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EVALUATION O

THE PUNJAB

SANITATION

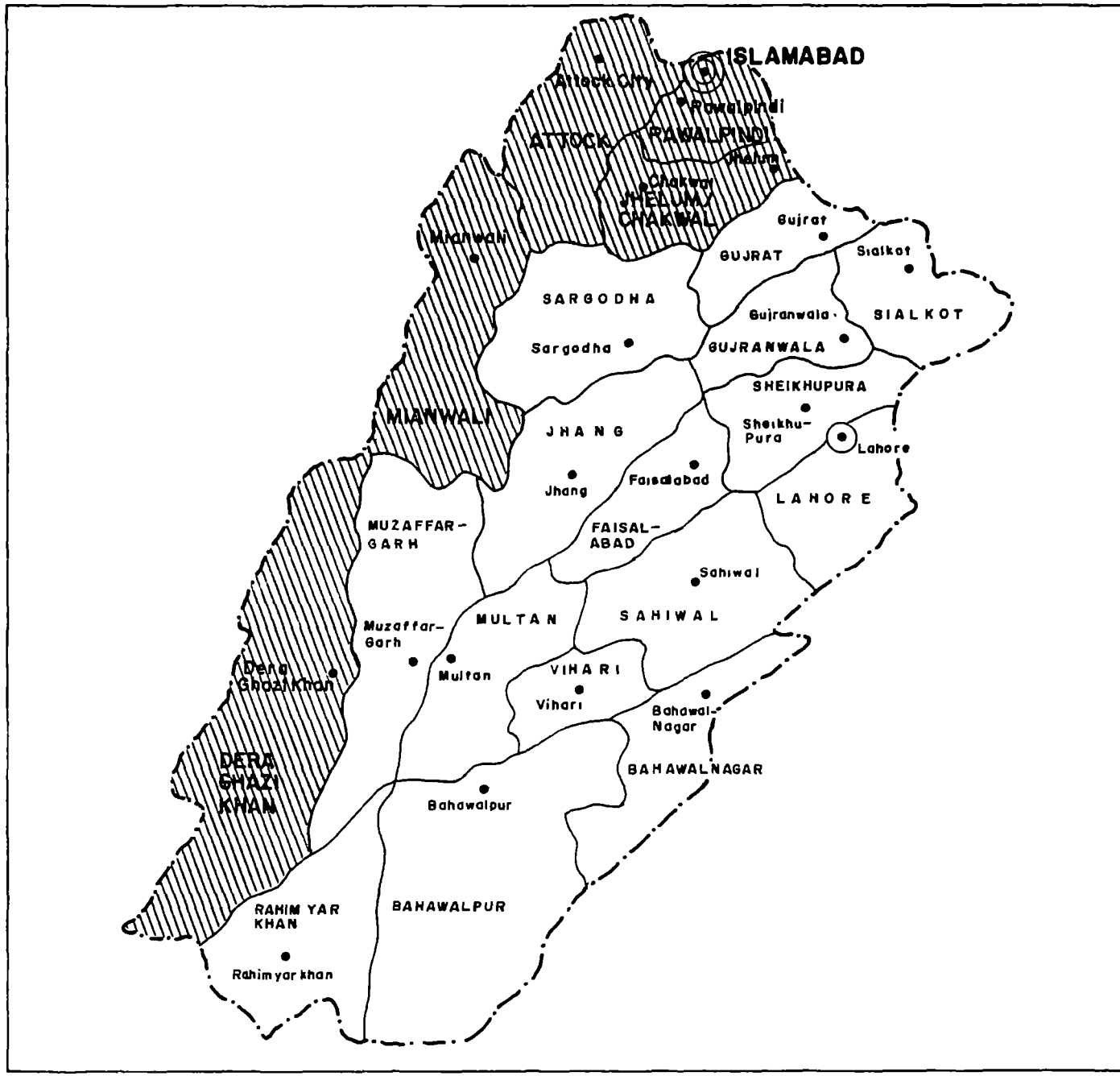
PROGRAMM

UNITED NATIONS CHILDREN'S FUND

EVALUATION OF THE PUNJAB SANITATION PROGRAMME

FINAL REPORT

PEPAC
PAKISTAN ENVIRONMENTAL PLANNING AND ARCHITECTURAL CONSULTANTS LTD.



PROJECT DISTRICTS

26 13 0 65 miles

DISTRICT MAP OF THE PUNJAB

DEPAC

DEVELOPMENT PLANNING UNIT

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PREFACE

Evaluation of the Punjab Sanitation Programme entails six discrete but inter-related studies: Achievement of Quantifiable Targets, Impact of the Punjab Sanitation Programme on Rural Households, Management for Implementation, Financial Appraisal, Training and Job Performance of Sanitation Promoters and Technical Appraisal of Installed Latrines, Biogas Plants and Water Cisterns. The studies are in detail and cover all the important aspects of the Punjab Sanitation Programme.

The studies were undertaken after UNICEF's approval of the detailed evaluation methodology, prepared in the light of evaluation objectives specified in the Terms of Reference. Detailed formats of the component studies were also presented alongwith the evaluation methodology. UNICEF, after critical review has given comments on each of the six studies. These comments have been kept in view while preparing this Final Report. The document highlights only the important findings of the above referred six studies. It has been attempted not to reproduce extensive supporting data already presented. However, a few important tables have been included where necessary.

The evaluation team wishes to thank senior officials of UNICEF, specially Mr. N.R. Jafri, Dr. Peter Wurzel and Dr. Edward S. Trainer for their useful comments and keen interest throughout the study. Dr.Edward Trainer's cooperation in providing background information and all necessary help to facilitate an objective evaluation is gratefully acknowledged.

Thanks are also due to senior officials and field staff of the Local Government and Rural Development Department, Punjab, for their cooperation in supplying detailed data about the Punjab Sanitation Programme and assistance during field investigations.

Khalid Mahmood Saigol
Project Manager

Lahore
December 1, 1987

EXECUTIVE SUMMARY

The Punjab Sanitation Programme, primarily a low cost sanitation improvement project relying on community participation activities, was first launched as a pilot project in a few villages during 1981-1982. It was extended to a large number of villages in six districts of the Punjab: Jhelum, Chakwal, Rawalpindi, Attock, Mianwali and Dera Ghazi Khan during 1983-1985. Broad objective of the Programme was to contribute to reduce incidence of diarrhoea particularly among infants and children, by improving overall sanitation conditions in the rural areas and inculcating awareness of health, hygiene and environmental sanitation among the rural population. Specific objectives outlined in the Government approved PC-I Form for the period 1983-1985 included :

i) Introduction and implementation of the Punjab Sanitation Programme in 55 Marakiz, 171 Union Councils and 470 Villages in the six districts.

ii) Construction of 940 demonstration latrines in schools, women centres and health institutions of the selected villages.

iii) Construction of 32,900 household latrines, on average 70 latrines per village, by establishing revolving fund in the selected villages.

iv) Construction of 940 soakpits; and

v) Construction of 470 biogas plants.

The main strategies of the Programme consisted of education and motivation, of households to adopt hygiene and sanitation practices as well as water and sanitation technologies, with emphasis on installation of latrines and biogas plants for proper disposal of human and animal excreta. In order to be self-sustaining, the Programme attached considerable importance to organization of communities; transfer of technical know-how and establishment of a Revolving Fund. Male and Female sanitation promoters specially trained for the job, were mainly responsible to execute the Programme in selected villages.

Local Government and Rural Development Department and the Local Government Councils, Government of the Punjab were jointly responsible for planning, execution, supervision and progress monitoring of the Punjab Sanitation Programme. UNICEF, besides assisting in the above activities provided funds for implementation of the Programme and training of technical staff. UNICEF spent a total amount of Rs. 18,056,419.0 during 1981-1986.

Execution of the Programme was discontinued in March 1986, after completion of its stipulated time period. UNICEF entrusted the task of evaluating the Punjab Sanitation Programme to Pakistan Environmental Planning & Architectural Consultants (PEPAC) Limited on December 21, 1986.

Evaluation of the Punjab Sanitation Programme has been conducted, employing a multi disciplinary approach, in three sequential stages :

Stage I — Completion of comprehensive data base and design of evaluation methodology.

Stage II — Completion of six in-depth sector studies to evaluate different components of the Punjab Sanitation Programme.

These included:

Report 1 : Achievement of Quantifiable Targets.

Report 2 : Impact on Rural Households

Report 3 : Management for Implementation.

Report 4 : Financial Appraisal.

Report 5 : Training and Job Performance of Sanitation Promoters.

Report 6 : Technical Appraisal of Latrines, Biogas Plants & Water Cisterns.

Stage III — Synthesis of findings and policy implications of the six sector studies in a consolidated form in the Final Report.

The Evaluation

The overall performance of the Punjab Sanitation Programme appears encouraging. In spite of lag between planned and realized quantifiable targets, the Programme has had visible impact. Furthermore, the approach has strong

potential for improving sanitation in the rural areas. Higher levels of efficiency may be attained with improved and effective planning and management of the various components of the Programme.

The evaluation besides a detailed and objective appraisal of various components of the Punjab Sanitation Programme also contributes in establishing a comprehensive data base. The study sets the basis for realistic policy formulation and programming for future course of action in case the programme is relaunched.

The evaluation highlights the following main findings :

(I) Achievement of Quantifiable Targets.

Quantifiable achievements of the Punjab Sanitation Programme have been considered in terms of its coverage in marakiz, union councils and villages, construction of demonstration and household latrines, construction of soak pits and biogas plants and training of Sanitation Promoters and Sanitation Supervisors. Achievements of the Programme have been appraised in the light of planned targets:

i) Coverage of Villages

The Punjab Sanitation Programme has been introduced in 44 marakiz and 191 Union Councils of the six districts during 1981-1985. A total of 349 villages were selected in these Marakiz and Union Councils during the period. Out of these, 301 villages were selected during 1983-1985. The Programme was implemented with

varying degrees of success, in 230 villages during 1983-1985. On average, the target was to complete implementation of the Programme in 26 villages each year in each district. The reported data however, revealed that around 12-16 villages were covered, with varying degrees of success, each year in each districts. Number of villages with target achievement of 50% and more, 25-49% and less than 25% regarding construction of latrines, were 124, 53 and 53 respectively during 1983-1985.

ii) Construction of Latrines.

Two types of latrines, demonstration latrines and household latrines, were planned to be constructed under the Punjab Sanitation Programme. The purpose of constructing demonstration latrines was to promote their acceptance among rural people, to educate them about their functioning and to transfer technical know how regarding their installation. Local masons and other interested persons were trained while constructing these latrines. Two demonstration latrines were planned to be constructed in each selected village. UNICEF provided funds while the LG & RDD in collaboration with the Sanitation Promoters managed construction of these latrines.

A total of 695 demonstration latrines were constructed during 1981-1985. Out of these, 546 latrines were constructed during 1983-1985. In the light of PC-I Form targets, percentage achievement is 58%. However, the percentage achievements with respect to total number of villages selected, 2 demonstration latrines per village in 301 villages, works out to be 91%.

Household latrines were to be constructed by individual households from their own resources or by taking a partial assistance from the Revolving Fund, established for the purpose. A total of 10,281 household latrines were reported constructed since 1981. Out of these 8,187 latrines were constructed during 1983-1985. Percentage achievements with respect to PC-I targets is 25% while it is 51% with respect to the targets fixed for the villages where the Programme has been implemented.

iii) Construction of Soakpits and Biogas Plants.

A total of 119 soakpits and 224 biogas plants were constructed during 1983-1985. Percentage achievement of targets with respect to PC-I targets works out to be 13% and 48% respectively.

iv) Training of Sanitation Promoters.

It was planned to train a total of 165 Water and Sanitation Promoters and 10 Sanitation Supervisors during 1983-1985. For the purpose, four training courses were organized at the Local Government and Training Institute Lalamusa during 1983-1985. A total of 162 (88%) Water and Sanitation Promoters, 76 females and 86 males, were trained in these courses. No Sanitation Supervisor was however, trained in this period.

Consolidated information regarding achievement of quantifiable targets of the Punjab Sanitation Programme are presented in Table 1.

II) Impact of the Punjab Sanitation Programme on Rural Households.

Main focus of the impact study was to assess: Knowledge and perceptions of the rural households about the Punjab Sanitation Programme, their level of awareness about health, hygiene and environmental sanitation, perceptions about benefits of latrines and desire to built latrines, adoption of different sanitation technologies by the target population, and improvements in hygiene, health and environmental sanitation.

Table 1: ACHIEVEMENT OF QUANTIFIABLE TARGETS

S.No:	Category/Component	Targets for 1983-85	Achieve-ment 1983-85	Per-cent-age	Total Achieve-ment 1981-86	R e m a r k s
1.	Number of Marakiz covered.	55	30	54.5	44	
2.	Number of Union Councils.	171	159	92.9	191	
3.	Number of villages covered.	470	230	48.9	276	Total 349 villages were selected during 1981-85 out of which 301 were selected from 1983 to 1985.
4.	Number of Demonstration Latrines constructed.	940	546	58.1	695	
5.	Number of Household Latrines constructed.	32,900	8,187	24.9	10,281	
6.	Number of Soakpits con-structed. (Demonstration & Household).	940	119	12.7	168	Targets and Achievements relating t Demonstration and Household work no conforming with those of P.C.I.
7.	Number of Biogas Plants installed. (Demonstration & Household).	470	224	47.6	279	(as above)
8.	Number of water cisterns constructed. (Demonstration and Household).	-	-	-	49	Targets and Achievements given according to Demonstration and Household work. No P.C.I targets were given for these.
9.	Number of Sanitation Pro-moters trained.	185	162	87.6	-	
10.	Number of Sanitation Super-visors trained.	10	-	-	-	

Important findings of the study include:

i) Beneficiary households displayed overall better understanding of the Punjab Sanitation Programme than the non-beneficiary households. The Sanitation Promoters and the members of the Village Sanitation Committees (VSCs) played a significant role in introducing the Punjab Sanitation Programme among the rural households.

ii) The Punjab Sanitation Programme was noted to have a positive impact in inculcating awareness among the households about diseases spread by human excreta, and various causes of diarrhoea. The Programme however, did not seem to have any perceptible impact regarding awareness about water borne diseases.

iii) A dominant majority of respondents perceived house latrines to be generally useful and good, for the household. Most commonly attributed benefit, for constructing a latrine, by all the three type of respondents was its usefulness to secure privacy for women. Other frequently quoted responses regarding usefulness of latrines were, 'good for emergencies', 'convenient', and 'cleaner/hygienic', in that order.

iv) A large majority of the households expressed the desire to construct house latrine. However, they could not do so mainly because of financial constraints. They proposed to increase the amount of loan for construction of latrines.

v) Educational achievements and level of income of the households were noted to be positively related with the adoption of sanitation technology(ies) of the Programme. It was further observed that the households with higher standard of education or higher level of income were more likely to adopt the Punjab Sanitation Programme.

vi) The Punjab Sanitation Programme had an overall positive effects in reducing diarrhoea complaints among rural households. Frequencies of diarrhoea complaints were noted to be comparatively low among project village households than those among control households.

vii) Studies regarding toilet habits, substances used for cleaning after defecation, washing habits, maintenance of water sources, and cleanliness and covering of drinking water containers indicated that the Punjab Sanitation Programme had an overall positive effect in improving the hygiene practices of the rural population. Specifically, toilet habits of beneficiary household members, particularly females, were observed to be radically improved than those of other category households. Children were the other most affected group in this regard. Among the beneficiary households, about 96% women, 87% children, 7% youngmen and 78% old men were reported using latrines for defecation.

viii) Effects of the Punjab Sanitation Programme were noted to be positive regarding proper disposal of household garbage and waste water among the beneficiary households. On the whole, the beneficiary households maintained better sanitation conditions inside and outside of their residences compared to non-beneficiary households. Village level comparison between project and control villages further revealed that the former had better environmental sanitation conditions.

III) Management for Implementation.

Important areas of study to evaluate management for implementation of the Punjab Sanitation Programme included: policy formulation and planning for the Programme, selection of villages, roles and responsibilities of different functionaries and their levels of understanding of their respective roles, levels of effort input by different functionaries, modes and levels of coordination at intra and inter agency levels, field supervision, progress monitoring, maintenance of Programme record,

bottlenecks/problems faced by different functionaries in execution of the Programme and their proposed solutions. A number of functionaries involved in planning, administration, execution, progress monitoring and training Programmes of technical staff, from Local Government and Rural Development Department, District Councils, UNICEF and the Local Government Training Institute, Lalamusa, were interviewed for the purpose. The study highlights the following important findings:

i) Lack of proper planning and programming for implementation affected overall performance of the Punjab Sanitation Programme. Detailed policy guidelines regarding its execution, supervision of work, coordination, progress monitoring, financial management and record maintenance were not properly formulated.

ii) Institutional framework for implementation of the Punjab Sanitation Programme was weak. Achievement of the Programme generally owe to personal interest taken by some of the officials and diligent efforts of the Sanitation Promoters. The Provincial Office of the Local Government and Rural Development Department could not maintain effective control during the course of implementation of the Programme.

iii) Late preparation and approval of PC-I Form created severe policy problems. It also obstructed the process of absorption of Sanitation Promoters in the Local Government and Rural Development Department.

iv) Overall level of effort input by different functionaries was moderate.

v) Level of coordination among the Programme functionaries was generally good or moderate. However, level of coordination between secretaries of Union Councils and the Sanitation

Promoters was reported to be deficient. Level of coordination between two Project Assistants of UNICEF and the concerned Programme Officer was also unsatisfactory. Lack of coordination among the field staff affected overall efficiency of the Programme.

vi) Quality of progress monitoring was not upto the mark throughout the course of implementation of the Punjab Sanitation Programme.

vii) Ten most commonly encountered problems during execution of the Punjab Sanitation Programme included: illiteracy, newness of the Programme, lack of coordination among field staff, smaller amount of loan, lack of training of field staff, less effective leadership, no incentives for Secretaries and members of VSCs, lack of co-operation from the target population, cultural reasons and conflicts/local politics in the target villages, in that order.

IV Financial Appraisal

Total planned capital cost of the Punjab Sanitation Programme (PSP) for the period 1983-1985 was Rs. 18,889,760.0, envisaged to be financed jointly by UNICEF and the LG&RDD. Share of the latter was very small, Rs. 476,000.0 (2.51%). UNICEF spent a total amount of Rs. 18,056,419.0 during 1981-1986. Total Expenditure for the period 1983-1986 was Rs. 14,756,119.0; Rs. 5,243,500.0 for Demonstration work, Rs. 6,414,000.0 for Revolving Fund, Rs. 1,023,190.0 for Training Programme of Technical Staff and Rs. 275,429.0 for Salaries of the Sanitation Promoters. The LG&RDD could not contribute its share of finances.

Provincial head office of the LG&RDD was not involved in financial matters of the Punjab Sanitation Programme. UNICEF funds were directly released to the Chairmen of District Councils, the Project Directors.

Financial appraisal of the Punjab Sanitation Programme entailed an indepth review of financial management, focussing on identification of strengths and weaknesses of the overall financial management system, and utilization and performance of demonstration and revolving funds. Consolidated village-wise financial data was not previously available in any of the concerned offices, Government or UNICEF. The study, besides overall management and financial appraisal also contributes in establishing a comprehensive financial profile of the Programme.

Main findings of the study include:

i) Proper methods/principles of accounting were not followed in handling PSP accounts.

ii) All the ADLGs responded that there was no lead time in receipts and disbursement of funds while 21% of the Project Managers and 29% of Secretaries of UCs. said otherwise. The opinions of the ADLGs were found to be biased. The cash books were not generally maintained and the bank pass books were not updated regularly in most of the cases. It was therefore, not possible to find out the amount of time involved in receipts and disbursement of funds at different hierarchical levels. It was observed that owing to

lack of clear policy about the interest earned on PSP funds, there might have been a tendency among some of the functionaries to delay disbursal of funds.

iii) Different villages were allocated different amounts of money for demonstration work as well as for Revolving Fund. Amount of funds allocated for demonstration work to project villages varied from less than Rs. 7,000.0 to Rs. 51,500.0 while the amount of Revolving Fund varied from less than Rs. 12,000.0 to Rs. 44,000.0. Main reasons for allocating different amounts to different villages, propounded by the ADLGs and the Secretaries of U.Cs., were the size of the village, magnitude of planned targets, recommendations of superiors and political considerations.

iv) Out of 301 villages, selected during 1983-1986, 52 villages utilized excess amount of demonstration funds compared to PC-I Form cost estimates. Total amount incurred in excess of PC-I cost estimates was Rs.507,751.0. An amount of Rs.89,348.0, meant for demonstration work was found to be lying un-utilized in these villages.

v) Amount of loan given to households, for construction of latrines, varied from less than Rs. 250.0 to more than Rs. 1,000.0. Proposed amount of loan, Rs. 300.0, was considered less by the households. The VSCs tended to give higher amounts of loan to the individual households.

vi) An amount of Rs. 1,080,171.0, 15% of the total Revolving Fund received by the Secretaries of U.Cs., was reported to have been repaid in 23% of the total villages. Data about repayment of loan in case of District Rawalpindi appears exaggerated.

Number of households who had returned the loan or were returning loan was comparatively small. Most of the house-holds paid back the money in installments. Majority of the households paid Rs. 50.0 as monthly installment.

About 40% of VSCs reported that they did not recover any amount of the money loaned to households.

Level of satisfaction regarding operation (recovery) of Revolving Fund was observed to be generally low among the concerned functionaries.

V. Training and Job Performance of Sanitation Promoters

In view of the significance of role of Sanitation Promoters in the overall performance of the Punjab Sanitation Programme, a detailed evaluation of the training programme and it relevance to various field operations was undertaken. Main topics dealt in the study included: Selection criteria of Sanitation Promoters, curriculum and course contents of the training programme at LGTI, levels of training and skills of Sanitation Promoters for their role, general working conditions, frequency of visits to the villages and average period of stay, main activities during field visits, pace of work and level of efforts, quality of work in field operations, perceptions about achievement of Sanitation Promoters and their usefulness and various problems encountered during field activities of the Sanitation Promoters.

Main findings of the study are given as below:

i) Almost all the Sanitation Promoters were satisfied with the quality and contents of the course, 100% with theory and 95% with practical work. A dominant majority of the Sanitation Promoters was also found to be satisfied with the teaching methods, methods of performance

evaluation (examinations), capability of instructors/teaching staff and general administration of the training programme. About 42% of the Sanitation Promoters considered that the amount of stipend was inadequate.

A large majority of the Sanitation Promoters also considered that the length of the training programme, one month theory and two month practical work, was sufficient.

ii) A large majority of the members of the village Sanitation Committees (82%) considered that the Sanitation Promoters were good or very good in interacting with the rural households. However, the Project Managers had disparate opinions in this respect. About 43% of them considered that the Sanitation Promoters were good or very good while more than half of the Project Managers responded that the Sanitation Promoters were deficient in interaction with the rural population.

iii) Sanitation Promoters' effectiveness in motivational work was generally rated above average by most of the concerned ADLGs and the Project Managers.

iv) A majority of the members of village Sanitation Committees as well as the Project Managers considered that the Sanitation Promoters had generally good or very good level of technical skills to execute the Punjab Sanitation Programme.

v) Abilities of the Sanitation Promoters to coordinate various field activities were rated to be good or very good by majority of the members of the Village Sanitation Committees (82%). The ADLGs also judged them above average. About 67% of the ADLGs considered them good while the remaining 33% as average.

Among the Project Managers, about half of them rated the Sanitation Promoters as good or very good, about 14% as average while about 21% as deficient in coordinating various field activities. The remaining (14%) of the Project Managers did not respond.

vi) Majority of the ADLGs as well as Project Managers considered that the Sanitation Promoter

had generally above average level of performance in execution and supervision of various field activities. None of the ADLGs considered them deficient in this case.

However, the Sanitation Promoters were rated average in progress monitoring of various field activities.

vii) Most of the respondent households informed that the Sanitation Promoters, males as well as females, visited their villages on fortnightly or monthly basis.

The Sanitation Promoters who visited the Project Villages more frequently generally stayed for lesser duration of time (4 hours or less). On the other hand the Sanitation Promoters visiting with less frequency stayed for longer time period (full day or more).

viii) About two third of the Sanitation Promoters were satisfied with the overall working conditions while the remaining expressed otherwise. Main reasons for dissatisfaction with the working conditions were highlighted as absence of conveyance facility, insecure service, insufficient salary and delays in receipts of salaries.

Absence of transport facilities for the Sanitation Promoters was considered as the most acutely felt field problem. Selection of project villages at dispersed locations, inadequate public transport facilities on certain routes and sometimes 'katcha'/difficult road conditions further accentuated this problem.

VI Technical Appraisal of Latrines, Biogas Plants and Water Cisterns.

Key aspects and main issues addressed in technical appraisal of latrines, biogas units and water cisterns broadly included:

a) Brief description of the processes involved in operation of the installed water and sanitary units;

b) Assessment of the overall functional utility and effectiveness of the sanitary installations;

c) Identification of problems, inadequacies, bottlenecks related to the design, operation and functional performance of the sanitary installations and laying down the suggestions to improve the situation;

d) Assessment of outputs and user's satisfaction levels ;

e) Preparation of data base for most commonly used construction materials ;

f) Estimates of pertinent design parameters, and comparison with the standard criteria.

Important findings of the study are as below:

A- Latrines

i) More than half of latrines are connected to soakage pits with impervious mortar laid brick masonry walls instead of recommended open jointed masonry to allow percolation through side walls and with open base (52.4%) or granular (brick ballast or gravel) base (47.6%). In soakage pits, both the functions of sludge settling, storage and decomposition and subsurface disposal of liquid contents are combined, in the same unit with the result that percolation through base tends to decrease with the deposition of sludge since finer sludge particles penetrate and clog the underlying soil pores.

ii) Septic tanks or impervious pits have been installed in 46% of the cases, about 33% of these without any outflow. This indicates underutilization of the facilities.

iii) Adequacy of water is prime factor in increasing the functional utility of latrines. It is required for post defecation ablution, pour-flushing of excreta through water trap and frequent cleaning of latrine floors. Owing to non-availability or shortage of water, under utilization of latrines has been reported in 14% of the cases. In most of such cases, the sources

of water, mainly wells, were located at distances more than 90 meters from houses.

iv) The problem of faecal smells in latrines, was reported in 8% of the cases. It was found to be primarily associated with the practice of direct connection of W.C. Pan with tank/pit without any intervening water seal and lack of interest on part of users, to clean the latrine regularly.

v) In 17% of the cases, W.C. Pans were reported to be undersized, resulting in splashing out of human excreta.

vi) In 18% of the cases, the latrines were found without doors.

B Biogas Plants

i) A number of plants (57% of sample plants) were found to be closed and not in working conditions. Main reasons responsible for close down of plants, in ranking order of significance, were studied as low initial and subsequent gas yields possibly due to lack of adequate dung quantities (29%), lack of interest on part of the consumer to feed and maintain the plant (24%), sometimes due to availability of alternate gas supply, low gas yields due to winter season (18%) and gas leakage from invert drum (6%). Some of the plants (23%) were found to be incomplete since invert steel drums were not provided by the concerned functionaries.

ii) Some of the common faults, related to the construction features of plants, were found to be installation of light gauge (22) steel sheets for invert drums instead of heavy gauge (16), absence of central partition wall to isolate digested slurry from raw waste input, provision of effluent slurry pipes at liquid level instead of from bottom of digester and installation of flat top invert drum instead of conical roof.

iii) Latrines were not connected to the biogas plants. The plants were solely fed by the animal dung.

iv) The gas supply rates that closely relate to available gas pressures, considered satisfactory, from user's point of view, are in range of 450 to 525 litre per hour. In a few cases, users' have shown dissatisfaction with the gas pressures, available for cooking.

v) In all the reported cases, effluent slurry was being used for soil conditioning and fertilization of cultivated land. About 38% of the users disposed the slurry directly off to the soil while the remaining 62% treated it before using for fertilization. The methods of treatment were sun drying (38%) and composting (62%).

C Rain Water Cisterns

i) Rain water cisterns were generally used as an alternate source. The consumers were generally found satisfied with the quality of cistern water. Cistern water was not used for drinking purposes. Most of the households preferred well water for drinking purposes. The households considered that the water cisterns contributed to reduce inconvenience resutling from fetching water from distant primary sources.

ii) Functioning of water cisterns was generally reported satisfactory.

