in the fact that, of all the people who declared they did not want to participate, only 26% of the persons did in fact not do it.

22% of the total participants confirmed to have received something in exchange for their participation. Nevertheless, from these persons, 78% stated that they did not remember what they received. Of those who did remember, 14% received food rations, 3% received money, 3% said to have obtained satisfaction derived from the benefit of the work, 2% obtained a position within the community and 1% received the support of the people.

70% of the participants were informed that the work would be owned by the Community; 14% were not informed; finally 16% could not remember. Among those who were informed, 64% participated and of those persons who were not informed, 62% also participated. This implies that the idea of property as a motivating factor, did not affect the act of participating. People participated more because of the benefit derived from the work. Also the fact that the work was carried out in lands donated by the Community, implies the feeling that the work is the property of the community.

From the total number of people interviewed, 6% said that the work was the property of the Federal Government; 7% said that the work was owned by the State Government; 4% by CIS CCISSSA, 2% by the Committee, 1% by the State Board and 65% by the Community. It is due to this sense of ownership that the community participates.

Lastly, and at an informative level, the average ratio of the number of persons participating in the projects was the following:

From 1 to 10	8%
From 11 to 20	5%
From 21 to 30	7%
From 31 to 40	9%
51 or more	28%
Unknown	34%

The following section investigates the relationship between the degree of participation and the type of water source previously utilised by the community. In essence, this is a test of the degree of felt need as a motivating factor in promoting self-help and public participation. The results may be summarised as follows:

<u>Indicator of Real Need</u>	<u>Communities that did participate</u>	<u>Communities that did not participate</u>
- From where was water taken before? (*)		
Spring waters, filtrations	21%	16%
Rivers and channels	21%	15%
Chain pumps, wells and whirlpool	50%	66%
Dams and reservoirs	0%	0%
From another town, water piped from other places	7%	3%
Others	1%	0%
- Supplying Location		
Very far	19% 18	12% 5
Midway	27% 25	22% 9
Close to town	54% 51	66% 28

N=44

N=47

*) This chart may be read as follows: Example - 21% of the communities that participated previously took their water from spring waters and filtrations, while 16% of the non-participating communities took it from the same source.

	<u>Communities that did participate</u>	<u>Communities that did not participate</u>
- Quality of the water		
Very good	27%	21%
Medium	53%	60%
Bad	20%	19%

At a first glance the impression is given that the need is not a basic determining factor to motivate people to participate. Nevertheless, when we analyse the results from another angle we find that from the total¹³ of communities with a distant supply location of water, 71% participated and 16% did not participate. On the other hand of the total of the communities with a close supply location, 55% participated and 28% did not participate. That is to say that increased distance in the supply location increased participation by 16% (71 - 55).

On the other hand, we found that from the total of communities having high quality water, 63% participated and 21% did not participate, whereas 57% of the communities with bad quality water participated and 23% did not participate. Consequently water quality does not appear to be a determining factor in the motivation to participate. There is only a 6% difference.

A more important difference may be noted from the following observation: 79% of the communities whose water was supplied from other towns or by means of water pipes participated in comparison to the 50% of participants of communities which got their supply from local dams and reservoirs. This apparent dependency of supply caused an increase of 29% in participation.

From the analysis above, it can be concluded that "need" does not determine greatly the motivation to participate. Here we measured the need according to the supply location, its distance from town and the quality of the water. Only in the last result can we clearly recognise the need influence. At the same time we found that from the communities where all the inhabitants considered the tap water system as necessary, 63% participated and 22% did not participate. In contrast in those communities where only half of the persons considered the system as necessary, 34% participated and 28% did not. From the communities in which almost nobody considered it necessary, 28% participated and 47% did not participate.

We found that the more people considered the work as necessary, the higher is the possibility of participation. When the whole community considered it necessary there was 63% participation. When almost nobody considered it necessary, participation decreased to 28% of the cases. Consequently, the perceived need (though not the real need) increased participation by 35%. A felt need has a greater urge to be satisfied than a real need.

Leaders of the Community: The following chart summarises participation according to the way the community applied for the work:

<u>Persons who requested the work</u>	<u>Communities</u>		<u>Total of Communities</u>
	<u>with participation</u>	<u>without participation</u>	
Persons not related to this town	2%	4%	3%
1 or 2 persons of this town	4%	3%	3%
A group of persons of the community without consulting the majority	4% 4	11% 5	9 6%
Leaders or authorities of the community <small>with majority</small>	28% 26	17% 7	33 24%
A group of the community taking the opinion of the majority	56%	47%	52%
Unknown	6%	18%	12%

These data appear to confirm the importance of a democratic decision for accepting the work. We found that 44% of the communities participated where a group of persons of the same community requested the work without consulting the majority. From the communities where the leaders or a group of persons requested the work after consulting with the majority 79% 65% of these participated. The leaders and the fact of having consulted the majority of the people when the work was requested, increased participation by 21%.

The common forms of self-help in the communities where tap water programmes were introduced, are:

	<u>Total Communities</u>	<u>Communities that participated</u>	<u>Communities that did not participate</u>
Collective labour in chores, agricultural works, labour in general	36% (51/52)	41% (59)	29% (41)
	1/10	1/10	1/2

	<u>Total Communities</u>	<u>Communities that partic- ipated</u>	<u>Communities that did not participate</u>
Co-operation by voluntary fees, collections, balls and parties for the obtention of money	12%	12%	11%
Formation of community funds	0%	0%	0%
In cases of emergency or sickness	2%	1%	2%
For requesting loans for seeds, tools, materials, animals	14%	16%	12%
Barters, exchange of labour and food	2%	3%	2%
There is no collective help	10%	8%	10%
Unknown	2%	1%	2%
No answer	22%	<u>18%</u>	32%

As can be observed, the important fact is that 41% of the communities that participated have forms of collective labour in field labour, while only 29% of the communities that did not participate have this form of collective labour. That is to say that the propensity to participate in self-help programmes increased in the communities where collective labour has been frequent and habits of participation existed.

These results were confirmed by the following results: 67% of the communities where collective labour existed did participate, while only 47% of the communities where nobody receives any help from their social group, participated. The difference (20%) implies that the habit of self-help within a community, propitiates participation in user involvement programmes.

**B. Effects of Participation at an Individual Level:
Technical, Financial and Socio-Economic**

This section analyses the impact of the degree of participation on the three major areas tap water systems design, namely technical, financial, and socio-economic factors. The first set of data reported investigates the degree and utilisation of experience learning due to participation.

