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REPUBLIC OF YEMEN

RADA' WATER SUPPLY AND SANITATION PROJECT



BASELINE SURVEY

FINAL REPORT

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REPUBLIC OF YEMEN

RADA' WATER SUPPLY AND SANITATION PROJECT

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BASELINE SURVEY

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FINAL REPORT

Euroconsult/DHV Consulting Engineers/Agro Vision Holland

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LIST OF ABBREVIATIONS

EH	: Environmental Health
EHE	: Environmental Health Education
MCH	: Mother and Child Health Care
PH	: Primary Health
PHC	: Primary Health Care
RIRDP	: Rada' Integrated Rural Development Project
ROY	: Republic of Yemen
RUA	: Rada' Urban Area
RWSSP	: Rada' Water Supply and Sanitation Project
TBA	: Traditional Birth Attendant
WAD	: Women and Development

PREFACE

The final version of the report concerning the Baseline Survey, carried out under the Rada'a Water Supply and Sanitation Project (RWSSP), is herewith presented. Various reasons have delayed the presentation of the final report, and I would feel even worse if it were not for the fact that I am in fairly constant contact with RWSSP and a lot of information and ideas in the text have already been fed to Project personnel.

I would like to thank all those involved for their patience, assistance and, above all, friendship. This report comes from the efforts of all those involved with the survey; The RWSSP management; the EHE section; members of the technical staff; the survey team; the administrative and support staff. Thanks also to Agro Vision Holland; DHV ; Euroconsult and Catholic Institute for International Relations, London. Thanks are also due to the Ministry of Urban Planning and Housing and the National Water and Sewerage Authority and to their local representatives in Rada', and also to staff of the Royal Netherlands Embassy, Sana'a. Many, many people have offered insight and comment on issues raised in this text, however I take full responsibility for any infelicities which may appear within it.

Finally, thanks must go to the people of Rada'a themselves, without whom this report would never have been written. I hope it can, in some small way, be of benefit to them.

Sheena Crawford (Dr.)
AVH Rada'a, December 1990.

CHAPTER I
INTRODUCTION

I INTRODUCTION

1.1 This report presents the results of a baseline environmental health survey, which was carried out in October and November 1989 within the framework of the Rada'a Water Supply and Sanitation project in the Republic of Yemen. RWSSP is a Technical Assistance Programme to the Ministries of Urban Planning and Housing and the National Water and Sewerage Authority, under agreement between the Republic of Yemen and the Netherlands.

1.2 RWSSP aims at improving the general health status of the population of the Rada'a Urban Area by providing water supply, sanitation and solid waste disposal services and through programmes of environmental health education. Relevant training is provided to ensure that new services are acceptable and understood by the population, so that use of services may be effective and efficient.

1.3 The survey was carried out approximately 18 months after the start of the project. It had been decided to delay the implementation of a baseline survey until this time for various reasons. Prominent among these reasons was the concern to build up a relationship with the people of Rada'a prior to carrying out research. Attitudes towards research and social investigation are not always seen in a favourable light by the people of Yemen, and there was concern not to engender the antagonism of the population.

1.4 The timing of the survey meant that it was possible to include some questions which investigated people's knowledge and awareness about the project itself. The tables below, show the results of these questions. From them it can be seen that there is still much work to be done to increase the population's awareness of the project and of its activities. The recommendations contained within this report are designed with this purpose in mind.

Table 1: Q65 Do you know about the project's existence?

	Yes	No
A	22	23
B	10	23
C	8	19
D	13	20
E	13	20
F	3	10
G	12	21
H	5	17
I	13	18
J	6	12
K	5	6
L	15	16
	125	205

Table 2: Q67 Do you know what the project does?

	Sewers	Water Supply	Roads/Drains	Health	Garbage Disposal
A	13	7	5	1	8
B	4	1	1	1	2
C	2	1	2	1	3
D	4	4	1	-	1
E	10	3	3	1	9
F	2	2	1	-	2
G	7	3	-	-	5
H	5	3	-	-	3
I	9	5	5	1	4
J	4	2	1	-	-
K	3	-	-	-	-
L	10	5	3	2	3
	79 (23%)	36 (11%)	22 (6%)	7 (2%)	41 (12%)

1.5 Chapter II gives a description of the objectives set for the survey and of the methods used to achieve them. Chapter III aims to give an open and honest appraisal of the problems faced in the design and implementation of the research. Chapter IV considers the willingness of the people to pay for project services and is backed up by Chapter V which shows why and how project services will be acceptable to the people. Chapter VI gives a brief outline of the effect that project services will have on women's lives and workload. Chapter VII reports on the health profile and family from results obtained in the survey. Chapter VIII is on attitudes to education. Chapter IX looks at the practices surrounding garbage disposal and Chapter X discusses domestic hygiene and sanitation. Chapter XI is a brief conclusion.

CHAPTER II
OBJECTIVES AND METHOD

II OBJECTIVES AND METHOD

2.1 The Objectives

2.1.1 The objectives of the survey were defined during May and June 1989. The process of defining objectives is described in more detail in Chapter III. In broad terms, the aim of the survey was to provide a body of knowledge which would be available to the project and which would assist in the design of project implementation. It was also necessary to take into account some of the questions which had been raised by a review mission from the Ministry for Foreign Affairs (Netherlands). The mission was concerned to know whether the designed project services were acceptable to the people of Rada'a; whether the population would be willing to pay for the services; and whether project services would be of direct benefit to women.

2.1.2 With the conditions outlined above in mind, the following objectives were set:

- . to gain reliable information on environmental health issues in relation to water supply, hygiene and sanitation;
- . to gain understanding about the range of knowledge, attitudes and practices which relate to environmental health, hygiene and sanitation and which may act as resource and constraint to project activities;
- . to gain knowledge of the present degree of willingness among the people of Rada'a to pay for garbage disposal services and to participate in the upkeep of all project services after expatriate withdrawal;
- . to gain greater understanding of people's perceived needs and priorities in relation to project services, and to gain knowledge of how to approach these issues.

2.1.3 The objectives set were necessarily broad so as to allow for collection of data on a wide range of topics which would relate to the success of implementation of project services. It was also intended that data would facilitate the definition of priority work for the EHE section and enable identification and development of appropriate and accessible EHE messages and strategies.

2.1.4 In drawing up the objectives of the survey, the guidelines for its implementation, and aspects of the questionnaire itself, use was made of the reports of surveys carried out in other areas of Yemen (cf. Johnson et al. 1985; Hoskins, 1987; Buringa, 1988; Beatty and van Dijk, 1988). No surveys directly concerned with environmental, as opposed to other PHC, issues in Yemen were available. Reference was, therefore, made to data from other countries. In order to develop a type of questionnaire which would be most appropriate to local circumstances, reference was also made to the techniques described in Feuerstein, 1986, Partners in Development.

2.1.5 The questionnaire could not, by itself, hope to give full answers on all the issues and objectives. In part, the first objective had already been approached by the RWSSP Water and Sanitation survey (Results of a Sample Survey in 333 Houses, March 1989). To give fuller understanding on the objectives, and to gain greater enlightenment it was decided that information from various different sources should be combined with the data from the questionnaire itself:

- . participant observation by project personnel; their knowledge and experience;
- . records of formal meetings and EHE sessions with the people of Rada'a;
- . interviews by the Researcher with people who had been involved in the survey;
- . group discussion and workshops held on topics raised by the data from the survey;
- . the daily, "personal notebook" kept by the implementors of the questionnaire. In this book, interviewers were encouraged to record all observations and impressions they had and to note any information which was not covered in the questionnaire. This was in addition to the "Interviewer's Sheet" which had to be filled in at each interview;
- . records from the Rada'a MCH clinic for November and December 1989.

2.1.6 In the event, the extensive comments and feedback provided by the interviewers themselves, and the records of the questionnaire implementation evaluation workshop, provided invaluable insights and a useful check to the recorded responses of the questionnaire.

2.1.7 In the analysis of data throughout the following chapters of this report, information from all sources has been included. Where relevant, data are clearly attributed to a particular source. At times, when the same information is available from multiple sources, this may be given as "local experience", or "in-depth discussion".

2.2 The Questionnaire

2.2.1 In order to collect data in relation to the stated goals of the survey, the questionnaire was drawn up in four main sections:

Family and Health Profile

Subjects included:

- . number of people living in the house;
- . number, sex and age of children; childbirth experience;
- . knowledge, attitudes and practice around illness in children.

Kitchen, Hygiene and Sanitation

Subjects included:

- . cooking and eating practices;
- . washing practices;
- . existence of flies, mosquitoes and fleas;
- . garbage disposal practices.

Education

Subjects included:

- . attitudes to education;
- . status of education of children;
- . literacy of respondents.

General Attitudes and Perceived Needs

Subjects included:

- . awareness of RWSSP and its activities;
- . sources of income to the household;
- . possession of "modern" consumer durables;
- . attitudes to, and priorities for, development needs in Rada'a;
- . perceived personal needs;
- . ownership of house (a single question, required by DGIS, but not found to be workable).

2.2.2 The questionnaire was designed as above with the purposeful intention of leaving attitudinal and "sensitive" questions to near the end. It was hoped, that by this method it would be possible to gain answers to questions which might otherwise have been met with antagonism (i.e. had they been asked before the respondent had "got used" to the process of interview and built up some small measure of trust in the interviewer). In design, care was given to make questions simple rather than complex and, where necessary, to build a series of simple questions around a single topic rather than trying to elicit an answer with one complex question.

2.2.3 Questions which past experience from other surveys in Yemen had shown to be extremely sensitive, were left to the very end, or "hidden" between questions known to be less sensitive. Thus, the required question (76) "Who owns this house" was left till the very end, since it has been shown that asking this question can be enough to cause the interviewer to be forcibly ejected from the house. Similarly Q68 "What is the main source of income for your household" was also known to be very sensitive. For this reason no questions were asked which tried to discover directly actual amounts of money coming into the household or going out of it. (A previous survey in Rada'a, before the time of RWSSP, was forced into temporary abandonment over this question -- respondents becoming extremely angry and threatening to take action against the interviewers). As following chapters will show, it is -- in any case -- impossible to gain "true" answers regarding income and expenditure. Answers may be given, but they will not represent reality.

2.2.4 The original questionnaire was piloted between June and September 1989 using male and female teams. Female interviewers interviewed female respondents and males interviewed male. It was found most productive for the female interviewers to work in teams of two. The men were able to work alone.

2.2.5 The first pilot interviews were conducted whilst the researcher was in-country, and some modifications to questions were made at that time. Further modifications were made during later stages of piloting, after communication with the researcher (who was not in Yemen at that time). Final modifications were made following input from the various sections of the project and the ministries involved.