Policy Guidelines

In the light of findings and observations of the evaluation, the following main policy guidelines are proposed for consideration before relaunching the Punjab Sanitation Programme:

i) Establishment of strong data bases about project performance at different hierarchical levels, UNICEF, provincial, district, markaz, union council and village levels, is vital for realistic and pragmatic policy formulation. This is also important to maintain effective

management control on various operations of the Punjab Sanitation Programme. Effective measures need to be introduced for systematic collection and compilation of Programme data. At Provincial/UNICEF level, we recommend creation of a computerized data base (dbase III or RBase V on a suitable micro computer would suffice).

ii) Detailed planning, programming and effective policy framework for execution, coordination, monitoring and administration is imperative before implementation of the Punjab Sanitation Programme.

iii) PC-I Form must be approved before restarting the Programme. Government's commitment to take over the Programme needs to be made more explicit in the PC-I Form. Policy guidelines regarding absorption of Sanitation Promoters, types of institutional arrangements necessary for independent handling of the Punjab Sanitation Programme, sources/generation of funds for demonstration work as well as for the loan schemes, after the withdrawal of UNICEF, to carry out the Programme in new villages should be clearly specified.

iv) The field staff attached more importance to installation of latrines. Other significant aspects of the Programme were rather low key. The Programme should ensure adequate attention towards improving awareness of the households regarding health, hygiene and environmental sanitation.

v) The Punjab Sanitation Programme was generally popular among the affluent households. Emphasis should be given to involve other lower income households as well.

vi) Formal policy framework for financial management is imperative for effective and efficient utilization of PSP funds. Proper methods/principles of accounting should be followed in handling PSP accounts. Cash books and ledger accounts may be maintained at District, Markaz and Union Council Levels. The bank pass books may be updated on regular basis and system of preparing bank reconciliation statements needs to be introduced. Regular submission of expenditure statements should be made mandatory.

vii) Periodic auditing of PSP accounts should be instituted.

viii) A consistent policy may be followed to allocate funds to different villages.

ix) Demonstration funds lying un-utilized should be recovered. Physical inspection of demonstration latrines may be undertaken to ensure that the demonstration funds are utilized as reported.

x) The amount of loan sanctioned for installation of latrines, Rs. 300.00 per household, is considered to be less by majority of the households. This should be increased.

xi) Before disbursing funds to the districts each years, the Project Directors may be required to submit a comprehensive performance report of the Programme already under execution, expenditure statement of the amount spent during the previous year and planning and programme for action for the coming year.

xii) Provincial office of Rural Development Department should play more active role in supervision of PSP operations.

xiii) Strong measures should be taken to absorb the Sanitation Promoters in the Local Government and Rural Development Department.

xiv) In addition to regular progress monitoring of routine operations, it is recommended that the Programme has an inbuilt system of periodic evaluations. The evaluations may be of two types:

a) Internal Evaluations
b) External Evaluations

Internal evaluations may be carried out by the Sanitation Promoters and the supervisory staff. They may be given necessary training in this regard. External evaluations may be instituted for comprehensive and more objective appraisal of the overall Programme performance. The latter should be a third party evaluation (through persons external to the Programme implementation).

These evaluations besides giving useful insights about the Programme performance would also facili-

tate improvements/reorientations in policies and programmes for greater efficiency and effectiveness of the Punjab Sanitation Programme.

SECTION 1: INTRODUCTION

Sanitation facilities are inadequate in rural areas of Pakistan. In Punjab[1], only 3% of the rural population has access to sanitation facilities and only 17% to safe drinking water[2]. General lack of sanitary conditions in rural areas have contributed to high incidence of various infectious and parasitic diseases. Diarrhoea is the most commonly occuring disease among infants and children. On average a pre school child gets five diarrhoea attacks in a year. It is the major cause of death among infants and children[3]. Mass illiteracy, poverty and low level of awareness regarding health, hygiene and environmental sanitation practices among rural population further aggravate the situation. Conditions are considered to be worse in less developed "barani"[4] districts of the province.

1- Largest Province of the country with a population of 47.18 millions (1981 Census).
2- PC-I, Punjab Sanitation Programme, Government of the Punjab (1983).
3- Planning & Development Division, Government of Pakistan, Diarrhoea Survey, 1984.
4- Rainfed Districts.

The Punjab Sanitation Programme (PSP), primarily a low cost sanitation improvement project relying on community based activities, was launched with the general aim to reduce incidence of diarrhoea and other diseases caused by insanitary conditions, in the rural areas of "barani" districts. It comprised of two components: the software and the hardware.

Main functions performed as a part of the software component generally pertained to creation of general awareness regarding health, hygiene and environmental sanitation among the rural masses, transfer of technical know how, for proper disposal of human and animal excreta, community organization and establishment of Revolving Fund. The hardware components, on the other hand emphasised installation of various water and sanitation technologies, latrines, biogas plants, soakpits and water cisterns, for household as well as demonstration purposes. Both components being mutually supportive, necessitated careful planning and coordination for effective and expeditious realization of Programme objectives. A total of 162 Sanitation Promoters, 76 males and 86 females, were trained to execute various field activities of the Programme. Out of these, 110 Sanitation Promoters were employed in the six districts to implement the Programme[1].

1- The last batch of 43 Sanitation Promoters completed training when the stipulated execution time of the Programme was near completion. The services of this batch therefore, could not be utilized.

During its first two years, 1981-1982, the Punjab Sanitation Programme operated as a pilot project in a few villages of three districts, Jhelum, Rawalpindi and Attock. It was expanded considerably, in scope and extent, during 1983-1985. As per its PC-I Form approved by the Government of the Punjab, the Programme was planned to be launched in 470 villages of five "barani" districts, Jhelum[1], Rawalpindi, Attock, Mianwali and Dera Ghazi Khan. Planned physical targets for these villages included:

i) Construction of 940 demonstration latrines in schools, women centres and health institutions;
ii) Construction of 32900 household latrines through establishment of Revolving Fund in the project villages;
iii) Construction of 940 soakpits; and
iv) Installation of 470 biogas plants.

Local Government and Rural Development Department (LG&RDD) and the Local Government Councils, Government of the Punjab, were jointly responsible for Planning, execution, supervision and monitoring of various activities of the Programme. UNICEF, besides assisting in the above activities, provided funds for implementation of the Programme and training of Sanitation Promoters and other technical staff. Execution of the Programme was discontinued in March 1986, after completion of

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1- District Jhelum was bifurcated into two districts: Jhelum and Chakwal in 1985. The Programme therefore, has been implemented in six districts.

stipulated time. Before relaunching, UNICEF deemed it appropriate to undertake review and evaluation of its various components.

1.1 Evaluation of the Punjab Sanitation Programme

Evaluation of the Punjab Sanitation has been conducted employing a multidisciplinary approach. Detailed design of the study was prepared in the light of Evaluation objectives specified in the Terms of Reference.

1.1.1 Evaluation Objectives

Broad objectives for evaluation of the Punjab Sanitation Programme, as outlined in the Terms of Reference, included:

1- Evaluation of the functioning of the Punjab Sanitation Programme with respect to its implementation and coordination between the various groups involved at the provincial, district, markaz, union council and village levels. Identification of the problems that existed in such coordination, their causes and the effects that they had on the functioning of the Programme. Special attention was to be given to the analysis of the operation of the sanitation promoters, the village sanitation committees and the female motivation teams created by the promoters.

2- Study of the appropriateness of the technology introduced and to suggest, if necessary, changes or alternatives to improve the design.

3- Evaluation of the effectiveness and efficiency of the revolving fund.

4- Suggestions for going to scale and to transfer the project to the Government.

1.1.2 Organization of the Evaluation Study:

Evaluation of the Punjab Sanitation Programme has been done in three sequential stages, each stage carefully planned and coordinated. Close coordination was maintained with UNICEF throughout the course of this assignment. The three stages of the study include:

Stage I: Establishment of Comprehensive Data Base and Design of Evaluation Methodology.

Stage II: Completion of six in depth sector studies to evaluate different components of the Punjab Sanitation Programme. These included:

Report 1: Achievement of Quantifiable Target.

Report 2: Impact on Rural Households.

Report 3: Management for Implementation.

Report 4: Financial Appraisal.

Report 5: Training and Job Performance of Sanitation Promoters.

Report 6: Technical Appraisal of Latrines, Biogas Units and Water Cisterns.

Stage III: Synthesis of findings and policy implications of the six sector studies in a consolidated form in the Final Report.

This document, the Final Report, entails ten sections. Besides, an executive summary of the evaluation study has been presented at the beginning of this report. Chapter-1 presents a brief introduction of the Punjab Sanitation Programme and an outline of evaluation

study. Chapter 2 describes salient features of evaluation methodology adopted to undertake the study. Field investigations and preparation of indepth sector study reports were instituted after approval of the evaluation methodology. Section 3 to 8 highlight main findings of the important aspects of the above referred six sector studies in that sequence. It has been attempted not to reproduce massive supporting data[1] already referred in the six sector study reports. Only the most important tables are presented in this report. Section 9 of this report highlights a synthesis of findings and observations of this Evaluation. Recommendations and Policy Implications, for future planning and execution of the Punjab Sanitation Programme, have been presented in Section 10.

Evaluation of the Punjab Sanitation Programme, besides presenting a detailed and objective evaluation of its various components also contributes in establishing a comprehensive data base of the Programme. The collected information are considered to be useful for policy formulation, target planning, and programming in case of relaunching the Punjab Sanitation Programme . This also sets the basis for maintaining effective control

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1- A total of 187 tables, mostly cross tabulated, 25 detailed financial statements, and six districts maps, indicating location of the project villages, have been presented in the six sector study reports.

on various operations of the Programme, progress monitoring and future evaluation studies.

SECTION - 2 EVALUATION METHODOLOGY

Methodology to evaluate the Punjab Sanitation Programme was evolved keeping in view the Terms of Reference of the project and our proposal for consultancy services. Available literature and office records of the concerned organizations, Government as well as UNICEF, were reviewed before detailed designing of the methodology. A preliminary field visit to four villages, three Marakiz and two district headquarters, Jhelum and Rawalpindi, to get familiar with practical field conditions as well as to be able to appreciate the role of various functionaries involved in the process of Programme implementation, was also made. Besides, a number of UNICEF, Government and non Government personnel including elected members of the local councils were contacted and their views regarding initiation, planning, implementation, financial management, coordination, supervision and monitoring of the Programme was taken. Extensive discussions were also held with a section of the target population, individuals as well as groups, to explore the possible

impacts of the Programme.Details of the preliminary surveys have been presented in Preliminary Field Visit Report.

Details regarding sampling methodology, sample sizes for different components of the study, method of data collection and survey instruments used for collection of data have been discussed in the Evaluation Methodology Report. Specimens of sixteen survey instruments; proformas, questionnaires, interview schedules and observation sheets, used for collection of primary data have also been appended in this report.

2.1 Sampling Methodology and Sample Sizes

Sampling for different components of the evaluation study was done keeping in view the objectives, scope and extent of each component study. Household surveys, conducted to evaluate the impact of the Programme on rural population, were the most extensive of all investigations. Sampling for the impact study was done at two levels, village level as well as household level. To guard against selection biases and to attain a fair representation of significant factors, stratified sampling method was adopted. For other studies, random sampling or systematic random techniques were used.

2.1.1 Village Sampling

It was decided to take a 10% sample of the project villages from each district. Accordingly, surveys/investigations were conducted in a total of 41 villages in the six districts. Besides, twelve control villages, at the rate of two villages in each district were also surveyed. Thus a total of 53 villages were studied to evaluate the Punjab Sanitation Programme.

Before selection of villages for field studies, the project villages in each district were stratified according to the level of achievement of physical targets. This was done with a view to get useful insights about various underlying factors responsible for success or failure of the Programme in specific category of villages and to search for possible solutions for future. The project villages were stratified on the basis of level of achievement of physical targets regarding construction of household latrines.

Three categories of project villages, defined on the basis of their success ranks, are listed below:

(a) Success Rank One Villages (S1)

Those villages where target achievement was equal to or higher than 50 percent.

(b) Success Rank Two Villages (S2)

Those villages where target achievement was between 25 to 49 percent.

(c) Success Rank Three Villages (S3)

Those villages where target achievement was 24 percent or less. Villages with zero target achievement were not considered for sampling.

Control villages were selected on a purely random basis. While selecting these villages, it was attempted to select those villages which had similar characteristics as those of sampled project villages. Number of project and control villages, with details of success ranks, surveyed in each district, are given in Table 2.

2.1.2 Household Sampling

As referred earlier, three types of households, beneficiary households, non-beneficiary households and control village households, were interviewed to study the impact of the Punjab Sanitation Programme. Selection criteria for each group of households was as under :-

(a) Beneficiary Households

Ten percent of the total beneficiary households from each category of selected villages, S1, S2 and S3 were interviewed. For villages in S3 category, it was decided to interview at least two beneficiary households in case 10% sample size was less than two households. Selection of the households for the interview in each village was done by systematic random sampling method. In case of even or dispersed distribution of beneficiary households in a village, one beneficiary household was interviewed from each lane or cluster. The selection of the lanes or clusters was done systematically while the households in each lane were selected on random basis. However, in case of

TABLE 2: DISTRIBUTION OF PROJECT AND CONTROL VILLAGES SELECTED IN EVALUATION SURVEY BY SUCCESS RANK AND DISTRICT.

DISTRICT	No. of villages covered under PSP [1]				No. of villages selected for field investigations				Control Villages (11)	Total No. of villages studied (1+11)
	Total	SI	S2	S3	Total (1)	S1	S2	S3		
JHELUM	59	16	10	33	6	2	2	2	2	8
CHAKWAL	42	21	4	17	6	2	2	2	2	8
RAWALPINDI	63	28	20	15	7	3	2	2	2	9
ATTOCK	67[2]	42	8	17	10	5	3	2	2	12
MIANWALI	63	19	7	37	6	2	2	2	2	8
D.G. KHAN	55	27	13	15	6	2	2	2	2	8
TOTAL	349	153	62	134	41	16	13	12	12	53

1. Villages with zero target achievement were not included while drawing the Sample.

2. It has been estimated that 14 villages of Markaz Hassan Abdal are covered under PSP which have not been included.

lopsided distribution of beneficiary households or where the above criterion was not applicable, the households were selected randomly.

(b) Non-Beneficiary Households

To enable a fair comparison between beneficiary and non-beneficiary households, equal weightage was assigned to the latter. Accordingly, an equal number of non-beneficiary households were interviewed from each category of project villages. The selection procedure for the non-beneficiary households was the same as that for beneficiary households.

(c) Control Village Households

A total of ten households were interviewed from each of the selected control villages. The selection of the households was carried out on the basis of systematic random sampling principle as in case of beneficiary households.

Number of beneficiary, non-beneficiary and control village households interviewed in S1, S2, S3 and control villages are given in Table 3.

2.1.3 Village Profiles

The questionnaire cum observation sheet designed to collect information for the village profiles were filled in for each of the selected villages. Thus a total of 53 questionnaire cum observation sheets were filled in to prepare the village profiles of the selected villages.

2.1.4 Interviews with Government, Non-Government and UNICEF Personnel.

Number of interviews conducted with the Assistant Directors Local Government, Project Managers, Secretaries of Union Councils, members of Village Sani-

TABLE 3: DISTRIBUTION OF SAMPLE HOUSEHOLDS BY STATUS, DISTRICT AND SUCCESS RANK.

DISTRICT	No. of Beneficiary H.Hs. Interviewed.				Total No. of Non-Beneficiary H.Hs. Interviewed.	No. of Control HHs Interviewed	Total No. of HHs Interviewed
	S1	S2	S3	Total			
JHELUM	13	5	4	22	22	20	64
CHAKWAL	12	5	4	21	20	20	61
RAWALPINDI	19	2	2	23	25	19	67
ATTOCK	21	9	2	32	36	20	88
MIANWALI	10	4	4	18	18	20	56
D.G. KHAN	10	5	2	17	20	20	57
TOTAL	85	30	18	133	141	119	393

tation Committees, groups at village level, Chairmen of District Councils, senior government officials, and UNICEF staff are given in Table 4.

2.1.5 Information from Sanitation Promoters

About 110 trained Sanitation Promoters were employed to implement the Programme in six districts.Their services were terminated upon completion of the stipulated time period of the Programme. It was therefore, not possible to contact them in person. A questionnaire was therefore, designed and mailed to 77 Sanitation Promoters, males as well as females,in the six districts to get relevant information. Out of these, 38 Sanitation Promoters sent back the filled in questionnaires, the sample size being about 35%.

2.1.6 Interviews with the Teaching Staff

A total 4 interviews were conducted with the teaching staff concerned with the training of the Sanitation Promoters. Two of these teaching staff members were ex-employees of UNICEF and the remaining two were from Local Government Training Institute, Lalamusa.

2.1.7 Proformas for Technical Appraisal of Latrines, Bio-gas Units and Water Cisterns.

District wise sample sizes of latrines, biogas plants and water cisterns are given in Table 5.

TABLE - 4: NUMBER OF DIFFERENT FUNCTIONARIES AND SENIOR OFFICIALS INTERVIEWED

DISTRICT	Number of interviews									
	ADLG	Project Managers	Secret-aries of UCs.	Members of VSCs.	Groups at vill-age level	Chairman District Council	Senior Govt. officials		UNICEF Staff[2]	
							D.Cs	Others[1]	Present	Ex
JHELUM	1	2	3	6	3	1	1	-	-	-
CHAKWAL	1	2	2	6	3	1	-	-	-	-
RAWALPINDI	1	3	4	7	4	1	1	1	-	-
ATTOCK	1	3	3	10	5	1	1	1	-	-
MIANWALI	1	2	3	6	3	-	-	-	-	-
D.G. KHAN	1	2	3	6	3	-	1	1	-	-
OTHERS	1	-	-	-	-	-	-	3	4	2
Total	7	14	18	41	21	4	4	6	4	2

1- Other Senior Government Officials: 2 Directors, LG&RDD, in Rawalpindi and D.G. Khan
1 Advisor to C.M., D.G., RDD, Ex. A.D.G., RDD and Director LG&RDD, Lahore.

2- Among the UNICEF staff, included Chief of UNICEF, Islamabad, Resident Programme Officer, Punjab and P.Os at Islamabad and some informal interviews with others. Two Ex-UNICEF employees included Assistant Project Officers, a male and a female.

TABLE-5 : SAMPLE SIZES FOR TECHNICAL APPRAISAL OF LATRINES, BIOGAS PLANTS AND WATER CISTERNS

DISTRICT	LATRINES				BIOGAS PLANT			RAINWATER CISTERN		
	Sample size	No. of villages surveyed	No. of vilages with latrines	Percentage villages surveyed	Sample size	Total installed	Percentage sample size	Sample size	Total installed	Percentage sample size
JHELUM	14	8	39	20.5	6	43	14	1	5	20
CHAKWAL	13	8	31	25.8	3	52	5.8	-	13	-
RAWALPINDI	15	9	63	14.3	6	61	9.8	-	14	-
ATTOCK	18	12	55	21.8	7	41	17.1	4	17	23.5
MIANWALI	12	8	33	24.2	5	46	10.9	-	-	-
D.G. KHAN	12	8	55	14.5	3	36	8.3	-	-	-
TOTAL:	84	53	276	19.2	30	279	10.75	5	49	10.2

2.2 Collection of Data and Survey Instruments

For comprehensive evaluation of the Punjab Sanitation Programme, sixteen types of survey instruments, proformas, questionnaires, interview schedules and observation sheets were designed to collect relevant information for different components of the study. Questions contained in these survey instruments were closed as well as open ended. The survey instruments mainly comprised of:

(i) Proformas for Collection of Basic Information from Assistant Directors Local Government.

(ii) Proformas for Collection of Basic Information from Secretaries of Union Councils.

(iii) Questionnaire cum Observation Sheet for Village Data.

(iv) Questionnaire and Observation Sheet for Beneficiary Households.

(v) Questionnaire and Observation Sheet for Non-Beneficiary Households.

(vi) Questionnaire and Observation Sheet for Control Village Households.

(vii) Interview Schedule for Assistant Director Local Government.

(viii) Interview Schedule for Project Managers.

(ix) Interview Schedule for Secretaries of Union Councils.

(x) Interview Schedule for Chairmen/Members of Village Sanitation Committees.

(xi) Questionnaire for the Sanitation Promoters.

(xii) Interview Schedule/Structured Talk for Group Meetings at Village Level.

(xiii) Interview Schedule/Structured Talk for Chairmen District Councils/Senior Government Officials/ UNICEF Staff and Teaching and Training Staff at LGTI Lalamusa. Most of the questions in these interview schedules were open ended. Some of the questions required probing on the part of interviewer.

(xiv) Proformas cum Observation Sheets for Technical Appraisal of Latrines Construction and functioning of Latrines.

(xv) Proformas cum Observation Sheets for Technical Appraisal of Biogas Plants.

(xvi) Proformas cum Observation Sheets for Technical Appraisal of Water Cisterns.

Method of data collection with each survey instrument, type of information to be collected from different respondents or sources of information have been described in the Evaluation Methodology Report.

SECTION - 3 ACHIEVEMENT OF QUANTIFIABLE TARGETS

Quantifiable targets of the Punjab Sanitation Programme included number of Marakiz, Union Councils and villages selected for implementation, numbers of latrines, soak-pits, biogas plants and water cisterns, constructed for demonstration as well as for individual households, in the selected villages and the number of Sanitation Promoters trained for implementation of the Programme. To appraise quantifiable targets, actually realised targets were compared with the planned targets of the Programme.

Complete information about achievement of targets in the selected villages was not readily available from the concerned provincial and district offices of the LG&RDD or UNICEF. First step after undertaking the evaluation study was therefore, to establish a comprehensive data base of the Programme. Information regarding target achievement were collected from: available project documents, office records of UNICEF and the LG&RDD, Punjab, Assistant Directors Local

Government in the six districts and the Secretaries of Union Councils concerned with the Punjab Sanitation Programme.

Data from the ADLGs and Secretaries of Union Councils was collected through a set of proformas, specifically designed for each respondent group, sent to them through Director Planning, LG&RDD, Lahore. Retrieval of these proformas was a cumbersome experience and involved considerable time and effort. This has been a project in itself. However, it was an opportunity to learn, through first hand experience, about effectiveness of coordination at different levels of the Rural Development Department, efficiency of the concerned staff and the system of maintaining project record at different hierarchical levels.

With the exception of one markaz[1], data regarding achievement of targets was received from all the concerned offices. The data being detailed and uptodate was adopted to evaluate quantifiable targets of the Punjab Sanitation Programme. However, it needs to be pointed out that the information about achievement of targets have been supplied by those functionaries whose work performance was also linked to the level of success of the Programme. This might have influenced in quoting exaggerated figures in certain cases. Limited

1- Hassanabdal Markaz, District Attock.

time for field investigations and non-availability of Sanitation Promoters did not permit a detailed verification of the reported data.

Before appraisal of quantifiable targets, the planned targets for the Punjab Sanitation Programme deserve a brief mention.

3.1 Planned Targets

Cognizance of factors like capability of the executing agency, expertise of the staff responsible for implementation, budgetary resources, the time frame and the potentials and constraints of the programme in the light of prevailing local conditions is of fundamental importance for planning realistic targets of a programme. Targets for the Punjab Sanitation Programme were fixed mainly keeping in view the financial resources. Factors like lack of experience in handling similar projects by the executing agency, the Rural Development Department, or the half hearted attitude of some of its staff to take up a time intensive project with no incentives, in addition to their already busy schedule of work, do not seem to have been given due weightage while planning the targets. Furthermore, no feasibility study or any indepth evaluation of the already executed pilot project was conducted before fixing the targets of the programme. In the light of

these factors the planned targets of the Programme, specified in PC-I Form, therefore, appeared ambitious

3.2 Spatial Coverage of the Punjab Sanitation Programme

The Punjab Sanitation Programme has been operating as a pilot project in three districts, Jhelum, Rawalpindi and Attock, during 1981 and 1982. As per PC-I Form, the Programme was to be extended to five districts from 1983 to 1985. Accordingly two more districts, Mianwali and Dera Ghazi Khan were added to the programme during 1983-1984. In 1985, Jhelum district was bifurcated into two districts, Jhelum and Chakwal. The Programme therefore, has been implemented in six districts, Jhelum, Chakwal, Rawalpindi, Attock, Mianwali and Dera Ghazi Khan. Details regarding coverage of Marakiz, Union Councils and villages in the six districts are as follows :-

3.2.1 Number of Marakiz and Union Councils covered under the Programme

According to the PC-I Form, the Punjab Sanitation Programme was to be implemented in a total of 55 Marakiz during 1983-1985; 17 Marakiz in 1983, 19 Marakiz in 1984 and 19 Marakiz in 1985. Total target for the Union Councils, to be covered under the Programme in these years, was 171. Out of these 51

Union Councils were to be covered in 1983 and 60 Union Councils each year in 1984 and 1985. No guidelines however, were given regarding number of Marakiz and Union Councils to be covered in each district. Number of Marakiz and Union Councils covered upto 1986 are given in Table 6. For details regarding district wise coverage of Marakiz and Union Councils, refer Table 2 and Table 3 of Report 1 : Achievement of Quantifiable Targets.

TABLE 6: YEARWISE COVERAGE OF MARAKIZ AND UNION COUNCILS

Sr No	Year	Marakiz			Union Councils		
		Target	Achievement	%age	Target	Achievement	%age
1	1981	-	2	-	-	2	-
2	1982	-	12	-	-	30	-
3	1983	17	17	100.00	51	55	107.8
4	1984	19	10	52.63	60	65	108.3
5	1985	19	3	15.79	60	34	56.7
6	1986	-	-	-	-	5	-
7	Total	55	30	54.6	171	159	93.0

Total number of Marakiz covered under the Programme are 44 out of which 30 Marakiz, 55 % of the PC-I target, were covered during 1983 to 1985. Total number of Union Councils covered in these Marakiz were 191. Out of these, about 159 Union Councils, 93% of PC-I target, were covered during 1983-1986.

3.2.2 Number of Villages Covered under the Programme

Out of a total target of 470 villages, 80 villages were to be covered in 1983, 150 villages in 1984 and 240 villages in 1985. Details regarding yearwise coverage of villages, according to the data received from Secretaries of Union Councils, are given in Table 7, Exhibit 1.

According to the data, a total of 301 villages were selected for the Programme during the period 1983-1986. Out of these, the Programme was launched in 230 villages with varying degrees of success. The Programme achieved more than 50% of the given targets, regarding construction of household latrines, in 124 villages while the number of villages with target achievement of 25% to 49% and 1% to 24% were 53 in each case. On the average, about 12-16 villages were covered under the Programme each year in each district. The Programme could not be launched in 71 of the selected villages during 1983-1986.