<u>Degree of Learning</u>		<u>Utilisation of Learning</u>	
Unknown	39%	Unused	14%
They did not learn	23%	Used a little	4%
They learned something new: plumbing, masonry, etc.	20%	Used a lot	0%
They learned to operate and maintain the tap water system	17%	As an individual benefit, in repairs, masonry works	9%
They learned to transact with the Government	17%	To help and advise others	3%
They learned to live with people, to deal with people, to be united with people, to be useful, to help other people	13%	They apply the experience in higher positions	3%
They learned little	2%	To promote projects	1%
They learned much	1%	Unknown or no answer	66%

It is important to mention that participation did not furnish the foundations it could have given to persons who participated. The learning derived from the self-help programme was relatively low. This is due probably to the fact that there was a lack of orientation in the promotion stage of the work and now there are no other concrete possibilities of applying what has been learned. Therefore, it is important to integrate this programme into overall development, thus enabling the users to employ their experience more productively.

The future plans of improvement of the participants were the following:

To be able to work more crops	35%
Undecided	17%
To study	10%
To earn more money	7%
To improve housing	6%
To make new business	6%
To work for the development of their community	3%
To obtain credits	1%
No answer	15%

These responses again verify the lack of impact of training given within the current self-help and public participation programmes.

Motivation Characteristics of the Participants:

77% of the persons who have plans to improve their crops or to produce more in the fields participated; 23% of these persons did not participate.

86% of the persons who have plans to benefit their community participated; 14% of these persons did not participate.

81% of the persons who have plans to create a new business participated; 19% did not participate.

71% of the persons who think of improving their housing conditions participated; 29% of these same persons did not participate.

67% of the persons who plan to continue their education participated; 33% did not participate.

We observed that participation resulted in an increase of consciousness in personal improvement in the individuals that collaborated in the self-help programme. At the same time, this implies that the persons who participated already had a greater disposition for progress.

Of the persons who participated 71% thought of participating again in future plans for the development of their community; 4% did not think of participating again and 26% did not know. Of the persons who did not participate, 49% thought of doing it in the future; 7% did not think of doing it, and 54% did not know. From the total of persons who thought of participating in the future, only 20% corresponded to persons who did not participate in this programme.

It is worth mentioning that participation within the tap water programme predisposes people to get involved in other programmes of self-help. Clearly participation diminishes apathy for user involvement.

There were hardly any changes in occupation due to participation. The following results were reported:

<u>Type of Occupation</u>	<u>Occupation previous to participation</u>	<u>Occupation after participation</u>
None	1%	1%
Day labourer	10%	10%
Peasant	66%	64%
Worker	3%	4%
Merchant	6%	6%
Employee	2%	2%
Housekeeper	4%	5%
Student	2%	1%
Professional	1%	2%
No answer	5%	5%

To conclude, the impact of participation on interpersonal relations (though difficult to measure with precision in a study of this kind) may be derived from the following comparisons: of those persons who participated, 26% claimed to have better relations with other people. Only 8% of those who did not participate made the same claim. This implies that participation sponsors community integration. The impact of participation on the community as a whole will be investigated in a subsequent section.

Technical Efficiency

Table 3 presents data which yield insights about the impact of self-help and public participation on the project technical efficiency and degree to which deficiencies were corrected. First of all, it is obvious from the column titled "it does not work" that those systems with any type of self-help had a lower degree of operational failure. Likewise, again in every case, systems with some type of self-help had a higher deficiency correction factor than those systems built without a self-help programme.

Within those communities which had a self-help programme, cases appearing to have the highest degree of success were those which combined participation by labour, materials, or money (line 6). The difference in failure rates between the cases reported in line 6 and systems without participation was almost 35%. Not only does this data confirm the hypothesis that "user involvement will lead to better maintenance", but also, these findings are clearly too powerful to be ignored in project design.

Table 3

Percentage Distribution of Systems'
Efficiency and Corrective Action Taken
by Degree of Participation

Degree of Participation (at a Community Level)	Functioning of the Water System			Have deficiencies been corrected?		
	It works	It does not work	Un-known	Yes	No	Unknown
1. None	51	49	-	-	49	51
2. In Committee	60	38	2	20	11	69
3. With labour	73	26	1	23	9	68
4. With materials	68	21	11	18	15	67
5. With money	78	22	0	26	2	72
6. 3, 4 or 5	83	15	2	13	2	85
7. 2 with 3, 4 or 5	71	23	6	13	16	71

Administration, Operations and Maintenance (AOM)

The comparison of the degree of participation and AOM function is presented in Table 4. The findings here are similar to those of Table 3. In every case, systems built with self-help had a higher incidence of AOM functions than those without self-help. Likewise, the category reported in line 6 had the highest proportion of all cases studied.

Table 4
Percentage Distribution of Systems' Administration and Operations and Maintenance by Degree of Participation

Degree of Participation	Is someone in charge of the system administration			Is someone in charge of the operation and maintenance of the system		
	Yes	No	Unknown	Yes	No	Unknown
1. None	51	49	-	51	49	-
2. In Committee	76	13	11	68	16	16
3. With labour	80	7	13	69	14	17
4. With materials	68	18	14	68	18	14
5. With money	87	2	11	81	8	11
6. 3, 4 or 5	90	6	4	87	7	6
7. 2 with 3, 4 or 5	78	15	7	68	20	12

Participation is also important in the punctual payment of the water system services. The communities that participated with money in cash and that participated in committees are those that pay their services best with 71% and 52% respectively. This corroborates the hypothesis that "self-help permits a higher efficiency in the payment collection for water use". The low payment ratio reported in line 4 probably represents the relatively passive nature of such participation and thus low motivation.

Degree of Participation	Do they pay in time their quotas for Water Services?		
	Yes	No	No Answer
1. None	-	-	100%
2. In Committee	52%	28%	20%
3. With labour	42%	43%	15%
4. With materials	26%	71%	3%
5. With money	71%	19%	10%
6. 3, 4 or 5	47%	44%	10%
7. 2 with 3, 4 or 5	43%	48%	9%

Social Implications Resulting from Participation

Almost all communities, those that participated and those that did not participate, affirm to have the same problems:

<u>Problems</u>	<u>Communities that participated</u>	<u>Communities that did not participate</u>
1. Infrastructure	39%	30%
2. Tap Water and drainage	22%	23%
3. Health	12%	11%
4. Unemployment	8%	8%
5. Housing	6%	7%
6. Agriculture	3%	3%
7. Food	2%	1%
8. Others	7%	13%
9. Unknown	7%	13%

Although tap water and drainage was listed as the second priority in communities that had already participated in some type of tap water programme, it should be noted that, in these cases, 60% of the individuals contacted felt progress has been made to solve the problem. The corresponding figure for those communities without participation was only 43%.

The reasons given by the communities for not participating were the following:

- Because it was sowing season and there was no time available;
- There was no disposition, nobody wanted to participate;
- They did not agree with the work;
- The contractor did everything;
- Because the community paid for the work;
- For lack of information. Their help was not requested;
- They were told that it was not necessary;
- Due to division among groups and lack of organisation.