2.2.6 The survey was implemented during October and November 1989 using teams from the project; the Rada'a Hospital and the Rada'a Non-Formal Training Centre. A conscious decision was made to compose the interview team from local residents. Although these people had no previous experience of survey and interview work, it was considered part of the process of environmental health education that local people should be involved in their "own" survey and benefit from the training they would obtain and the experience of carrying out the survey. It was also thought that using local people might be less "threatening" to the respondents than if people were brought in from outside.

2.2.7 It would have been easier to employ people from outside, (eg. Sana'a University) to carry out the survey. In the event, however, the benefits of using local people have far outweighed the disadvantages, particularly the experience of involving local women. Relations with the Non-Formal Training Centre have been strengthened, and women involved with the survey have come forward to seek employment from the project. The women showed great interest in their work for the survey and were particularly diligent in carrying out their duties.

2.3 The Survey Team

From RWSSP EHE section:

1. Taher Ali Qassim (survey co-ordinator)
2. Chrisje van Schoot
3. Ahmed Al Khudry
4. Mohamed Yussuf
5. Mohamed Al Mustaka
6. Jamal Al Srary
7. Mohammed Al Nasiry

From Rada Hospital:

- | (men) | (women) |
|--------------------------|-----------------------------|
| 1. Mubarak Ahmed Awad | 1. Mona Ali Saleh |
| 2. Moqbil Saleh Al Dahry | 2. Layla Saleh Mohamed |
| 3. Abdul Karim Ahmed | 3. Jamilah Nasser Al Gahmy |
| 4. Sinan Ahmed Alawy | 4. Tandah Moh. Abdullah |
| | 5. Fawziah Saleh Abdullah |
| | 6. Karima Ahmed Riani |
| | 7. Jamilah Nasser Unaibir |
| | 8. Layla Ali Abdullah Wahab |
| | 9. Nuria Atyk Al Sabahi |
| | 10. Arwa Ali Al Awady |
| | 11. Asrar Moh. Ali Al Aji |
| | 12. Faika Al Kirbi |
| | 13. Afrah Abdallah |

2.3.1 Prior to implementation of the questionnaire, a two day training was given to the interviewers. The course was given twice, since the MCH authorities, who had provided members of the female personnel, finally refused permission for the women to participate. A second group was selected from the Rada'a Non-Formal Training Centre.

2.4 The Sample

2.4.1 The sample chosen for implementation of the questionnaire was largely the same as that used for the earlier Water and Sanitation survey. It was hoped that this would allow comparison and correlation between the two surveys, but in the event the choice proved to be somewhat problematic (see Chapter III). Furthermore, the data from the earlier survey turned out to be recorded in such a way that it was not possible to combine them with the data from the present survey during the process of computerisation.

2.4.2 The sample chosen was of 339 houses spread across 12 districts of urban Rada'a. The houses were chosen by the simple process of numbering off haphazardly across the map. In this way, a spread of houses throughout the old and new areas of town was achieved (see Chapter V). The sample was not "representative" as it was biased in favour of the female population, and was not weighted for age-group. A judgemental decision was made that two-thirds of the respondents should be female, one-third male. This decision was made on several assumptions:

- . by using the house as the unit of reference, it was - in any case - more likely that women would be the respondents (because of the nature of Yemeni society, the division of roles and use of space);
- . the majority of the questions included in the survey were of particular relevance to women's lives and roles. (It was suggested that the survey might dispense with male respondents altogether; however, for reasons which will become obvious throughout the text, this would have been fool-hardy and would also have made interpretation of the male perspective impossible);
- . it was considered that the quality of responses on the required topics would be higher amongst women than amongst men (because many of the topics are of more direct concern to women).

Table 3 List of codings of areas

A1	- Harat Al Q'ana	(45 records)
B2	- Al Q'ala (Fort)	(33 records)
C3	- Hayzaz	(21 records)
D4	- Al Rawda (Hospital)	(33 records)
E5	- Al Hafrah	(33 records)
F6	- Suq Al Merkazi	(14 records)
G7	- Q'a Sharaf	(34 records)
H8	- Shutar (police st.)	(25 records)
I9	- S. Safiyah	(33 records)
J10	- N. Safiyah	(19 records)
K11	- W. Safiyah	(12 records)
L12	- Musala	(31 records)

339 records

2.4.3 During the process of the survey, it became necessary to be flexible, and to seek another house for survey if the occupant of the one originally chosen did not wish to participate or was absent on more than one visit. In a few instances a different house was chosen when it became impossible to identify the house marked on the map.

2.5 Computerisation of the Data

2.5.1 After completion of the questionnaire, the coded data were computerised using dBASE 3+. This programme was considered suitable as it is relatively "user-friendly" and uncomplicated. It was hoped that members of the project would be able to learn how to consult the computerised data in the future and to gain information from the data on topics not covered during the present analysis. The use of dBASE also allows for a combination of data records so that answers to complex questions can be gained in the process of analysis.

2.6 Presentation of the Data

2.6.1 In the following text, the data are presented in conjunction with interpretation and discussion. Where relevant, recommendations are made for the development of future work for the project. Areas of particular concern are identified and environmental health education needs are given attention.

CHAPTER III
LOGISTICS AND PROBLEMS

III LOGISTICS AND PROBLEMS

3.1 Introduction

3.1.1 After the event, it is all too tempting to gloss over the problems and pitfalls encountered during any research undertaking. The comments below are offered not so much in a desire to "come clean" for once, but in the hope that other projects intending to carry out survey work in Yemen can avoid some of the problems and learn from some of the mistakes made in the preparation, implementation and reporting of the present survey.

3.2 Setting the Objectives; Designing the Questionnaire

3.2.1 One of the major problems faced in the design of the survey was in setting it's objectives. That is to say, that whilst there was no real difficulty in defining topics and objectives around issues strictly connected to environmental health, it became obvious that there were several interested parties who wanted their own questions answered as well. These questions were all relevant to the workings of RWSSP, but the problem was, how to combine all these diverse interests in a harmonious way which would still lead to the possibility for meaningful data analysis?

3.2.2 The survey design started out under a cloud of self-justification. Even before design could begin, the whole enterprise was, it seemed, being criticised. From one side (DGIS) came the demand to know why a baseline survey had not been carried out before the start of project activities. This was explained (see RWSSP documentation). From another side (the Yemeni ministries) the question was why survey at all, surely all the answers are known and would it not be better just to get on with project implementation? DGIS wanted to know about the "poor" and the "rich" and if the project services were going to be relevant to the beneficiaries and whether the population was willing to pay for the services (but some services had already been implemented and the project had been running for over a year). NWSA did not wish to allow questions about payment for project services because NWSA holds a policy of 100% connection to services.

3.2.3 Members of the EHE section thought that the survey should be only about their immediate work (i.e. strictly environmental health) whilst management and higher authorities wanted to know more about public relations; accessibility; consultation of the beneficiaries etc.. DGIS wanted hard evidence that people would be able to pay; they wanted facts and figures, levels of income and expenditure each month. Here, in Yemen, those involved in the survey felt it was useless to try to gain reliable statistics on such issues: yes, you might get an answer (if you did not first get thrown out for asking "threatening" questions), but the answer would not tell you the "truth". Nobody tells a completely straightforward story about how much money they have, even if they are themselves sure. So the project thought it better to find other ways to judge such things --even if they could not fully measure them.

3.2.4 All the concerns mentioned above are valid, all had to be taken into consideration. The design of the survey benefitted greatly from all these inputs. Nevertheless, at times it became almost impossible to know who the survey was for. Was it to satisfy DGIS? To satisfy the Yemeni Authorities? To satisfy the Embassy? To satisfy RWSSP in its entirety, or perhaps only the EHE section?

3.2.5 The only answer could be, it seemed, to run the risk of satisfying no one by trying to satisfy everyone. The following chapters on data analysis represent this attempt. Hopefully, they will provide some satisfaction.

3.2.6 Having dealt with the rationale of the survey, it then became necessary to deal with the problems of actually trying to carry it out. The researcher had been in Yemen for three weeks for the design and early piloting of the survey, but was outside Yemen during the following months of preparation and implementation. As each new set of modifications and recommendations from all interested parties came in, they were communicated by fax or 'phone to the researcher who gave them as rigorous consideration as was possible at that remove. This resulted in time delays and, furthermore, it was impossible to maintain sufficient communication. (This was also true after completion of the questionnaire when it was found that the data could not be efficiently transferred to computer until the researcher arrived back in Yemen to answer any queries arising "on the spot").

3.2.7 Meanwhile, numerous problems were being encountered in putting together the survey team. The idea to involve male and female Primary Health Care Workers from the Rada'a clinic had come out of a request to RWSSP from the clinic to provide training to the PHCWs on environmental health issues. Owing to the interest shown and the similar concerns of both projects, it seemed an ideal opportunity for cooperation. Men and women who would form part of the survey team were selected, all relevant authorities were informed, all formalities conformed with and all permissions sought and given. The PHCWs were trained in interview techniques and given full briefing on RWSSP, and the objectives and methods of the survey. Everything seemed set. But on the very day that the questionnaire implementation was to start, permission for the female PHCWs' participation was suddenly withdrawn for reasons internal to the MCH project. The Survey Coordinator waited for a week, hoping that the difficulties would be resolved and trying to maintain the morale and interest of the rest of the team and of the local authorities. Finally it had to be admitted that it was unlikely that the female PHCWs would ever be able to participate and a new women's team had to be sought.

3.2.8 Obviously, with such a heavy bias in the survey towards the female component, the women's team was crucial to successful implementation. Furthermore, the difficulty of finding women able to work with projects in Yemen (because of the immobility of women etc.) needs no rehearsal here, so the loss of the first team seemed like a heavy blow.

3.2.9 Fortunately, and in contrast to prevailing pessimism within the project, a new team was easily and swiftly made available through the Non-Formal Training Centre and, after training had been given, the

questionnaire implementation could begin.

3.3 Implementation

3.3.1 During implementation several problems arose, the most serious centering on the choice of sample and on mobility of the women interviewers. As was outlined in Chapter II, the sample was to be the same as that for a previous survey on water and sanitation, with the aim of maintaining consistency in the data and to allow for correlation. Unfortunately, some respondents were irritated at being surveyed twice when, as far as they could see, no benefit had yet come out of the first survey. Even more problematic, was finding a way to get the women to the houses they were to survey on each particular day. Only very limited transport was available and, even when transport was available, the women would only consent to being driven by particular drivers. It was, of course, imperative to respect the women's wishes if a successful working arrangement was to be maintained. In the event, it was also found best in some areas to provide a "chaperone" for the women, who would escort them to the area, locate the house, and wait for them whilst they conducted the interview. The chaperone was also there to deter unwanted comments and harassment from an element of the local population, about which the women complained when they attempted to go into the areas by themselves.