3.3 Construction of Latrines, Biogas Plants, Soakpits and Water Cisterns

The Programme envisaged to construct 940 demonstration latrines, 32,900 household latrines, 940 soakpits and 470 biogas plants during the three year period, 1983-1985. There is no mention of water cisterns in the PC-I

TABLE 7 : YEARWISE COVERAGE OF VILLAGES IN THE SIX DISTRICTS ACCORDING TO SUCCESS RANKING

NUMBER OF VILLAGES COVERED EACH YEAR

DISTRICT	1981 TOTAL	1981 VILLAGES WITH NO ACHIEVEMENTS	1981 S1	1981 S2	1981 S3	1981 TOTAL VILLAGES WHERE PROGRAMME WAS EXECUTED	1982 TOTAL	1982 VILLAGES WITH NO ACHIEVEMENTS	1982 S1	1982 S2	1982 S3	1982 TOTAL VILLAGES WHERE PROGRAMME WAS EXECUTED
JHELUM	-	-	-	-	-	-	7	-	3	2	2	7
CHAKWAL	-			-		-	10	2	7	-	1	8
RAWALPINDI			-				23	-	12	-	4	23
ATTOCK	2	-	2	-	-	2	8	-	5		1	6
MIANWALI	-		-		-	-	-	-			-	-
D.G. KHAN					-	-	-	-	-	-	-	-
TOTAL	2	-	2			2	44	2	27	9	8	44

DISTRICT	1983 TOTAL	1983 VILLAGES WITH NO ACHIEVEMENTS	1983 S1	1983 S2	1983 S3	1983 TOTAL VILLAGES WHERE PROGRAMME WAS EXECUTED	1984 TOTAL	1984 VILLAGES WITH NO ACHIEVEMENTS	1984 S1	1984 S2	1984 S3	1984 TOTAL VILLAGES WHERE PROGRAMME WAS EXECUTED
JHELUM	6	1	3	1	1	5	13	3	3	2	5	10
CHAKWAL	16	7	6	2	1	8	14	2	6	2	2	3
RAWALPINDI	23	-	1	5	4	22	30		5	1	-	20
ATTOCK	15	1	14	-		14	17	4	9	3	-	13
MIANWALI	9	1	3	1	4	8	25	6	11	5	2	9
D.G. KHAN	9	-	8	1	-	9	20	-	15	2	3	20
TOTAL	75	10	49	10	10	68	109	5	51	22	21	94

DISTRICT	1985 TOTAL	1985 VILLAGES WITH NO ACHIEVEMENTS	1985 S1	1985 S2	1985 S3	1985 TOTAL VILLAGES WHERE PROGRAMME WAS EXECUTED	1986 TOTAL	1986 VILLAGES WITH NO ACHIEVEMENTS	1986 S1	1986 S2	1986 S3	1986 TOTAL VILLAGES WHERE PROGRAMME WAS EXECUTED
JHELUM	25	10	7	4	4	15	8	6	-	1	1	2
CHAKWAL	2	-	-	-	2	2	-	-		-	-	-
RAWALPINDI		-	-	-		-		-	-	-	-	-
ATTOCK	25	6	11	5	3	19	2	1	1	-	-	1
MIANWALI	27	22	4	1	-	5	2	1	1	-		1
D.G. KHAN	26	-	4	10	12	26	-	-	-	-	-	-
TOTAL	105	38	26	20	21	67	12	8	2	1	1	4

DISTRICT	TOTAL: TOTAL	TOTAL: VILLAGES WITH NO ACHIEVEMENTS	TOTAL: S1	TOTAL: S2	TOTAL: S3	TOTAL VILLAGES WHERE PROGRAMME WAS EXECUTED
JHELUM	59	20	18	10	13	39
CHAKWAL	42	11	21	4	4	31
RAWALPINDI	53		29	20	5	53
ATTOCK	67	12	42	3	5	55
MIANWALI	63	30	9	7	7	33
D.G. KHAN	55	-	27	15	15	55
TOTAL	349	73	153	42	41	276

SOURCE : SECRETARY UNION COUNCILS, FEB - MARCH 1987.

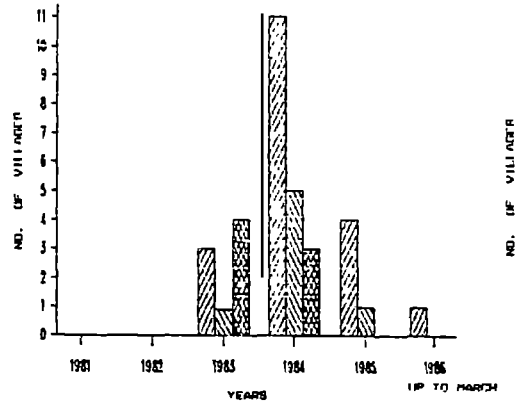
S1 : SUCCESS RANK 1, VILLAGES WITH TARGET ACHIEVEMENT OF 50% OR MORE.

S2 : SUCCESS RANK 2, VILLAGES WITH TARGET ACHIEVEMENT OF 25% - 49%.

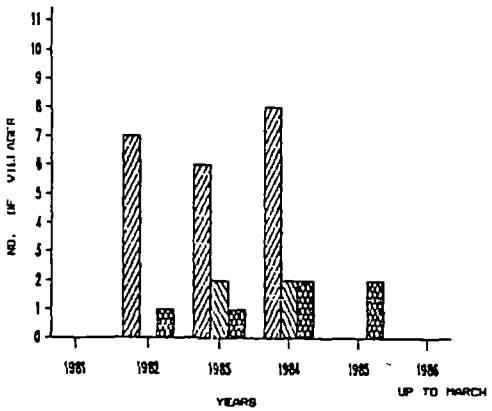
S3 : SUCCESS RANK 3, VILLAGES WITH TARGET ACHIEVEMENT OF 1% - 24.

Exhibit-I

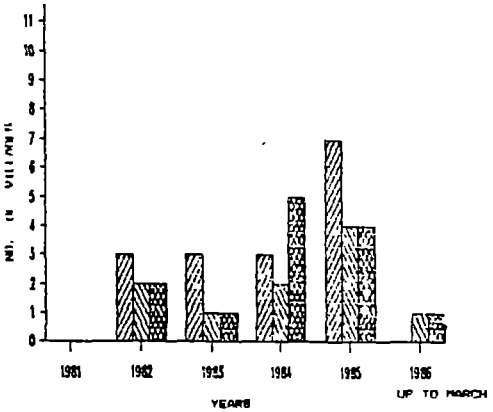
YEARWISE COVERAGE OF VILLAGES ACCORDING TO SUCCESS RANKING



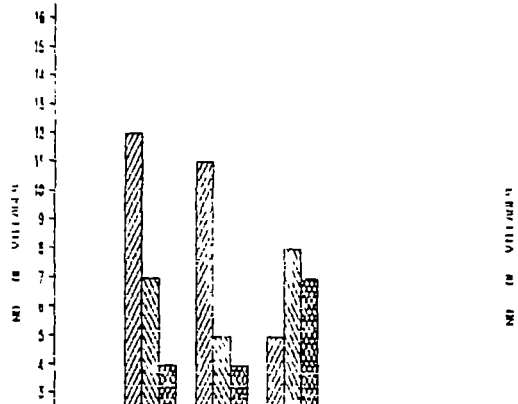
MIANWALI



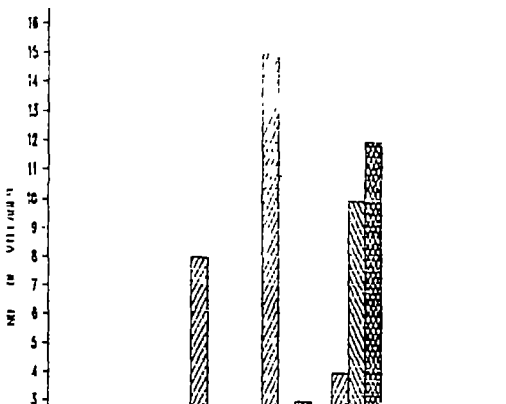
CHAKWAL



JHELUM



RAWALPINDI



DERA GHAZI KHAN

ATTOCK

SUCCESS RANK - I
SUCCESS RANK - II
SUCCESS RANK - III

Form. However, water cisterns were constructed as part of the Programme. Details about achievement of targets regarding latrines, biogas plants, soakpits and water cisterns, are given in the following subsections.

3.3.1 Construction of Latrines

Two types of latrines, demonstration latrines and household latrines, were planned to be constructed under the Programme. The purpose of constructing the demonstration latrines was to promote their usage among rural people, to educate them about their functioning and to transfer technical know how to the local community about the construction methods. It was planned to construct two demonstration latrines in each project village. These latrines were to be constructed at public places like schools, dispensaries or some other community places. UNICEF provided funds while the Rural Development Department was responsible, with assistance from the Sanitation Promoters, for constructing these latrines. Data about yearwise construction of demonstration latrines in the six districts, received from Secretaries of Union Councils, is presented in Table 8.

A total of 695 demonstration latrines were constructed from 1981 to 1985 out of which 546 latrines were constructed during 1983-1985. As per PC-I Form targets, percentage achievement of targets comes to be 58 %.

TABLE - 8· YEARWISE CONSTRUCTION OF DEMONSTRATION LATRINES IN THE SIX DISTRICTS

DISTRICT	Number of Latrines Constructed Each Year.																		TOTAL		
	1981			1982			1983			1984			1985			1986					
	Target	Achi-eved	% age	Target	Achi-eved	% age	Target	Achi-eved	% age	Target	Achi-eved	% age	Target	Achi-eved	% age	Target	Achi-eved	% age	Target	Achi-eved	% age
JHELUM	-	-	-	20	24	120.00	14	11	78.57	27	23	85.18	49	27	55.10	12	1	8.33	122	86	70.49
CHAKWAL	-	-	-	32	45	140.62	39	25	64.10	25	24	96.00	4	4	100.00	-	-	-	100	98	98.00
RAWALPINDI	-	-	-	55	55	100.00	44	45	102.27	39	45	115.38	-	-	-	-	-	-	138	145	105.07
ATTOCK	4	5	125.00	20	20	100.00	36	39	108.33	34	33	97.06	48	45	93.75	4	2	50.00	146	144	98.63
MIANWALI	-	-	-	-	-	-	34	34	100.00	50	40	80.00	52	30	57.69	4	4	100.00	140	108	77.14
D.G.KHAN	-	-	-	-	-	-	40	40	100.00	50	50	100.00	24	24	100.00	-	-	-	114	114	100.00
TOTAL	4	5	125.00	127	144	113.38	207	194	93.72	225	215	95.56	177	130	73.45	20	7	35.00	760	695	91.45

According to the targets stated by the Secretaries of Union Councils, 629 for 1983-1985, the percentage achievement is 87 % while in the light of total number of villages selected, @ 2 demonstration latrines per village in 301 selected villages, percentage achievement of targets works out to be 91 %. It may further be noted from the table that the rate of construction of these latrines increased from 1981 to 1984 but declined in 1985.

Household latrines were to be constructed by the individual households from their own resources or by taking a partial assistance from the Revolving Fund, established for the purpose. According to PC-I Form, it was planned to construct 70 household latrines in each selected village. Details about yearwise construction of household latrines in the six districts, as reported by Secretaries of Union Councils, are presented in Table 9.

A total of 10,281 household latrines were constructed since 1981. Out of these, 8,187 latrines were constructed during 1983-1985. Percentage achievement of targets, with respect to different sources, regard-

TABLE - 9 : YEARWISE CONSTRUCTION OF HOUSEHOLD LATRINES IN THE SIX DISTRICTS

DISTRICT	Number of Latrines Constructed Each Year.																		TOTAL		
	1981			1982			1983			1984			1985			1986					
	Target	Achi-eved	% age	Target	Achi-eved	% age	Target	Achi-eved	% age	Target	Achi-eved	% age	Target	Achi-eved	% age	Target	Achi-eved	% age	Target	Achi-eved	% age
JHELUM	-	-	-	570	223	39.12	422	198	46.92	900	226	25.11	1690	449	26.57	560	32	5.71	4142	1128	27.23
CHAKWAL	-	-	-	619	373	60.26	823	453	55.04	858	395	46.04	140	18	12.86	-	-	-	2440	1239	50.78
RAWALPINDI	-	-	-	2300	1166	50.7	1400	784	56.00	1400	531	37.93	-	-	-	-	-	-	5100	2481	48.65
ATTOCK	95	95	100.00	340	237	69.71	1130	917	81.15	1065	462	43.38	1600	692	43.25	30	30	100.00	4260	2433	57.11
MIANWALI	-	-	-	-	-	-	630	211	33.49	1468	671	45.71	1862	263	14.12	140	70	50.00	4100	1215	29.63
D.G.KHAN	-	-	-	-	-	-	630	428	67.94	1400	811	57.93	1820	546	30.00	-	-	-	3850	1785	46.36
TOTAL	95	95	100.00	3829	1999	52.21	5035	2991	59.40	7091	3096	43.66	7112	1968	27.67	730	132	18.08	23892	10281	43.03

ing construction of latrines are presented in Table 10.

TABLE 10 PERCENTAGE ACHIEVEMENT WITH RESPECT TO DIFFERENT TARGETS (1983-1985)

Category	No. of Households Latrines		
	Targets	Achievement	Percentage
Data reported by Secretaries of Union Councils	19,968	8,187	41.0%
PC-I Form	32,900	8,187	24.88%
Total number of Selected Villages (301 villages @ 70 latrines/ village).	21,070	8,187	38.85%
Total number of villages where programme was executed (230 villages @ 70 latrines/village).	16,100	8,187	50.85%

According to above referred table, the Programme achieved 25% of total PC-I targets fixed for household latrines. However, over-all achievements within the project villages was 51% of the planned targets.

3.3.2 Construction of Soakpits, Biogas Plants and Water Cisterns

Consolidated data about construction of soakpits, biogas plants and water cistern, as reported by the Secretaries of the Union Councils, is presented in Table 11.

Table. 11 YEARWISE CONSTRUCTION OF SOAKPITS, BIOGAS, PLANTS AND WATER CISTERNS

Category/Year	Demonstration			Household			Total		
	Target	Achievement	% age	Target	Achievement	% age	Total Target	Total Achievement	Total % age
Soakpits									
1981	2	1	50	-	-	-	2	1	50
1982	46	28	60.87	7	5	71.43	53	33	62.3
1983	96	84	87.5	7	3	42.86	103	87	84.5
1984	39	28	71.79	11	4	36.36	50	32	64.0
1985	11	-	0.0	3	-	0	14	-	-
1986	1	-	0	-	-	-	1	-	-
Total (983-1986)*	195 (147)	141 (112)	72.3 (76.2)	28 (21)	12 (7)	42.9 (33.3)	223 (168)	153 (119)	68.60 (70.86)
Biogas Plants									
1981	2	2	100	-	-	-	2	2	100
1982	47	45	95.74	10	8	80.0	57	53	92.98
1983	68	58	85.29	14	7	50.0	82	65	79.27
1984	106	93	87.74	13	12	92.30	119	105	88.24
1985	78	43	55.13	15	7	46.66	93	50	53.76
1986	9	4	44.44	-	-	-	9	4	44.44
Total (1983-1986)	310 (261)	245 (198)	79.03 (75.9)	52 (42)	34 (26)	65.4 (61.9)	362 303)	279 (224)	77.07 (73.93)
Water Cisterns									
1981	2	3	150.0	-	-	-	2	3	150.00
1982	38	18	47.37	4	2	50.0	42	20	47.62
1983	47	18	38.30	7	2	28.51	54	20	37.03
1984	28	4	14.29	3	1	33.33	31	5	16.13
1985	7	1	14.29	2	-	0	9	1	11.11
1986	2	-	0	-	-	-	2	-	-
Total (1983-1986)	124 (84)	44 (23)	35.5 (27.4)	16 (12)	5 (3)	31.25 (25.0)	140 (96)	49 (26)	35.00 (27.08)

* Figure in parentheses relate to 1983-1986 data

It has been observed that the reported targets about the above referred technologies are not consistent with those of the PC-I Form targets. Information about target achievement in case of each technology therefore, merit a brief discussion.

Soakpits and biogas plants were planned to be constructed, by the Rural Development Department for demonstration purpose only. No targets were fixed to construct these technologies at household level. Similarly, there were no planned targets, demonstration or household, for construction of water cisterns in the PC-I Form. However, the data received from the Secretaries of Union Councils about these technologies stated targets, with respective achievements, for demonstration as well as for households categories. This implies either lack of proper communication of targets to the executing staff or a subsequent change of policy at higher level. There was however, no evidence of the latter in the office record. It may also imply misunderstanding or misreporting of facts by the Secretaries of Union Councils. It was further observed that even if the Secretaries of Union Councils deemed it necessary to report household construction of soakpits, biogas plants and water cisterns, there was still no basis of stating household targets.

According to data referred in Table 14, a total of 195 demonstration soakpits were planned to be constructed during 1981 to 1985. Total number of soakpits constructed during the period were 141 (72 %). The targets and the achievements for the demonstration soakpits for the period 1983-1985 were 147 and 112 (76 %) respectively. Number of soakpits constructed during 1983 were the highest. Rate of construction of soakpits declined subsequently. No demonstration soakpits were constructed in 1985 or later.

Reported targets and their achievements for household soakpits were 28 and 12 (43 %) respectively. It was observed that even the combined targets of demonstration and the household soakpits did not tally with those of PC-I Form targets. Total reported target for demonstration and the household soakpits was 168 while the total achievement was 119 (71 %).

As per PC-I, a total of 470 demonstration biogas plants were planned to be installed during 1983-1985, on the average one plant in each selected village. According to reported data, Table 11, a total of 245 demonstration biogas plants were installed against a target of 310 during 1981-1986. The target for demonstration units for the period 1983-1985 was reported as 261, considerably less than that stipulated in PC-I Form.

Number of demonstration biogas plants installed during the period 1983-1985 were 198, about 42 % of the PC-I Form targets.

Reported number of biogas plants constructed by the households during 1983-1986 were 26 as against the target of 42 for the same period. Even the combined reported demonstration and household targets, 303 biogas plants, were less than those stipulatd in PC-I Form. Total number of biogas plants constructed in demonstration as well as household categories during 1981-1986 were 279 out of which 224 plants were constructed during 1983-1986, the latter about 48% of the PC-I targets.

There were no planned targets,to construct water cisterns. However, according to Table 11, a total of 49 water cisterns were constructed for demonstration and household purposes during 1981 to 1985 against reported target of 140 for the same period. The data revealed that a large number of water cisterns were constructed during the period 1981-1983.

3.4 Training of Water and Sanitation Promoters

It was planned to train a total of 165 Water and Sanitation Promoters and 10 Sanitation Supervisors during 1983-1985. Accordingly, four training courses were conducted to train the Sanitation Promoters at

the Local Government Training Institute, Lalamusa. Number of Water and Sanitation Promoters who completed their training programme successfully are given in the Table-12 below:

TABLE 12 : NUMBER OF WATER AND SANITATION PROMOTERS TRAINED FOR THE PUNJAB SANITATION PROGRAMME

Training Course	From	To	Number of Promoters Trained		
			Males	Females	Total
1st	15.3.1983	15.06.1983	28	16	44
2nd	01.9.1983	30.11.1983	14	25	39
3rd	15.3.1984	31.05.1984	16	20	36
4th	17.8.1985	17.11.1985	18	25	43
Total:			76	86	162

A total of 162 Water and Sanitation Promoters, 76 females and 86 males, were trained for the Punjab Sanitation Programme from 1983 to 1985. Besides, a small number of Water and Sanitation Promoters belonging to other provinces or organizations, were also trained during the period. A total of about 110 Sanitation Promoters were employed to implement the Programme. The last batch of Water and Sanitation Promoters completed training when the Programme was about to be stopped. The services of this batch therefore, could not be utilized for Programme implementation. A brief course on Sanitation was also offered to sub engineers. No Sanitation Supervisor was however, trained during the period 1983-1985.

SECTION - 4 IMPACT ON RURAL HOUSEHOLDS

Main focus of the impact study was to assess: knowledge and perceptions of the rural households about the Punjab Sanitation Programme, their level of awareness about health, hygiene and environmental sanitation, perceptions about benefits of latrines, desire to build latrines, adoption of different sanitation technologies by the target population, and improvements in hygiene, health and environmental sanitation practices. The study did not attempt to measure the impact of the Punjab Sanitation Programme on the health of the target population.

Extensive data about above referred areas of study and other related issues was collected from beneficiary, non-beneficiary and control village households, and rigorously analysed. Household information, collected from three categories of project villages, Success Rank One (S1), Success Rank Two (S2) and Success Rank Three (S3), were compared to delineate the impacts of the Programme on rural population. To identify differentials between project and non project villages, benefi-

ciary and non-beneficiary household information, collected from three categories of project villages, were further compared with those of control village household information. Details regarding various impacts of the Punjab Sanitation Programme on the target population have been presented in Report 2: Impact on Rural Households. This section highlights only the important findings of the study.

4.1 Knowledge and Perceptions about Punjab Sanitation Programme

Knowledge and perceptions of the rural households about the Punjab Sanitation Programme were studied in terms of their knowledge about the existence of the Programme in the villages and their levels of understanding about the Programme. Studies regarding important sources of information about the Programme were also undertaken.

Data collected from the sampled project villages revealed that two thirds of the households knew about the Programme. Among the beneficiary households, the percentage of households who knew about the Programme was the highest in S1 villages and the lowest in S3 villages, as expected. However, it was noted that, 22% of the total beneficiary households did not know about the Programme. This might be due to the reason that the concerned households already had latrine and PSP functionaries did not approach them or the households were

given materials/loans and were asked to construct latrines but were not properly apprised about broad objectives of the Programme.

Level of understanding about the Punjab Sanitation Programme was found to be disparate among the rural households. About half of the total households, consisting two thirds of non-beneficiary households and one third beneficiary households, could not explain salient features of the Programme. Among the remaining, majority of households described it in terms of latrine construction (25%) while 14%, 8% and 3% of the respondents explained the Programme in terms of its broader aims like overall upgradation of environment, sanitary improvement and introduction of hygiene practices respectively. Of these, percentages of beneficiary households were significantly higher than non-beneficiary households in almost all the cases. Variations in the level of understanding may be attributed to a number of reasons such as exposure to different sources of information, the interest taken and quality of motivation work by the concerned staff, the level of education and prior awareness of the households about sanitation.

Both beneficiary and non-beneficiary households reported that the most important sources of information about the Punjab Sanitation Programme were home visits

of (i) Sanitation Promoters and (ii) members of village Sanitation Committees. According to beneficiary households, the Sanitation Promoters visited them two or three times more frequently than the members of village Sanitation Committees. Percentage responses between two types of households also varied in case of other sources of information.

4.2 Awareness About Hygiene and Sanitation

The Punjab Sanitation Programme attempted to inculcate greater awareness of hygiene and sanitation related issues among the rural masses. To guage its possible impacts, studies concerning awareness of different categories of households, in terms of knowledge of and importance attached to various aspects of health, hygiene and sanitation, were conducted. The studies were generally confined to the following main aspects:

a) Knowledge of diseases spread by human excreta.

b) knowledge of causes of diarrhoea.

c) knowledge of water borne diseases.

d) knowledge of immunization against six childhood diseases.

e) prioritization of main sanitation problems of the village and

f) Significance of sanitation related problems compared to other village problems.

Following subsections highlight important findings of these studies:

4.2.1 Knowledge of Diseases Spread by Human Excreta

Pattern of responses from all the three categories of households, concerning their knowledge of diseases spread by human excreta and the types of diseases spread by human excreta revealed that the Punjab Sanitation Programme did make positive contributions in this regard. Percentages of the households who responded positively, that human excreta spreads disease, were 62% among beneficiaries, 48% among non-beneficiaries and 50% among control households.

Regarding knowledge of types of diseases spread by human excreta, beneficiary households again exhibited higher knowledge compared to non-beneficiary and control households. Conversely, percentages of households who did not have any knowledge about types of diseases spread by human excreta were significantly higher among non-beneficiary and control households compared to beneficiary households. Major diseases identified by the households were diarrhoea, cholera and stomach worms.

4.2.2 Knowledge Regarding Causes of Diarrhoea

Relatively smaller proportions of beneficiary and non-beneficiary households responded to the question

regarding causes of diarrhoea. Percentage responses of control households were higher in this case. Of those who responded about various causes of diarrhoea, beneficiary households exhibited different pattern of responses compared to non-beneficiary and control households. Among the beneficiary households, a significantly higher percentage of the respondents identified bad water as the cause of diarrhoea. Their responses regarding insanitary latrine conditions and dirty drains, as causes of diarrhoea, were comparatively smaller. In contra distinction, the percentages of responses, identifying dirty drains as causes of diarrhoea, were proportionately higher among non-beneficiary and control households.

Overall comparison of pattern of responses, among beneficiary, non-beneficiary and control households, revealed that the beneficiary households had proportionately better knowledge regarding the causes of diarrhoea.

2.3 Awareness of Water Borne Diseases

All the three categories of households identified diarrhoea, chronic indigestion, worms and cholera, in that ranking order, as the most common water-borne diseases. Percentages of total responses were the highest among control households (98%) followed by beneficiary households (95%) and non-beneficiary house-

holds (60%). Pattern of responses of project village and control households, did not reveal any impact of the Programme in this case.

4.2.4 Awareness about Immunization against six Childhood Diseases

Overwhelming majority of respondents knew about immunization against six child-hood diseases, 97% of beneficiaries, 96% of non-beneficiaries and 96% of control households. There is no evidence to suggest any specific contribution of the Punjab Sanitation Programme to this awareness.

4.2.5 Prioritization of Main Sanitation Problems

All the three categories of households were asked to prioritize three major sanitation problems of their respective villages. A total of six problems, lack of drains, lack of water, unpaved village streets, ponds of dirty water, lack of proper refuse disposal and lack of household latrines, were identified. The beneficiary, non-beneficiary and control households exhibited highest degree of agreement in assigning top priority to 'lack of drains'. Considered in terms of cummulated percentages, the beneficiary households rated 'waste-water in the streets' as the second and 'unpaved streets' as the third most important problems. This however, was not observed to be so in case of non-beneficiary and control households. Both

of these respondents groups tended to agree in assigning second and third priorities to 'unpaved streets' and 'waste water in streets' respectively. It may be noted that in spite of certain apparent variations in pattern of responses, the households primarily pointed out somewhat similar sanitation problems. 'Lack of drains' and the 'water in the streets' are two versions of the same problem i.e. lack of drains.

Low priority assigned to house latrines might be due to the reason that the households did not consider these as the village level sanitation problem.

4.2.6 Significance of the Sanitation Related Problems Compared to other Village Problems

To study the significance of Sanitation related problems compared to other problems of villages, the households, were solicited to rank nine commonly perceived problems of villages. These were: sanitation (cleanliness ofstreets/disposal of garbage), drainage, safe drinking water, pavement of access road (to village), education, transport, pavement of lanes, health and electricity.

All the three categories of households, tended to agree that 'drainage' was the most important village problem. However, the project village households and the control households differed in ranking second and third order problems of the villages. The beneficiary and non-

beneficiary households rated 'water' as the second and 'sanitation' as the third most important problems. The control households also identified the same problems but with different ranking order i.e. 'sanitation' as second and 'water' as third most important problems. 'Health', 'pavement of lanes' and 'electricity' emerged as other significant problems of villages in that ranking order.

On the whole, a dominant majority of the households attached more importance to health and sanitation related problems e.g. 'drains', 'sanitation', 'health' but there was not enough evidence to discern the impact of the Programme among different categories of households.

4.3 Perceived Benefits, Desire to Build and Willingness to Pay for Latrine.

4.3.1 Perceived Benefits of Latrines.

A household's desire for certain goods or services is generally positively correlated with its perception of benefits/usefulness of the specific item. The intensity of desire for a specific good or service influences its willingness to pay decisions. With this premise, households' perceptions about the benefits of constructing a latrine were studied.

Studies regarding households perceptions of benefits for installing a latrine in the house revealed that a

dominant majority of the respondents perceived house latrines to be beneficial/useful. Most commonly attributed benefit, for constructing a latrine, by all the three types of respondents was its usefulness to secure privacy for women. Other frequently quoted responses regarding usefulness of latrines were: 'good for emergencies', 'convenient' and 'cleaner/hygienic', in that order. Overall pattern of responses of all the three types of households was generally indentical.

It is important to mention that the percentages of households who perceived latrines as cleaner and hygienic, were the highest among beneficiary households (62%) followed by non-beneficiary (56%) and control households (51%). The pattern of responses, regarding cleanliness and hygienic aspects of the house latrines, may be attributed to positive impact of the Programme on the target population as this had been a major area of emphasis during the course of education and motivation of rural households.

4.3.2 Desire to Build a Latrine

A very large majority of non-beneficiary (87%) and control households (85%) expressed the desire to build latrine. The desire to build latrines among the households was noted to be positively related with the success rank of the villages. However, most of the respondents from both categories of households main-

tained that they could not install a latrine from their own sources. They proposed that the amount of loan should be increased. The following sub section gives further details in this regard.

4.3.3 Willingness to Pay for Latrines

Majority of the households who desired to install a latrine also expressed their willingness to pay its partial cost. Among non-beneficiary households, about 85% of the respondents were willing to pay upto Rs. 1,000/-, 7% between Rs. 1,000/- to Rs. 2,000/- and about 8% more than Rs. 2,000/-. Among control households, percentages of respondents willing to pay upto Rs. 1,000/-, between Rs. 1,000/- to Rs. 2,000/- and more than Rs. 2,000/- were 83%, 13% and 4% respectively. Majority of the households' willingness to pay only a small amount of money, for construction of latrines, may be attributed to their generally low level of income. However, the amount of money the households are willing to pay considered with their own labour input might be sufficient to cover a larger proportion of the cost of constructing a latrine. Appropriately designed loan policies for different income groups, in the light of affordability and willingness to pay capacities, might contribute to higher rate of construction of latrines. As patterns of responses among non-beneficiary and control households appeared identical, the Punjab Sanitation Programme

therefore did not seem to have a significant impact in this case.