The development plans for the future in the communities studied can be summarised as below:

<u>Plans</u>	<u>Communities that participated</u>	<u>Communities that did not participate</u>
1. Infrastructure	22%	10%
2. Economic Development	14%	9%
3. To improve housing	10%	11%
4. To improve health	8%	9%
5. Enlargement and rehabilitation of drainage and tap water	6%	5%
6. Others	9%	9%
7. Unknown	31%	47%

Two findings are noteworthy: (a) communities which had already participated reported a higher propensity to establish some type of plan (69% versus 53%), and (2) communities which had participated appeared more capable of articulating their priorities (36% versus 19% for lines 1 and 2 combined).

Moreover, 70% of the persons in communities that participated were positively inclined to participate in these development plans, while 49% of the persons in the communities that did not participate had no plans to participate. The 21% difference indicates a greater motivation to participate because of having participated in the tap water programme.

Finally, data were gathered which indicate concrete cases of further self-help and participation after the conclusion of the tap water system. The following chart establishes the incidence of such participation:

	<u>Communities that participated</u>	<u>Communities that did not participate</u>
Yes	39%	22%
No	56%	63%
Unknown	5%	15%

Analysing these results from another angle, we found out that in terms of the total number of communities that had carried out projects after the tap water system, 68% corresponded to communities with previous participation and only 15% to communities without participation. The works that have been carried out were of the following types (in order of importance): Schools, Housing improvements, Roads and electric power, Dams, Common land societies, Mail, telephone, telegram.

The persons of the communities that participated, reported to have collaborated in the realisation of the projects mentioned above, in the following manner:

In no way	10%
With labour	27%
With materials or money	16%

In comparison, the persons in the communities that did not participate, reported to have collaborated in the following manner:

In no way	40%
With labour	4%
With materials or money	5%

We also found that 26% of the persons in the communities that participated would not be willing to participate in projects of benefit to nearby communities. This should be compared to the 37% of persons in communities without previous participation who indicated that they would not be willing to do so.

All of these findings verify the hypothesis that self-help or user involvement encourages community motivation and the creation of institutions. Self-help in the tap water works, serves as cataliser of other development actions.

C. General Opinions about Participation

General opinions about self-help and public participation were collected for six separate facits of this subject. In each case both the resultant opinion choice and determinants were requested. The data are presented below in a self-explanatory manner.

1. Opinions on the tap water programme:

	<u>Communities that part- icipated</u>	<u>Communities that did not participate</u>
Good	94%	90%
Bad	3%	4%
Undecided	3%	6%

- Reasons why they think it is good

It means or it implies develop- ment of the community	16%
It improves the quality of the water	15%
To have water at home	15%
It is more hygienic	13%
It avoids water transportation	13%
It is essential	10%
Less disease	9%
Others	2%
Undecided	7%

2. Opinions about the idea of participation:

	<u>Communities that part- icipated</u>	<u>Communities that did not participate</u>	<u>Grand Total</u>
Positive	94%	89%	91%
Negative	1%	1%	1%
Undecided	5%	10%	8%

- Why is it positive for the community to participate?

Because it helps in the development of the community			27%
Because they learn to work in a group and favours union			27%
Because they are paid for it			12%
Because it implies mutual help between Government and People			10%
Because it is necessary, and what the Government asked for			4%
Others			3%
Undecided			17%

3. Opinion of whether people who participate should receive something in exchange:

	<u>Communities that part- icipate</u>	<u>Communities that did not participate</u>	<u>Grand Total</u>
Yes	51%	47%	49%
No	38%	37%	37%
Undecided	11%	16%	14%

- What is it that should be received in exchange?

Money		56%
Food rations or assistance for their home		28%
Benefits, participation in other plans		4%
Nothing, it is enough with the benefit		4%
More work		2%
Others		6%

4. Opinions as to whether the selection of participants was a good one:
- | | |
|-----------|-----|
| Yes | 68% |
| No | 2% |
| Undecided | 30% |
- Considerations on the ideal forms in which the community should participate:
- | | |
|--|-----|
| With labour | 25% |
| In Committees | 20% |
| With money in cash | 13% |
| Promotion of the project and its benefits | 10% |
| Co-operation with the Government in the creation of development projects | 10% |
| With construction materials | 3% |
| Undecided | 19% |
5. Opinions as to who are the appropriate persons for participation:
- | | |
|-----------------------------|-----|
| Everyone, all of the people | 27% |
| Community leaders | 26% |
| Peasants | 11% |
| Rich and influent people | 6% |
| People who are mature | 5% |
| Youth with initiative | 4% |
| Parents and Family Heads | 2% |
| Others | 2% |
| Undecided | 17% |
- What do men think about female participation?
- | | |
|-----------|-----|
| Positive | 84% |
| Negative | 8% |
| Undecided | 8% |
6. Is there a period in the year when the community has better possibilities for participating?
- | | |
|-----------|-----|
| Yes | 73% |
| No | 19% |
| Undecided | 8% |

The policy implications of these socio-economic characteristics and opinions will be presented in summary form in the subsequent chapter.

CHAPTER V

FINAL RESULTS AND CONCLUSIONS

A. Summary of the Hypotheses Investigated

The following comments summarise the survey findings for each of the hypotheses (H) described in Chapter I.

H₁ User involvement will lead to better and cheaper maintenance

Results indicate that in 83% of the communities that participated, be it with materials, labour and/or money, the water system works, while in the communities without participation it works at 51%.

There had been no correction in the deficiencies of the water system on the part of the communities that did not participate, while in 26% of the communities that participated with money, this deficiency correction has taken place.

In 87% of the communities where there was participation with materials, labour and/or money, there is somebody in charge of the operation and maintenance and only in 51% of the communities without participation is there a person in charge.

Based upon these results, the hypothesis has been accepted.

H₂ User involvement will lead to community motivation and institution building

The motivation generated by self-help can be observed in the deficiency correction of the tap water projects, as explained above.

Other actions that allow the observation of the community motivation and institution building, are as follows:

- 39% of the communities with some kind of participation had carried out other works resulting from the tap water system, in comparison to 22% for communities without participation.
- Only 10% of the communities that participated in the tap water projects did not participate in subsequent projects, compared to 40% of the communities not participating in the tap water projects.

- 27% of the communities that participated in the tap water projects by supplying labour have had experience in self-help in other works in their communities, compared to only 4% of the non-participating communities.
- 78% of the communities that participated have corrected the deficiencies which occurred in the tap water system that was introduced in comparison to 22% of the communities that did not participate.
- 79% of the communities that participated had enlarged their water system, in comparison to 21% of the non-participating communities.
- 26% of the communities that participated do not want to collaborate in future works of nearby communities, compared to 37% of the communities that did not participate.
- 31% of the communities which participated have no concrete plans for future development, compared to 47% of communities that did not participate.

Based on these findings, the hypothesis has been accepted.

H₃ User involvement will provide water supplies at a lower cost per capita to public funds

Not studied.

H₄ User involvement will catalyse other development action in the community

The hypothesis was confirmed in the analysis presented under hypothesis H₂.