3.3.2 Finally the questionnaire survey was completed, with the Survey Coordinator having checked and monitored the completed questionnaires on a daily basis. A computer expert was located, and computerisation of the data could begin. Unfortunately, as mentioned above, it proved necessary to wait until the researcher was back in country before computerisation could begin in earnest. This (and other reasons) meant that the time (one month) allotted to the researcher for analysis of the data in Yemen was severely curtailed. This had serious implications since, once out of Yemen again, the researcher and Survey Coordinator once more faced problems of communication over the inevitable queries which arose during the course of analysis. It was also discovered that several unforeseeable problems had arisen during the computerisation of data, making it impossible to relate questions in one half of the questionnaire to questions in the other half. This was eventually rectified.

3.3.3 Many other problems could be identified, many reasons and excuses given for delay. Nevertheless, finally the obstacles seem to have been overcome. It remains to be said that the data gained in the survey have a demonstrably high degree of reliability. The quality of interviewing seems to have been high, and the commitment and interest of all personnel involved have been of vital importance in ensuring that the survey was responsibly carried out. Everybody involved learnt a great deal in the process, both in terms of expanding skills and in awareness of the problems of undertaking such a survey. The activities of the survey in themselves helped to spread knowledge of the project and awareness of environmental health issues.

3.3.4 No recommendations are given here for ways of improving on the process or avoiding the problems. That would seem too much like pedantry. Nevertheless, it is hoped that these comments will prove useful in the design and implementation of future surveys.

CHAPTER IV

ABILITY AND WILLINGNESS TO PAY FOR PROJECT SERVICES

IV ABILITY AND WILLINGNESS TO PAY FOR PROJECT SERVICES

4.1 Introduction

4.1.1 One of the major concerns which the Dutch Ministry for Foreign Affairs wished to see addressed by the survey was the issue of whether project beneficiaries will be willing and able to pay for project services. Sustainability of the project services will, of course, be largely dependent on the ability to maintain adequate funding after withdrawal of expatriate involvement. Nevertheless, the Yemeni authorities questioned the need to include questions on the subject within the survey on two major grounds:

- . the near impossibility of obtaining accurate and meaningful objective responses and;
- . the existence of a policy which requires 100% take-up of services (see below).

In the event, a compromise was reached and some questions on the subject were attempted. The following analysis is drawn from responses to the questions in combination with information and experience already held within the project.

4.1.2 The problem of finding a method by which to give a reliable assessment of the ability and willingness of the RUA population to pay for project services, is one which has taxed the project since its outset. In Yemen, it is notoriously difficult to find means of accurate measurement of disposable income (see for eg. the original 83/ 84 research). The reasons for this are complex, but include:

- . the sensitivity of any discussion on the subject of money and "wealth". As in many other countries, people interpret the amount of money available to them in relation to particular circumstances. In this way, answers about -- for example -- the amount that is spent on household consumables depend on WHO is asking, WHY the respondent feels that the question is being asked, and the imagined risks involved in giving an answer which approximates to "objective" reality;
- . the same is true in relation to any questions asked directly about family/household income. The added complication in this instance is that many families are dependent on more than one channel of income, even though only one may be stated as the major source. Furthermore, the notion of "dependents" is complicated and flexible. In Yemen, it may apply only to the nuclear or closely related family, or it may be extended to cover a wider net of relations -- who may, or may not live in the same house as the person on whom they are financially dependent. The system of "patronage" also adds another complexity: here a man may become responsible for various "clients" to whom he may give financial support and who will support him in practical ways, by taking his part in disputes etc., and who are in many ways " beholden" to him (c.f Gellner, Patrons and Clients);

- . in answer to any direct question about whether people are willing to pay for future services, the expected answer must be "no". People are justifiably unwilling to be seen to commit themselves to any form of payment and any fixed amount before services are available. There is a strong belief that taxes paid into the state system should cover basic services. On the other hand, payments are made for other services, and this will be discussed in more detail below;
- . whilst it is nowadays common in Yemen to see many consumer durable items and "luxuries" -- such as cars, TVs, videos, washing machines etc., they cannot be taken as an accurate measure of disposable income or wealth. Although at the time of purchase people have money to spend, this does not indicate whether they are "rich" or "poor", or how they define priorities on a day-to-day basis in terms of allocation of disposable income. Furthermore, many of these luxury consumer durables find their way into the household as part of the remittances sent back by relatives working in Saudi Arabia;
- . an extension of this point is that it is not reliably possible in Yemen to tell who is "rich" and who is "poor" by looking. Though many do, not everyone who is well-off shows status in the way they dress or in behaviour. The various forms of the veil worn by women do relate to background and status, but do not relate directly to wealth. The interpretation of Islam suggests that all dress should be "modest" and that appearance should not draw attention to wealth.

4.1.3 The points outlined above hold great relevance to the project and affect the ability to judge objectively whether the people are willing and able to pay for project services. Nevertheless, if monetary ability to pay cannot be measured accurately, judgements can be made on the following bases:

- . comparison with experiences in other Yemeni towns where garbage, water and sewer services have been implemented;
- . assessment of the degree to which people want/need the new services;
- . comparative expenditure on other items;
- . willingness to spend on immediate, and temporary, improvement measures.

4.2 Experience in Other Yemeni Towns

4.2.1 In the light of observations by project staff who have worked in other areas, and from the stated experience of NWSA officials, there is good evidence to suggest that people are willing to meet initial connection costs and ongoing payments for project services. There is no comparative evidence to suggest that they will be put at a disadvantage by doing so.

4.2.2 It is NWSA policy to ensure connection of 100% of the population to services. To achieve this in the most equitable way possible, a system of means-testing is employed whereby anyone able to prove that they are of low income will be eligible for a 50% connection fee subsidy. This statement may seem a contradiction in terms since much of this section has been devoted to the difficulty of discovering peoples actual economic status and the level of disposable income. The point here, however, is that in means testing it is up to the individual to come forward and present a case of economic need. This is very different from being put in a position where individuals feel that they are being asked to answer uninvited questions on private matters and that the wrong answer may subject them to extra financial expenditure.

4.2.3 The case of Al Beida, the local governorate capital, is most important in judging the effect on the population of implementing the NWSA system. Here, payments are received without undue problems and there is, as yet, no evidence of economic hardship imposed by payment.

4.3 Desire for Services

4.3.1 The work carried out by RWSSP EHE section, both as part of the baseline survey and as part of its other activities, demonstrates a strong desire amongst the population for improvement in all basic services, and particularly those connected with water and sanitation. Awareness of the connection between water supply, sanitation and health is high. Desire for new services is emphatically demonstrated by continual requests from local men visiting the project office, and from local women encountered by project personnel during visits to the neighbourhoods.

4.3.2 The results from the questionnaire also demonstrate that the desire for project services is high. Accurate measures cannot be taken from the questionnaire since, at the time of survey, the town electricity supply was erratic to the point of non-existence. This meant that electricity was the major concern and priority for local people, with water related issues a close second (see following tables).

Table 4: Q71 Which service do you think should be improved first in Rada'a?

	Water Supply	Garbage Disposal	Sewers	Electric Supply	Roads	Educ- ation	Health	Other
A	8	1	5	27	1	-	-	-
B	1	3	6	24	-	-	-	-
C	3	-	1	19	2	-	1	-
D	3	3	1	20	5	1	-	-
E	3	2	7	17	3	-	-	-
F	-	-	-	10	1	-	1	-
G	4	1	3	21	2	-	-	-
H	2	3	1	17	2	-	-	-
I	3	2	3	29	2	-	-	-
J	2	-	1	13	1	-	-	-
K	1	1	1	7	-	-	-	-
L	2	3	5	16	2	-	-	-
<hr/>								
n=322	32	19	34	210	21	1	5	-
	(10%)	(6%)	(11%)	(65%)	(6.5%)	-	(1.5%)	-

Table 5: Desired Improvements in services: 2nd and 3rd choices

	As 2nd choice	As 3rd choice
Water	140	28
Garbage Disposal	26	63
Sewers	61	47
Electric Supply	51	42
Roads	15	33
Education	4	9
Health	6	7

4.3.3 The town electricity supply provides a useful comparative example of people's attitudes towards payment for services: whilst electricity bills were regularly paid when the service was at least reasonably reliable, many people have refused to pay since the service has deteriorated, and state that they will continue to refuse until service is improved.

4.4 Comparative Expenditure

4.4.1 It is estimated that the total cost per month, per average household, for all project services (solid waste disposal, water supply and sewerage) will be c.350YR. In relation to observed household expenditure on other items, this cost is low. For example: expenditure on qat may be between 50 and 200 YR per day, per person. The questionnaire included questions on qat consumption though, as anticipated, answers proved to be invalid and unreliable. In Rada'a, unlike in other major towns, it is considered 'aib (shameless) for women to chew. This does not necessarily mean that they do not chew, simply that answers to questions on chewing will not be objective.

4.4.2 Expenditure on water: a tanker load of water costs 100 YR if brought from the wadi and may at present be needed once every 10 - 14 days. (In some areas of Yemen water needs may at present be costing over 25 YR per average house, per day -- cf. Jebel Raymah).

4.4.3 Expenditure on towalahah (tea parties): Tea parties are the usual form of social gathering for Rada'ai women during the afternoons. Hospitality obligations may rotate, and it is common to take tea or food as a guest (just as a man would provide his own qat) but some expense is still involved on a daily basis.

4.5 Expenditure on Temporary Measures

4.5.1 The population in certain areas of the town (e.g. Q'a Sharaf); have demonstrated a willingness to pay for interim measures, instigated by the Baladiya, to improve the sanitation situation immediately. In Q'a Sharaf between 25 and 30 soakaways have been dug and are functioning. At a cost of 2,000 YR per household, the population appears to prefer to pay and relieve the immediate problems. It is stated that they are aware that the solutions can only be temporary, and that soakaways must be filled in again prior to NWSA water connection.

4.6 In Conclusion:

- . it is not possible to gain statistically reliable statements from the beneficiary population about their actual ability and willingness to pay and assessments must be made on other bases. In depth questioning on financial status antagonises the population and is likely to cause problems for smooth implementation of the project;
- . people are unwilling to give verbal commitments to an expenditure, particularly when the implementation of water and sewerage services is still seen by them to be abstract and in the future. Nevertheless a few people stated that they would be willing to pay "any amount" to see services improved;
- . the desire for project services is demonstrably high;
- . people can be seen to have money available to pay for goods and services which they consider priorities*;

- . experience in other towns indicates that people are willing and able to pay;
 - . a means-test and 50% connection subsidy is available to support those who are genuinely of low income;
 - . once implementation has begun, the project should maintain careful monitoring, at the "grass-roots" level, of the effects on household economy of payment for services.
- * The recent worsening in the economy in Yemen may change this situation.

CHAPTER V

THE ACCEPTABILITY OF PROJECT SERVICES

V THE ACCEPTABILITY OF PROJECT SERVICES

5.1 Introduction

5.1.1 This section seeks to address the issues of acceptability and accessibility of project services. Throughout the work of the project to date, careful attention has been paid to identification of the needs of the intended project beneficiaries. Not all these needs are as yet "spoken" by the population. Some remain "silent" and are brought into open discussion during the process of project work.