4.4 Adoption of Water and Sanitation Technology

To identify important socio-economic characteristics of households, likely to have mattered in adoption of sanitation technology(ies), four variables were studied in detail. These were: size of the household , types of occupation of the household members, educational achievements of the household members and income level of the households. Brief discussion about each variable is presented as below:

4.4.1 Household Size

Relatively higher percentages of large households (with 10 or more members) accepted the Programme. Opposite was true in case of smaller size households (less than 9 members). However, the relationship between acceptance and household size is not strong. The size of household therefore, does not appear a strong determinant in adoption of sanitation technology(ies) by the households. It is more likely linked through other intermediate variables such as income.

4.4.2 Occupation

Higher percentages of 'salaried workers', 'self employed' and 'other occupations' accepted the

Programme than the 'agriculturists'. It was further noted that the highest percentage of beneficiary households were salaried workers reflecting education among household members and more exposure to city life.

Pattern of occupational distribution thus suggested that the households engaged in non-agriculture occupations were more likely to adopt sanitation technology(ies) and vice versa. It also implied that the Punjab Sanitation Programme was comparatively more successful in influencing the non-agriculturist/ salaried households in the project villages.

4.4.3 Education

In all the three categories of educational achievement, 'literate but not primary', 'primary but not matric' and 'matric or higher degree', the percentages of the beneficiary households was higher than the non-beneficiary households. This led to infer that the educational achievement of household members was positively related with the adoption of sanitation technology(ies) of the Programme. Further, markedly higher percentage of beneficiary households under the category of 'matric or higher degree' implied that the households with higher standard of education had comparatively higher tendency to adopt the Programme.

4.4.4 Income

Percentages of beneficiary households were significantly higher than the non-beneficiary households particularly in higher income brackets i.e. annual income of Rs. 12,001.0 to Rs. 36,000.0 and Rs. 36,000.0 and above. Percentage of beneficiary households falling in income bracket of Rs. 36,000.0 and more was three times higher than that of non-beneficiary households. In case of the lowest income categories, Rs.12,000 or below, the percentage of non-beneficiary households was significantly higher than the beneficiary households.

Data about income distribution among beneficiary and non-beneficiary households suggested that the Punjab Sanitation Programme was comparatively more popular among higher income households. It further, indicated that the households with higher levels of income had a higher tendency to adopt the Programmme (as in case of education, subsection 4.4.3).

In the light of information collected from Government and UNICEF Officials, it may be mentioned that the Punjab Sanitation Programme did not address any specific socio-economic group (socio-economic targetting not mentioned in the PC-I Form as well). Interviews with the members of Village Sanitation Committees further revealed that they generally extended loans to

those households who were financially sound and were in a position to return it. This explains the reason for lower percentage of beneficiary households in the lowest income bracket.

4.5 Effects of the Programme on Health, Hygiene and Environmental Sanitation

4.5.1 Health

To assess the effects of the Punjab Sanitation Programme on the health of household members, studies regarding frequency of diarrhoea complaints, most affected age group, perceptions about reduction in diarrhoea cases after adoption of the Programme recommendations were undertaken.

It was observed that the household data about the above referred factors, excluding the last, tended to follow a set pattern in most of the cases. Analysis of information collected from all the three categories of households suggested that the frequencies of diarrhoea complaints were comparatively lower among project village households than those among control households. Within the project villages, the frequency of diarrhoea complaints tended to be positively correlated with the success ranks of the villages. It was therefore, implied that the Punjab Sanitation Programme contributed to reduce diarrhoea complaints among rural households.

According to the reported information, frequency of diarrhoea complaint was lower among beneficiary households (21% reported a case or more in the last year) than non beneficiary (22%) and control households (29%). Similarly, the subsets with higher frequencies of diarrhoea complaint (once in 2-3 months or in lesser time period) were larger among control households (9%) than project village households (7%). However, within the project villages, more beneficiary households (8%) reported frequent diarrhoea attacks (once in 2-3 months) than non-beneficiary households (5%). This could be a function of more cognition of the disease than actual higher incidence among beneficiary households.

Data about incidence of diarrhoea among different age groups revealed that children under 5 years were the most affected group. Percentages of households reporting diarrhoea complaints among children under 5 years were 15% in the project villages and 19% in control villages. Within the project villages, about 18% of beneficiaries and 13% of non-beneficiaries reported such cases. Percentage responses regarding incidence of diarrhoea among children of 6 - 10 years were 4% in case of project village households and 6% in case of control households. Within the Project Villages, percentage responses of beneficiaries and non-benefi-

ciaries reporting diarrhoea cases for this age group were 2% and 6% respectively.

It is important to mention that a significantly higher percentage of project village households considered that the Punjab Sanitation Programme had a positive impact in reducing diarrhoea complaints among household members. Percentages of the beneficiary households who perceived overall reduction in diarrhoea complaints, were 96% in S1 villages, 95% in S2 villages and 87% in S3 villages.

4.5.2 Hygiene

Studies regarding toilet habits, substance used for cleaning after defecation, washing habits, maintenance of water sources, and cleanliness and covering of drinking water containers indicated that the Punjab Sanitation Programme had an overall positive impact in improving the hygiene practices of the rural population.

Toilet habits of beneficiary households members, particularly female members, were observed to be radically different than those of other category households. Among the beneficiary households, 96% women, 87% children, 7% youngmen and 78% old men were reported using latrine for defecation. Majority of the remaining members used open fields to relieve themselves. None of the members were reported using house compound for

defecation. On the other hand, majority of the non-beneficiary and control households members used fields for defecation. A significant percentage of these household members, mainly women and children, were also reported using house compound for defecation in certain circumstances.

Reported data about substance used after defecation indicated marked differences between beneficiary households and the other households. Among the former, a very high percentage of both adults and children, 96% and 92% respectively, used water instead of mud/soil to clean after defecation. Children were however, more likely to use mud/soil compared to the adults. The non-beneficiary and control households normally used mud or soil for cleaning purposes.

About 92% of the beneficiary households considered their cleaning practice hygienic while about 5% did not know. However, about 62% of non-beneficiaries considered their cleaning practice as hygienic. About 20% of them did not know whether the substance used was hygienic or not. Among the control households, 58% considered their cleaning practice as healthy while about 24% of them did not know about it. The beneficiary households therefore, appeared more hygiene conscious than non-beneficiary or control households.

Differences were noted in washing habits of different categories of households. Majority of the beneficiary households reported that they always washed hands before/after cooking and eating. Percentages of non-beneficiaries and control households were comparatively lower, the latter being the lowest. Patterns of responses about washing hands before and after milking cattle were observed to be generally the same in all the three categories of households.

Regarding proper maintenance of water sources and cleanliness/covering of water containers, the project village households appeared better than the control households. With respect to maintenance of water sources, the Project Village households were judged superior to the control village households.

From the above discussion it may be concluded that the beneficiary households had superior hygiene standards/practices than the non-beneficiary households and project villages were better placed than the control villages.

4.5.3 Environmental Sanitation

Possible effects of the Punjab Sanitation Programme on household practices affecting environmental sanitation were assessed. Variables such as maintenance of animals and disposal of excreta, household garbage and waste water were investigated and observed.

Additionally, investigators assessed the cleanliness of household compounds and access lanes outside the homes of the respondents.

Variables relating to animals were largely insignificant. Project village households, tended to keep fewer animals than the control households, although a majority of all households did keep animals. A vast majority of all households used animal excreta for manure that is collected in the fields, 86% of Project village and 79% of control households. It was observed that beneficiary households had the least amount of refuse of any kind visible in the house compound. In about 83% of surveyed beneficiary houses, there was no refuse at all compared with 74% of non-beneficiary and 56% of control houses. Where it existed, the nature of refuse varied. Animal excreta was least commonly seen in beneficiary houses (6%) but highest (20%) in non-beneficiary houses. Human excreta on the other hand was seen in two beneficiary houses and one non-beneficiary house. In control houses, no such case was observed. Inversely, household garbage was far more common in control houses (29%) than either non-beneficiary (6%) or beneficiary houses (10%). Similarly refuse in the streets outside the houses was more common amongst control houses (34%) than non-beneficiary (20%) and beneficiary houses (17%).

About 58% of beneficiary households and 56% of non-beneficiary households were reported as having no refuse in the lanes while this was true for only 22% of the households surveyed in the control villages. Unexpectedly, in a few cases human excreta seen in front of project village houses, comparatively more in beneficiary houses than the non-beneficiary houses, but on the whole the project village households fared better than control household. The presence of animal excreta was 15% higher in front of control houses than project village houses. One third of all control households had household garbage dumped in the streets compared with just over a quarter of non-beneficiary households and only 18% of beneficiary households.

Dirty waste water was accumulated near almost one half of control houses, 32% of non-beneficiary houses and 27% of beneficiary houses. This may partially be attributed to smaller percentage of drains in control households and non-beneficiary households. With respect to the disposal of waste water inside the house compounds, a similar pattern emerged. About 22% of control households, 13% of non-beneficiary and 9% of beneficiary households allowed water to accumulate where used. Inversely 41% of beneficiary, 31% of non-beneficiary and 13 % of control households had installed 'pucca' drains while 14%, 19% and 23% respectively had 'kutcha' drains.

The cooking areas of project village households were judged to be definitely cleaner than control households (93% and 83%). Within project villages, however, there appeared no relation between cleanliness of cooking areas with either household category or success rank of villages. Percentages of households with cleaned cooking areas were observed to be 96% in S1, 100% in S2 and 83% in S3 villages.

On the whole the project villages were judged better in environmental sanitation than the control villages. Within the project villages, the beneficiary households were generally more likely to maintain better sanitation condition inside and outside of their residences than the non-beneficiary households.

Local Government and Rural Development Department, Government of the Punjab, and the Local Government Councils were jointly responsible for planning, execution and supervision of the Punjab Sanitation Programme. UNICEF assisted in the above activities, provided funds to implement the Programme and catered for training of technical staff. Important policies for the Programme were decided by the Local Government and Rural Development Department, and the UNICEF at provincial level. The PC-I Form of the Punjab Sanitation Programme, approved by the Government of Punjab, entails most of the important policy decisions agreed between the two collaborating organisations, for the period from January, 1983 to March, 1986. Progress monitoring of the Programme implementation in the six districts was also planned to be undertaken by the Rural Development Department at provincial level.

At district level, the District Councils and the district staff of the Rural Development Department were responsible for implementation of the Programme. The

Chairman of the District Council was the Project Director of the Programme for the district while the Assistant Director Local Government (ADLG), the Assistant Project Director. The Deputy Commissioners were also involved in progress review of the Programme in their respective districts. Most of decisions pertaining to execution of the Programme were taken at district level. The Chairman District Council, in consultation with the other Council members, selected the villages for implementation of the Programme. The ADLGs role was pivotal in planning, coordination, administration, execution and progress monitoring of the Programme for the District.

At Markaz level, the Project Managers were responsible for the Programme implementation. They also supervised the activities of Sanitation Promoters, based at Markaz level. The Sanitation Promoters working in groups of two females and one male at each Markaz level were specially trained to implement the Programme in the villages. Owing to the nature of their job and importance of their role in field operations, pertinent details regarding their training and job performance are presented separately in Chapter-7 of this report.

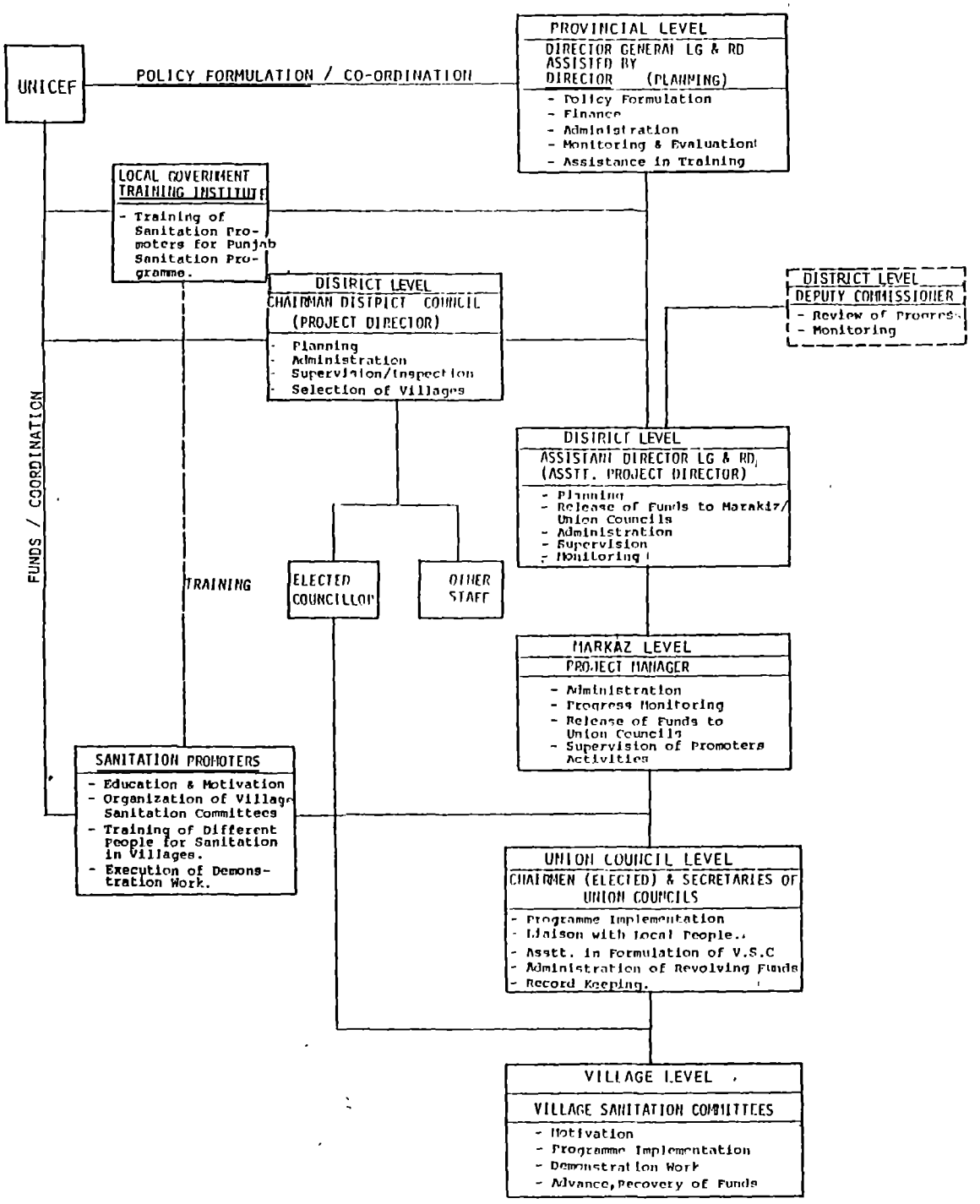
The Secretaries of Union Councils role was important at village level. Besides close coordination with the

Sanitation Promoters and Village Sanitation Committees (VSCs) they were also responsible for disbursement of funds to the VSCs, maintenance of records of the Programme and progress reporting. The Village Sanitation Committees, for males as well as females, were organized at village level to make the Programme self-sustaining through peoples' participation. Organisational structure for the Punjab Sanitation Programme, outlining important roles and responsibilities of different functionaries is presented in Exhibit-2.

To evaluate the management of implementation of the Punjab Sanitation Programme important areas of study included: policy formulation and planning for the Programme, the PC-I Form, selection of villages, roles and responsibilities of different functionaries and their levels of understanding about their respective roles, levels of effort input by different functionaries, modes and levels of coordination at intra and inter agency levels, field supervision, progress monitoring, maintenance of Programme record, bottlenecks/ problems faced by different functionaries in execution of the Programme and their proposed solutions. A number of functionaries involved in planning, administration, execution, progress monitoring and training programmes of technical staff, from Local Government

Exhibit - 2

ORGANIZATIONAL HIERARCHY FOR THE PUNJAB SANITATION PROGRAMME



and Rural Development Department, District Councils, UNICEF and the Local Government Training Institute, Lalamusa, were interviewed for the purpose. Details regarding number of officers and other field staff interviewed for the study have already been referred to in Table-4 of this report.

Report 3: Management for Implementation entails detailed discussion of the above referred areas of study. This section highlights only the important findings of the study.

5.1 Policy Formulation and Planning.

The Punjab Sanitation Programme was not treated like other projects of the Local Government and Rural Development Department. It was given a separate status. Detailed policy guidelines regarding phasing for implementation, supervision, coordination, monitoring, financial management and record maintenance were not worked out while launching the Programme at an extended scale in 1983. The PC-I Form, basic policy document, was approved after more than half of stipulated execution time had elapsed. Roles and responsibilities for various functionaries were defined quite late. All this contributed to diverse management problems, affecting overall efficiency of the Programme. Involvement of different organisations, again without specified

modus operandi for inter coordination, further accentuated the problems.

The provincial head office of the LG&RDD was not involved in financial matters of PSP. Progress monitoring of Programme implementation by the provincial headquarters was also in a piece meal manner. This contributed to slackness of control from the top. The district staff of the LG&RDD therefore, did not feel it particularly necessary to apprise the provincial office, about the status of implementation of the Programme or other related issue, on regular basis.

Planning and implementation of the Programme was generally done by the district staff of LG&RDD. Involvement of Chairmen of District Councils was generally confined to selection of villages for the Programme or to give guidelines to the ADLGs about certain important issues. Owing to their manifold and diverse responsibilities, most of the matters pertaining to implementation of the Programme were transferred to the ADLGs. Practically, the ADLGs with some of their closely associated Project Managers controlled most of the Programme operations. With weak control from the top and lack of proper policy framework, the Programme implementation was thus susceptible to adhoc decision making prone to influences of those who mattered or other situational factors.

Inspite of various difficulties outlined above, the Punjab Sanitation Programme made significant head way in realising some of its objectives, already discussed in Section 3 and Section 4. Without detracting from the contribution of other functionaries, the reported level of achievement may be attributed to personal interest of the Additional Director General of LG&RDD, some of the chairmen of District Councils,the Resident Programme Officer, UNICEF, Punjab and diligent efforts of some of the Sanitation Promoters and Assistant Project Officers of UNICEF. It may further be added that at a stage, the provincial minister for LG&RDD was also keenly interested in PSP.

Quantitatively, achievements of the Programme fell short of the ambitious planned targets. However, it is important to mention that in a short span of 3-4 years, the Punjab Sanitation Programme did exhibit the potential for acceptance by the rural population. Careful planning, organisation and coordination of various PSP activities could further enhance its performance. Following main aspects needed special attention of the policy planners:

i) Timely preparation and approval of the PC-I Form.

ii) Detailed planning and programming, before preparation of the PC-I Form.

iii) Policy guidelines to transfer the Programme to the Government, specifically about regularization of Sanitation Promoters Jobs, type of institutional arrangements necessary for independent handling of PSP, sources/generation of funds for demonstration work as well as for the loan scheme to carry out the PSP in new villages.

5.1.1 Selection of Villages

Project villages were to be selected on the basis of a specified criteria. The criterion, as outlined in PC-I Form, is as follows:

a) Water must be available in the village.

b) The village should have effective leadership.

c) The village should be easily accessible from the town or city. It should have a metalled access road.

d) The size of the village should be between 100-300 houses.

e) Sanitation should be the felt need of the village.

Analysis of village profiles of all the sampled project villages and information collected from Chairmen District Councils, members of District Councils, Project Assistants of UNICEF and group meetings at village level revealed that the selected villages generally conformed to the specified criteria. However, certain deviations were also noted in some of the cases. These were attributed to political considerations of the concerned selection committees/Chairmen of District Councils. It was also observed that while selecting the new villages each year, appraisal of the

performance of the previously selected villages, status of finances in each district i.e. funds spent or in hand and the capability of the executing staff to take extra workload, was seldomly undertaken.

5.2 Efforts for Implementation

As referred earlier, the Punjab Sanitation Programme had a separate status compared to other LG&RDD Projects. It was generally considered as an additional assignment by most of the concerned functionaries. With the exception of Sanitation Promoters, all the other functionaries were only partially involved in its implementation. On the other hand, owing to its newness and diverse nature of tasks particularly concerning peoples participation, the Punjab Sanitation Programme demanded considerable amount of efforts and keen interest from the functionaries. The appraisal of overall performance of PSP therefore, entailed a study of the level of effort input and the level of interest taken by different ranks of functionaries. Besides, understanding of different functionaries, about their respective assigned roles was also studied.

The levels of effort input was studied in terms of three broad qualitative categories; Full capacity, moderate capacity and below capacity. Similarly, three categories; high, moderate and low, were defined to

investigate the level of interest taken by different functionaries.

5.2.1 Understanding of Roles and Responsibilities.

Lack of consistency in the responses of the same category of functionaries connotated differences in their understanding of their respective roles. This may be attributed to lack of proper communication among the organizers of PSP and the field staff and or carelessness in defining the roles and responsibilities of different level functionaries.

The responses of the concerned ADLGs regarding their roles for coordination of PSP activities and disbursement of funds were found to be consistent. Some of them also considered supervision of demonstration work as their responsibility. However, only two out of the five ADLGs considered that administration of overall PSP activities was also their responsibility. None of them attached any importance to their role regarding maintenance of project record. This explains the reasons for lack of proper maintenance of project record.

The Project Managers were generally found to be less conscious about their most important role i.e. administration and coordination of field activities of the Sanitation Promoters. They however, understood their

role for record keeping and supervision of work. The Secretaries of Union Councils and the members of VSCs generally understood their respective roles right.

5.2.2 Level of Effort

The respondents were asked to give their assessment about the levels of efforts input in implementation of PSP by their subordinate staff. This helped to minimise bias. Analysis of information collected by the ADLGs, Project Managers and Secretaries of Union Councils revealed that the overall level of efforts inputs by the concerned functionaries was predominantly of moderate level. However, significantly high percentages of ADLGs and Project Managers were of the view that a majority of the Sanitation Promoters made full capacity efforts to implement PSP.

5.2.3 Level of Interest

Information collected from the members of VSCs revealed that the level of interest among the functionaries generally varied in inverse relation to their rank in the management hierarchy i.e. lower the rank of the functionary, the higher was his level of interest in the Programme and vice versa.

The percentages of responses for high level of interest

were 49% for the Secretaries of U.Cs., the lowest in rank, and 17% for the high Government Officials, the highest in rank . Lower percentage regarding high level of interest in case of high Government Officials may be attributed to the fact that they were not meant to visit the project villages so frequently as other categories of functionaries.

5.3 Coordination

To evaluate effectiveness of coordination among different ranks of functionaries, both at inter and intra agency levels, studies generally focussed on the modes of coordination and the levels of coordination.

5.3.1 Mode of Coordination

Different modes of coordination operating among different level functionaries were categorised into three main types, personal contact, official meetings and correspondence/progress reporting. Comparatively, mode of coordination through personal contact was considered to be the most effective while correspondence/ progress reporting the least.

Opinions of ADLGs, Project Managers, Secretaries of Union Councils and members of Village Sanitation Committees were taken about their respective modes of coordination above and below the line of authority. It

was observed that all the three modes of coordination were employed at each level of management hierarchy. However, modes of coordination for the superiors and those for the subordinates generally varied. Modes of coordination with the former were predominantly official meetings and correspondence/progress reporting, implying rather formal type of coordination while predominant mode of coordination with the subordinates was generally personal contact (formal as well as informal).

Predominance of formal mode of coordination upwards the management hierarchy might be indicative of certain delays in answers/solutions of diverse field problems/ issues. This might have affected efficiency in certain cases.

5.3.2 Level of Coordination

Information about level of coordination among different functionaries were collected in terms of four qualitative categories, very good, good, moderate and deficient.

Majority of the ADLGs considered that they had good or moderate level of coordination with the Project Managers, Sanitation Promoters, Secretaries of U.Cs. and Chairman of VSCs. Combined percentages of their

responses about good and moderate level of coordination regarding above referred functionaries were 83% and 100% respectively. About 17% of the respondents said that their level of coordination with the Project Managers and Secretaries of Union Councils had been very good. Same number of ADLGs (17%) reported deficient level of coordination with the Secretaries of Union Councils.

Pattern of responses in case of Project Managers was somewhat different from those of ADLGs. About 21% of Project Managers said that they had very good coordination with the Sanitation Promoters while 7% of them gave similar responses regarding Secretaries and Chairman of VSCs. Combined percentage responses for good and moderate level of coordination with Sanitation Promoters, Secretaries and Chairmen of VSCs were about 43%, 50% and 50% respectively. Their responses regarding deficient level of coordination with the Sanitation Promoters, Secretaries of U.Cs. and Chairman of VSCs, were about 21%, 29% and 36% respectively.

On the basis of these information, it is considered that the overall level of coordination among different functionaries of PSP had been generally good or moderate. However, about 29% of the Project Managers reporting deficient level of coordination with Secreta-

ries of U.Cs. might be an indication of certain bottlenecks in proper functioning of PSP in those cases. Almost all of the ADLGs and the Project Managers, reported that the level of coordination between Sanitation Promoters and the Secretaries of Union Councils was deficient. They pointed out that this was mainly due to the fact that the Secretaries of Union Councils, generally more experienced and well versed with local conditions, were paid less compared to Sanitation Promoters. Other reason propounded in this regard was unbalanced distribution of financial powers, generally more in favour of Secretaries of Union Councils.

Since Secretaries and the Sanitation Promoters had a key role in field operations of PSP, lack of coordination between them therefore, might have affected the overall performance of the Programme.

Level of coordination between the concerned Programme Officers and the Assistant Project Officers of UNICEF was also found to be deficient. The two Assistant Project Officers complained that the policies for PSP were generally made without cognizance of field conditions and appraisal of performance of the Programme. This created diverse practical problems, they added. As the Programme Officer was out of the country, so it was not possible to record his opinions in this regard.

5.3.3 Inter Agency Coordination

Overall level of coordination among those at the helm of affairs of UNICEF, LG&RDD and District Councils had been generally good. Some of the officials from these agencies rather took special interest in PSP and earnestly endeavoured to make it a success. However, owing to lack of well defined modus operandi for inter agency coordination and detailed planning during early stages of the PSP, certain problems of inter-coordination were encountered. These mainly pertained to flow of funds for implmentation, statements and accountability of the expenses incurred, establishment of institutional framework for progress monitoring at district and provincial levels and absorption of Sanitation Promoters.

5.4 Supervision and Progress Monitoring

Appraisal of supervision of field work, quality of progress monitoring and satisfaction about maintenance of project record by the concerned staff highlighted the following main points:

5.4.1 Supervision of Field Work

Review of supervision of field work by the concerned staff was done on the basis of their frequency of field visits to the project villages. According to reported

information, majority of the respondents said that they visited the project villages on monthly basis. About 67% of the ADLGs said that they visited the project villages once in every month while 17% of them said that their visits to the project villages were on quarterly basis. Among the Project Managers, 7% said that they visited the project villages fortnightly while 64% and 21% of them responded for monthly and quarterly visits respectively. The responses of the Secretaries for fortnightly, monthly and biannually visits to the project villages were 11%, 80% and 6% respectively. None of them responded for quarterly visits.

Members of the VSCs were also asked to give their opinions regarding supervision of field work by the Government functionaries. Relatively fewer respondents answered. This might be due to their lack of knowledge about the frequencies of visits by different functionaries or the frequencies of field visits by the concerned staff were actually low and only those respondents who had knowledge about such visits could reply. Out of the total 34 cases (VSCs) studied, responses regarding frequencies of field visits were very low in case of high officials and UNICEF Supervisors, moderate in case of ADLGs and high in case of Project Managers and Secretaries of U.Cs. Comparison

between two sets of information (of Government functionaries and members of VSCs) highlighted inconsistencies in certain cases. It implied that the opinions of the ADLGs were biased.

5.4.2 Progress Monitoring

To make a qualitative assessment of progress monitoring exercised by the field staff, four broad categories, very good, good, average and deficient were defined. The ADLGs and the Project Managers were asked to give their opinions about the quality of monitoring exercised by their subordinate staff.