H₅ User involvement will lead to more efficient collection of water rates

In 100% of the communities where there was no participation at all, the individuals interviewed do not know whether or not they pay their water quotas on time. Payment of water quotas on time depends on the type of participation. The following factors explain this finding:

- 71% of the communities that participated with money pay their quotas on time.
- 52% of the communities that participated with the creation of a committee responsible for the work, pay their quotas on time.

- 47% of those who participated with labour, materials and/or money, pay their quotas on time.
- 43% of those who participated in committees, with labour, materials and/or money, pay their quotas on time.
- 42% of those who participated with labour, pay their quotas on time.
- 26% of those who participated only with materials, pay their quotas on time.
- 0% of those who did not participated reported to pay their quotas on time.

The results presented tend to confirm the hypothesis as outlined.

- H₆ User involvement will cause inefficiencies and diseconomies in the implementation phase
- H₇ User involvement will therefore, cause fewer water supplies to be built at a higher cost in any given time
- H₈ User involvement will cause a poor technical standard of construction that leads to more frequent breakdowns

These hypothesis were measured by the opinions of officials in charge of institutions which implement self-help programmes and therefore the results detected may be biased and could lack statistical validity. Nevertheless, the opinions given indicate that self-help is a positive factor to be considered in programmes of community benefit.

B. General Observations and Policy Recommendations

The characteristics of people with the highest propensity to participate are:

- Persons who are older than 45 years of age
- Persons whose occupation is that of merchant, peasant, day labourer or worker
- Persons who only know how to read and write
- Persons whose monthly income is more than 3 times the minimum wage of the area where the community is located.
- Persons with more than 6 economically dependent persons

- Persons who have participated before in works of community benefit.

Finally, as can be observed from the data presented, the propensity to participate depends on the need and interest for the project, as well as existing self-help habits in the community:

- 71% of the communities with a water supply location that is not close, participated in the project, while only 55% of the communities with a water supply location that is close participated.
- 79% of the communities that had water supply through water pipes or in other towns participated; compared to 50% which had their supply in dams or reservoirs.
- 63% of the communities where all the inhabitants considered the work as necessary, participated; compared to 34% where only half of the inhabitants considered it necessary and 28% where almost nobody considered it necessary.
- 67% of the communities with mutual assistance habits participated; compared to 47% of the communities where there was no such mutual assistance habit.

HYPOTHESIS

BENEFITS:

- A) User involvement will lead to better and cheaper installations.
- B) User involvement will lead to community motivation and maximum utilization.
- C) User involvement will provide water supplies at a lower cost per capita to public funds.
- D) User involvement will catalyze other development actions in the community.
- E) User involvement will lead to more efficient collection of water rates.

DISADVANTAGES:

- A) User involvement will cause inefficiencies and discontinuities in the implementation phase.
- B) User involvement will therefore cause fewer water supplies to be built at a higher cost in any given area.
- C) User involvement will cause a poor technical standard of construction that lead to more frequent breakdowns.

DEFINITION

As self-help and public participation we understand

any free and voluntary involvement from rural

community inhabitants with the state and federal

work programmes that would tend to establish

works and appraised services with benefits for the

same communities.

CONCEPTS IN WHICH SELF-HELP PARTICIPATES

1. Work petitions
2. Donation of necessary land for the implementation of the system.
3. In construction:
 - 3.1. Unskilled hand labor
 - 3.2. Primary regional materials
 - 3.3. Cash contributions
 - 3.4. A combination of the preceding factors
4. Formation of community committees for local development.
5. Work administration
6. Work operation
7. Work maintenance
8. Work rehabilitation
9. Work enlargement

UNIVERSE INVESTIGATED

1. Institutional: Optimum, policies and repercussions of self-help
2. Population: Technical and socioeconomical repercussions in the communities.
3. Sample: A stratified questionnaire was applied to 1988 inhabitants of 137 communities, being 94 communities that participated and 43 without participation.

These communities were selected at random within the following states, which represent the three different degrees of development:

Chiapas	Puebla
Jalisco	Tlaxcala
México	Veracruz
Oaxaca	Yucatán

FINANCIAL REPERCUSSIONS

opinions about the saving percentage that self-help represents for the institution

SAVINGS DUE TO

1. Unskilled hand labor	16 %
2. Donation of primary regional materials	4 %
3. Land donation	4 %
4. Cash contributions	3 %

* ANALYSIS OF EXPERIENCES OF SELF-HELP PARTICIPATION IN RURAL WATER SUPPLY (THE CASE OF MEXICO)
* FINANCIAL REPERCUSSIONS

INTRODUCTION

SELF-HELP IN GOVERNMENT PROGRAMS

REASONS

1. To improve the development of the community	30.4 %
2. Because the work to be done is temporary and the community is pushing self-help	17.0 %
3. To provide work sources to the community	15.8 %
4. To reduce the working costs	13.2 %
5. Because there work is for the benefit of the community who is not a self-help	9.4 %
6. Because that is what the construction agreements establish	9.4 %
7. To facilitate the education of a skilled hand labor	5.7 %

YES

80 %

NO

REASONS

1. Due to the nature of the work	31.0 %
2. Because the community tries to obtain working sources only	25.0 %
3. Due to the little interest of the population	18.8 %
4. Due to political and economical restrictions	18.8 %
5. Due to a lack of adequate arrangements	6.2 %

ADVANTAGES

1. Facilitation of the institutional actions because labor problems are reduced	29.3 %
2. Promotion community development	22.3 %
3. Better maintenance and preservation is accomplished	22.7 %
4. Unemployment is generated	11.4 %
5. More possibilities of constructing more works	9.3 %

DISADVANTAGES

1. Delay in the construction phase	59.3 %
2. Self-help promotes paternalism	14.8 %
3. Less quality of the work	14.8 %
4. There are conflicts between those who participate and those who do not	7.4 %
5. Micro supervision is needed	3.7 %

TECHNICAL REPERCUSSIONS

OPINIONS

1. Delay in the work calendar	26.9%
2. It affects in no way, since they only participate with unskilled hand labor	19.2%
3. Plan specifications and work construction are not properly respected. Labor is left out	3.9%

NOTES

Along the average cost per work with participation compared with the average cost per work without participations, most of the informants affirm to lack the necessary information in order to make this contribution.

Only the Ministry of Public Work reports the following:

A) Average cost of rural roads:

... Communities with user involvement	\$45,000
... Communities without user involvement	65,000

B) Average cost of annual maintenance:

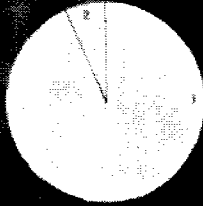
... With user involvement	\$ 4,000 per Km.
... Without user involvement	\$ 5,600 per Km.