5.1.2 Discussion in other chapters of this document shows that the population is eager for improvement in many services (see also tables 4 and 5 Chapter 4). This, however, does not directly determine whether new services will actually be acceptable or appropriate to the recipients. It is important, therefore, to determine ways in which acceptability of new services can be judged, and to identify the strategies by which acceptance and good use of the services can be facilitated.

5.2 Old and New: Barriers to Change?

5.2.1 The debate which has been chosen as the basis for consideration of the acceptability of new services is that between the "old" and the "new". This is an issue which involves a challenge to assumptions on many levels, and the examination will give positive indications for the success of project implementation.

5.2.2 The debate has been set in relation to the "old" and "new" districts of town. As the following discussion will show, a static definition of the "old" and the "new" is impossible. To set parameters, albeit arbitrary ones, districts of Rada'a which have been counted as, broadly speaking, "old" are those which appear on pre-1980 aerial photographs. "New" districts include all the areas of urban expansion since this date (see map Appendix VI). Obviously, urban development has been continuous over more than the last decade; but the cut-off point at 1980 is acceptable as exponential growth does seem to have accelerated in the latter part of the seventies and through the eighties (c.f. Boehmer, RWSSP report 1989).

5.2.3 In reports to the project to date, certain assumptions appear to have been made which relate the age of houses (ie. "old", "new"), and the age of urban districts, to certain attitudes and behaviour of house occupants. For example:

- . people in new houses are more likely to accept new ideas and technology than people in old houses;
- . old houses are less likely to be clean than new houses;
- . awareness of environmental health issues is likely to be higher amongst the occupants of new houses;
- . old houses do not have the facilities in bathrooms and kitchens to cope with the new water system;

- . it will be hard to persuade people in old houses to adopt the necessary technology;
- . people who live in old houses are likely to be poorer than people who live in new houses;
- . new houses are generally smaller than old houses (though they are in a larger yard), and therefore fewer people live in them.

5.2.4 These points represent only a small sample of the assumptions made about the Rada'a urban population. Some of the assumptions are common both to Yemenis and expatriates, some are not. The following discussion, based on results from the questionnaire data, and on the findings of a workshop held with EHE section personnel and management, will show that adherence to assumptions such as those above greatly jeopardises successful project implementation; could create problems where none exists; and fails to recognise areas of potential difficulty. When the assumptions are stripped away, it can be seen that the RUA situation, in terms of environmental health and the provision of project services, is both more complex, and more homogeneous than might be imagined.

5.3 The Definition of "Old" and "New" Houses

5.3.1 As outlined in Chapter II, the survey sample chosen for the implementation of the questionnaire was picked by the simple method of numbered sequence from the town map. The intention was to gain a sample of houses from both old and new districts, but no attempt was made to make prior identification of "old" or "new" houses within these districts.

5.3.2 Initial analysis of the questionnaire data supported the observations of the EHE section: that it was hard to identify characteristics which would reliably identify the "old" and the "new". This was particularly the case when considering ownership of household appliances; attitudes towards education; adherence to traditional cooking methods, etc. The tables below illustrate this point and show that ownership of consumer durables is very evenly spread throughout the RUA. There is no particular clustering in the so-called "modern" areas such as South Safiyah (District I). Attitudes to education are discussed in more detail in section VIII. In general it can be seen that the population as a whole is generally in favour of education for boys and girls.

5.3.3 In recognition of the important implications of the confusion between old and new, a workshop was held in Jan. 1990 to help to clarify the issue.¹ Even basic attempts to characterise old and new by house form, building materials, use of space etc. were difficult. When the discussion was extended to include the present availability of modern fittings and appliances; and the knowledge, attitudes and practices of the

¹ The papers which provided the basis for discussion in this workshop are given in annexe 3.

inhabitants; it became almost impossible to draw useful distinctions between old and new.

5.3.4 These findings challenged assumptions about prioritising areas, or districts, and about the areas in the RUA where EHE is seen as most in need. They showed useful directions for the development of environmental health education messages. The conclusions of the workshop were:

- . a useful, working definition between "old" and "new" houses cannot be made;
- . there is no direct correlation between "old" and "new" houses and the KAP of inhabitants;
- . that assumptions which suggest that inhabitants of old houses are less likely to be educated and less willing to adapt to project. Services, are based purely on social prejudice (by Yemen and Expat.) and do not reflect reality;
- . in "old" houses, there is continuous change and adaptation to modern technology and services. Many already have modern sanitation fittings (see also RWSSP Water and Sanitation Survey, 1989);
- . some messages are particularly appropriate to women and some to men. But there is a core set of messages which must be addressed to both;
- . all environmental health problems are inter-related, but it is important to set correct priorities and "starting messages" by group and area if messages are to be acceptable and accessible;
- . the EHE approach which was used during the restaurant owners' campaign² was successful and should be taken into consideration when designing programmes in other areas.

5.3.5 The workshop found that, whilst it was possible to talk of "traditional" use of space in houses, and "traditional" practices in relation to sanitation, garbage disposal etc. (see chapter IX), traditions have been adapted to "modern" urban needs, and cannot be taken as the norm. It was, for example, agreed that "most" old houses had made some adaptation in bathroom facilities; the inclusion of a porcelain lavatory with pour or cistern flush being the most common. This impression is supported by the data from the Water and Sanitation Survey.

5.3.6 It was also noted that, as the economic basis of family life is changing, certain parts of the "old" houses change in their function. Thus, animals are rarely kept in the basement area of houses; this space

² See RWSSP EHE reports for a full discussion of this campaign which culminated in a competition to reward the greatest improvement in restaurant cleanliness over a given period.

being most often used nowadays for storage. Results from the questionnaire show that only 17 respondents stated that animals are kept inside the house, although 99 have animals in the house-yard (see table 6). There is no observable difference in use of yard space for animals between old and new houses.

Table 6: Q49 What kind of animals do you keep?

	Sheep	Cow	Hens	Donkey	Cat	Dog
A	16	4	10	1	5	-
B	6	-	5	-	3	-
C	9	3	3	-	5	1
D	9	-	4	-	1	1
E	8	1	1	-	-	-
F	3	-	2	-	-	-
G	10	-	2	-	2	2
H	3	-	2	1	2	1
I	11	4	6	1	5	2
J	7	1	6	1	1	2
K	1	1	2	-	1	-
L	3	3	2	-	5	3
	86	17	45	4	30	12

Records of animals kept in
house basement : 17

Records of animals kept in
house yard : 99

5.3.7 Despite the absence of major differences in "lifestyle" between old and new districts, some characteristics do exist which are an aid to prioritising the implementation of activities. Particular environmental problems do pertain to particular areas of town, and priorities may be drawn up around them. But these problems do not give indication of the ways of thinking of the inhabitants. They are to do with geography and circumstance rather than psychology.

5.3.8 The narrow streets and stinking open sewers characteristic of the old sections of town (eg. Al Hafrah, parts of Q'a Sharaf) mean that attention must be given to improvement in these areas as a matter of urgency.

5.4 False Assumptions

5.4.1 The mistake, if there has been one, is to have assumed that because people live surrounded by open sewerage and rubbish and have not moved out to the "modern" areas of town, they are somehow less willing to accept new ideas and improvements in services, rather than that they have made an active choice to stay in their homes and family districts and, until now, have been powerless to effect improvement on their immediate neighbourhood environment.

5.4.2 A further assumption which must now be dropped is that which suggests that people living in the old parts of town are necessarily economically worse off than those living in the newer districts. As is shown in section IV, the identification of economic status is not easy, but as table 7 shows, there is no relevant difference by area in the stated major source of income in to the household.

Table 7: Q68 What is the main source of income for your household

	Land	Civil Service	Business in Rada'a	Business Elsewhere	Remittances	Other*
A	2	8	9	-	8	19
B	1	2	17	-	-	13
C	1	5	10	-	3	9
D	-	13	13	-	3	3
E	1	7	16	-	1	8
F	1	3	5	-	2	3
G	1	5	15	-	2	10
H	1	6	6	-	2	10
I	2	9	7	1	6	6
J	-	7	7	-	1	3
K	1	4	3	1	-	2
L	-	14	5	1	4	7
	11	83	113	3	32	94

n = 335 * = multiple response, "don't know", no response given

5.4.3 There are, undoubtedly, "poor" people living in the old parts of town -- and in the new as well. But, as elsewhere in Yemen, advantage and disadvantage are not necessarily best measured by economic status. Within the extremes of wealth enough to buy any desired service and poverty prohibiting purchase of even the most basic requirements, lies a great variety of economic circumstances which may, or may not, be related to the ability to secure a safe, clean living environment with access to all basic services. Thus, for example, in the rural areas, the family of a rich Sheikh may be at a similar disadvantage to everyone else in the area if there are no schools or medical facilities and if awareness has not awakened to the possibility that these services could be developed.

5.5 Planning for Services

5.5.1 Perhaps the major difference between "old" and "new" houses is that new buildings are constructed with modern water and sanitation facilities in mind, even where these services are not yet available. Whatever traditional features the modern buildings may contain -- in architectural form and in the use of space within the house -- in physical terms at least, they are better prepared to receive project services.

5.5.2 Houses in new districts are more likely to be connected to a soakaway than houses in old districts. They are more likely to have pipe connections and fittings designed for modern water systems than are houses in the old districts. Although this may show readiness to receive modern services there is a drawback as many of the sewerage pipes and water fittings are substandard and inadequate to deal with the flow of water which the project will provide, and there is no standardisation of type.

5.6 Acceptability of New Services

5.6.1 In view of the cultural, social and environmental damage that has been done in many of the developing countries in the name of progress, it is a major advantage of Yemeni society that "traditional" practices, local customs and produce, retain their value and are not, as in many other parts of the developing world, immediately thrown overboard in the quest for the "new". Even with this cultural valuation, much in the traditional environment is already in danger of permanent destruction. In the highlands, the terraces which protect the land, and on which agriculture depends, are falling into disrepair. All over the country, land and people alike are in danger of poisoning by the many chemicals used in fertilisers and the industrial process. The Yemen government has shown its concern over these matters and is committed to preserving the land and the culture. In part, the reason for this cultural esteem may be attributable to Islam, in part, doubtless, because Yemen has remained relatively free from colonial domination. Whatever the reasons, it would seem that successful implementation of development programmes is, at least in part, dependent on awareness of the delicate balance between the maintenance of tradition and the desire for the new.

5.6.2 The blending of old and new ideas, of old and new practices and behaviour, is visible in every aspect of Yemeni life. The use of space, in houses and in neighbourhoods, while adapted to contemporary needs, retains many features which allow the continuation of "traditional" social practices.³ As has been discussed (chapter IV) the importance of the notions of "family" and "obligation", are also fundamental in Yemeni society, and extend beyond the confines of a single house and single house-type. Family obligations may stretch across numerous styles of life, a variety of desires and expectations and -- literally -- across continents of different opportunities. An understanding of all these factors, and the ways in which they influence "change", is crucial to the development of environmental health education messages and the preparation of the population for receipt of new services.