Almost all the ADLGs considered that the quality of monitoring by their subordinate staff was generally good or average. Only in one case the ADLG responded that the Secretaries of U.Cs. had deficient quality of monitoring.The views of the Project Managers were rather balanced. About 17% of them responded that the Sanitation Promoters exercised good quality of progress monitoring, while 7% of the Project Managers considered the same in case of VSCs. Their cummulated percentage responses for good and average quality of progress monitoring about Sanitation Promoters, Secretaries of Union Councils and VSCs were 43%, 64% and 57% respectively. About 29% of the Project Managers said that the quality of progress monitoring by Sanitation

Promoters was deficient. Similarly, the responses regarding deficient quality of progress monitoring by the Secretaries of U.Cs. and VSCs were 21% for each.

5.4.3 Progress Reports

The field staff of PSP was required to submit progress reports to their superiors. To assess their performance in this regard, pertinent information were collected from ADLGs, Project Managers, Secretaries of Union Councils and members of Village Sanitation Committees.

In the opinions of the respondents, the overall quality of progress monitoring was considered to be generally good and the submission of progress reports according to schedules. However, this was not found to be so during the field investigation teams' visit to a number of Marakiz, Union Councils Offices and 41 project villages in the six districts. The opinions of some of the functionaries therefore, appeared biased. The following section sheds more light in this regard.

5.4.4 Record Keeping

Relevant data about satisfaction of different functionaries regarding maintenance of PSP records revealed that about half of the respondents, ADLGs, Project Managers and Secretaries of Union Councils, were satisfied while the remaining were not or did not respond.

This led to the inference that the quality of supervision and progress monitoring, as discussed above, might not be quite high as well. It was further pointed out that among all the offices visited for the purpose, only in the case of two Union Councils, Kallur in District Mianwali and Khaur in District Attock, the project record was found to be complete and well organized. In rest of the cases, the project record lagged both in terms of adequacy as well as quality.

5.5 Problems in Implementation

The Assistant Directors Local Government, Project Managers, Secretaries of Union Councils, members of Village Sanitation Committees and the target population, contacted through group meetings in selected project villages, were solicited to identify the main problems faced during the course of implementation of the Punjab Sanitation Programme. They identified 23 problems. The problems generally pertained to the nature of the programme, social and economic characteristics of target population, local leadership, incentives for Secretaries of U.Cs, shortage of time and staff, service conditions of Sanitation Promoters, level of training of functionaries, quality of motivational work, job performance of different level functionaries, funds, loan, materials for construction and

local politics.

Ranking of the problems, on the basis of number of respondent groups and their respective responses for each problem, highlighted illiteracy, newness of the Programme, lack of coordination among field staff, smaller amount of loan, lack of training of field staff, less effective leadership, no incentives for Secretaries and members of VSCs, lack of cooperation from the target population, cultural factors and conflicts/local politics in the target villages, as 10 most commonly felt problems of PSP, in that order.

SECTION - 6 FINANCIAL APPRAISAL

Total planned capital cost of the Punjab Sanitation Programme (PSP) for the period 1983-1985 was Rs. 18,889,760.0[1], envisaged to be financed jointly by UNICEF and the LG&RDD. Share of the latter was very small, Rs.476,000.0 (2.51%). UNICEF spent a total amount of Rs. 18,056,419.0 during 1981-1986. Total Expenditure for the period 1983-1986 was Rs.14,756,119.0; Rs. 5,243,500.0 for Demonstration work, Rs. 6,414,000.0 for Revolving Fund, Rs. 1,023,190.0 for Training Programme of Technical Staff and Rs. 2,075,429.0 for Salaries of the Sanitation Promoters[2]. The LG&RDD could not contribute its share of finances.

Provincial head office of the LG&RDD was not involved in financial matters of the Punjab Sanitation Programme. UNICEF funds were directly released to the Chairmen of District Councils, the Project Directors.

1. PC-I Form.
2. Data received from UNICEF, Lahore.

Onward disbursal of funds to the project villages was proposed to be carried out in hierarchical order i.e. through ADLGs, Project Managers, Secretaries of U.Cs. and the Village Sanitation Committees (VSCs) in that sequence. The Sanitation Promoters, mainly responsible for education and motivation of rural households, organization of VSCs and demonstration work, were also not involved in financial matters of the Programme.

Except in case of Village Sanitation Committees VSCs, drawing and disbursement of funds was proposed to be carried out through banks/ cheques. The VSCs were required to maintain joint bank accounts with the concerned Secretaries of U.Cs. as co-signatories. The latter, besides ensuring proper utilization of PSP funds by the VSCs were also responsible for maintaining complete records of PSP accounts of all the project villages under their jurisdiction. Similarly, proper accounts were to be maintained at Markaz and District levels. The functionaries at each level of organizational hierarchy were also required to submit expenditure statements to their superiors. In practice, certain weaknesses were however, observed in the above outlined system of financial management.

Financial appraisal of the Punjab Sanitation Programme entailed an indepth review of financial management,

focussing on identification of strengths and weaknesses of the overall financial management system, and utilization and performance of demonstration and revolving funds. Extensive field data, collected from all the concerned Secretaries of U.Cs. and interviews with a number of functionaries, was rigorously analysed for the purpose. Information about number of functionaries interviewed are already presented in Table 4 of this Report. Other relevant information collected from these functionaries are presented in Tables 2-18, Annexure 1 of Report 4: Financial Appraisal. Financial data collected from Secretaries of U.Cs. through the mailed proformas, is presented in Annexure 2 of the above referred report.

Consolidated village-wise financial data was not previously available in any of the concerned offices, Government or UNICEF. The study, besides overall management and financial appraisal therefore, also contributes to establish a comprehensive financial profile of the Programme.

6.1 Financial Management.

Study of the financial management system of the Punjab Sanitation Programme focussed on flow of PSP funds, modes of drawing and disbursement of funds, lead time in receipts and disbursals, allocation of funds to different villages and households, prevailing accoun-

ting system, submission of expenditure statements and auditing.

6.1.1 Receipts and Disbursement of Funds.

Flow of funds from UNICEF to the Village Sanitation Committees (VSCs), as referred earlier, was proposed to be carried out in a hierarchical order. However, divergence from proposed flow of funds in receipts as well as disbursements, was noted in certain cases. Main reasons attributed to this were absence of formally agreed mechanism and instructions for financial management responsibilities, lack of communication/understanding about the proposed functionaries and weak control in overall financial management. Since the Government funds are subject to specific controls and monitoring, UNICEF funds were kept out of these regulations in the absence of any counterpart funds and thus were not subject to accountability and audit as the Government funds are audited. Hence no proper account keeping. Modes of drawing and disbursement of funds practiced by different categories of functionaries were reported to be generally the same as suggested.

Regarding method of drawing funds by the Village Sanitation Committees, about 15% of them reported that they received funds in instalments while about 66% of them said that they received in lumpsum.

6.1.2 Lead Time.

All the ADLGs responded that there was no lead time between receipts and disbursement of funds at their end. However, 21% of the Project Managers and 29% of the Secretaries of Union Councils reported that certain amount of time elapsed before they could disburse the funds already received for PSP activities.

The cash books were not generally maintained by the field staff. The Bank pass books were not updated regularly in most of the cases. It was therefore, not possible to find out the amount of time involved in receipts and disbursement of funds. In case of D.G.Khan, the bank statements depicted average lead time as one month at the district level. Requisite information regarding lead time at Markaz and Union Councils levels were not available.

Amount of interest earned on PSP funds might give some broad indications about magnitude of lead time/delay involved (size of the principal amount is however, an important consideration in this regard and must also be kept in view). In case of District Attock and District Jhelum, it was found that the former earned total interest of Rs. 2,80,000.0 during 1983-1986 while the latter about Rs.75,000.0 during the same period. This was only at district levels. Relevant information

about Markaz and Union Council levels were not available. The above information besides indicating lead time/delay also revealed that the statements of ADLGs were somewhat biased.

6.1.3 Allocation of Funds.

As per PC-I Form, one latrine, one soakpit and one biogas unit was planned to be constructed for demonstration purposes, in each project village. Estimated cost of each of the above technologies was given as Rs.3,000.0, Rs. 400.0 and Rs. 5,000.0 respectively. Accordingly, each project village was to be allocated a total amount of Rs. 8,400.0. However, it was later decided to construct two demonstration latrines instead of one. Adding the cost of one more latrine to the above, total allocation of Rs. 11,400.0 was required for demonstration work in each project village.

Amount of Revolving Fund planned to be given to each project village was Rs. 21,000.0, 70 household latrines @ Rs. 300.0 per household. The total allocation for each project village, for demonstration as well as for Revolving Fund, thus amounted to Rs.32,400.0.

There was no consistent policy to allocate funds to the project villages. Different villages were allocated different amounts of money for demonstration work as

well as for Revolving Fund. Furthermore, the amount of loan to individual households also varied among the project villages.

6.1.4 Accounting System.

It was observed that in most of the cases, cash books or ledger accounts were not maintained. The bank pass books were not updated regularly and there was no system of preparing bank reconciliation statements. Such measures should have been made necessary atleast at district and Markaz levels. Further, expenditure statements were not submitted to the concerned authorities regularly in certain cases.

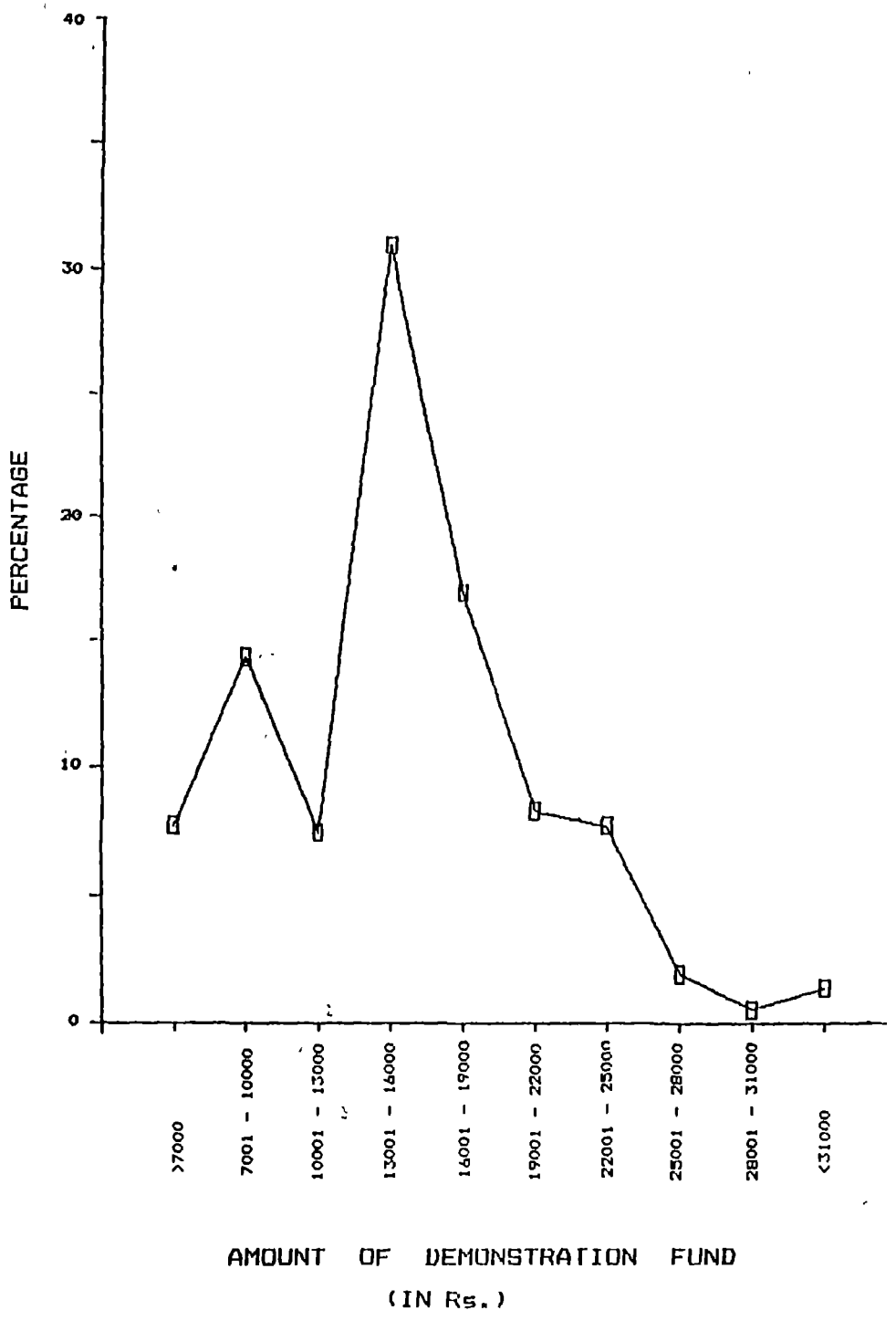
There was no system of auditing. The PSP accounts were never audited throughout the course of implementation. In certain cases it was also observed that the PSP funds were not handled by properly qualified or trained personnel.

6.2 Funds for demonstration work.

6.2.1 Allocation of Funds.

Out of the total 349 villages selected during 1981-85, 340 villages were given demonstration funds. Amount of funds allocated to different project villages ranged from less than Rs. 7,000.0 to more than Rs. 50,000.0, Exhibit -3. Modal values regarding range of funds allo-

AMOUNT OF FUNDS ALLOCATED FOR DEMONSTRATION WORKS IN PROJECT VILLAGES



cated to different villages tended to vary among districts.

Analysis of data regarding allocation of demonstration funds to the project villages highlighted the following about each district.

In Rawalpindi District, 71% of the villages were allocated funds in the range of Rs. 13,001.0 to Rs. 19,000.0, while about 13% in the range of Rs. 22,001.0 - 25,000.0. The variance was rather high in case of District Jhelum. Percentages of villages falling under ranges; Rs. 10,001.0 - 13,000.0, Rs. 13,001.0 - 16,000.0, Rs. 16,001.0 - 19,000.0, Rs. 19,001.0 - 22,000.0 and Rs. 22,001.0 - 25,000.0 were 27%, 19%, 25%, 19% and 5% respectively. In Chakwal District, majority of the villages (67%) were given the amount in the range of Rs. 13,001.0 - 22,000.0, 24% in the range of Rs. 13,001.0 - 16,000.0, 21% in the range of Rs. 16,001.0 - 19,000.0, and about the same percentage Rs. 19,001.0-21,000.0. About 7% of the villages in this district were given funds more than Rs. 31,000.0. About 58% of the total villages in District Attock were given demonstration funds in the range of Rs. 7,001.0-10,000.0 while 12% in the range of Rs. 13,001.0-16,000.0 and 13% in the range of Rs. 16,001.0-19,000.0. In case of District Mianwali, about 78% of

the villages were allocated demonstration funds in the range of Rs. 13,001.0-16,000.0. In District Dera Ghazi Khan, majority of the villages (51%) were allocated less than Rs. 7,001.0-10,000.0.

Main reasons for allocating different amounts of funds to different villages, as propounded by ADLGs and Secretaries of Union Councils, were attributed to size of the village, planned targets, superiors' recommendations and political considerations.

6.2.2 Utilization of Demonstration Funds.

Utilization of demonstration funds for the project villages was rigorously analysed in the light of PC-I cost estimates. Out of total 301 villages selected during 1983-86, about 51% of the villages utilized excess, 10% same and 11% less amount compared to PC-I cost estimates. In about 9% of the villages, the demonstration funds were not utilized. Meaningful analysis about the remaining villages was not possible because of lack of certain important data.

Further analysis of 152 villages with excess cost on demonstration work, revealed total of Rs. 507,751.0 were spent in excess of PC-I cost estimates. An amount of Rs. 89,348.0 was reported lying unutilized in the villages.

6.2.3 Financial Performance

Year-wise gross financial performance of demonstration fund, based on unit cost of latrine was worked out by applying the following formula:

$$\text{Unit Cost of Latrine} = \frac{\text{Total amount of funds released for Demonstration Work} - \text{Cost of total demonstration work other than latrines}}{\text{Total number of demonstration latrines constructed.}}$$

Unit cost of demonstration latrine varied over the years. This was mainly due to less achievement of targets compared to the amount released in a particular year. On the basis of aggregate estimates, average unit cost of demonstration latrine was calculated as Rs. 5,013.00 about 67% higher than the PC-I cost estimates. Computed unit cost was quite high for the year 1986, Table 13. This was mainly because of large amount of funds available for construction of latrine and comparatively very low level of target achievement in that year.

6.3 Revolving Fund

6.3.1 Allocation of Revolving Fund.

According to PC-I form, it was planned to allocate Rs. 21,000.0 to each selected village. This however, was not followed in practice. Different project villages were allocated different amounts. Amount of Revolving

TABLE - 13 UNIT COST OF DEMONSTRATION LATRINES (BASED ON TOTAL AMOUNT RELEASED AND THE ACTUAL ACHIEVEMENT)

Sr. No.	Category	YEAR 1981	1982	1983	1984	1985	1986
1.	No. of villages selected.	2	46	75	109	105	12
2.	Total amount released for Demonstration Work.	47000	959550	1385000	1530000	1193245	115130
3.	Demonstration Targets achieved:						
	- Latrine	5	144	194	215	130	7
	- Biogas	2	45	58	93	43	4
	- Water Cistern	3	18	18	4	1	-
	- Soakpit	1	28	84	28	-	-
	- Incinerator	-	-	5	4	32	-
	- Filth Depot	-	-	4	-	32	-
4.	Estimated Cost of Demonstration Work other than Latrine.	31400	362200	468100	514200	350000	20000
5.	Cost incurred on latrine (2-4)	15600	597350	916900	1015800	843245	95130
6.	Cost/Latrine	3120	4148.26	4726.29	4724.65	6486.5	13590

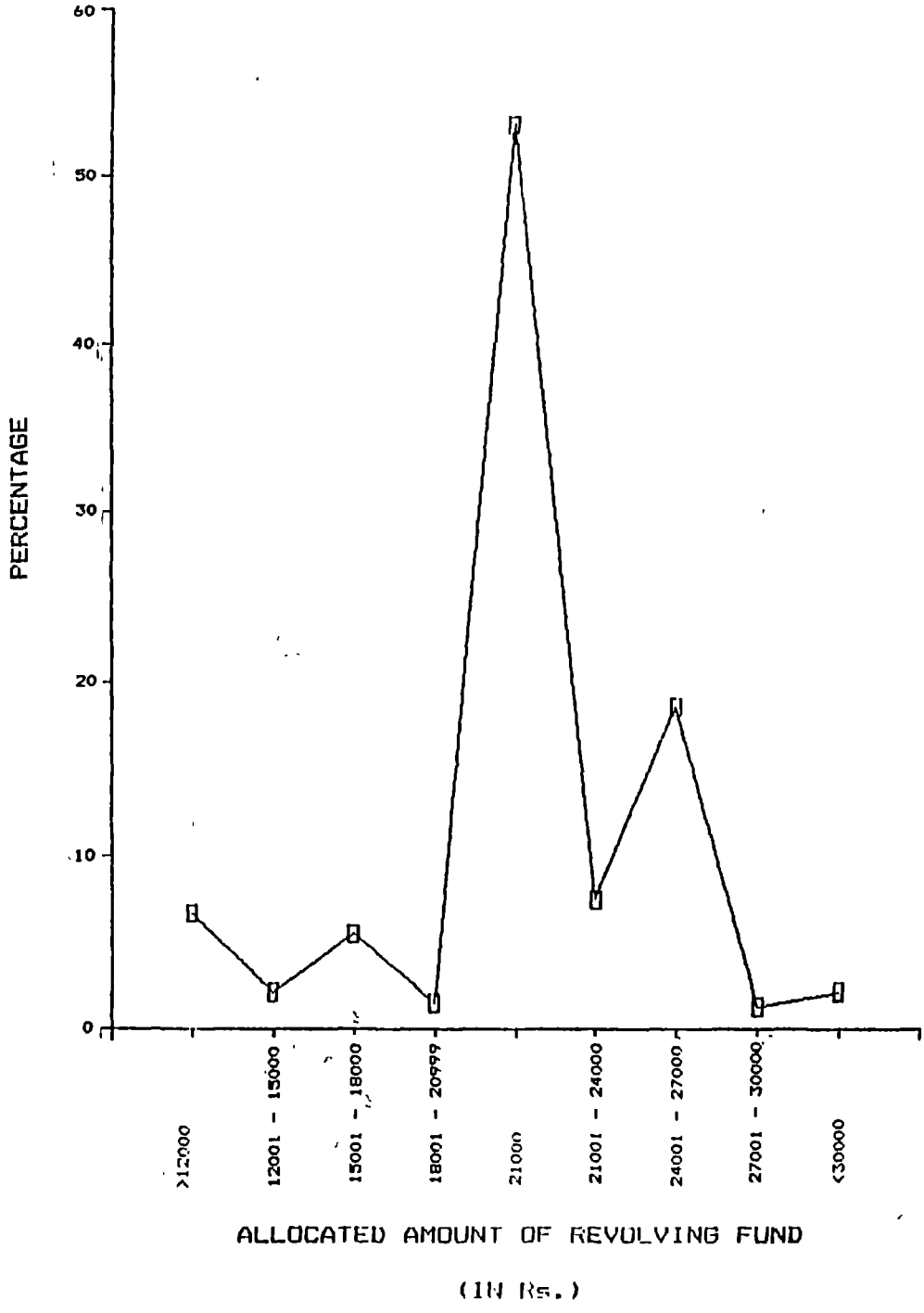
Estimated Costs of Construction for:	Biogas	Rs. 5,000.0
	Water Cistern	Rs. 7,000.0
	Soakpit	Rs. 400.0
	Incinerator	Rs. 2,500.0
	Filth Depot	Rs. 1,500.0

Fund allocated to different villages ranged from less than Rs. 12,000.0 to Rs. 44,000.0, Exhibit 4. Variance in allocation of Revolving Fund was observed to be more in the Districts of Jhelum, Chakwal and Attock compared to the other three districts.

In District Jhelum, about 58% of the villages were allocated Rs. 15,001.0 to Rs. 21,000.0 while 34% less than Rs. 12,000.0. Remaining villages were allocated different amounts in each case. In District Chakwal, 50% of the villages were given Rs. 21,000.0 while about 12% Rs. 12,001.0-15,000.0. About 14% of the villages were allocated Rs. 15001.0-20999.0 and about 10% Rs.24001.0-3000.0. About 7.38% of the villages were given less than Rs.12000.0 as Revolving Fund and the same percentage of selected villages were given no amount at all. About 97% of the selected villages in District Rawalpindi received Rs. 24,001.0-27,000.0 while the remaining villages Rs. 44,000.0 each. In case of District Attock, about 76% of the villages received Rs. 21,000.0 to Rs. 24,000.0 while about 9% Rs. 15,001.0 - 18,000.0. In Districts of Mianwali and Dera Ghazi Khan, percentages of villages receiving Rs. 21,000.0, as Revolving Fund, were 89% and 100% respectively.

In about 52% of the total selected villages the amount of Revolving Fund allocation was the same as specified in PC-I Form, i.e. Rs. 21,000.0. The allocations how-

AMOUNT OF REVOLVING FUND ALLOCATED TO PROJECT VILLAGES



ever, varied significantly among the remaining villages. The information received from the Secretaries of U.Cs, and the ADLGs, regarding allocations to different villages, were found to be generally consistent except in the cases of District Chakwal and District Jhelum. Variations in allocation of Revolving Funds to different villages may be attributed to late approval of PC-I and overall weak financial management system. It may further be mentioned that the Districts selected late, Mianwali and D.G.Khan, exhibited higher conformity with the PC-I policies compared to those selected earlier, Jhelum, Chakwal and Attock.

6.3.2 Amount of Loan Given to Individual Households

As per PC-I Form, the amount of loan proposed to be given to individual households was Rs. 300.0. Information collected from the members of 41 Villages Sanitation Committees however, revealed that different amounts of loan were given to the households in different districts. Furthermore, the amount of loan also varied among the households within each district.

It was observed that the VSCs generally tended to give higher amounts of loan to the households than the stipulated amount. According to the VSC members, it was mainly because the rural households, in most cases, did not consider Rs. 300.0 as an incentive to construct a latrine. They (households) considered that the amount

of Rs. 300.0 was too small compared to the total cost of latrine.

Some of the VSCs utilized the Revolving Fund to purchase latrine/construction materials. In such cases the households were given material instead of cash. In some other cases, both cash and material were given as loan. Information given in the above referred table mainly pertained to loan given in the form of cash. Information pertaining to loan given in the form of material or material and cash to the rural households were collected from the beneficiary households in the project villages. For details refer Table 17, Report 2: Impact on Rural Households, P.80. It was noted that both the respondent groups had somewhat similar views regarding the amount of loan given to individual households.

6.3.3 Repayment of Revolving Fund

An amount of Rs. 1,080,171.0, 15% of the total Revolving Fund received by the Secretaries of U.Cs., was reported to have been repaid in 23.2% of the total villages. Percentages of villages where the Revolving Fund had been repaid were about 7%, 10%, 14%, 5% and 4% in the Districts of Jhelum, Chakwal, Attock, Mianwali and D.G. Khan respectively. In case of District Rawalpindi, it was reported that the Revolving Fund had been repaid in 92% of the total villages. This was consi-

dered as an exaggeration.

Regarding status of repayment of loan by the households, percentages of VSCs reporting that upto 5, 6-11 and more than 31 households had returned the loan were about 24%, 2% and 5% respectively. However, the households who were still returning loan were rather more in number. About 34% of the VSCs reported that varying numbers of households in the project villages were returning the loan. The percentages of the respondents decreased as the number of households returning loan in a village increased.

.3.4 Recovery of Funds by Village Sanitation Committees

Regarding mode of recovery of the loan, 78% of the VSCs reported that they recovered the loaned money in monthly installments while 2% of them said that they recovered in lumpsum. The remaining 20% of the VSCs, did not respond. Majority of the VSCs, about 56%, said that the monthly installments of repayment was Rs.50.0.

.3.5 Level of Satisfaction about Revolving Fund

Opinions about level of satisfaction were solicited from the ADLGs, Project Managers, Secretaries of U.Cs.and the members of VSCs. Majority of the respondents opined that they were generally satisfied with the use of Revolving Fund. The level of satisfaction was comparatively higher among the ADLGs and the mem-

bers of VSCs and moderate among the Project Managers. The level of satisfaction was rather low among the Secretaries of U.Cs.

Level of satisfaction regarding the operation (recovery) of Revolving Fund was observed to be generally low among different functionaries. They considered that the Revolving Fund could not operate effectively because of the following main reasons :

a) In the newly selected villages, the emphasis of the Programme was generally more on promotion i.e. to increase the number of beneficiaries. Comparatively less emphasis was given to recover the loans.

b) In some cases, the households were not properly informed about the status of money, period of repayment or the mode of repayment.

c) In certain cases the agreements made between the VSCs and the households were not legally valid. The households therefore, did not feel legally bound to return the amount.

d) As construction of latrines was not a priority item among the rural households in certain cases, they expected that they should be given grant in aid instead of loan. They did not return the loaned money with the hope that one day it would be written off.

e) Some of the VSCs or Secretaries of U.Cs. did not make earnest efforts to recover the loaned amount.

f) In cases where local representatives, councillors or Chairman of U.Cs., were involved in distribution of Revolving Fund, it was sometimes difficult to pursue the recovery of loans with vigilance. They did not allow to put pressure for repayments because of the fear of loosing their political goodwill.

6.3.6 Performance of Revolving Fund

Revolving Fund may not be considered as expenditure in conventional sense. It is utilized for certain output but ultimately comes back to the sponsoring organization/community, to be re-utilized again. It is not consumed or exhausted. The appraisal of Revolving Fund, in a static time frame may therefore, be contrary to its basic concept. It tends to have higher efficiency over time.