SELF-HELP PROGRAMS IN MEXICO

- * REASON WHY IT IS CONSIDERED
- * ADVANTAGES AND DISADVANTAGES
- * TECHNICAL REPERCUSSIONS

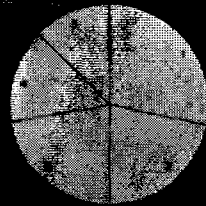
INSTITUTIONAL PROCEDURE

SEX



- | | |
|-------------|-----|
| 1. - Male | 93% |
| 2. - Female | 7% |

AGE



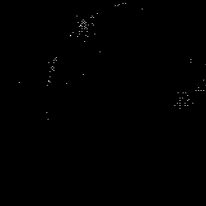
- | | |
|--------------------------|-----|
| 1. - From 36 to 45 years | 28% |
| 2. - From 26 to 35 years | 23% |
| 3. - From 46 to 55 years | 22% |
| 4. - From 56 years on | 15% |
| 5. - From 15 to 25 years | 12% |

SCHOLASTIC SITUATION



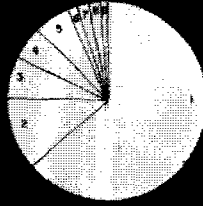
- | | |
|-----------------------------|-----|
| 1. - Incomplete gradeschool | 40% |
| 2. - Read and write only | 30% |
| 3. - Illiterate | 13% |
| 4. - Complete gradeschool | 11% |
| 5. - Secondary School | 3% |
| 6. - Professional studies | 2% |
| 7. - Preparatory school | 1% |

DEPENDENT PERSONS



- | | |
|----------------|-----|
| 1. - 4 to 5 | 23% |
| 2. - 6 to 7 | 23% |
| 3. - 8 or more | 18% |
| 4. - 2 to 3 | 17% |
| 5. - None | 13% |
| 6. - One | 6% |

OCCUPATION



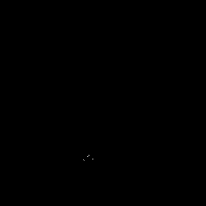
- | | |
|-------------------------|-----|
| 1. - Peasant | 66% |
| 2. - Day laborer | 11% |
| 3. - Merchant | 6% |
| 4. - House Keeper | 5% |
| 5. - Worker | 5% |
| 6. - Employee | 2% |
| 7. - Professional | 2% |
| 8. - Without occupation | 2% |
| 9. - Student | 1% |

MONTHLY INCOME



- | | |
|--------------------------------------|-----|
| 1. - Up to One time the minimum wage | 50% |
| 2. - With no income | 35% |
| 3. - From 1 to 1.5 times | 9% |
| 4. - From 1.5 to 3.0 times | 5% |
| 5. - More than 3.0 times | 1% |

PREVIOUS PARTICIPATION



- | | |
|---------------|-----|
| 1. - Yes | 61% |
| 2. - No reply | 33% |
| 3. - No | 6% |

NOTE

These characteristics do not imply disponibility to participate. They only show a record of the socioeconomical characteristics of the participants.

SOCIOECONOMICAL CHARACTERISTICS OF THE PARTICIPANTS

REPERCUSSIONS OF SELF-HELP IN THE COMMUNITIES

AGE
FROM 15 TO 20
FROM 21 TO 30
FROM 31 TO 40
FROM 41 TO 50
FROM 51 TO 60
FROM 61 TO 70
FROM 71 TO 80
FROM 81 TO 90
FROM 91 TO 100

SEX
MALE
FEMALE

EDUCATION
NO SCHOOLING
PRIMARY
SECONDARY
HIGHER SECONDARY
UNIVERSITY

OCCUPATION
UNEMPLOYED
AGRICULTURE
INDUSTRY
COMMERCE
SERVICES
GOVERNMENT
PROFESSIONS
ARTS AND CRAFTS
OTHER

RELIGION
NO RELIGION
OTHER

RESIDENCE
RURAL
URBAN

CHARACTERISTICS OF THE PERSONS WITH MORE DISPONIBILITY TO PARTICIPATE

REPERCUSSIONS OF SELF-HELP IN THE COMMUNITIES



CHARACTERISTICS OF THE COMMUNITIES

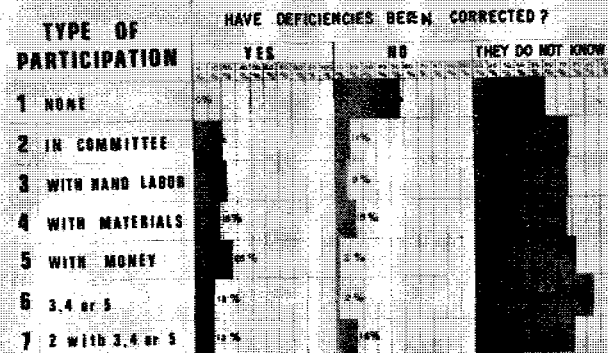
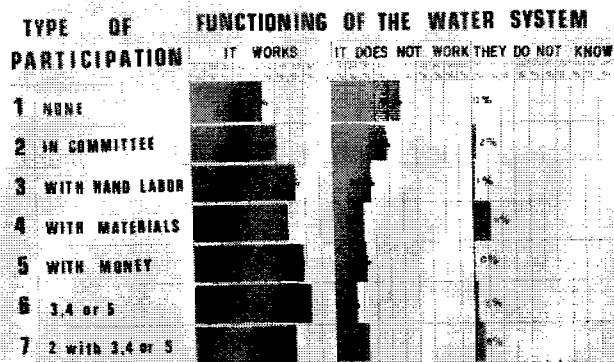
REPORTED PARTICIPATION

<p>THE PERFORMANCE OF THE PREVIOUS WATER SUPPLY LOCATION WITH USER INVOLVEMENT</p>	COMMUNITIES WITH A VERY FAR SOUTHERN LOCATION	71%
	COMMUNITIES WITH A CLOSE BY TOWN LOCATION	88%
	COMMUNITIES THAT WERE USED TO GET THEIR WATER SUPPLY FROM WATER PIPES OR FROM ANOTHER TOWN	78%
	COMMUNITIES THAT WOULD USE TO TAKE THEIR WATER FROM A FRESH WATER RESERVOIR	80%
<p>USER INVOLVEMENT AS A RESULT OF NEED FOR THE WATER SYSTEM</p>	COMMUNITIES WHERE ALL ITS INHABITANTS CONSIDERED THE SYSTEM AS NECESSARY	88%
	COMMUNITIES WHERE ONLY HALF OF ITS INHABITANTS CONSIDERED IT NECESSARY	78%
	COMMUNITIES WHERE ALMOST NOBODY CONSIDERED IT NECESSARY	68%
<p>USER INVOLVEMENT OR RELATION TO THE FORM OF THE SYSTEM FOR THE WATER SYSTEM</p>	COMMUNITIES WHERE THE WORK WAS REQUESTED WITHOUT CONSULTING THE MAJORITY OF THE PEOPLE	78%
	COMMUNITIES WHERE IT WAS REQUESTED CONSULTING THE MAJORITY	88%
<p>USER INVOLVEMENT AND INVOLVEMENT OF COLLECTIVE LABOR</p>	COMMUNITIES WITH SELF-HELP HABITS IN FIELD LABOR	88%
	COMMUNITIES WITHOUT SELF-HELP HABITS IN FIELD LABOR	78%
<p>USER INVOLVEMENT AND INVOLVEMENT OF COLLECTIVE LABOR</p>	COMMUNITIES WHERE HABITS OF COLLECTIVE LABOR EXIST	88%
	COMMUNITIES WHERE HABITS OF COLLECTIVE LABOR DO NOT EXIST	78%