5.6.3 Many of the consumer durables alluded to earlier in this section arrive in Rada'a as a direct result of people's openness to new ideas and desire to participate in the new. Many of these goods are bought with the remittances gained by workers in Saudi and the Gulf States. It is argued that the importance of these items lies not so much in their relation to disposable income (see chapter IV), but in their role as "attitude changers" and indicators of the acceptability of modern goods and services. It would also appear to be true that priorities for the acquisition of new goods are usually set in terms of a wish to participate in "progress" and not necessarily on a clear understanding of the potential health and environmental issues involved. Thus, although modern lavatories are called "hamam saha" health may not be the prime consideration in people's minds when incorporating new lavatories in their houses. There is, however, an assumption which has been voiced by local people (pers.comm.) that the old style lavatories are "backward", "old-fashioned" and therefore unhygienic and not desirable.

5.6.4 This indicates an area of concern which must be given attention in the development of EHE messages. The connection in people's minds between "modern" ways of doing things, modern goods and health is not always well-founded. It is important to ensure that the fact that adoption of all that is modern does not directly lead to health, is understood. It is, therefore, vital to have good understanding of the knowledge, attitudes and practices surrounding modernisation.

5.6.5 The traditional style of bathroom ensured that liquid and solid waste were kept separate. Whilst liquid waste was left to drain to the street, solid waste would be dried and mixed with ash before being removed from the house. In the past, when there was in any case little excess waste water to cause contamination, this system would have been effective and relatively hygienic (see Sana'a, an Ancient Islamic City). Certainly, hygiene is nowadays a problem in all kinds of bathroom: there is sufficient excess water to act as a disease carrying vector; a great

³ The present document does not allow for expansion of these ideas to the extent which they deserve, Attention is drawn, however, to changes in house space and architectural form in other countries, where change in form directly imposes changes in cultural and social ideas and practices.

deal of waste water drains straight to the street; and yet the water supply and sewerage system is allow for cleanliness and adequate disposal of waste.

5.6.6 It is precisely in these instances, where "old" and "new" systems collide but do not successfully mesh, that questions must arise as to whether new services are acceptable and accessible. It will be the role of health education here to ensure that understanding of new systems is fostered amongst the population so that the services can be used to best advantage. If people can see new systems in operation; see that there are advantages and improvements, then it should not be hard to encourage the already existing leaning towards acceptance of new services, and to make use of these services truly accessible to all.

5.7 Barriers: Real or Imagined?

5.7.1 The discussion so far has suggested that barriers to change are as likely to be in the assumptions carried by project implementors as in the target population. The importance of ensuring that project services are understood by the beneficiaries cannot be over-stated. For example, NWSA reports that there have been problems with new sewerage systems in other towns in Yemen. The population has been disposing of solid household waste in to the sewers and causing them to block. EHE messages are obviously necessary to show people why sewers are inappropriate for the disposal of rubbish. If such understanding is not encouraged, then it will seem as if the assumptions are the truth and people are unwilling to use new services appropriately.

5.7.2 In the long run, the greatest ally in the process of encouraging change and development may lie in the very thing which outside interpretation may see as reactionary and conservative: Islam. The teachings of Islam prescribe that people must do what they can to protect and improve their environment and to maintain a safe and healthy standard of living. The individual has an obligation to work towards this improvement, for the family and for the wider community. The use of these tenets in the development of EHE. messages may prove beneficial.

5.7.3 Furthermore, crucial to the development of understanding around all project services is the careful timing of EHE message delivery. Where health education messages are directly related to project services, they must coincide with service implementation. It is worse than useless to provide messages which raise the expectations of the target population if the corresponding services cannot be swiftly implemented. "seeing is believing" in health education, and h.e. messages need the support of tangible and "obviously" beneficial services.

5.7.4 It would, for example, be most damaging to the project to concentrate on h.e. messages surrounding correct use of sewerage systems and piped water supply at a time when implementation of those services was still some way off. The population would be made to feel powerless in the face of the present, unchanging, situation, they would have raised expectations and, since these expectations would remain unfulfilled, they would lose faith in the project and may become antagonistic towards it.

5.7.5 Some preparation of the population prior to service implementation is, of course, desirable. But in few of the points above it cannot be stressed to highly just how important it is to time this preparation correctly, to ensure that expectations of swift improvement are not falsely raised.

5.8 Recommendations

5.8.1 There is a need for further development or messages around use of the services to be provided by the project. As suggested in a meeting with NWSA in Jan. '90, it would be useful to talk to technical staff who have been involved in the installation and maintenance of services in other areas, and to learn from them about the major problems.

5.8.2 It would also be useful to follow through suggestions to appoint a Public Relations Officer to NWSA/Baladiya office. This post would be responsible for identifying possible problem areas in service use, for liaising with the public and defining the need for education in service use. Ways of ensuring continued cooperation between the Baladiya and NWSA offices after expatriate withdrawal should also be looked into.

5.8.3 It is hoped that discussion in this section has shown that the need for EHE is as great in the new areas of the RUA as it is in the old. No useful distinctions can be drawn between attitudes and practices pertaining to old districts and those to be found in the new ones. It is, however, important that distinctions are drawn between fact and assumption. Project workers may need further encouragement to look at their own assumptions about the "old" and the "new", before embarking on further EHE activities. It is important that there should be no danger that the old areas of town be classified as "backward" and unreceptive to new ideas (see also section on education).

5.8.4 The need for a maintenance of balance between stasis and change, old and new, tradition and modernity, must always be a high priority.

CHAPTER VI

THE IMPACT OF SERVICE IMPROVEMENT ON WOMEN AND HOUSEHOLD WORK

VI THE IMPACT OF SERVICE IMPROVEMENT ON WOMEN AND HOUSEHOLD WORK

6.1 Introduction

6.1.1 This chapter gives an overview at the present work status of women in Rada'a and offers a brief examination of the relevance of project services to the development of WAD (Women and Development) activities. Under the present aims and objectives of RWSSP, attention is given to women's development activities in line with Dutch Governmental guidelines. Nevertheless, this attention is necessarily limited within the existing resources of the project, and the objectives set at the time of project formulation.

6.2 General

6.2.1 At present, the project does not have sufficient resources, human or budgetary, to give full concentration to the development of a complete "package" of WAD activities. The original formulation of the project did not contain WAD as a distinct objective. As work of the project has progressed, it has become increasingly obvious that there exists great scope for WAD within the RUA. Should it be decided that this scope be maximised and that WAD is to be of the highest priority, further project planning, staffing and budget will be required. Until such time, WAD activities are best left "rooted" within the original core objectives of the project. In this manner, they can be given attention without becoming marginalised or treated in a token fashion. Despite the impossibility of developing WAD activities to the full with present resources, the project is well-aware of the correlation between education and opportunities for women and increased community health. For these reasons, discussion is included here and in chapter VIII on attitudes to education.

6.2.2 An appreciation of the role of women as household and water use managers is crucial to the success of RWSSP. In her analysis of Yemeni Women in Transition, Buringa drew attention to the fact that:

"Women's knowledge, needs and wishes tend not to be taken into account while identifying, implementing and evaluating water projects." (1988:43)

RWSSP, and the baseline survey, have attempted to give proper attention to the real needs -- both those which are overtly stated and those as yet unarticulated -- of the project beneficiaries and to ensure that understanding of project services is facilitated so that they can be put to good use.

6.2.3 At all stages of the project to date, consideration has been given to the complex roles of, and expectations on, Yemeni women. It is anticipated that the services offered by the project will decrease women's workload. This should be both a practical decrease, in so far as household work should become less physically arduous and less time-consuming, and should also be psychologically beneficial, as anxiety is reduced by improvement of water and sanitation services. All people in the RUA, and most especially women, have expressed great concern over

family health and the risks of illness and accidents to children through polluted water, open sewers, rotting garbage etc.. In-house domestic facilities regarding cleanliness and hygiene can definitely be improved and the project should give consideration as to how this can best be achieved. For instance, the correct placement and levelling of sinks and basins during installation (so that dirty water is not left standing) and the adoption of particular types of porcelain lavatory which would not act as dirt attractors.

6.2.4 Since the outset, the project has expressed a commitment to promoting the participation of women in project activities. Women are not seen as "passive" beneficiaries of project services. Nevertheless, the need to proceed with caution has been recognised. As Buringa suggests:

"As Yemen is still a society where gender-segregation is quite strict it is suggested that men's ideas and responsibilities are involved in the formulation of WAD activities so as not to upset the delicate balance between male and female worlds." (ibid.:63).

The need for this delicate approach to change and service improvement ensures a desirable integration of women's development activities in the widest perspective of social development. The "weight" of women's activities is recognised and given space, but does not become marginalised or separate from the total development process.

6.2.5 The initial phases of project formulation took into account the fact that the implementation of the project and the provision of new services might impact on the roles and expectations of women in ways which would reach far beyond the immediately visible changes in workload associated with water-related tasks, hygiene and sanitation. These considerations have also been important in the design and implementation of EHE section strategies, and in the continuing research and design of the present questionnaire. The aim is to identify areas of possible change and to assist preparation for this in ways which are both accessible and appropriate to the population. Project strategies must not threaten the delicate balance of relationships in the social construction of gender roles. It is hoped that opportunities for education, training and realistic development will be opened up, and that these will be addressed by the project within its capabilities and stated aims.

6.2.6 The findings of the survey and related research are examined in relation to the factors outlined above. In this way it is hoped that recommendations for future work with RUA women can be identified.

6.3 Women's Work

6.3.1 It is unnecessary to rehearse in detail the components which make up women's work as household managers and child carers. The research literature on the subject spans more than a decade: Holstein (1979); Mynnti (1979); (Amran) (1986); BOCD reports; Buringa (1988) etc.. Holstein (ibid.) also gives descriptions of women's work in the Rada'a area.

6.4 Education

6.4.1 Undoubtedly, some aspects of women's work and life expectations have changed radically over the last ten years. Results from the survey showed that the local stated attitude to education is one which now supports basic education for girls as well as boys.

6.4.2 Whilst there is still a bias in favour of further education for boys rather than girls, some parents and young women also expressed a determination to see themselves or their daughters educated to a higher level. This represents an important shift in attitude away from the tacit belief that girls are best removed from "public" schooling at the onset of puberty.

6.4.3 Since the reunification of Yemen on May 22th 1990, schooling to the end of 1st level has become compulsory for all children (girls and boys) throughout Yemen. Owing to the difficulty of defining reliable "status markers" (see chapter IV) the survey results do not show any reliable correlate between interest in education for girls and relative wealth/status of the family. Nevertheless, the large number of positive responses suggests that education is favoured over the broad range of the population -- at least in theory. In depth conversation with some individuals suggests, however, that ing "bourgeoisification" may have a detrimental effect on the status of female education. In some sectors of society: devaluation of traditional roles keeps women at home, education to higher levels is not considered important as women do not need to work and can be looked after by men working in professional positions. Women who work outside the home are still regarded with a good deal of ambivalence.