The performance of the Revolving Fund was studied, in terms of its efficiency in a given time period. During the period 1981-1986, UNICEF released an amount of Rs. 8,314,800.0 for the purpose of establishing Revolving Fund in project villages. However, according to the data collected from Secretaries of U.Cs., a total amount of Rs. 7,240,840.0 reached the project villages. Data about 12-17 villages was not supplied by the Secretaries so the amount of Revolving Fund given to these villages was not included in the above referred figure. Total number of latrines reported to have been constructed by using Revolving Fund during 1981-1986, were 10,281. Thus gross utilization of Revolving Fund (GURF) per latrine,in a period of about 4 years, worked out to Rs. 808.0, on the basis of total amount released

by UNICEF, and Rs. 704.0, on the basis of total amount received by Secretaries of U.Cs. Data about year wise utilization of Revolving Funding per latrine is referred in Table - 14. It was observed that gross utilization of Revolving Fund per latrine (GURF) tended to be inversely related to the success rank of the village i.e. lowest GURF in S1 villages and highest in S3 villages. Gross utilization of revolving fund per latrine for S1, S2, and S3 villages for the period 1981-1986, were computed as Rs. 418.0, Rs. 828.0, and Rs. 3746.0 respectively

TABLE - 14: NUMBER OF HOUSEHOLD LATRINES CONSTRUCTED WITH REVOLVING FUND IN PROJECT VILLAGES.

ITEM	1981				1982				1983				1984				1985				1986				GRAND TOTAL			
	S1	S2	S3	TOTAL	S1	S2	S3	TOTAL	S1	S2	S3	TOTAL	S1	S2	S3	TOTAL	S1	S2	S3	TOTAL	S1	S2	S3	TOTAL	S1	S2	S3	TOTAL
TOTAL VILLAGES	2	-	-	2	27	9	10	46	45	10	20	75	51	22	26	109	26	10	59	105	2	1	9	12	153	52	134	349
TOTAL REVOLVING FUND RECEIVED	44775	-	-	44775	694300	222250	220950	1137500	1008300	232800	398500	1639600	1035925	505875	782625	2324425	515605	410935	983600	1910140	42000	10535	131965	184400	3317450	1382395	2517540	7240840
TOTAL HOUSEHOLDS LATRINES	95	-	-	95	1586	335	78	1999	2627	276	109	3012	2321	544	231	3096	1211	488	248	1947	100	26	6	132	7940	1669	672	10281
GROSS UTILIZATION OF REVOLVING FUND/ LATRINE.	471 32	-	-	471.32	437.77	663.43	2832.70	569.03	383.82	843.48	3655.96	544.36	446.33	929.92	3387.99	750.78	425.77	842.08	3966.13	981.07	420.00	405.19	21977.50	1396.97	417.81	828.28	3746.34	704.29

SECTION - 7 TRAINING AND JOB PERFORMANCE OF SANITATION PROMOTERS

Main emphasis in implementation of the Punjab Sanitation Programme was to encourage peoples participation. The objective was to make them self reliant in dealing with their own problems and enable them, by imparting necessary training and skills, to handle various operations of the Programme independently. This besides contributing to improve overall sanitation conditions through low cost methods, utilizing indigenous resources, also aimed at making sanitation improvement a permanent feature of the rural landscapes.

Participation of rural population, males, females and children, was planned to be achieved through education, motivation and assistance in community organization processes. To do this job, a new cadre of Sanitation Promoters, males as well as females, was created. They were trained at the Local Government Training Institute (LGTI), Lalamusa. After training, one male and two females Sanitation Promoters were deputed at each Markaz level to work in the project villages. Ini-

tially they were employed on temporary basis. It was however, planned to regularize their appointments in the LG&RDD. Owing to various reasons, this could not be done. The Sanitation Promoters therefore, lost their jobs upon completion of the stipulated project time in March, 1986.

In view of the significance of the role of Sanitation Promoters in the overall performance of the Punjab Sanitation Programme, a detailed evaluation of the training programme and its relevance to various field operations of the Sanitation Promoters was undertaken. Main topics dealt in the study included: selection criteria of Sanitation Promoters, curriculum and course contents of the training programme at LGTI, levels of training and skills of Sanitation Promoters for their role, general working conditions, frequency of visits to the villages and average period of stay, main activities during field visits, pace of work and level of efforts, quality of work in field operations, perceptions about achievements of Sanitation Promoters and their usefulness and various problems encountered during field activities of the Sanitation Promoters. Pertinent details about the above mentioned areas are given in Report 5: Training and Job Performance of Sanitation Promoters. This section highlights only the important findings of the study.

7.1 Selection Criteria

In most of the cases, the ADLGs selected the Sanitation Promoters. UNICEF's Project Assistants were involved in few cases only. The LGTI staff was not involved in the selection process at all.

The views of the LGTI staff and the Sanitation Promoters were taken to evaluate the appropriateness of the selection criteria. Both the respondent groups expressed contradictory views. The former was generally dissatisfied with the selection criteria, while the latter satisfied. The LGTI staff maintained that there was no well defined selection criteria to fill in the jobs of the Sanitation Promoters. As a result a few non-deserving candidates were also selected who were later expelled because of their poor performance. The LGTI staff however, agreed that the minimum educational requirement fixed for the Sanitation Promoters as matriculation, was adequate.

A majority of the Sanitation Promoters (82%) were found to be satisfied with the selection criteria. However, their responses about the sources of information regarding job vacancies revealed that about 61% of them learnt about the vacancies through personal contacts with the concerned government officials or through elders/relatives who had contacts with these officials.

About 29% of them came to know through newspaper advertisements while about 5% through employment exchange. Higher percentage of Sanitation Promoters selected through direct personal contacts or through some of their relatives implied that the job vacancies were not adequately advertised and/or the selection procedure was not sufficiently competitive.

7.2 Training Programme

The training programme for the Sanitation Promoters was designed to improve their knowledge, attitudes and skills so as to make them more functional and effective in dealing with various issues related to sanitation. Important topics covered during the training programme included personal hygiene, general house hygiene, food sanitation, environmental sanitation (disposal of human and animal excreta), construction of latrines, biogas plants, water cisterns, soakpits for waste water disposal, sanitary wells, design and implementation of small scale water supply schemes, promotional methods and extension techniques, etc. Total duration of the training was three months, one month theory and two months practical work. Methodology for training mainly comprised lectures/discussions, reproduction and presentation of lectures by the participants and practical work in the field. Major part of the teaching/training was carried

out by the UNICEF team. LG&RDD and LGTI staff also delivered a few lectures. Results of the investigations revealed that the Sanitation Promoters were generally satisfied with the overall training programme.

7.2.1 Length of Training

A dominant majority of the Sanitation Promoters were found to be satisfied with the length of the training programme. Percentage responses of the Sanitation Promoters satisfied with the length of class room training and duration of practical/field work were 87% and 79% respectively.

7.2.2 Curriculum

Almost all the Sanitation Promoters were satisfied with the quality and contents of the course, 100% with theory and 95% with practical work.

Regarding relevance of the course contents to their actual field duties, a very high percentage of the Sanitation Promoters (97%) responded in affirmative. Similarly, about 87% of the respondents said that the training programme contributed in enhancing their work capability and improved their knowledge about rural sanitation and related issues. About 82% of the Sanitation Promoters considered that the training programme improved their attitude towards work while 79% of them

responded that the training helped in improving their skills as well.

7.2.3 Training Methods

The Sanitation Promoters were asked about their satisfaction regarding various components of training like teaching methods, methods of performance evaluation (examinations), capability of the instructors /teaching staff, general administration and the amount of stipend. With the exception of the last, a dominant majority of the respondents were found satisfied with all the above referred aspects. Their responses regarding satisfaction about the above referred components of training were about 95%, 90%, 95%, 90% and 47% respectively. About 42% of the Sanitation Promoters considered that the amount of stipend was inadequate while about 5% of them were indifferent.

7.3 Job Performance of the Sanitation Promoters

The Sanitation Promoters persistently tried to educate and motivate the rural population to bring about the desired change in their perceptions and attitudes towards personal hygiene and environmental sanitation. They contacted the rural population, individually as well as collectively, through formal as well as informal methods. Organization of Village Sanitation Committees (VSCs), among males as well as females in

the selected villages, and training them to operate the Programme independently were their other important functions. To make sanitation improvement a permanent feature in the villages and for better health care of children, the Sanitation Promoters encouraged organization of CLEAN teams among children as well. To evaluate job performance of the Sanitation Promoters, the opinions of the ADLGs, Project Managers and the members of the Village Sanitation Committees were solicited regarding Sanitation Promoters' interaction with the target population, effectiveness of motivational work, leadership qualities, level of technical skills, level of coordination above and below the line of authority, monitoring and progress reporting, and level of effort and pace of work. Moreover, information regarding frequency of their visits to the villages, average period of their stay in project villages, and usefulness of the Sanitation Promoters were also collected from the rural households. Some of the important findings are presented briefly as below:

7.3.1 Interaction with the Target Population

The Project Managers, immediate superiors of the Sanitation Promoters, and the members of the Village Sanitation Committees, with whom they coordinated their field activities in the project villages, were asked to give their opinions about Sanitation Promoters' in-

teraction skills. Analysis of the data revealed that about 43% of the Project Managers rated their interaction skills as good or very good while about 50% of them said that the Sanitation Promoters were deficient in social interaction skills. In contra distinction, a dominant majority of the members of the Village Sanitation Committees (82%) considered that the Sanitation Promoters were good or very good in interacting with the rural population. Around 9% of the VSC members rated their interaction skills as fair while about the same percentage as deficient.

7.3.2 Effectiveness of Motivational Work

Half of the ADLGs considered that the Sanitation Promoters had been very good in motivational/promotional work while 33% of them rated as good and 17% as average. The Project Managers had relatively lower opinion about effectiveness of Sanitation Promoters in motivational work. More than 57% of them considered that the Sanitation Promoters were good in motivational/promotional work while about 21% rated them as average. The remaining 14% of the Project Managers opined that they were deficient in promotional/motivational work.

7.3.3 Leadership Qualities

The members of the Village Sanitation Committees (VSCs)

generally had a high opinion about the Sanitation Promoters regarding leadership qualities. About 82% of the respondents rated them good or very good while about 6% as fair. Percentage of the Village Sanitation Committee members who considered that the Sanitation Promoters were deficient in leadership qualities was 9%.

On the other hand, 36% of the Project Managers considered that the Sanitation Promoters were good or very good in leadership qualities while more than half of them (57%) opined that they were deficient in the said quality.

7.3.4 Technical Skills

The members of the Village Sanitation Committees as well as the Project Managers had a generally favourable opinion regarding technical skills of the Sanitation Promoters. More than 85% of the VSC members rated them good or very good while about 6% as fair. Around 21% of the total respondents considered them lacking in technical skills.

Among the Project Managers, 64% of them opined that Sanitation Promoters were technically good or very good while 29% of them considered otherwise.

7.3.5 Coordination of Activities

The members of the Village Sanitation Committees generally had a high opinion about the Sanitation Promoters abilities to coordinate various activities . Accordingly, about 82% of them considered that the Sanitation Promoters were good or very good while about 9% of them considered them fair. The remaining 9% of the members did not considered them so.

About half of the Project Managers rated the Sanitation Promoters as good or very good in coordination, about 14% as average while about 21% considered them deficient. The remaining 14% did not respond.

The ADLGs generally had a good opinion about the Sanitation Promoters regarding coordination, about 67% of the respondents rated them as good or very good while the remaining 33% as average.

7.3.6 Implementation/Supervison

The ADLGs as well as the Project Managers expressed generally favourable opinions about the Sanitation Promoters' abilities to implement and supervise the work of the Punjab Sanitation Programme. About 50% of the ADLGs considered them as very good, 17% as good and the remaining 33% as average. The pattern of responses of the Project Managers was however, different. About

7% of them considered the Sanitation Promoters very good in implementation/supervision, 43% as good, 29% as average and 7% as deficient. About 14% of the Project Managers did not respond.

7.3.7 Monitoring/Progress Reporting

Opinions of the ADLGs and the Project Managers regarding monitoring and progress reporting of Programme activities were not as good as in case of implementation/supervision. About 83% of the ADLGs considered that the Sanitation Promoters were good in monitoring/progress reporting while the remaining 17% said that they were average. The Project Managers' responses for very good, good and deficient were 14%, 43% and 29% respectively. About 14% of the Project Managers did not respond.

7.3.8 Level of Effort Input and Pace of Work

Half of the ADLGs were of the opinion that the pace of work of the Sanitation Promoters was moderate while the remaining 50% considered that their pace of work was fast. Percentage responses of the ADLGs regarding level of efforts input were also the same. None of the ADLGs rated the pace of work or level of efforts by the Sanitation Promoters as slow or below capacity.

The Project Managers' responses about pace of work of the Sanitation Promoters were 14%, 64% and 14% for full

capacity, moderate capacity and below capacity respectively. About 7% of them did not respond. Regarding level of efforts input, about 29% of the Project Managers opined that the Sanitation Promoters worked to their full capacity while about 36% of them gave a moderate rating. About 21% of the Project Managers considered that the Sanitation Promoters worked below their capacity.

7.3.9 Frequency of Visits and Average Period of Stay in Project Villages

A large majority of the rural households in the Project Villages confirmed that the Sanitation Promoters visited their Villages in connection with the Punjab Sanitation Programme. Some of the project villages were very far flung, generally with 'katcha' or difficult approach roads, and without proper arrangement for public transport. But the Sanitation Promoters, males as well as females, somehow managed to visit these villages. It may be reiterated that the Sanitation Promoters did not have any official transport facility. About 81%, 76% and 83% of beneficiary households, in S1,S2 and S3 villages, confirmed that the Sanitation Promoters visited their villages. The percentages of non-beneficiary households giving this response were however, less and varied from 46% to 60%.

Regarding frequency of visits to the project villages, the pattern of responses of the rural households tended to vary with the success rank of the villages. It was observed that the Sanitation Promoters visited S1 villages more frequently compared to S2 or S3 villages. A large majority of the households considered that the Sanitation Promoters, both males and females, visited the villages fortnigtly or monthly. Percentages of households opining that the Sanitation Promoters visited quarterly or even less frequently were rather low.

Average period of stay in the project villages was also considered as an indicator to assess the interest and job performance of the Sanitation Promoters. When asked about duration of stay, 43% of the beneficiary households in S1 villages replied that the promoters stayed for upto 2 hours, while 21% said that their duration of stay ranged between 2-4 hours. More than 31% of beneficiary households informed that the promoters stayed for a full day during a typical visit.

It was noted that the duration of stay of Sanitation Promoters was relatively shorter in S1 villages than in S2 and S3 villages. This was mainly because the villages visited more frequently necessitated shorter duration of time compared to those visited less frequently.

7.3.10 Usefulness of Sanitation Promoters

Views of the beneficiary households were noted regarding usefulness of Sanitation Promoters in helping to solve the problems /issues related to rural sanitation.

In S1 villages, more than 83% replied that the promoters were very useful while 13% said that they were somewhat useful. Less than 4% of the households replied that they were not useful.

In S2 villages, the percentage of households opining Sanitation Promoters as very useful was also high (about 76%) though comparatively less than the corresponding category in S1 villages. This was followed by 17% households who considered that the Sanitation Promoters were somewhat useful and less than 7% households who opined that they were not useful. Percentage of beneficiaries considering Sanitation Promoters to be very useful was around 61% in S3 villages.

The reported data thus suggested that the degree of usefulness of the Sanitation Promoters, as perceived by the Sanitation Promoters, was positively related with the success rank of the village.

7.4 General Working Conditions and Field Problems

About two third of the Sanitation Promoters expressed their satisfaction regarding overall working conditions while the remaining responded otherwise. Main reasons for dissatisfaction with the working conditions were highlighted as absence of conveyance facility, insecure service, in-sufficient salaries and delays in receipt of salaries. Of these, absence of transport facilities was the most acutely felt complaint. Selection of project villages at highly dispersed locations in one district, inadequate public transport facilities on certain routes and sometimes 'Katcha' difficult road conditions further accentuated this problem.

Besides the transport problem, other main problems faced by the Sanitation Promoters during field work were pointed as: lack of enthusiasm and uncooperative attitude of the rural households in certain cases, inadequate amount of loan for construction of latrines, uncooperative attitude of some of the government personnel particularly Secretaries of Union Councils and delays in disbursement of funds to the project villages.

SECTION - 8 TECHNICAL APPRAISAL OF LATRINES, BIOGAS PLANTS AND WATER CISTERNS

Technical aspects related to the design, configurations, materials, quality, construction features and operation, play a major and vital role in the functional performance and desired output generation of the sanitary installations. This section attempts to appraise and evaluate, latrines, excreta disposal systems, biogas digester plants and rain water collection cisterns, in relation to the aforementioned technical issues. The analysis, and conclusions provided herein are summarized from those presented in Report-6: Technical Appraisal of Latrines, Biogas-Units and Water Cisterns. The recommendations and suggestions pertaining to the improvement of these sanitary units are presented in Section 10 of this report.

Key aspects and main issues, pertaining to the technical features and performance of these sanitary installations, addressed and presented in the above referred study broadly included:

a) Brief description of the processes involved in operation of the installed water and sanitary units.

b) Assessment of the overall functional utility and effectiveness of the sanitary installations.

c) Identification of problems, inadequacies, short comings, bottlenecks related to the design, operation and functional performance of the sanitary installations and laying down the suggestions to improve the situation.

d) Assessment of outputs and user's satisfaction levels.

e) Preparation of data base for most commonly used construction materials.

f) Estimates of pertinent design parameters, and comparison with the standard criteria.

To collect primary data for technical appraisal of the sanitary installations, 'technical questionnaires' were prepared and filled in with the help of sample beneficiary households. Besides, all these sample installations were examined, to assess their efficiencies and adequacies, by the qualified surveyors. The number of sampled latrines, biogas plants and rain water cisterns, surveyed, were 84, 30 and 5, with percentage sample size of 20%, 10% and 10% respectively. Besides, detailed literature survey was carried out to obtain information pertaining to processes, operations, salient design parameters and related criteria, output and performance influencing factors, construction features and materials.

Based upon the elaborate and rigorous analysis of the data and information collected, the conclusions and

suggestions pertaining to afore established technical aspects of latrines, biogas plants and rain water cisterns are presented separately, in the following subsections.

8.1 Latrines

8.1.1 Excreta Disposal System

Human excreta when deposited in tank or pit under anaerobic conditions start to decompose, the main actions of decomposition being to break down the complex organic compounds, such as proteins and urea, into simpler and more stable forms; to reduce the volume and mass (sometimes as much as 80%) of the decomposing material by the production of such gases as methane, carbon dioxide,ammonia, and hydrogen sulphide, which are dissipated into the atmosphere, and by the production of soluble matters and water which, under some circumstances, leach away into the underlying soil; and to destroy pathogenic organisms which in some instances are unable to survive the process of decomposition. The process of stabilization by decomposition, mainly depends upon temperature and detention periods in the tank or pit.

Two major types of sanitary units are generally found to be constructed for the sampled latrines:

a) Septic tanks or impervious pits, installed in 46% of cases, with 33% of them without any outflow, indicate under utilization of the latrines since other wise signs of overflowing should have appeared. In 67% of the septic tanks, effluents are being disposed off to open street drains or fields, resulting obviously into surface pollution and unsighty conditions. In no case seepage pit or drainage field is provided for subsurface disposal of the effluents from septic tanks/impervious pits.

b) In 50% cases, latrines are connected to soakage pits with impervious mortar laid brick masonry walls instead of recommended open jointed masonry to allow percolation through side walls and with open base (52%) or granular (brick ballast or gravel) base (48%). In soakage pits, both the functions of sludge settling, storage and decomposition and subsurface disposal of liquid contents were combined, in the same unit with the result that percolation through base tends to decrease with the deposition of sludge since finer sludge particles penetrate and clog the underlying soil pores.

The optimum capacity of tank or pit is related to the sludge accumulation rates, household size and desirable desludging interval. In many cases (37%), the tanks and pits are found to be quite over-sized with desludging intervals above 10 years in contrast with suggested range of 3-6 years. The situation suggests, that two independent units with optimum sizes i.e. septic tank to separate, store and digest sludges and a separate seepage pit with open jointed walls and pervious base to percolate supernatant effluents from septic tanks, may be built in the same cost. This would solve the problems of, surface pollution due to septic tanks effluent disposal to open drains and

reduction of soakage pit's percolation capacities due to deposition of sludges.

8.1.2 Construction Materials

Most commonly used materials and thickness for various components of latrines, generally found satisfactory, are as listed below:

Component	Material	Percentage Cases
Base of Septic Tanks/Impervious Pits	Plain Cement Concrete (100-150 mm)	87%
Side walls of Tank/Pit	Brick masonry (112-225 mm)	95%
Roof of Tank/Pit	RCC Slab (75-100 mm)	84%
Latrine Floors	Cement Sand Plastered	85%
Latrine Walls	Brick Masonry	98%
Latrine Roof (where provided)	Bricks on T-Irons RCC Slabs	55% 33%
Latrine Doors (where provided)	Wooden Steel Sheet	55% 40%

8.1.3 Problems Identification

Analysis of data regarding functional performance of latrines, highlighted the following main problems:

a. Odours and Faecal Smells

The problem of faecal smells in latrines, reported at some places (8%), was found to be primarily associated with the practice of direct connection of W.C. pan with tank/pit without any intervening water seal and lack of interest on part of users, to clean the latrine regularly.

b. Water Availability

Adequacy of water is prime factor, in increasing

the functional utility of latrines since it is required for post defecation ablution, pour-flushing of excreta through water trap and frequent cleaning of latrine floors. Owing to non-availability or shortage of water, under utilization of latrines was reported in about 14% of the cases. In most of such cases, the sources of water, mainly being wells, were located at distances more than 90 meters from houses, resulting in inconvenience in water transport, for latrine usage.

c. Water Closet Pan Shape and Size.

In about 17% of the cases, W.C. pans were reported to be undersized, resulting in splashing out of human excreta and soiling of latrine floors while defecating.

Important considerations and pertinent criteria for establishing efficient pan shape and dimensions, based upon experiences in Thailand and SriLanka and standard pans manufactured in Pakistan, are as laid down below:

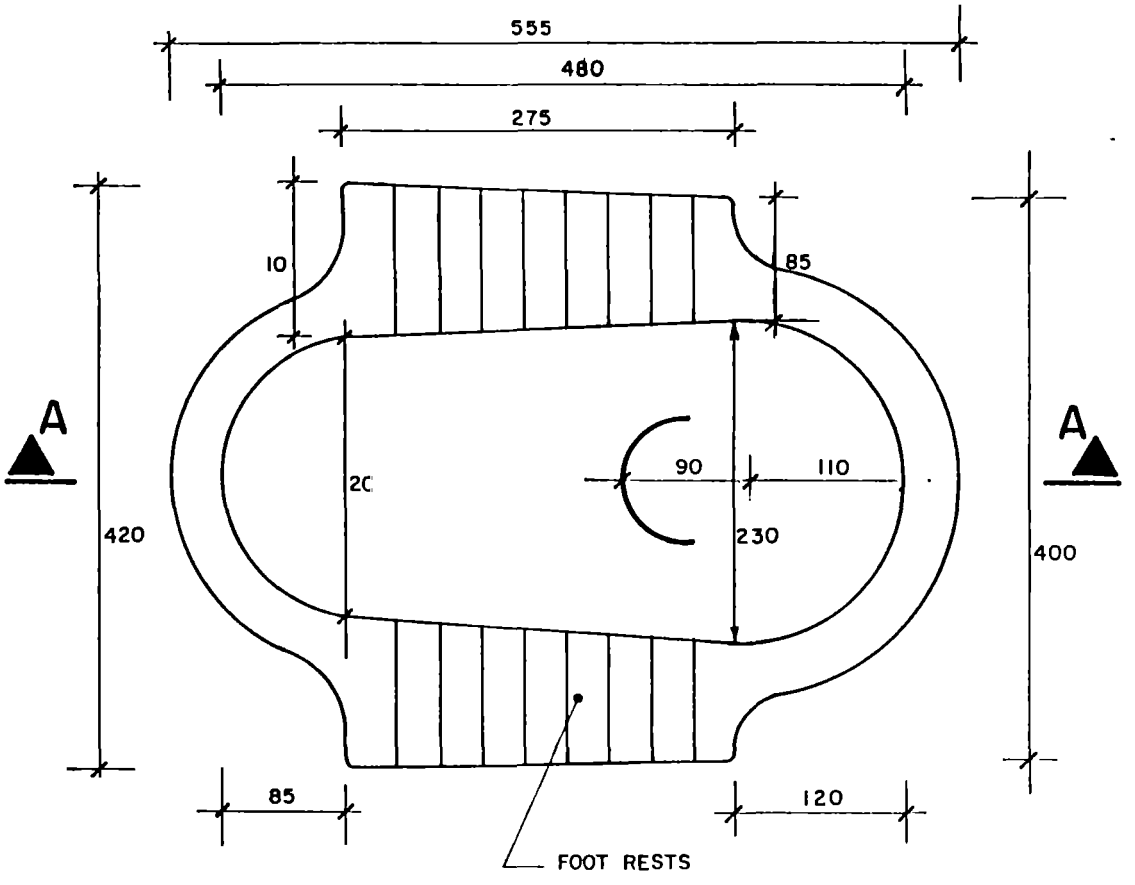
1. The bowl's opening should have an effective length of 380 mm, preferably more, to prevent soiling of floor.

2. The effective width of opening should be such that it can be used by adults as well as children, conveniently, without soiling of floor. Effective width or diameter of 220 mm on rear and 160 mm on front side of pan, will satisfy this requirement.

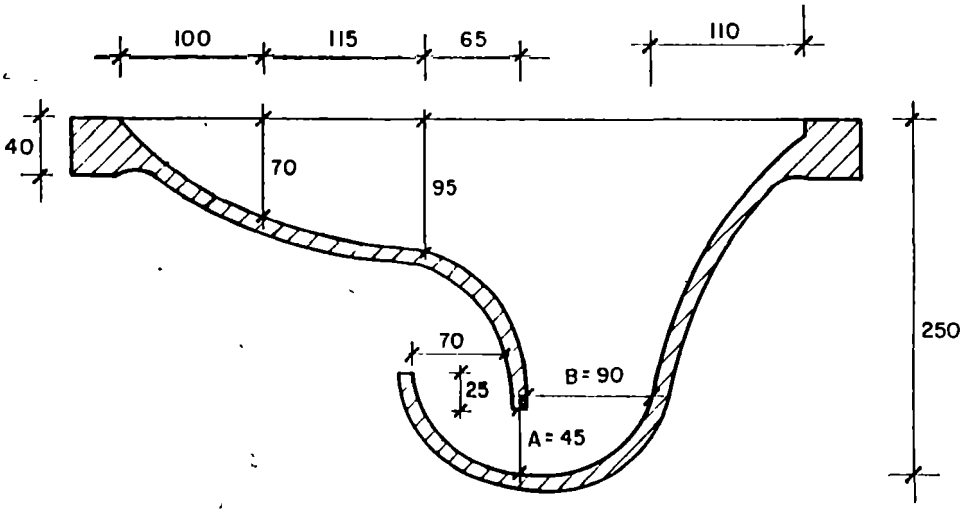
3. The centerline distance between back of foot-rests should be of the order of 300 mm, to afford convenient defecating posture for adults.

4. Usual practices call for a seal 12.5-37.5 mm deep.It should be realised however,that quantities of water required to pour-flush the contents,are directly related to the seal depth.

Typical sketch of W.C. pans, reported to be undersized, is shown in Exhibit 5. A comparison of the bowl's shape and size, with the technical considerations and criteria, established above reveals following inadequacies and short comings:



PLAN



SECTION A-A

Note:-
ALL DIMENSIONS ARE IN mm.

EXHIBIT:- 5 UNDER SIZE W.C. PAN

SCALE = 1 5

1. The respondent's complaint about the pan, being small, appears to be related to the effective depth of bowl and not to the lateral dimensions i.e. length and width. The bowl is quite shallow when compared with the "Orrisa type pan - Karam Cera Ltd.", where by effective depth varies from 108 mm (front) to 198 mm (rear).

2. The effective bowl width varies from 200 mm (front) to 230 mm (rear), that makes its use inconvenient and difficult for children.

3. The trap directing forward as shown in Exhibit - 5, is probably adopted from Thailand's pan that was primarily designed for latrines whereby soakage pits directly lie under the latrine and no pipe connection is required between W.C. and the pit. However, since all the latrines surveyed are found to be connected to soakage pits or septic tanks, located at a distance from them, with pipe, the trap design does not appear to be an efficient one in discharging the contents to pit/tank. Instead, under these conditions, a P-type trap, separate or monolithic with bowl, with an outlet suitable for pipe connection, should be adopted.