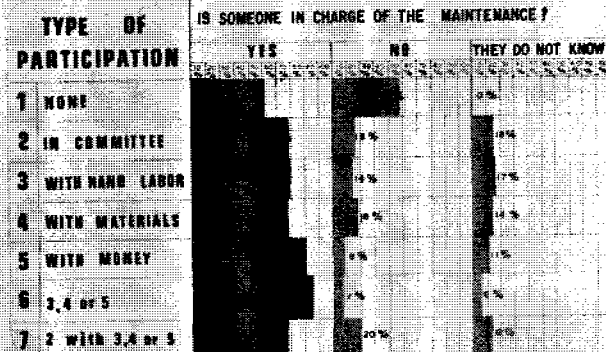
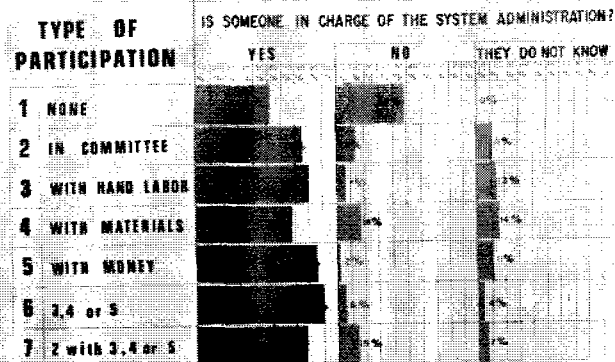
- 43 -

NEED, INTEREST AND CUSTOMS THAT DETERMINE SELF-HELP

REPERCUSSIONS OF SELF-HELP IN THE COMMUNITIES



**TECHNICAL AND FINANCIAL REPERCUSSIONS
DUE TO USER INVOLVEMENT**



**REPERCUSSIONS OF SELF-HELP
IN THE COMMUNITIES**

1
77

TYPE OF PARTICIPATION		ARE THE QUOTAS FOR WATER SERVICE PAYED IN TIME ?																													
		YES										NO										THEY DO NOT KNOW									
		10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1	NONE	10%									10%																				
2	IN COMMITTEE																														
3	WITH HAND LABOR																														
4	WITH MATERIALS																														
5	WITH MONEY																														
6	3, 4 OR 5																														
7	2 WITH 3, 4 OR 5																														

- 45 -

**FINANCIAL REPERCUSSIONS
DUE TO USER INVOLVEMENT**

**REPERCUSSIONS OF SELF-HELP
IN THE COMMUNITIES**



HAVE THERE BEEN OTHER WORKS AFTER THE CONCLUSION OF THE TAP WATER SYSTEM?

COMMUNITIES WITH USER INVOLVEMENT

COMMUNITIES WITHOUT USER INVOLVEMENT

YES

NO

THEY DO NOT KNOW

TYPE OF PARTICIPATION IN OTHER WORKS CARRIED OUT AFTER THE WATER SYSTEM

COMMUNITIES WITH USER INVOLVEMENT

COMMUNITIES WITHOUT USER INVOLVEMENT

NONE

WITH UNSKILLED HAND LABOUR

WITH MATERIALS OR MONEY

MAINTENANCE OF THE TAP WATER SYSTEM

COMMUNITIES WITH USER INVOLVEMENT

COMMUNITIES WITHOUT USER INVOLVEMENT

CORRECTION OF DEFICIENCIES 17%

ENLARGEMENT OF THE SYSTEM 15%

ATTITUDE CHANGES IN THE COMMUNITY

COMMUNITIES WITH USER INVOLVEMENT

COMMUNITIES WITHOUT USER INVOLVEMENT

WITH NO MOTIVATION TO PARTICIPATE IN INSTITUTIONAL WORKS OF NEIGHBOURING COMMUNITIES

WITH NO CONCRETE PLANS FOR THE FUTURE

SOCIAL REPERCUSSIONS
DUE TO USER INVOLVEMENT

REPERCUSSIONS OF SELF-HELP
IN THE COMMUNITIES

ANNEX 1

QUESTIONNAIRE DISTRIBUTED TO INDIVIDUALS
IN CHARGE OF THE SELF-HELP PROGRAMMES

(Note: Annex 1 and 2 questionnaires are reproduced herein in a modified form compared to the actual field study)

ANNEX 1

EVALUATION OF THE SELF-HELP AND PUBLIC PARTICIPATION PROGRAMMES IN THE IMPLANTATION OF RURAL TAP WATER SYSTEMS

I. SURVEY IDENTIFICATION

_____ Entity	Profession of the interviewed person: _____
_____ Dependency	Speciality: _____
_____ Department	Position: _____
_____ Survey No.	Seniority: _____
_____ Date	

II. DESCRIPTION OF THE OFFICIAL SELF-HELP POLICIES THAT ARE IN FORCE IN THE DEPARTMENT

- 1 - How are Public Participation and Self-Help defined in this Department?
- 2 - In this Department, what sector or sectors of the population are considered as usual participants of self-help? (Please specify if the sector varies according to the programmes.)
- 3 - From the following list, mark down the fundamental reason why this Department considers self-help for the execution of its programmes.
 1. Because the work is or will be owned by the community that is participating in self-help.
 2. Because the work is for the benefit of the Community that is participating in self-help.
 3. To reduce the costs of the work.
 4. To facilitate the obtention of unskilled general labour.
 5. To propitiate the development of the Community.
 6. To furnish working sources to the Community.
 7. Because it is included in bipartite or tripartite agreements.
 8. Other reasons.

- 4 - Is self-help considered as a participating factor in the programming and planning stage of the works of this Department?
 1. Yes
 2. NoReasons:
- 5 - In the construction stage, in what line or lines is self-help introduced?
- 6 - After construction, is self-help maintained during project administration? (Yes or no, and if yes, in what line or lines.)
 1. Yes
 2. No
- 7 - In this Department, are there any programmes in which self-help and public participation are not contemplated?
 1. Yes
 2. No(if the answer is Yes, please explain why)
- 8 - What does the Department offer to the Community in exchange for its participation?
- 9 - Before the initiation of a project, does this Department carry out some previous research detecting the potentiality of user involvement?
 1. Yes
 2. No(if yes, please explain what is the type or types of this research and what are the objectives of the research)
- 10 - In the pre-project stage, what are the policies adopted by this Department regarding groups or leaders of the community?
- 11 - What does this Department do to motivate the Community to accept the project and to participate in it?
- 12 - Is the idea of ownership used by this Department as a medium of motivating the Community?
 1. Yes
 2. No

- 13 - Does the Community receive primary technical advice regarding the project in which it shall participate?
 1. Yes
 2. No
- 14 - Explain the policies of this Department regarding the creation of pre-construction Committees in self-help programmes. Please specify how they are constituted, who constitutes them and how are the potential participants selected.
- 15 - Is a Committee of the Community constituted for the administration of the project once it is completed?
 1. Yes
 2. No(if No, please explain)
- 16 - What are the programmes of this Department regarding training and instruction for the Community to manage, operate and maintain the project?