6.5 The Labour Market

6.5.1 In the urban setting, and from observation, women's mobility within the paid labour market is related to status, but the relationship is complex. Orthodoxy is balanced against economic need, but also against desire to participate in the "new". There is also evidence amongst some young women of a desire to work at something socially beneficial (fi mehna mufida), which would take them outside the home and into the wider social arena.

6.6 The Market and the Informal Economy

6.6.1 Women who work in trading, whether formally or informally, are unlikely to come from "higher status" families or to have received much formal education. The participation in the public sphere of "the market" to which such work exposes them is still opposed to notions of the contemporary and traditional "ideal" role for women.

6.7 Women in Professional Employment

6.7.1 A number of Rada'ai women now work in paid employment in the professional fields. The various development projects (MCH; RIRDP; RWSSP) in operation over the last ten years have played an important part in opening up opportunities for professional development for women, and have been instrumental in rendering this employ "respectable". Holstein

employment with the MCH project; and that was as a cleaner. All professional staff were from outside Rada'a. Nowadays, there are local women working with all the projects in professional capacities, receiving training and being involved in educational programmes. RWSSP itself receives requests for employment in the educational sections from local young women.

6.8 The Women's Centre

6.8.1 The Rada Non-Formal Training Centre for Women, a state institution, is also a popular and successful centre for informal education. Women from various sectors are attracted to the centre. Although the "leaders" of the centre's activities tend to be young, women from a broad age range attend the classes. Literacy training is offered as part of the curriculum.

6.9 Project Counterparts

6.9.1 Four women from the centre formed part of the questionnaire interview team. An RWSSP EHE section counterpart was hired from amongst them and she also worked as an administrator in the centre. An EHE training course to the Centre began in February 1990, offered by the RWSSP Communication for Education Advisor and her counterpart. It is hoped that courses will lead to the selection of women willing to act as local environmental health facilitators and motivators in the neighbourhoods. This would complement the work to be done by the newly appointed male EH district coordinators (see EHE section reports, spring 1990).

6.10 Implications for Women's Workload

6.10.1 The forgoing discussion suggests that there has been an observable change in the nature of women's participation in "professional" employment over the last ten years. It would seem that the diagnosis of women's role in development, offered by Holstein in 1979, is not, or is no longer appropriate:

"An important feature of women's participation in development is their passiveness". (1979)

6.10.2 Today, women are not only vociferous in their demands for new services, but also active in their attempts to improve both their own circumstances (in terms of workload; increased education etc.) and the wider environmental situation. If this perceived activity represents a real expansion over the last decade, then it is likely to have been occasioned by a wide variety of factors leading to an increased awareness of the possibility of different lifestyles. The visions of "other worlds" offered by television and by relatives returning from Saudi etc., set in motion a whole cycle of desire for change and improvement.

6.10.3 There is, for example, a high level of awareness amongst women as well as men of the ways in which improvements in basic services can make life "easier" and improve the chances of obtaining and maintaining good health. But it is women who, on a daily work basis, are most

affected by this awareness and who are, therefore, most likely to draw attention to the practical difficulties which scarce and inadequate water services imply.

6.10.4 So, for example, in response to an open-ended, attitudinal question (qu. 73) 97 out of 223 women respondents stated that water-related tasks (carrying water, doing the laundry) were the jobs that made them most tired. Doubtless, the lack of electricity has a large bearing on this response: water must be carried to the upper storeys of the houses, and there is no power to run the washing machines claimed by 285 out of the 339 households. Even so, almost half the women who said they had both a washing-machine and a generator (26 out of 54) still claimed water-related tasks to be the hardest work. There is no doubt that clothes-washing is a most arduous household task -- with or without electricity. With water so scarce, and drainage and sewerage facilities inadequate, even washing machines may have to be filled and emptied by hand (the type used are twin-tubs).

6.11 The Development of EHE Messages

6.11.1 Since one of the effects of service improvement should be that women's workload is decreased, it is important that EHE messages should be developed and transmitted in ways which do not make a further burden on women; suggest that they should do more work; or impose on their leisure time.

6.11.2 The role of women as household managers is one which is unlikely to change fundamentally in the foreseeable future. It can be observed that, even where women work outside the home in paid employment, their role within the home remains the same. They simply have to cram two working days into one. The existence of the extended family, and the extended household means that this is possible as large support networks are likely to exist.

6.11.3 Furthermore, children's labour, and especially girls', provides a crucial contribution to household labour. With more and more children of both sexes attending school, for a greater number of years children too are forced to cram two working days into one, since the household depends on them continuing to carry out their duties in the home.

6.11.4 Health education messages must take these factors into account and attempt to find the balance between encouraging use of the new services and adding to the work pressures on women and children.

6.12 Women, Education, Unity and the Five Year Plan

6.12.1 Despite the relative stasis in women's roles in the home, certain changes, and certain new pressures, will occur. It is perhaps too early to make any pronouncement on the likely effects of Yemen Unity on the roles and expectations of women. The professional roles of women in South Yemen have been very different from those in the North, with women having been an "active voice" in the political field and holding high positions -- such as judges. The effect on such participation of women in high social positions may largely be dependent on the development of the new ROY constitution and on how the basis for

this constitution is set.

6.12.2 Under the present five year plan of the North Yemen government, the need for further education for women is given attention. A large number of educated people, men and women, will be necessary if the production targets laid out in the plan are to be met. At present the literacy rate amongst women is given nationally at 22% (though this would appear to be optimistically high, and gives no indication of the urban/rural divide). Figures from the survey suggest that women's literacy in Rada'a may reach as high as 33%. It is hard to believe that this figure can be accurate. Since no objective measure of literacy was taken, this figure may be more representative of what people (and especially women) now think is desirable and socially required, rather than that which is real.

6.12.3 Whatever the reality of the figures, there is evidence to suggest that the possibilities for women's education in Rada'a are considerable. Holstein, in 1979, showed that women from Rada'a were more widely travelled than was the norm at that time, and had received more education. This may be reflected in the figures from the current survey, as may be the fact that there is a demonstrated willingness to consider the benefits of new ideas and development interventions in a wide variety of fields which may serve to benefit women directly -- and, by extension, their families.

6.13 Recommendations

6.13.1 All EHE messages primarily directed towards women should also be addressed with men (and vice versa).

6.13.2 Care must be taken that activities to increase cleanliness and improve health do not impose further moral or work obligations on women.

6.13.3 Whilst it is important to avoid categorising women and children together, the important role of children -- especially girls -- as workers in the house and care-takers of younger children, should be given particular attention. It is important to discover exactly what tasks are carried out by children and to consider the impacts of this work on children's health.

6.13.4 The work with the Rada Non-Formal Training Centre for Woman should be continued and developed. Networks of local women as EHE facilitators, similar to those implemented by the men, should be developed and supported (as in RWSSP plans);

6.13.5 Messages concerning good use of new water supply and sewerage services should be developed in advance of the implementation of the new system. Major programmes of education on these topics should be carried out as the new systems are introduced.

6.13.6 It will be important to facilitate this by prior education of "link women" in each area. These women could then be encouraged to offer support and advice in the neighbourhood, and to act as "lookouts" for potential trouble spots, eg. blocked drains and sewers etc..

6.13.7 It is also important that men should be consulted and informed about all work carried out with women, so that conflicts of interest can be avoided. By the same token, it is important that women have an understanding of the existence and relevance of project activities which do not seem to concern them directly and which might appear to have more to do with men (c.f van Schoot, booklet on water).

6.13.8 Wherever possible, educational strategies should accompany practical action from the project, rather than proceed it by any great length of time. It seems obvious, but where daily pressures are great, memories for the theoretical are short.

6.13.9 Whilst opportunities for future work with women in WAD activities beyond the immediate brief of RWSSP should be noted, the project should not feel pressured into developing strategies which overreach its resources and capabilities. Since it can be seen that - with sensitivity,-- the possibility for many WAD activities is great, it is suggested that the WAD officer at the embassy in Sana'a is supported and encouraged in considering initiatives which may bring new staff and finance to develop WAD in Rada'a with existing women's networks (eg. Rada'a Non-Formal Training Centre for Women).

CHAPTER VII
FAMILY AND HEALTH PROFILE

VII FAMILY AND HEALTH PROFILE

7.1 Introduction

7.1.1 This section gives a brief discussion of the "unit size" of the Rada'a population and a broad overview of the existing health status. Data on health are drawn largely from responses to the questionnaire and are therefore based on the subjective memories of respondents, rather than on recorded diagnosis by trained medical staff.

7.1.2 In an attempt to corroborate the survey data with clinical statistics, records from the Rada'a Hospital and MCH clinics for the period October and November 1989 (the same time that the survey was being carried out) were consulted (see Annexe 4). Unfortunately, the accuracy and relevance of these figures cannot be totally relied upon. At that time in the MCH clinic, no record was being kept of whether a case came from the urban area or from the surrounding rural villages. Since the environmental conditions are very different in the urban and rural settings, the lack of divided data makes it impossible to give rigorous analysis of health status in relation to the environment. The hospital was asked by the project if it would, in future, be possible to make clear distinction in record-keeping between cases from the urban and the rural areas.

7.2 Family, Household, House

7.2.1 As has been mentioned elsewhere in this report, a major difficulty arose in trying to define the exact nature of the "unit" which was being surveyed. Was each interviewee a representative of one family? And, if so, what was the family structure -- nuclear, extended, laterally extended? Was the interviewee a representative of one household, or did households inter-connect? Was it important to know what these inter-connections were: would it, for example, have any bearing on the ability and willingness to pay for project services?

7.2.2 In the event, the only satisfactory way that could be found for describing the unit was "the house". Households (defined as units of economic activity and expenditure) were indeed found to inter-connect in various ways. As described in section IV dependency relations were found to be flexible, and the existence of polygamy -- with instances of more than one wife living in the same house added a further complication. This was also true for the many women who, at that time, had menfolk working and living abroad (in Saudi and the Gulf) but who did not describe themselves as head of household. Sometimes the husband, though absent was described as household head, sometimes the closest available male relative living in Rada'a, sometimes a husband's father (who might, or might not, have his own house and "household" elsewhere). This also meant that, in terms of "household" each interview was potentially, and unavoidably, being carried out with a representative of a different unit type.

7.2.3 In view of these complications, it was felt that the use of "house" to define a unit was the only one possible. It was also felt that this made most sense in terms of the project, since provision of services is to houses. On this basis, the average number of inhabitants per house

was calculated as 9 (ranging from 1 (3 cases) to 34 (1 case)). This represents a rise from surveys carried out in recent years, where the average was given as 6 to 7.