4. The trap opening at bottom designated as 'A' in Exhibit 5, should be equal to the dimension 'B', to prevent any constriction in the flow of contents.

d. Privacy Aspects

In 17.8% cases the latrines were found without doors.

e. Internal Dimensions of Latrine Structure:

Internal dimensions of the latrine structure varied in wide ranges with length as 1.1 to 3 meters and width as 1.1 to 2 meters. However, users were found satisfied with minimum dimension of 1.1 x 1.1 meters, for household purposes.

8.2 Biogas Plants

The biogas plants are digesters installed to produce methane by anaerobic fermentation of human and farm

wastes. Vegetable wastes, night soil and animal dung, diluted with water in ratios 1:1 to 1:2, are fed to influent waste chamber. The biogas, largely a mixture of methane and carbon dioxide that bubbles out of liquid, is trapped by an inverted drum placed on the liquids surface for use as fuel for household lighting or cooking. The digested mixture or slurry, drawn from bottom of digestion tank through effluent pipe, can be used on the land as a soil conditioner and fertilizer.

The biogas plants are particularly suitable for rural areas where animal dung is available in abundant quantities associated with serious problem of human and animal waste management and pollution control. The advantages of recovering energy by biogas plants over traditional methods of burning dried animal dung are: increased(twice as much) amount of recovered heat energy, multiple usage (cooking, lighting etc.), absence of smoke and obnoxious gases, use of slurry as fertilizer and effective control of pollution from human and farm wastes.

The prime factors that control the production of biogas yields include temperature and composition of waste. Two ranges of temperature are suitable for the digestion, with mesophilic range (30^{o} - 40^{o} C) being more appropriate under village conditions where little can

be done in practical terms to maintain temperatures above the ambient. The wastes with lower carbon to nitrogen ratios are found to yield more volumes of biogas. Consequently addition of human excreta particularly urine, high in nitrogen contents, are reported to result in higher yields of methane.

8.2.1 Plants not Functioning

A number of plants (57% of sample plants) were found to be closed and not in working conditions. Main reasons responsible for close down of plants, in ranking order of significance, were studied as low initial and subsequent gas yields possibly due to lack of adequate dung quantities (29%), lack of interest on part of the consumer to feed and maintain the plant (24%), sometimes due to availability of alternate gas supply, low gas yields due to winter season (18%) and gas leakage from invert drum (6%). Some of the plants (23%) were found to be incomplete since invert steel drums were not provided by the concerned functionaries.

8.2.2 Common Construction Faults

Some of the common faults, related to the construction features of plants, were found to be installation of light gauge (22) steel sheets for invert drums instead of heavy gauge (16), absence of central partition wall to isolate digested slurry from raw waste input; provi-

sion of effluent slurry pipes at liquid level instead of from bottom of digester and installation of flat top invert drum instead of conical roof.

8.2.3 Common Operational Features

Some of the common operational features, found in the surveyed biogas plants included:

a. With the exception of one, all the plants were "Pak Model" type with invert steel drum to collect and store biogas.

b. The dilution ratio of dung to water, in plants that were functioning, was found to be in range of 1:1 to 1:2. However, no significant correlation exists between dilution and gas yields.

c. In no case latrine was connected to biogas plant. The plants were solely fed by animal dung.

8.2.4 Construction Materials

Most commonly used materials for various components of the digester plants, with satisfactory performance, are listed as below:

Component	Materials	%age Cases
Base	Plain Cement Concrete (150-300 mm)	93%
Walls	225mm brick masonry	90%
Roof	Mild Steel Sheet invert drum (22-16 gauge)	96%
Influent/ Effluent Pipe	R.C.C. Pipe (150-225 mm)	86%
Gas Pipe	G.I.Pipe (12-18 mm)	68%
	Rubber Pipe (12-18 mm)	32%

8.2.5 Gas Yields, Pressures and Digester Volumes

Rigorous analysis of data on performance parameters highlighted the following main findings:

a. The unit gas yields in terms of litre per day per medium sized animal (cow or buffalo) ranges from 220 to 1100 with a weighted average of 690 that closely corresponds to the normal values (500 to 600) reported in literature.

   Wide variations in the values of biogas yields might be due to variety of field conditions. Important factors effecting gas yield were considered to be exposure to sun heat, quantities of animal dung and animal feed characteristics.

b. The data did not reflect any significant correlation between unit gas yields and unit digester volume (in range of 0.88 -5.7 cu.m. per animal). However, in range of minimum digester volumes (0.88 - 1.33 cu.m./animal), high gas yields in range of 660 to 110 litre per day per animal are obtained. It indicates that most of the digesters are unnecessarily over-sized through suggested range of 1 to 1.5 cu.m./litre could be sufficient to give off required gas yields.

c. The adequacy of daily biogas yield (y in litres/day), on the basis of users satisfaction, is found to be represented by the following fixed value function.:

   $Y = 1200$ for P 10

   $Y = 1200 + (p-10)\ 40$ for P 10

   Where P = household size

d. The gas supply rates that closely relate to available gas pressures, considered satisfactory, from user's point of view, are in range of 450 to 525 litre per hour. In a few cases, users' have shown dissatisfaction with the gas pressures, available for cooking.

In the light of elaborate analysis of quantitative data, it was considered that 1200 litre/day of gas

supply was sufficient for a family of 10 persons or less. The supply could be managed with 2-3 cows or buffalos under good plant operation conditions.

8.2.6 Effluent Slurry

In all the reported cases, effluent slurry was being used for soil conditioning and fertilization of cultivated land. About 38% of the users disposed the slurry directly off to the soil while the remaining 62% treated it before using for fertilization. The methods of treatment employed were as follows:

Sun Drying	38%
Compositing (Annex.B-5)	62%

8.3 Rain Water Cisterns

Rain water cisterns are masonry or concrete storage tanks constructed to collect rain water falling on the house roofs, for subsequent domestic use. The essential elements of cistern system are depressed 'Khura' or roof gutter to concentrate runoff from roof, vertical rain water leader and storage tank furnished with outflow tap and overflow pipe.

As an alternate source of water supply, rain water cisterns particularly suit to the rural areas where public water supplies are not available and private water sources i.e. handpumps, open wells, springs etc. are some times far from the house.

8.3.1 Functional Utility

In all the reported cases, primary sources of water were open wells, with their distances varying from 50 to 2000 meters from houses. The consumers were found to be generally satisfied with the quality of water available. It implies that rain water cisterns were generally used as an alternate source and consumers did not solely rely upon it. However, all the respondents appreciated the utility of cistern water as a supplementary source. The households considered that the water cisterns contributed to reduce inconvenience resulting from bringing water from distant primary sources.

8.3.2 Construction Materials and Quality

The examined water cisterns, five in total, were cylindrical in shape, with diameters and depths in range of 1.9 to 2.7 m and 2 to 2.6 m respectively. Constructed with 225 mm brick masonry walls, materials and thickness as for roof and base varied from cistern to cistern. Most of the pipe work was of galvanized iron with inlet, outlet and overlfow pipe sizes, varying in range of 30-150 mm, 13-50 mm and 13-30 mm, respectively

Functioning of the water cisterns was generally reported as satisfactory. In one case, leakage from the base of cistern was however, reported. The leakage was

due to a major crack at the bottom of the cistern. Main reason attributed to the leakage of the cistern was its bad quality of construction.

8.3.3 Cistern Water Quality

Cistern water quality, mainly function of smoothness, finishing material and slope of catchment roof and cleaning frequency of roof and cistern, was reported as good/satisfactory in all the cases. However, in most cases people preferred to use well water for drinking purposes.

8.3.4 Cistern Capacity

The primary data on cistern's capacity, have been used to developed model for determining optimum cistern volume. The model is presented in Section 10.

SECTION - 9 FINDINGS AND OBSERVATIONS

9.1 Overall View

The overall performance of the Punjab Sanitation Programme, as evaluated by rigorous analysis of massive primary and secondary data presented in the six sector study reports, appears to be encouraging. In spite of lag between planned and realized quantifiable targets, it has had visible impact. Furthermore the approach has strong potential for improving sanitation in the rural areas. Higher levels of efficiency may be attained with improved and effective planning and management of the various components of the Programme.

The Evaluation highlights the following main strengths and weaknesses of the Punjab Sanitation Programme.

A. Strengths

(i) The Punjab Sanitation Programme was initiated and executed in a large number of villages in the six 'barani' districts of Punjab: Jhelum, Chakwal, Rawalpindi, Attock, Mianwali and Dera Ghazi Khan. Appraised in the context of its broader objectives, to change ages old perceptions and practices concerning health, hygiene and environmental sanitation of predominantly conservative societies

through education, motivation and community participation processes with the help of inexperienced field staff having no transport facilities and with weak institutional support, this appears to be significant achievement. The Programme succeeded in generating considerable demand for installation of sanitation technologies, particularly latrines, among a large number of rural households in a short span of 3 to 4 years.

(ii) Teaching and Training Programme for the field staff, offered at Local Government Training Institute, Lalamusa, have been quite successful. Curricula, training methodology, its relevance to practical field conditions and the number of persons trained in a short span of time are considered to be generally satisfactory.

(iii) The Punjab Sanitation Programme has been successful in improving knowledge and awareness of hygiene and sanitation particularly among beneficiary households. It was observed that the project village households had better knowledge and awareness of hygiene and sanitation than the control households.

(iv) The Punjab Sanitation Programme tended to have a positive effect in reducing incidence of diarrhoea in the project villages. The beneficiary households report that the frequency of diarrhoea complaints among household members has decreased after adopting the recommendation of the Punjab Sanitation Programme.

(v) The Punjab Sanitation Programme made significant contributions in improving the hygiene practices, regarding toilet habits, substance used for cleaning after defecation, washing habits, maintenance of water sources, and cleanliness and covering of drinking water containers particularly among beneficiary households. Comparison between project and control villages further revealed that project village households were more conscious of hygiene than the control households.

(vi) Overall impacts of the Punjab Sanitation Programme in improving environmental sanitation conditions are considered to be positive. The project villages appeared better in environmental sanitation than the control villages. Within the project villages, the beneficiary households generally tended to maintain better sanitation conditions inside and outside the house than the non-beneficiary households.

(vii) Senior Government Officials and members of the Local Councils generally considered this Programme very useful. At one stage, the provincial minister for Local Government and Rural Development and a few senior government officials took keen interest in the Punjab Sanitation Programme. This contributed to expeditious implementation of the Programme. This level of interest among senior officials however, could not be sustained after transfers of the key officials.

B. Weaknesses

(i) Lack of proper planning and programming, before expanding scope and coverage of the Punjab Sanitation Programme significantly affected its overall performance.

(ii) The Punjab Sanitation Programme was not incorporated in the established organizational framework of the Rural Development Department. It was given a separate status. This created various problems for the execution of the Programme.

(iii) Late preparation and approval of PC-I Form created severe policy problems. This also obstructed the process of absorption of Sanitation Promoters in the LG&RDD.

(iv) Weak Control of the Provincial Office of the LG&RDD on Programme operations generally contributed to low efficiency among the field staff and less care towards proper handling of certain operations.

(v) During its execution, the field staff attached more importance to installation of latrines compared to other components of the Punjab Sanitation Programme.

(vi) There was no specific Programme, to hand over the Punjab Sanitation Programme to the government.

(vii) Lack of transport facilities for the field staff contributed to low efficiency in Programme implementation.

(viii) Frequent transfer of key government officials at policy level, particularly the Director Generals of LG&RDD affected programme efficiency.

9.2 Findings and Observations of the six indepth Sector Studies

Important findings and observations highlighted in the six sector study reports are presented in following sub-sections. Sections 3 to 8 of this report give only brief descriptions of the six studies. Detailed supporting information about some of the findings and observations therefore, might not be referred in these sections.

9.2.1 Achievement of Quantifiable Targets

i) In view of specific nature of the Punjab Sanitation Programme and implementation capacity of the concerned organizations for handling similar projects, in geographically dispersed and culturally diverse spatial settings, the planned targets appeared high for the given period. The targets were mainly fixed on the basis of available financial resources. Important considerations like lack of adequate past experience of the executing organization(s),non-availability of requisite expertise and technical know-how particularly during early phases of project implementation, lesser flexibility among certain functionaries to adapt to new roles in a short span of time and absence of a well defined modus operandi for coordination among different functionaries of the concerned organizations needed due appreciation, to make the targets more realistics, before planning.

(ii) A total of 349 villages were selected for the programme during 1981-1986. Out of these, 301 villages were selected during 1983-1986. The programme was implemented, with varying degrees of success, in 230 villages during the period. On average, the target was to complete implementation of the Programme in about 26 villages each year in each district. The reported data revealed that about 12-16 villages were covered, with varying degrees of success, each year in each district. Number of villages with target achievement of 50%

and more, 25%-49% and less than 25% regarding construction of latrines, were 124, 53 & 53 respectively during 1983-1986.

(iii) Data about programme implementation, contained in the office records of UNICEF and the concerned provincial offices of the Rural Development Department, was found to be incomplete and aggregated. Basic information for progress monitoring, name, location, level of target achievement, and status of funds, for each selected village, were not available with these organizations during the course of implementation. In certain cases, even the district headquarters did not have complete information. Furthermore, data collected from the above referred two sources and from the secretaries of Union Councils were also found to be inconsistent. This implies inadequate monitoring of the programme and carelessness in collection and compilation of project data.

(iv) Data regarding achievement of targets of the Punjab Sanitation Programme have been supplied by those functionaries whose work performance is also evaluated, besides others, on the basis of degree of success of the Programme in their area. This influenced in reporting exaggerated figures about achievement of targets in certain cases.

(v) Targets for construction of Demonstration and Household latrines for each village were fixed to be 2 and 70 latrines respectively. However, the data received from the Secretaries of Union Councils, about the two types of latrines, exhibited different targets in certain cases.

Gross inconsistencies were also observed between the planned targets of the programme and those stated by the Secretaries of Union Councils regarding soakpits, biogas units, and water cisterns.

No targets were mentioned, in the PC-I Form, regarding construction of water cisterns during 1983-1986. However, the latest data about project performance revealed that 26 water cisterns were constructed during the period.

(vi) Achievement of Targets regarding different components of the Punjab Sanitation Programme are given in Table 15.

TABLE 15: ACHIEVEMENT OF TARGETS

S.No:	Category/Component	Targets for 1983-85	Achieve-ment 1983-85	Per-cent-age	Total Achieve-ment 1981-86	R e m a r k s
1.	Number of Marakiz covered.	55	30	54.5	44	
2.	Number of Union Councils.	171	159	92.9	191	
3.	Number of villages covered.	470	230	48.9	276	Total 349 villages were selected during 1981-85 out of which 301 were selected from 1983 to 1985.
4.	Number of Demonstration Latrines constructed.	940	546	58.1	695	
5.	Number of Household Latrines constructed.	32,900	8,187	24.9	10,281	
6.	Number of Soakpits constructed. (Demonstration & Household).	940	119	12.7	168	Targets and Achievements relating Demonstration and Household work r conforming with those of P.C.I.
7.	Number of Biogas Plants installed. (Demonstration & Household).	470	224	47.6	279	(as above)
8.	Number of water cisterns constructed. (Demonstration and Household).	-	-	-	49	Targets and Achievements given according to Demonstration and Household work. No P.C.I targets were given for these.
9.	Number of Sanitation Promoters trained.	185	162	87.6	-	
10.	Number of Sanitation Supervisors trained.	10	-	-	-	

9.2.2 Impact on Rural Households

(i) Beneficiary households displayed overall better understanding of the Punjab Sanitation Programme than the non-beneficiary households.

(ii) Most important sources of information about the Punjab Sanitation Programme considered by both beneficiary and non-beneficiary households were; home visits of the Sanitation Promoters and the members of Village Sanitation Committees. Majority of households came to know about the Punjab Sanitation Programme from the Sanitation Promoters.

(iii) The Punjab Sanitation Programme was noted to have a positive impact in inculcating awareness among the households about diseases spread by human excreta, and various causes of diarrhoea. The Programme however, did not seem to have any perceptible impact regarding awareness about water borne diseases and immunization against six childhood diseases.

(iv) A dominant majority of respondents perceived house latrines to be generally useful and good, for the household. Most commonly attributed benefit, for constructing a latrine, by all the three type of respondents was its usefulness to secure privacy for women. Other frequently quoted responses regarding usefulness of latrines were, 'good for emergencies', 'convenient', and 'cleaner/hygienic', in that order.

It is important to mention that the percentage of the households who perceived latrines as cleaner and hygienic was the highest among beneficiary households compared to non-beneficiary and control households. This may be attributed to positive impact of the Punjab Sanitation Programme. Education and motivation of rural households to adopt latrine for better hygienic and sanitation condition had been a major area of emphasis of the Punjab Sanitation Programme.

(v) A large majority of the households expressed the desire to construct house latrine. However, they could not do so mainly because of financial constraints. They proposed to increase the amount of loan for construction of latrines.

(vi) Pattern of occupational distribution among project village households suggested that the households engaged in non-agricultural occupations were more likely to adopt sanitation technology(ies) and vice versa. The Punjab Sanitation Programme was observed to be more popular among those who had salaried household members.

(vii) Educational achievements of the households were noted to be positively related with the adoption of sanitation technology(ies) of the Programme. It was further observed that the households with higher standard of education had a higher tendency to adopt the Programme.

(viii) Information about income distribution among beneficiary and non-beneficiary households suggested that the Punjab Sanitation Programme was comparatively more popular among higher income households. It was further noted that the households with higher levels of income had a higher tendency to adopt the Programme (as in case of education).

(ix) The Punjab Sanitation Programme tended to have positive effects in reducing diarrhoea complaints among rural households. Frequencies of diarrhoea complaints were noted to be comparatively low among project village households than those among control households. Furthermore, a large majority of beneficiary households considered that the adoption of Punjab Sanitation Programmes' recommendations contributed in overall reduction of diarrhoea complaints among household members.

(x) The Punjab Sanitation Programme did not appear to have significant impact on actual immunization of children against six childhood diseases among the project village households.

(xi) Studies regarding toilet habits, substance used for cleaning after defecation, washing habits, maintenance of water sources, and cleanliness and covering of drinking water containers indicated that the Punjab Sanitation Programme had an overall positive effect in improving the hygiene practices of the rural population. Specifically, toilet habits of beneficiary household members, particularly females, were observed to be radically improved than those of other category households. Children were the other most affected group in this regard.

(xii) Effects of the Punjab Sanitation Programme were noted to be positive regarding proper disposal of household garbage and waste water among the beneficiary households. On the whole, the beneficiary households tended to maintain better sanitation conditions inside and outside of their residences compared to non-beneficiary households. Village level comparison between project and control villages further revealed that the former had better environmental sanitation conditions.

9.2.3 Management for Implementation

i) During early stages of programme implementation, there was more emphasis on construction of various water and sanitation technologies and training of field staff. Comparatively less importance was given to detailed planning and programming.

ii) The Punjab Sanitation Programme was not treated as other projects of Local Government and Rural Development Department. It was given a separate status. Detailed policy guidelines regarding its execution, supervision of work, coordination, progress monitoring, financial management and record maintenance were not properly formulated.

iii) Roles and responsibilities of different functionaries were defined quite late.

iv) At one stage, some of the high government officials and the Provincial Minister for Local Government and Rural Development took special interest in the Punjab Sanitation Programme. This contributed to higher achievement of Programme targets.

v) Late preparation and approval of PC-I Form created severe policy problems. It also obstructed the process of absorption of Water and Sanitation Promoters by the LG&RDD.

vi) Villages were generally selected according to the specified criteria as outlined in PC-I Form. In few cases the criteria was not followed strictly. Selection of new villages and release of funds for implementation were made without appraising the performance of the Programme in already selected villages.

vii) Members of Village Sanitation Committees and the Secretaries of Union Councils generally understood their roles and responsibilities for the Punjab Sanitation Programme, while the ADLGs did not understand their roles fully. Most of the Project Managers did not understand their PSP roles right.

viii) Overall level of efforts input by different functionaries was moderate.

ix) Overall level of interest among the functionaries as perceived by VSC members, generally varied in inverse relation to their rank in management hierarchy i.e. lower the rank of the functionary, the higher was his level of interest in the Programme and vice-versa.

x) Mode of coordination among officers was generally 'official meetings' (formal) while at lower rungs of management hierarchy, the popular mode of coordination was 'personal contact' (formal as well as informal).

xi) Overall level of coordination among the Programme functionaries was reported to be generally good or moderate. However, level of coordination among the field staff was observed to be deficient in certain cases. Specifically, level of coordination between the Secretaries of U.Cs. and the Sanitation Promoters was reported as deficient.

xii) Level of coordination between the Programme Officer of UNICEF and Assistant Project Officers was reported to be unsatisfactory.

xiii) Overall level of coordination between UNICEF, LG&RDD and the Local Government Councils, was generally good. However, certain problems were encountered due to lack of detailed planning and programming of the Programme.

xiv) Responses of government functionaries, ADLGs, Project Managers, Secretaries of U.Cs and the members of the VSCs regarding frequency of field visits for supervision of PSP operations by the concerned personnel are inconsistent in certain cases. Majority of ADLGs, Project Managers and the Secretaries opined that they visited the project villages on monthly basis. Their responses regarding fortnightly, quarterly and bi-annually visits were rather low. The members of the Village Sanitation Committees (VSCs) on the other

hand observed that frequencies of visits by Secretaries and Project Managers were rather higher while low in case of ADLGs. The frequencies of visits by Assistant Project Officers of UNICEF and the high government officials were also reported to be low by the VSC members.

xv) The Provincial Office of LG&RDD could not maintain effective control on PSP operations.

xvi) The ADLGs and the Project Managers reported that overall quality of progress monitoring was good. In the light of the information collected from the field and the concerned offices, their opinions appear biased. Quality of progress monitoring was not upto the mark throughout the course of implementation of the Programme.

xvii) Ten most commonly encountered problems during execution of the Punjab Sanitation Programme, were: illiteracy, newness of the Programme, lack of coordination among field staff, smaller amount of loan, lack of training of field staff, less effective leadership, no incentives for Secretaries and members of VSCs, lack of cooperation from the target population, cultural reasons and conflicts/local politics in the target villages, in that ranking order.

9.2.4 Financial Management

i) Certain digressions from the proposed flow of funds, in receipts as well as disbursals, were observed at UNICEF, District, Markaz and Union Councils Levels. It implies certain weak links in management of finances. This may be attributed to lack of formal policy framework for financial management, lack of communication/understanding about the proposed flow of funds among different functionaries or weak control in overall management.

ii) Modes of drawing and disbursement of PSP funds, practiced by different functionaries were reported to be generally the same as proposed.

iii) The Village Sanitation Committees received the funds in installments as well as lumpsum. Percentage responses for each method of drawing funds by the VSCs were 15% and 66% respectively.

iv) All the ADLGs responded that there was no lead time in receipts and disbursement of funds while 21% of the Project Managers and 29% of Secretaries of U.Cs. said otherwise. The opinions of the ADLGs were found to be biased. The cash books were not generally maintained and the bank pass books were not updated regularly in most of the cases. It was therefore, not possible to find out the amount of time involved in receipts and disbursement of funds at different hierarchical levels. It was observed that owing to lack of clear policy about the interest earned on PSP funds, there might have been a tendency among some of the functionaries to delay disbursal of funds.

v) Proper methods/principles of accounting were not followed in handling PSP accounts. In most of the cases studied, the accounts were not handled by properly qualified or trained staff.

vi) There was no system of auditing. The PSP accounts were never audited. Under the circumstances, there might have been certain irregularities in the use of PSP funds.

vii) Different villages were allocated different amounts of money for demonstration work as well as for Revolving Fund. Amount of funds allocated for demonstration work to project villages varied from less than Rs. 7,000.0 to Rs. 51,500.0 while the amount of Revolving Fund varied from less than Rs. 12,000.0 to Rs. 44,000.0. Main reasons for allocating different amounts to different villages, propounded by the ADLGs and the Secretaries of U.Cs., were size of the village, magnitude of planned targets, recommendations of superiors and political considerations.

viii) Out of 301 villages, selected during 1983-1986, 52 villages utilized excess amount of demonstration funds compared to PC-I Form Cost Estimates. Total amount incurred in excess of PC-I Cost Estimate was Rs. 507,751.0. An amount of Rs. 89,348.0, meant for demonstration work was found to be lying un-utilized in these villages.

ix) On the basis of aggregate estimates, unit cost of demonstration latrine comes to be Rs. 5,013.00, 67% higher than the PC-I Cost Estimates. Unit cost of latrines tends to vary over the years, mainly because of non-utilization of funds in certain cases.

x) Amount of loan given to households, for construction of latrines, varied from less than Rs. 250.00 to more than Rs. 1,000.00. Proposed amount of loan, Rs. 300.00, was considered less by the households. The VSCs tended to give higher amounts of loan to the individual households.

xi) An amount of Rs. 1,080,171.00, 15% of the total Revolving Fund received by the Secretaries of U.Cs., was reported to have been repaid in 23.2% of the total villages. Data about repayment of loan in case of District Rawalpindi appears exaggerated.

Number of households who had returned the loan or were returning loan is comparatively small. Most of the households paid back the money in installments. Majority of the households paid Rs. 50.00 as monthly installment.

About 40% of VSCs reported that they did not recover any amount of the money loaned to households.

xii) Level of satisfaction regarding use of Revolving Fund was comparatively higher among the ADLGs and the members of VSCs and moderate among the Project Managers. The level of satisfaction was rather low among the Secretaries of U.Cs.

xiii) Level of satisfaction regarding operation (recovery) of Revolving Fund was observed to be generally low among the concerned functionaries.

xiv) Gross utilization of Revolving Fund per latrine, during 1981-1986, works out to be Rs. 808.00 on the basis of total amount released by UNICEF, and Rs. 704.00, on the basis of total amount received by Secretaries of Union Councils.

9.2.5 Training and Job Performance of Sanitation Promoters

i) The staff members of the Local Government Training Institute (LGTI), Lalamusa expressed dissatisfaction regarding selection criteria of the Sanitation Promoters. They considered that the selection procedure was not sufficiently competitive. They however, agreed that the minimum educational requirement fixed for selection of the Sanitation Promoters, matriculation, was adequate. On the other hand most of the Sanitation Promoters were found to be satisfied with the selection criteria.

ii) Almost all the Sanitation Promoters were satisfied with the quality and contents of the course, 100% with theory and 95% with practical work. A dominant majority of the Sanitation Promoters was also found to be satisfied with the teaching methods, methods of performance evaluation (examinations), capability of instructors/teaching staff and general administration of the training programme. About 42% of the Sanitation Promoters considered that the amount of stipened was inadequate.

A large majority of the Sanitation Promoters also considered that the length of the training programme, one month theory and two month practical work, was sufficient.

iii) Most of the Sanitation Promoters said that the training programme at LGTI was very useful and contributed in improving their knowledge about rural sanitation, their skills and attitudes towards work.

iv) A large majority of the members of the village Sanitation Committees (82%) considered that the Sanitation Promoters were good or very good in interacting with the rural households. However, the Project Managers had disparate opinions in this respect. About 43% of them considered that the Sanitation Promoters were good or very good while more than half of the Project Managers responded that the Sanitation Promoters were deficient in interaction with the rural population.

v) Sanitation Promoters' effectiveness in motivational work was generally rated above average by most of the concerned ADLGs and the Project Managers.

vi) A large percentage of the members of village Sanitation Committees (82%) considered that the Sanitation Promoters were generally good or very good regarding their leadership qualities. However, more than 50% of the respondent Project Managers considered them deficient in leadership qualities. Only 36% of the latter considered them good or very good in leadership qualities.

vii) A majority of the members of village Sanitation Committees as well as the Project Managers considered that the Sanitation Promoters had generally good or very good level of technical skills to execute the Punjab Sanitation Programme.

viii) Abilities of the Sanitation Promoters to coordinate various field activities were rated to be good or very good by majority of the members of the Village Sanitation Committees (82%). The ADLGs also judged them above average. About 67% of the ADLGs considered them good while the remaining 33% as average in coordination of various activities.