III. GENERAL CONCLUSIONS AND OPINIONS REGARDING THE PUBLIC PARTICIPATION AND SELF-HELP PROGRAMMES

- 1 - Based upon the experience of this Department, please itemise the observable advantages and disadvantages derived from the self-help formula used by this Institution.
- 2 - Do you think that Community participation during the initial construction stage contributes to a better operation, management and maintenance during the useful life of the project?
 1. Yes
 2. No
- 3 - According to the experience of this Department, is the critical need for the project a determining factor for Community involvement?
 1. Yes
 2. No

IV. TECHNICAL IMPLICATIONS OF THE PUBLIC PARTICIPATION AND SELF-HELP PROGRAMMES

- 1 - Based upon experience, please state in what form the Community participation affects the work schedule.

- 2 - Based upon experience, please state in what form public participation affects the technical quality of the work.

V. FINANCIAL IMPLICATIONS OF THE PUBLIC PARTICIPATION AND SELF-HELP PROGRAMMES

NOTE: (For CCISSSA, estimate the following percentages based upon the FIOSCER and New Work Basic Programmes from 1974 to 1976).

- 1 - What is the approximate percentage of the total investment that self-help represents in the following lines?
 1. Unskilled manual labour _____ %
 2. Materials _____ %
 3. Lands donated _____ %
 4. Cash _____ %
- 2 - Estimate the average cost of the projects with users involvement compared to the average cost of projects without users involvement.

(Procedure:

1. Group down the projects that constitute the universe,
2. Estimate the cost/project ratio of the universe,
3. Classify projects with participation and without participation, and
4. Estimate the cost/project ratio of the group with participation and without participation)
- 3 - Quantify the average cost of the maintenance of the projects constructed in communities with participation and compare it with the average cost of maintenance in Communities without participation.
- 4 - Please explain how participation affects payments made by the Community for the service offered.

VI. OFFICIAL PERSONAL OPINION

- 1 - From your own point of view, give an opinion about the self-help and public participation policies of the institution.
- 2 - Based upon your own experience and from your own point of view, what are the economic and social changes or effects propitiated by the participation of the Community. (Explain whether they are or are not beneficial and explain your reasons.)

3 - REGARDING FUTURE POSSIBILITIES OF SELF-HELP

- a - Please describe a programme in which a Community may participate and in what ways.
- b - Please mention the persons who may participate and why.
- c - What recommendations would you give for self-help to function for the Institution as well as for the Community that benefits?
- d - In your opinion, which should be the main objectives of self-help programmes?
- e - Which need and interest factors do you consider important in propitiating self-help?

4 - GENERAL BACKGROUND

- a - In your own opinion, please say what is Community marginality?
- b - Do you consider that rural Communities in Mexico are marginated?
 - 1. Yes
 - 2. No
- c - What should be done to prevent margination?

ANNEX 2

QUESTIONNAIRE DISTRIBUTED TO RURAL
HOUSEHOLDS

ANNEX 2

EVALUATION OF PUBLIC PARTICIPATION AND
SELF-HELP PROGRAMMES IN IMPLANTATION
OF RURAL TAP WATER SYSTEMS

I. IDENTIFICATION OF THE SURVEY

_____ State
_____ Municipality
_____ Community
_____ Survey
_____ Date of the Survey

Space for the exclusive
use of the Study and of
the researcher

_____ Name of the researcher

_____ Seal of the Municipality
or of the Community

_____ Signature

_____ Name and signature of the
president of the
Community Committee, in
case it exists

Degree of development of the State

Population rank

II. GENERAL DATA

1 - Sex of the person interviewed:

1) Male

2) Female

2 - Age:

1) 15 - 25

2) 26 - 35

3) 36 - 45

4) 46 - 55

5) 56 or more

3 - Monthly income:

1) Without income

2) Up to 1 time the minimum wage

3) From 1 to 1.5 times " "

4) From 1.5 to 3 times " "

5) More than 3 times " "

4 - Occupation:

- | | |
|-----------------------|-----------------|
| 1) Without occupation | 5) Merchant |
| 2) Daylabourer | 6) Employee |
| 3) Peasant | 7) Housekeeper |
| 4) Worker or artisan | 8) Student |
| | 9) Professional |

5 - Scholastic situation:

- | | |
|----------------------------|------------------------------------|
| 1) Illiterate | 4) Complete grade school |
| 2) Only reads and writes | 5) Secondary or Commercial School |
| 3) Incomplete grade school | 6) Preparatory or technical school |
| | 7) Professional |

6 - Number of economically dependent persons:

- | | |
|----------|--------------------|
| 1) None | 4) 4 - 5 |
| 2) 1 | 5) 6 - 7 |
| 3) 2 - 3 | 6) 8 or more |

III. DEGREE OF PARTICIPATION

1 - In what way did the community participate in the Tap Water works?

- 1 - In no way
- 2 - It constituted the community committee
- 3 - With labour
- 4 - With regional materials
- 5 - With money in cash
- 6 - With a combination of 3, 4 or 5
- 7 - With a combination of 2 with 3, 4 or 5

2 - Were there some work programmes for the benefit of the community before this programme?

1. Yes 2. No 3. I don't know

3 - If the previous answer is yes, state if the community participated in those programmes. 1. Yes

2. No 3. I don't know

IV. GENERAL OBSERVATIONS

1 - What do you think of the tap water programme?

1. Good 2. Bad 3. I don't know

2 - If you think it is good, please give three reasons.

3 - If you think it is bad, please give three reasons.