7.2.4 Contrary to expectations, no significant difference in the number of inhabitants per house was found between the "old" areas and the "new" ones. It has been an assumption that old houses are bigger than new ones and have more people living in them. It may also have been thought that there is an increased tendency towards nuclear (rather than extended) family-living in the new houses. Detailed examination of this issue was beyond the scope of the survey, but could be a subject for small-scale future research and investigation.

7.2.5 Detailed data on family composition were not collected. Nevertheless, 268 of the 339 respondents said that they, personally, had children, and a large proportion had children living with them.

7.3 Health

7.3.1 For reasons outlined in section 7.1 above, questions relating to health could not be tightly structured to relate to the named diseases caused by a poor local environment (ie. defined parasites, malaria etc.). For a start, the subjective nature of any response to questions on illness is a heavily influencing factor (one person may describe themselves as healthy whilst medically judged to be suffering from any number of chronic conditions, another may consider themselves at death's door when afflicted with a cold).

7.3.2 Furthermore, the results of the survey give an impression of child and adult health at the particular season when the survey was being carried out, not over the year as a whole. The months of October and November are dry and the cold weather begins at this time. In general, throughout highland Yemen, the pattern of disease incidence at this time is one where viral infections rise and diarrhoeal diseases tend to decrease somewhat. Had the questionnaire been carried out during the wet months, the incidence of diarrhoeal diseases could have been expected to be far higher.

7.3.3 To a certain extent, and even if statistics are not available to offer proof, the risks to health status caused by environmental factors have to be taken on what is obvious as well as on what is "countable". If, as is so often the case, a small, barefoot child is observed playing in the foul waters of an open sewer (paddling around and pouring the water over his or her head) or wading through stagnant puddles or piles of rotting garbage, then the chances of escaping without some form of parasitical or bacterial infection are very slight. As yet, no analysis of open-sewer water has been carried out (such investigation could usefully be made by the project), but cases of bilharzia, filariasis, amoeba etc. are common.

7.4 Health Status

7.4.1 In asking questions on child health, four categories of illness were used. These categories represent the descriptions which people themselves commonly when talking about illness. The categories do not make reference to specific diseases, as these names and definitions are

not generally known. The categories are: diarrhoea; vomiting; cough and cold; fever and rash. Furthermore, questioning was restricted to consideration of illness at the time of survey and in the very recent past (the preceding two weeks). This is because people's memory over a longer period is demonstrably inaccurate and it was judged to be more productive to concentrate on the immediate time-period.

7.4.2 The tables below, represent collected data on the health status of adults and children.

Table 8:

Number of respondents saying they are ill at present = 152 = 44%
Women = 116 = 52% of women Men = 36% = 31% of men

Table 9:

Q8 Do you have children?

. 268 respondents said they had children

Q12 Have you had any children, (one or more) who died = 176 records.

- . 169 of people who have children also have had one or more child die.
- . 7 people have had dead children and no living children.

Table 10: Q14 How old were the children when they died?

- . Number who have had children under 1 Die = 74
- . Number who have had children under 5 die = 118
- . Number who have had children 5 - 10 years die = 30
- . Number who have had children over 10 die = 16
(rest "don't know" how old children were.)
- . 65% of people who have children have had at least one child who has died.

Table 11: Q15 Reason cited as cause of death to children

Diarrhoea	26
Vomiting	26
Cough + cold	21
Fever + rash	33
Other (accidents don't know, God's will)	47

Table 12: Q16 Number of positive responses of women having miscarriages
= 139

Table 13: Q33 Have your children been vaccinated.

. 211 respondents say yes
. 49 respondents say no.

Q33.1: . (vaxd. 1 time) = 18
Q33.2: . (vaxd. 2 time) = 26
Q33.3: . (vaxd. 3 time) = 167
(49% of 339, 62% of 268)

Table 14: Q29 Respondents saying last child born at home = 212
Respondents saying last child born in hospital = 50
* Children 4.24 times more likely to be born at home.

Table 15: Q30 Who assisted the birth of the last child if born at home:

. relative	49
. traditional birth attendant	55
. P.H.C.W.	86
. No-one	7

Q17: Number of people saying "yes" children had been ill in last 2 weeks
: 185

Q20: Number saying they went to get treatment for them: 173 = 94%

Table 16: Q18 What was wrong (with children ill in last 2 wks)
Responses in the 4 main categories (multiple answers possible)

	Diarrhoea	vomiting	cough	cold	fever	rash	total
A	6	3	8		12		29
B	6	8	14		16		31
C	1	4	8		13		26
D	1	1	5		10		17
E	5	2	12		11		30
F	1	1	2		1		5
G	10	7	12		11		40
H	2	2	5		10		19
I	2	2	6		12		22
J	2	2	8		13		25
K	3	1	2		3		9
L	1	-	9		14		24
Total	40	33	91		126		

Table 17: Q20A Where did you go to get treatment? (for children ill in last two weeks)

	Local Heler	Pharmacy	Private Doctor	MCH Clinic	Dhamar Hosp.	Rada'a Hosp.	Other
A	-	3	4	-	-	10	1
B	-	4	4	2	-	10	-
C	1	1	-	2	-	11	1
D	-	1	1	-	-	12	2
E	1	1	4	1	-	4	1
F	-	-	1	1	-	-	-
G	-	1	3	2	-	10	1
H	-	-	1	2	-	4	1
I	-	1	7	1	-	5	1
J	-	1	2	2	1	3	-
K	-	2	1	-	-	2	-
L	-	2	3	2	2	4	-
	2	17	31	15	3	75	8

Percentage of responses using Ministry of health Clinic, Rada'a = 60%

7.4.3 Several factors are striking. Firstly the number of respondents who consider themselves to have impaired health is high, with over half the women and nearly a third of men saying that they are ill. The reasons given for personal ill-health were very varied, though many people said they were "just ill". Although, generally in Yemen, the health status of women is known to be worse than that of men, the survey did not attempt to identify precise reasons for this in Rada'a. It can be assumed, however, that factors which influence the rest of the country are also relevant here. The particular nature of women's workload; the risks of numerous and closely spaced pregnancies and the fact that medical services and adequate perinatal care are still not sufficiently accessible; are uncontestedly influencing factors. The fact that women's health status is poor also influences family health. Women are considered to bear at least 75% of the responsibility for maintaining family health (the other 25% going to men in their authoritative roles as household heads). Women are responsible for keeping the home environment clean and safe, and for looking after the children. If they, themselves, are in poor health it is doubtful that they can have the energy to fulfill this role.

7.4.4 The number of stated incidences of miscarriage is also high and may have some correlation to general health status and also to workload. 139 women (total women respondents = 223, not all married) stated that they had had at least one miscarriage. The number of people reporting that they have had at least one child who died is also high. Results show that most deaths were reported for the under-five age group. The reasons cited for cause of death are inconclusive (since a large number of people said that they "didn't know" or that it was "God's will"). Nevertheless, few people gave responses which could not in some way be attributable to the influence of the local environment (i.e. a non-attributable factor would be death by motor accident away from Rada'a).

7.4.5 Despite the high figures for mortality and morbidity, the figures for vaccination are also quite high (in comparison with other parts of the country). 62% said that they had children who had been vaccinated 3 times.

7.4.6 This figure may be influenced by the fact that it was impossible to ensure that people were talking only about their own children and not any others living in the house; or to make full distinction between the number of children who would have been too old to participate in a programme of vaccination and those definitely within the catchment group. These factors also may also influence the 49 respondents who said that their children had not been vaccinated at all. Even so, 18% is a relatively low proportion of people with children stating that no vaccination had been given.

7.4.7 The results show that it is still over four times more popular to give birth at home rather than in the clinic. This is, of course, not a disadvantage as long as there is sufficient, trained assistance available should it be necessary. The fact that 86 respondents stated that their last child was born at home with the assistance of a Primary Health Care Worker, is encouraging. Only seven women said that they had given birth without any assistance at all.

7.5 The Rada'a Hospital and MCH Clinic

7.5.1 Another encouraging factor is the high proportion (60%) who said that, in seeking treatment for ill children) they had attended the Rada'a Hospital or clinic. This response did, however, bring to light an assumption that had been made during the survey design and was found to be wrong. Q20A "Where did you go to get treatment?" listed as possible responses: Local Healer; Pharmacy; Private Doctor; MCH Clinic; Dhamar Hospital; Other (specify). It was only during analysis of the responses that it was realised that the majority of people are not aware of the MCH Clinic by name but refer to it, and the rest of the medical facilities on-site, as "Rada'a Hospital". Another interesting factor shown in responses to this question was that so few people (3) sought treatment in the Dhamar Hospital. Dhamar Hospital had been included as a category since it is known that many adults seek treatment there, and it was assumed that the "by-pass" phenomenon prevalent in other parts of the country would also apply in this instance. Instead, it would seem that the Rada'a clinic facilities are quite well used, though the figure of 31 respondents seeking treatment from private doctors is still quite high.

7.6 Traditional Methods of Treatment

7.6.1 The instance of only two people saying that treatment was sought from a local healer does not correlate with expectations, nor with what is known from in-depth discussion. Nowadays, however, people are sometimes reluctant to "admit" that they resort to traditional forms of treatment which they fear will be considered "old-fashioned" and uneducated. Experience in other areas suggests that people often "hedge their bets" by seeking both modern and traditional methods of treatment for ailments, whilst keeping quiet about the traditional ones. No mention was made, for example, of treatment by burning (makwa), or by attaching amulets or religious writings, though it is known that these treatments are still practised. Whether these treatments are widely practised in Rada'a is not known to the project, though a traditional treatment of another kind is still very strong, with one of the most famous (nationally and internationally) "wise men" in Yemen, Al Aubeli, being situated here.

7.7 Recommendations

7.7.1 The project should approach the MCH Clinic to discuss ways in which the Clinic could modify its systems of data collection so that information can be used by RWSSP in the future.

7.7.2 The project should consider ways in which they could liaise with Primary Health Care Workers and Traditional Birth Attendants in the town to ensure that environmental health messages are disseminated during the course of PHC work. This co-operation need not be time-consuming, but be based largely on ensuring PHCW's and TBA's awareness of RWSSP, its aims and operations.

7.7.3 In the course of its EHE work in the town, the project should use whatever opportunities arise to promote the services of the MCH clinic and to raise awareness concerning appropriate sources of treatment

for childhood illness, and the necessity of complete vaccination.

7.7.4 An analysis should be made of open-sewer water from various parts of the town in an attempt to identify diseases present.

7.7.5 Wherever encountered, record of traditional methods of treatment for disease should be kept (to add to the general background knowledge of the project).

CHAPTER VIII
ATTITUDES TO EDUCATION

VIII ATTITUDES TO EDUCATION

8.1 Introduction

8.1.1 In other chapters of this report, attention has been drawn to the importance which changing attitudes to education can have in relation to community development. It is unnecessary here to rehearse the arguments which show correlation between increased education for girls and women and improvement in family health status.