Among the Project Managers, about half of them rated the Sanitation Promoters as good or very good, about 14% as average while about 21% as deficient in coordinating various field activities. The remaining 14% of the Project Managers did not respond.

ix) Majority of the ADLGs as well as Project Managers considered that the Sanitation Promoters had generally above average level of performance in execution and supervision of various field activities. None of the ADLGs considerd them deficient in this case.

x) The ADLGs and the Project Managers generally rated the performance of the Sanitation Promoters, in monitoring and progress reporting of various field activities to their superiors, as average.

xi) Half of the ADLGs judged that the pace of work of the Sanitation Promoters was moderate while the remaining half considered it fast. Pattern of responses by the ADLGs regarding level of efforts input by the Sanitation Promoters was also the same.

The Project Managers' responses regarding pace of work of the Sanitation Promoters were 14% for full capacity, 64% for moderate capacity and 14% for below capacity. Regrading level of efforts input, about 29% of the Project Managers opined that the Sanitation Promoters worked to their full capacity while about 36% of them gave a moderate rating. About 21% of the Project Managers considered that the Sanitation Promoters worked below capacity.

xii) Most of the respondent households informed that the Sanitation Promoters, males as well as females, visited their villages on fortnightly or monthly basis. Percentages of households opining that the Sanitation Promoters visited quarterly or even less frequently were rather low.

xiii) The Sanitation Promoters who visited the Project Villages more frequently generally stayed for less duration of time (4 hours or less). On the other hand the Sanitation Promoters visiting with less frequency stayed for longer time period (full day or more).

xiv) A dominant majority of the beneficiary households considered the Sanitation Promoters to be very useful in helping to solve their sanitation and related problems.

xv) Absence of transport facilities for the Sanitation Promoters was considered as the most acutely felt field problem . Selection of project villages at dispersed locations, inadequate public transport facilities on certain routes and sometimes 'katcha'/difficult road conditions further accentuated this problem.

xvi) About two third of the Sanitation Promoters were satisified with the overall working conditions while the remaining expressed otherwise. Main reasons for dissatisfaction with the working conditions were highlighted as absence of conveyance facility, insecure service, insufficient salary and delays in receipts of salaries.

xvii) The Sanitation Promoters generally considered that the Punjab Sanitation Programme contributed to visible improvements in general health of the beneficiary households, hygiene practices and environmental sanitation at village level. It may be mentioned that the perceptions of the Sanitation Promoters generally conform to the findings of the impact study referred in subsection 9.2.2.

9.2.6 Technical Appraisal of Latrines, Biogas Plants and Water Cisterns.

A. Latrines:

1. Excreta disposal facilities, installed at most of places are either septic tanks (impervious pits with no outflow or outflowing to open drains) or soakage pits (with impervious walls and pervious base) having combined functions of sludge settling, storage and decomposition and subsoil percolation of liquid contents. Most of these units are found to be over sized with capacities much more than required. The situation suggests

that two independent units with optimum sizes i.e. septic tank to separate, store and digest sludges and a separate seepage pit with open jointed walls and pervious base to percolate supernatant effluents from septic tanks, may be built within the same cost. This would solve the problems of surface pollution due to septic tanks effluent disposal to open drains and reduction of soakage pit's percolation capacities due to deposition of sludges.

ii) The main problems, tending to limit the use of latrines, at some places, are found to be non-availability or shortage of water (required for ablution and flushing), under size W.C. pan causing inconvenience in squatting defecation posture and splashing out of excreta and lack of privacy due to absence of doors in latrines. Further, shape and size of W.C. pan needs to be such that it can be used conveniently by adults as well as children.

B. Biogas Plants

i) A number of plants (57% of sample plants) were found to be closed and not in working conditions. The reasons for close down of plants, in rank order of significance, are low initial and subsequent gas yields possibly due to lack of adequate dung quantities, lack of interest on part of consumer to feed and maintain the plant, sometimes due to availability of alternate gas supply low gas yields due to winter season and gas leakage from invert drum.

ii) Some of the common faults, related to the construction features of plant, include installation of light gauge (22) steel sheets for invert drums instead of heavy gauge (16), absence of central partition wall to isolate digested slurry from raw waste input, provision of effluent slurry pipes at liquid level instead of from bottom of digester and installation of flat top invert drum instead of conical roof.

iii) At some plants, condensed water drops are reported to travel in the gas pipe and choke burner valve.

iv) For plants found in working conditions, most of the respondents have shown satisfaction with the gas yields and pressures.

v) For a household size of 10 persons or below, 1200 liter/day of gas supply is found to be adequate that can be furnished with 2-3 cows or buffalos with plant in good operating condition.

vi) Most of the digesters are found to be oversized when compared with unit capacity of 1-1.5 cu.m. per medium size animal.

C. Rain Water Cisterns:

i) In all cases, rain water cisterns act as an alternate and not the sole source of water supply. Though in some cases, rain water cisterns are installed where a well or handpump is located nearby the house.

ii) All the users are satisfied with the quality of cistern water. However, most of the respondents did not use it for drinking purposes.

iii) The quantitative data on cisterns reveal that optimum cistern capacity need not to be more than one-third of the total volume of annual rainfall to be intercepted.

SECTION - 10 RECOMMENDATIONS AND POLICY GUIDELINES

The following main points need careful appreciation before relaunching the Punjab Sanitation Programme:

10.1 General Policy Guidelines

i) Establishment of strong data bases about project performance at different hierarchical levels, UNICEF, provincial, district, markaz, union council and village levels, is vital for realistic and pragmatic policy formulation. This is also important to maintain effective management control on various operations of the Punjab Sanitation Programme. Effective measures need to be introduced for systematic collection and compilation of Programme data. At Provincial/UNICEF level, we recommend creation of a computerized data base, (dBase III or RBase V on a suitable micro computer would suffice).

ii) Detailed planning, programming and effective policy framework for execution, coordination, monitoring and administration is imperative before implementation of the Punjab Sanitation Programme.

iii) PC-I Form must be approved before restarting the Programme. Government's commitment to take over the Programme needs to be made more explicit in the PC-I Form. Policy guidelines regarding absorption of Sanitation Promoters, types of institutional arrangements necessary for independent handling of the Punjab Sanitation Programme, sources/generation of funds for demonstration work as well as for the loan schemes, after the withdrawal of UNICEF, to carry out the Programme in new villages should be clearly specified.

iv) The field staff attached more importance to installation of latrines. Other significant aspects of the Programme remained rather low key. The Programme should ensure adequate attention towards improving household awareness of health, hygiene and environmental sanitation.

v) The Punjab Sanitation Programme was generally popular among the affluent households. Emphasis should be given to involve other lower income households as well.

vi) Formal policy framework for financial management is imperative for effective and efficient utilization of PSP funds. Proper methods/principles of accounting should be followed in handling PSP accounts. Cash books and ledger accounts may be maintained at District, Markaz and Union Council Levels. The bank pass books may be updated on regular basis and a system of preparing bank reconciliation statements needs to be introduced. Regular submission of expenditure statements should be made mandatory.

vii) Periodic auditing of PSP accounts may be instituted.

viii) A consistent policy may be followed in allocating funds to different villages.

ix) Demonstration funds lying un-utilized should be recovered. Physical inspection of demonstration latrines may be under-taken to ensure that the demonstration funds are utilized as reported.

x) The amount of loan sanctioned for installation of latrines, Rs. 300.0 per household, is considered to be inadequate by the majority of households. This should be increased.

xi) Amount of Revolving Fund not yet distributed among the households should be recovered. However, care needs to be exercised in recovering the amount of Revolving Fund already given to the Village Sanitation Committees and the households. It would be plausible, if the amount of Revolving Fund distributed among the households is utilized on their own welfare. This amount may be made part of some other sanitation/welfare scheme, in case PSP is not revived.

xii) Before disbursing funds to the districts each years, the Project Directors may be required to submit a comprehensive performance report of the Programme already under execution, expenditure statement of the amount spent during the previous year and planning and programme for action for the coming year.

xiii) Provincial office of Rural Development Department should play more active role in supervision of PSP operations.

xiv) Communication among upper and lower levels of management hierarchy needs to be improved. Effective measures should be taken to improve level of coordination between Sanitation Promoters and Secretaries of Union Councils.

xv) A committee should be formed to select candidates to be trained as Sanitation Promoters. The selection committee may comprise of representatives of the Local Government Department, UNICEF and Local Government Training Institute, Lalamusa.

xvi) The Sanitation Promoters should be absorbed in a Government Department, in accordance with a properly formulated service cadre.

xvii) The trainees should be selected from the villages in which they are to work ultimately. This would solve most of their complaints such as less salaries, lack of conveyance facilities etc.

xviii) The project villages should be selected with care. Selection of the villages should be such that it helps to minimise the sanitation promoters' time and travelling expenses.

Around 63% of the employed Sanitation Promoters worked at considerably long distances from their native villages.

xix) Besides technical training, the field staff should also be trained in overall management of the Programme. Members of Village Sanitation Committees, both males and females, should be imparted more rigorous training. A system of refresher courses and training workshops may be evolved to improve efficiency and working skills of Sanitation Promoters and members of Village Sanitation Committees, the key functionaries at grass root level.

xx) To bring about desired improvement in the situation of women and children, UNICEF may follow a three pronged approach focussing on the communities, government functionaries and the politicians/local representatives. To bring about perceived changes among the three target groups, specific objectives and plans of action for each should be worked out.

xxi) For greater impact of the Programme and effective utilization of its resources, it would be plausible if UNICEF also extends field assistance, in the form of guidelines, in implementation of the Programme particularly during its early phases.

xxii) In addition to regular progress monitoring of routine operations, it is recommended that the Programme has an inbuilt system of periodic evaluations. The evaluations may be of two types:

a) Internal Evaluations
b) External Evaluations

Internal evaluations may be carried out by the Sanitation Promoters and the supervisory staff. They may be given necessary training in this regard. External evaluations may be instituted for comprehensive and more objective appraisal of the overall Programme performance. The latter should be a third party evaluation (through persons external to the Programme implementation).

These evaluations besides giving useful insights about the Programme performance would also facilitate improvements/reorientations in policies and programmes for greater efficiency and effectiveness of the Punjab Sanitation Programme.

10.2 Technical Recommendations regarding Latrines, Biogas Plants and Water Cisterns

10.2.1 Latrines

A. General Considerations

i) Septic tanks should be provided for settling, storing and digesting the organic matter, present in waste. For subsoil disposal of supernatant effluents from septic tanks, seepage pits, with percolating side walls should be provided.

ii) To prevent ground water pollution, the seepage pit should be located such that it is minimum 30 meters away from water source (well, handpump etc.) and its base is minimum 2 meters above ground water table.

iii) To avoid faecal smells and prevent fly breeding, the outlet of WC pan should be provided with P-trap, to maintain water seal between latrine and septic tank.

iv) Adequate water quantities, from tap, handpump, well etc., preferably located inside house, should be ensured prior to installation of latrine.

v) Privacy aspects should be given due consideration for latrine design. This can be achieved by installation of proper doors in the latrine.

vi) For easy cleaning, the latrine floor should be sloped towards WC pan.

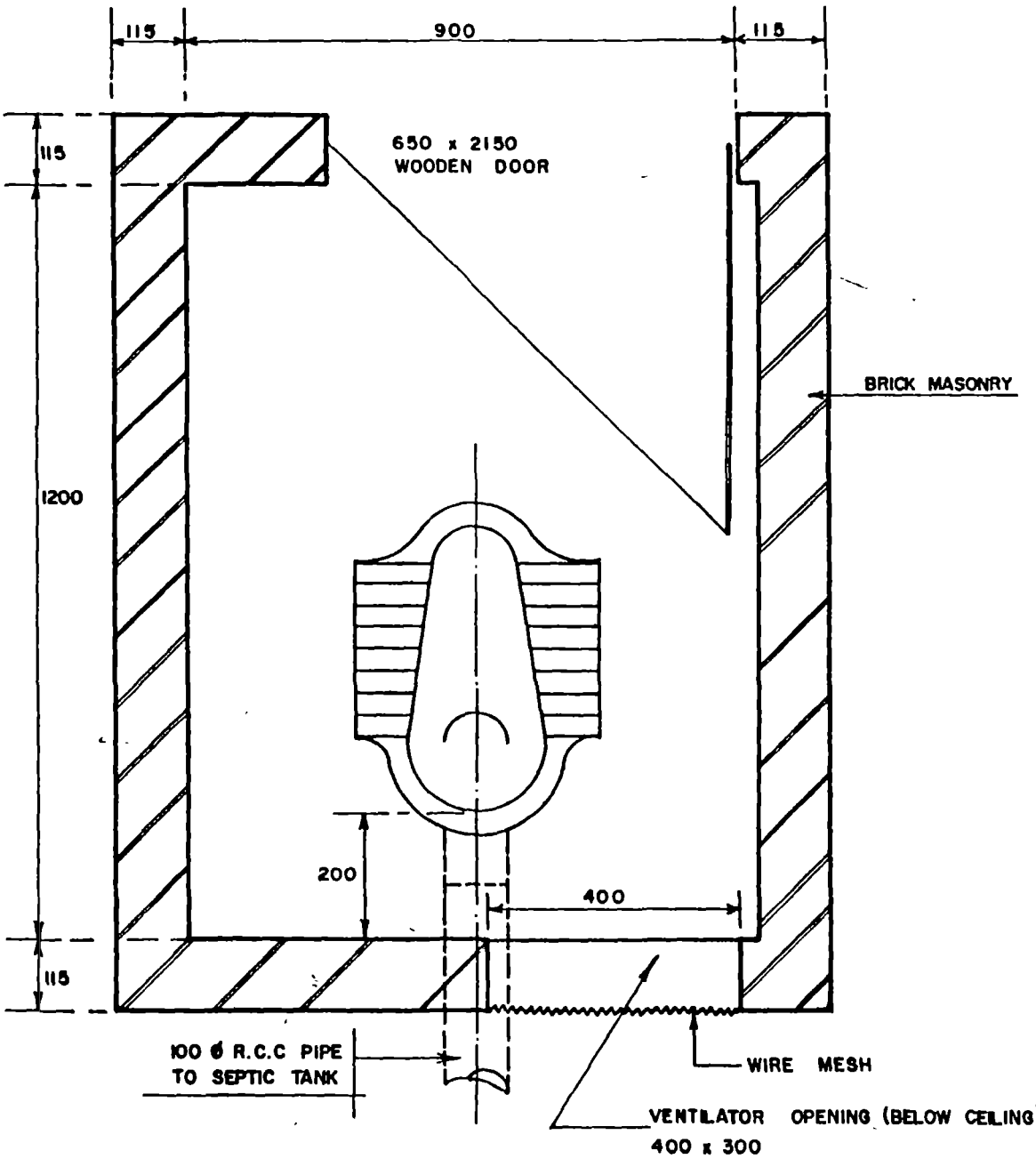
B. Quantitative Design Criteria:

i) Minimum internal latrine dimensions should be 0.9x1.2x2.2 meters. The size of door should be 0.65x2.15 meters. The ventilator opening of size 0.4x0.3 meters duly furnished with wire gauze, should be provided below the soffit of roof slab. Typical details of latrine are shown in Exhibit - 6.

ii) The shape and size of WC pan should be such that it can be used conveniently by adults as well as children without splashing out of excreta and soiling of floor pan. The pan as shown in Exhibit 7 may be adopted for the purpose. The design of pan is carried out, keeping in view, the suggested criteria and shortcomings in the existing undersize pan, as presented in Section 8.1.3 (C).

iii) Criteria for design of septic tanks are as follows:

Shape	:	Rectangular
Compartments	:	Preferably 2

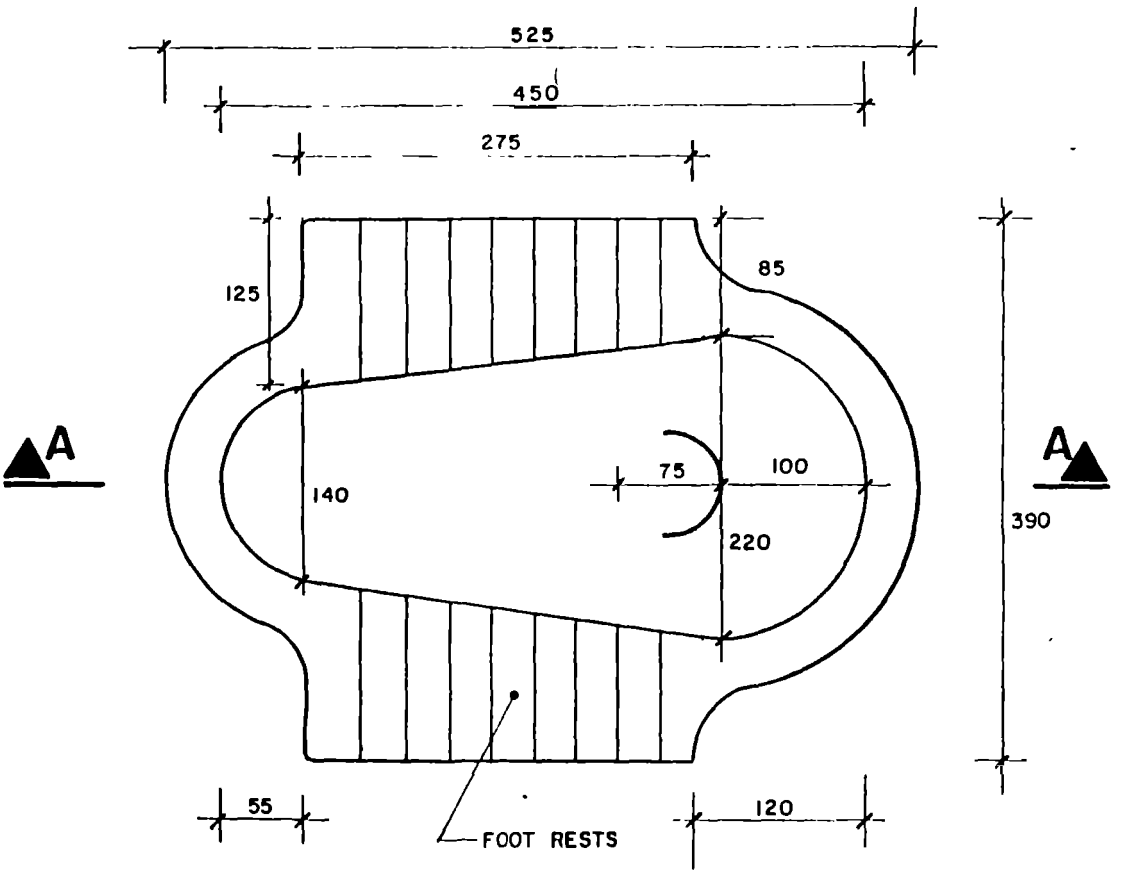


SECTIONAL PLAN

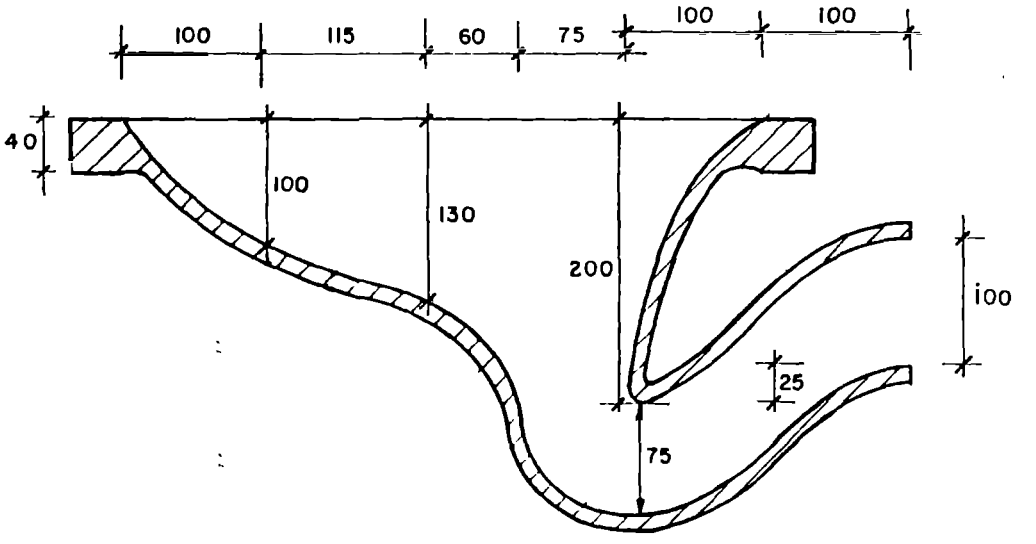
LATRINE

SCALE: 1 = 10

EXHIBIT : 6 (ALL DIMENSIONS IN MM)



PLAN



Note:-
ALL DIMENSIONS ARE IN mm.

SECTION A-A

EXHIBIT :- 7 RECOMMENDED W.C. PAN

SCALE = 1·5

Length to Width ratio	:	2:1 to 3:1
Depth	:	0.8 to 1.1 meters
Capacity	:	0.08 cu.m. per capita per year
Desludging Interval	:	3 - 5 years

vi) Criteria for design of seepage pits are as under:

Shape	:	Circular
Base	:	laid with 12" thick stones or brick ballast.
Side Walls	:	Stone or brick masonry, laid open jointed as shown in Exhibit 8.
Side Wall Area	:	1.5 - 2m^2 per capita.

10.2.2 Biogas Plants:

A. General Consideration:

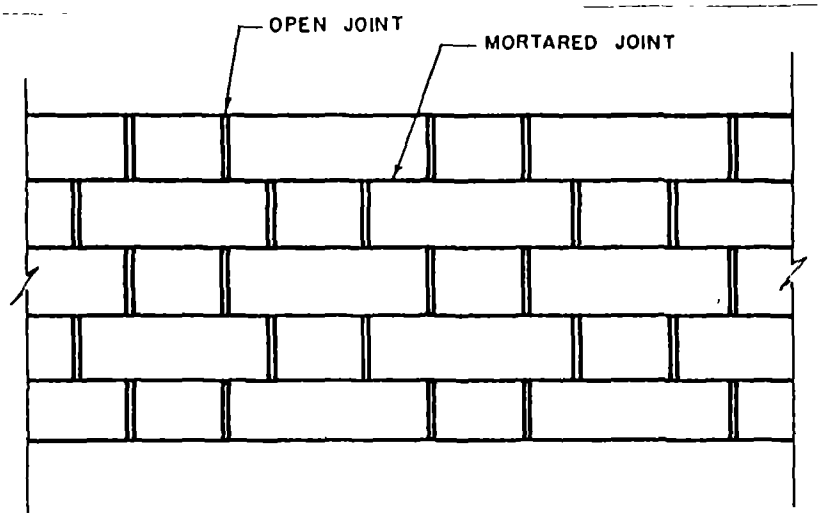
i) Prior to installation of the plant, adequate animal dung and water quantities should be ensured. Normally, for household size of 7, two to three medium size animals (cow or buffalo) are sufficient.

ii) Latrine may be connected to the digester since addition of human excreta particularly urine, increases the quantities of biogas yield.

iii) The digester should be located such that it is exposed to sun rays throughout the day. This helps to improve the gas yield efficiencies, particularly in winters.

B. Construction Features:

i) The digester tank should be provided with central partition wall to isolate digested slurry from raw waste input.



Note:-
ALL EXPOSED VERTICAL JOINTS OPEN WHILE THE REST LAID IN CEMENT SAND MORTAR

DEVELOPED ELEVATION OF SEEPAGE PIT WALL

ii) Both the influent waste and effluent slurry pipes should be connected to the bottom of digester tank.

iii) The invert drum gas collector should be made of 16 gauge, galvanized or duly coated steel sheet, conical towards gas outlet instead of flat top.

iv) In case condensed water drops are found to choke the gas burner, U-shaped water drop intercepter of the type shown in Exhibit 9 may be installed on gas pipe, ahead of burner.

v) The materials, suggested for various components of digester plant are as under :

Base	:	Plain Cement Concrete (150 mm)
Walls	:	Brick Masonry (225 mm)
Influent/ Effluent	:	R.C.C. pipe (150 mm dia)
Gas Pipe	:	G.I. Pipe (12-18 mm).

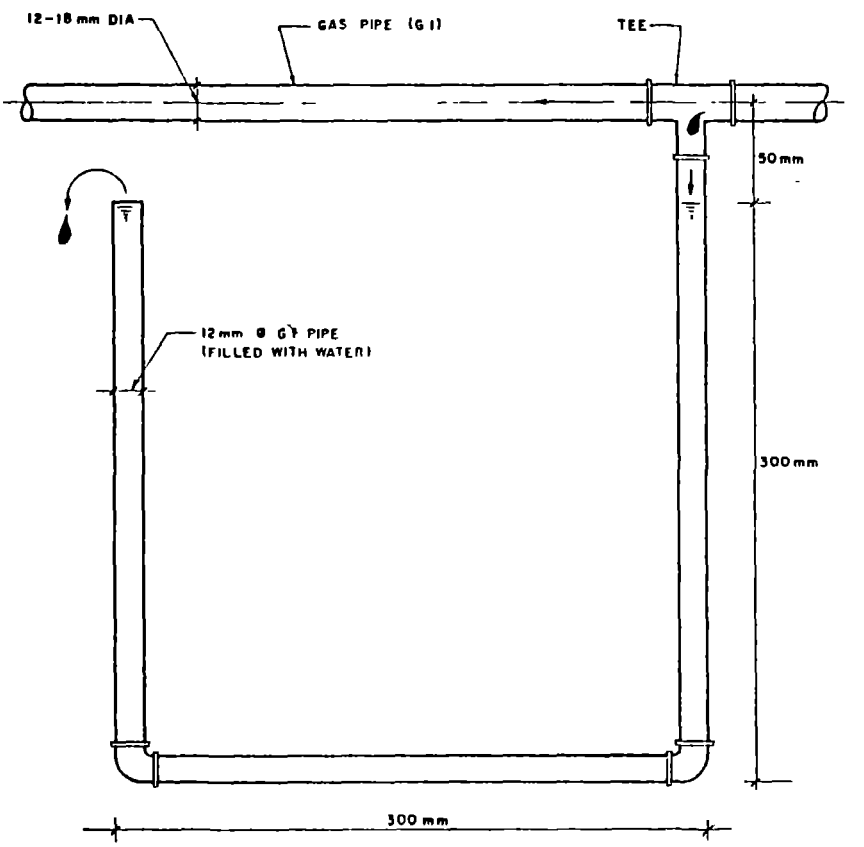
C. Quantitative Criteria:

Digester Volume	:	1-1.5 cu.m. per medium size animal.
Minimum distance between liquid level and soffit of invert drum	:	150 - 200 mm
Annular space between drum and digesters wall	:	75 mm

10.2.3 Rain Water Cistern:

A. General Consideration:

Rain water cisterns need not to be installed where primary water sources with adequate quantities, is located at convenient distances from house.



WATER DROPS INTERCEPTER

B. Construction Requirements:

For efficient utilization of rain water cistern, following construction and design requirements should be met.

i) The base of cistern shall be kept at least 1 ft. above floor level, to get water through tap under gravity.

ii) The materials, whether concrete or brick masonry, and design for all components of cistern shall be such that it can sustain working pressures without any sign of leakage.

iii) The rain water vertical leader shall be minimum 50 mm dia, with inlet grating at roof level.

iv) The cover slab should be provided with access hole and cover for cleaning purposes.

C. Cistern Water Quality:

The physiochemical and bacteriological quality of rain-water is generally, good and within permissible limits. However, it primarily gets contaminated, from the surface of roof, during the process of concentration. The quality of cistern water may be maintained closer to that of rain water by observing the following design and operational precautions:

i) The surface of roof should be smooth with sufficient slope (of the order of 1 in 100) towards 'khura', to minimize the detention of rain-water and contaminated substances on it.

ii) The volume of cistern should be such that detention periods under normal consumption shall not exceed 30 days, in order to avoid stagnation of water for long periods.

iii) Frequent inspection and cleaning of roof surface and cistern is key to the efficient control of water quality.

iv) First 5-10 minutes of each rainfall concentratd, should be allowed to waste, preferably through by-pass valve connection at the inlet, in order to get rid of dirt and other contaminated substances accumulated on roof.

D. Cistern Capacity:

The cistern capacity should be determined as follows:

V = a.C.A.I/1000]
] whichever is minimum
V = D.P.t/1000]

Where

V = Capacity in cu.m.

a = Regional Coefficient = 1/3

C = Loss Coefficient =0.8 - 0.9

A = Roof area in sq.m.

I = Annual precipitation =800-900 mm

D = Per capita consumption = 45 lpcd

P = Household Size

t = Allowable stagnation period = 30 days.

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