- 4 - What do you think of the participation of this community in the projects made by the Government for its benefit? 1. Good 2. Bad 3. I don't know
- 5 - If you think it is good, please give three reasons why.
- 6 - If you think it is bad, please give three reasons why.
- 7 - Do you consider that the persons who participate in projects for the benefit of their own community should receive something in exchange. 1. Yes 2. No 3. I don't know
- 8 - If the answer to the previous question is yes, state what:
- 9 - Mention which are, in your opinion, the three main problems of this community.
- 10 - Has something been done to solve these problems? 1. Yes 2. No 3. I don't know
- 11 - In case people of this town have self-help habits, please mention the three forms that are most frequent.
- 12 - From the following occupations, please mention the three most usual ones in this community.
 1. Without occupation
 2. Daylabourer
 3. Peasant
 4. Worker/artisan
 5. Merchant
 6. Employee
 7. Professional

V. COMMUNITY COMMITTEES

- 1 - If a tap water committee was constituted, who promoted it?
 1. State Government
 2. CCISSSA
 3. Leaders of the Community
 4. By majority decision
 5. It was already constituted
 6. I don't know
- 2 - Is this committee still in existence? 1. Yes 2. No 3. I don't know

- 3 - If the previous answer is yes, please state what is this committee doing?
 1. It does nothing
 2. It is in charge of the tap water system in general
 3. It promotes other works that are similar in their development
 4. It is in charge of points 2 and 3
 5. I don't know

- 4 - Did other groups exist when the committee was constituted?
 1. Yes
 2. No
 3. I don't know

- 5 - If the previous answer was yes, please say if there were conflicts among the different groups.
 1. Yes
 2. No
 3. I don't know

VI. GENERAL IMPLICATIONS

- 1 - Before the construction of the project, did any personnel of CCISSSA come to this community to make known the advantages and disadvantages and the way in which it would be constructed and to ask for the help of all the people?
 1. Yes
 2. No
 3. I don't know

- 2 - Who selected the participants?
 1. The State Government
 2. CCISSSA
 3. The Committee
 4. By popular decision
 5. Volunteers
 6. Other leaders
 7. I don't know

- 3 - Was this selection good?
 1. Yes
 2. No
 3. I don't know

- 4 - If the previous answer is no, please give the reason why.

- 5 - Were there persons who wanted to participate and could not do it?
 1. Yes
 2. No
 3. I don't know
- 6 - Approximately, how many people participated?
 1. From 1 to 10
 2. From 11 to 20
 3. From 21 to 30
 4. From 31 to 40
 5. From 41 to 50
 6. 51 or more
 7. I don't know
- 7 - If you participated, were you given something in exchange?
 1. Yes
 2. No
- 8 - If the previous answer is yes, please say what.
- 9 - What did you learn from your participation?
- 10 - How do you now use this learning?
- 11 - If this community did not participate, please give three reasons why.

VII. TECHNICAL IMPLICATIONS

- 1 - The tap water system of the town:
 1. Works
 2. Does not work
 3. I don't know
- 2 - If the previous answer is no, please give three reasons why.
- 3 - Has the community done something to correct the deficiencies noted in the previous question?
 1. Yes
 2. No
 3. I don't know
- 4 - If the answer to the previous question is yes, please say what.
- 5 - If the answer to question No. 3 is NO, say why.

- 6 - Is there anyone of the community in charge of the management of the project? 1. Yes 2. No 3. I don't know
- 7 - If the management doesn't work, please give the main reason why.
- 8 - In case of paying quotas for water use, do you pay them on time? 1. Yes 2. No
- 9 - If the previous answer is NO, please give the main reason why.
- 10 - Is there anyone of the community in charge of the operation and maintenance of the project? 1. Yes 2. No 3. I don't know
- 11 - If the operation and maintenance are deficient, please give the reason why.
- 12 - Has the community made any enlargements of the project? 1. Yes 2. No 3. I don't know

VIII. SOCIAL IMPLICATIONS

- 1 - What did you do before participating?
 1. Without occupation
 2. Daylabourer
 3. Peasant
 4. Worker/artisan
 5. Merchant
 6. Employee
 7. Housekeeper
 8. Student
 9. Professional/teacher
- 2 - What do you do now?
 1. Without occupation
 2. Daylabourer
 3. Peasant
 4. Worker/artisan
 5. Merchant
 6. Employee
 7. Housekeeper
 8. Student
 9. Professional/teacher
- 3 - Relate yourself to the other people who participated.
 1. Better
 2. The same
 3. Worse
 4. I don't know
- 4 - What future plan do you have for your personal involvement?
- 5 - What development plans does the community have?

- 6 - Do you think of participating in some of these plans? 1. Yes 2. No 3. I don't know
- 7 - Were other projects constructed for the benefit of the community, after the water system?
1. Yes 2. No 3. I don't know
- 8 - If the previous answer is YES, please say which.
- 9 - In what way did you participate in some of the projects mentioned in the previous question?
 1. In no way
 2. Forming part of the committee
 3. With labour
 4. Giving materials
 5. With money in cash
 6. With a combination of 3, 4 and 5
 7. With a combination of 2 with 3, 4 or 5

IX. EVALUATION OF POTENTIALS

- 1 - What are, in your opinion, the ideal forms of user involvement? (please mention three)
- 2 - Who are in your opinion the persons most likely to participate? (Please mention three types of persons.)
- 3 - What do you think of female participation?
 1. Right
 2. Wrong
 3. I don't know
- 4 - Is there any period or periods throughout the year where the community has a better possibility to participate in projects for their own benefit?
 1. Yes 2. No 3. I don't know
- 5 - In what way would you be willing to participate in projects that would benefit neighbouring communities of the region?
 1. In no way
 2. Helping the committees of other communities
 3. With labour
 4. With materials
 5. With money in cash
 6. With a combination of 3, 4 or 5
 7. With a combination of 2 with 3, 4 or 5

X. MOTIVATION BEFORE THE WORK

- 1 - Before construction, were the persons of the community informed who would be the owner or owners of the system, once it was terminated? 1. Yes
2. No 3. I don't know
- 2 - Who is the owner or owners of the Tap Water System constructed in this Community?
 1. The Federal Government
 2. The State Government
 3. CCISSSA
 4. The Community Committee
 5. The whole Community
 6. The persons in charge of the management, operation and maintenance of the work
 7. The State Board
 8. I don't know
- 3 - Before CCISSA constructed the Tap Water System, where did the people supply themselves with water?
- 4 - The location of this place was:
 1. Far away
 2. Close to town
 3. Midway
- 5 - The water supplied from this place was:
 1. Good
 2. Of medium quality
 3. Bad
- 6 - Approximately how many people of this Community considered CCISSA's work to be necessary for the welfare of the people?
 1. Everybody
 2. Almost everybody
 3. Only half
 4. Almost nobody
 5. Nobody
 6. I don't know
- 7 - Who applied for the work on behalf of this Community?
 1. Foreign people
 2. 1 or 2 persons of this town
 3. A group of persons from the Community, without consulting the majority
 4. Leaders or authorities of the Community
 5. A group from the Community, taking the opinion of the majority
 6. I don't know

- 8 - How much time went by, from the time that the Community applied for the Tap Water System to the time in which the work was carried out?
1. 1 year or less 3. 4 to 5 years
2. 2 to 3 years 4. 6 or more
5. I don't know
- 9 - In order to solve the problems of the Community, do you consult somebody in particular? 1. Yes
2. No 3. I don't know.....
- 10 - If the previous answer is yes, please say what position he occupies.
- 11 - Were the person or persons whom you consult willing to have the Tap Water System constructed? 1. Yes
2. No 3. I don't know
- 12 - Did you participate in the Tap Water works that were carried out in the Community? 1. Yes 2. No