8.2 Education for Boys and Girls

8.2.1 Responses to the section of the questionnaire devoted to education revealed the falsity of several assumptions which had been held by members of the project. Firstly, the response in favour of education for both boys and girls was far higher than anticipated (see table AA below) with 96% in favour of education for boys and 91 % for girls.

Table 18: Q60 Is it important for boys / girls to go to school?

	Boys		Girls	
	Yes	No	Yes	No
A	44	-	41	-
B	33	-	32	-
C	25	-	23	2
D	33	-	32	1
E	32	-	31	1
F	12	-	10	2
G	32	-	30	2
H	25	-	22	3
I	30	-	29	-
J	18	1	18	1
K	11	-	11	-
L	31	-	30	1
	326	1	309	14
	(96%)		(91%)	
n=339				

The fifteen respondents who stated definitely that education was not necessary either gave no reason for this choice, or said that schooling was "not useful".

8.2.2 It is noticeable, however, that further education is thought desirable generally only for boys, though answers to Q62: "until what level will (your children) study, God willing?" were inconclusive, with a majority of responses being "until they finish", or "as long as they can".

8.2.3 In-depth discussion reveals that the general trend is to consider that further education, and sometimes even secondary schooling, is not necessary for girls -- because "they will not need it". This draws attention to the idea that, whilst it is useful for girls to get a basic education and to learn to read and write, anything else is not particularly necessary, as girls will not be expected to apply their education in any profession or money earning activity outside the home. This attitude is one expressed by men. Women are of differing opinions, and young girls may have much more positive attitudes to higher education and employment outside the home (see section VI). It is also notable, however, that many girls and young women do not voice an opinion on education: partly perhaps because, as yet, they do not have much choice in the matter, and partly because many of them share with men the ideal of a married life within the home, "looked after" both financially and otherwise by their husbands.

8.2.4 One way or another, since re-unification of Yemen in May 1990, the changes which now make primary school mandatory for all boys and girls, are bound to have wide-reaching effect on attitudes to education and the possible uses to which an education might be put. The adoption of mandatory schooling also has an important, immediate health implication: when children enrol in school they are required to produce a certificate of vaccination. As is shown in section VII, the vaccination figures for Rada'a would appear to be quite high, and these figures might be expected to improve in the coming years as more and more children are enrolled in the schools.

8.3 Adult Literacy

8.3.1 The literacy rate given nationally for 1985 was 42% for men and 7% for women. There are, of course, averages over the whole of the northern part of the country and cannot show the enormous urban-rural divide, nor do they take into account the different system of education which pertained in former South Yemen. Furthermore, the figures from the major cities of Sana'a, Hodeidah and Taiz (figures available are from pre-reunification) must be so disproportionately high compared with the rest of the country as to make the application of a national average practically meaningless. Nevertheless, there has been an enormous increase in literacy over the past fifteen to twenty years -- particularly amongst women. In the late seventies, figures for women's literacy were given a <3%. Now, there are suggestions from the government that this figure is nearer 20%.

8.3.2 Whatever increases have been realised, however, it seems impossible that the figures for literacy as shown by the survey can possibly represent reality. Table 18 shows that 74% of men say that they can read and write, as do 33% of women. Even taking into account the fact that Rada'a (in some ways at least) has long been forward looking, with many of its inhabitants involved in business outside the area and many men and women having travelled both in the country and abroad, the figure -- at least for women -- seems too high.

Table 18: Q63 Respondents ability to read and write (by gender)

	Women who read	Women who write	Men who read	Men who write
A f=30 m=16	9	8	11	11
B f=22 m=11	8	6	8	8
C f=17 m=10	6	7	4	4
D f=20 m=13	5	5	11	11
E f=22 m=10	8	8	6	6
F f= 9 m= 5	3	3	4	4
G f=22 m= 9	4	4	8	8
H f=17 m= 8	7	7	7	7
I f=22 m=10	11	12	8	8
J f=14 m= 5	5	5	4	4
K f= 6 m= 5	2	2	4	4
L f=21 m= 9	6	6	7	7
f: n=222	74	73	82	82
m: n=111	(33%)	(33%)	(74%)	(74%)

8.3.3 Something which could account for the size of the figure may be the changing attitudes to education. As has been shown, formal education is now recognised as desirable, and there is certainly a growing feeling amongst people that there is something wrong with not being able to read and write. The figures may then represent more a picture of what people think they ought to be able to do, than one of what they actually can do.

8.3.4 There is also the fact that no measurement of literacy could be taken (and would, in any case have been beyond the scope of the survey). Experience shows that not everybody who considers themselves literate is fully or easily able to read and write. For example, some people will say they are literate even if they can only write and read their own name. Some people may be able to read the Quran, but be unable to read the instructions on a tin of baby milk, or the indications on a packet of drugs. Others may have learned to read and write, but may now be barely able to through lack of practice. This is particularly true for some women who, having quit school at the age of puberty and before completing their primary education, forget many of the skills they have learned.

8.3.5 Amongst women, the desire for increased literacy, is demonstrable by the demand for, and popularity of, the literacy classes run by the Rada'a Non-Formal Training Centre for Women. The course in literacy given here, covers the six grades of primary schooling and so allows those who did not take, or did not complete primary school, to obtain school certificates. The age range of students ranges from around 15 - 45.

8.3.6 The above discussion would appear to show broadly favourable attitudes to education throughout the RUA. Obviously, these attitudes have wide-reaching importance to the project and its implementation. The desire for "participation in the new" has been discussed in section V, and the desire for education must be part of this. In the fields of public liaison work and health education, it is, of course, crucial that people can be shown to have a positive attitude towards expanding their knowledge and attitudes and towards considering new and different ways of doing things.

8.3.7 Despite these positive attitudes, however, attention must be drawn to the opinions voiced in a recent edition of the Middle East Times. Here the debate centered on whether it was preferable to marry an educated, or an uneducated wife. The male writer strongly opposed the idea of marrying an educated women -- since an educated woman could not be relied upon to fulfill her wifely duties within the home. A contrasting view was presented by a woman writer. The article highlights a continuing trend: whilst, in theory, lip-service may be paid by men to "improving" the role and conditions of women's existence through education, in practice many prefer to stick to the status quo.

CHAPTER IX
GARBAGE DISPOSAL PRACTICES

IX GARBAGE DISPOSAL PRACTICES

9.1 Introduction

9.1.1 Since the formulation of RWSSP nearly two years ago, significant changes have come about in the practices surrounding the disposal of solid waste. The initial crash programme (Sept.'88), followed by the implementation of the container programme, have done much to ensure that the Rada'a environment is now "cleaner" than it was two years ago. The removal of many of the piles of rotting garbage from the streets and the clearance and levelling of garbage-filled depression sites around the town, have been important in the quest to improve environmental health standards. Though the container (birmil) programme has yet to be extended over the whole urban area (Qariat Qadn, Al Khosair, Qariat Ahmed, part of Q'a Rada'a and Al Thabaniah are without services) the continuous supervision of the programme and the monitoring of problem areas should ensure that containers are emptied regularly and there is good maintenance of the service. Nevertheless there are still areas of the town which are extremely dirty, and there is room for support to and improvement of the Operations section of the Solid Waste Disposal. The need to develop reliable, regular services in which the population can really trust is paramount (but see section 9.2 point 6 below for some reasons why this is so hard to achieve).

9.2 Continuing Problems

9.2.1 Despite the achievements outlined above, many problems still remain, and much work needs to be done:

- . in some of the older districts of the city, it is still impossible to provide containers since passage is by narrow alley-ways which do not allow access for the container lorry. In some of the areas, it is suitable to place small biramil which will then be cleared by tractor. Initial attempts at tractor use have proved difficult, however, since the tractor is unstable on the uneven, unpaved roads in the old town;
- . in some areas there are still complaints that the biramil are used by the population for the disposal of "unsuitable" rubbish; eg. dead animals, animal skins, motor oil etc.. (The planned move of all butchering activities to the new suq should, if successful, alleviate this problem in part). This practice constitutes a serious health hazard to the population and garbage disposal staff alike;
- . at practically all birmil sites, rubbish collects around the birmil as well as inside it. There was early recognition of the fact that the containers are difficult to reach for people under a certain size. Various suggestions to alleviate this problem - - such as providing concrete slabs or steps - - have been put forward. No action has been taken as yet. Analysis of current garbage disposal practices will show that this matter needs further consideration;

- . it is only too obvious that solid waste is still dumped in the various open sewers in the whole urban area, and in disused pits and wells in certain districts. Various attempts have been made to overcome this problem (Baladiya, RWSSP clearing pits etc.), but it will never be possible to keep open sewers free from solid waste. Only when open sewers have been entirely abolished (i.e. by the implementation of the new sewerage system) will it be possible to solve the problem completely;
- . even where biramil are easily accessible, a quantity of rubbish is still apparent in the streets. (The Baladiya is presently attacking this problem in several areas. Where guidelines are ignored warnings may be issued to the local population that fines will be imposed for violation of garbage disposal regulations);
- . there have been many problems in the Operations section. It has been impossible to obtain an adequate workforce of cleaning workers (sweepers) and compactor truck loaders. Furthermore, the salaries for these workers are always late, which does not encourage their cooperation. The cleaners are the "foundations" of the project and it is important that they can be fully supported. The project has attempted to do this -- for instance with plans to build housing for these workers -- but has not, as yet, been fully successful.

9.3 Garbage Disposal Practices

9.3.1 Questions 51 to 55 of the questionnaire were formulated to discover information on the "trajectory" of garbage from the house to its final place of deposition. The aim was to discover how garbage is collected in the house, how it is transported away from the house, to where and by whom.

9.3.2 In the event, answers to these questions challenged previously held assumptions about garbage practices, and gave useful pointers to areas where practical measures could be taken to facilitate the use of services. Responses also drew attention to areas where further development of EHE messages is necessary.

Tables 20 to 28 show the information on garbage disposal practices.

Table 20: Q51 In what do you collect the garbage in the house?

	Plastic Bag	Bucket	Container	Other*
A	13	17	9	3
B	8	15	5	1
C	6	13	6	3
D	11	11	7	3
E	9	14	1	8
F	5	7	1	1
G	8	14	1	10
H	3	14	8	-
I	14	8	6	3
J	3	9	-	7
K	1	9	-	1
L	9	10	3	9
	90 (28%)	141 (43%)	47 (14%)	49 (15%)

*Other = steel tray, carboard sheet

Table 21: Q53 Where do you dispose of the garbage?

	Road Out- Side House	Road Away From House	Birmil	Pit/Well	Other
A	4	3	33	2	1
B	2	2	29	-	-
C	1	1	24	-	-
D	1	1	27	4	-
E	2	1	30	-	-
F	-	1	13	-	-
G	8	5	20	-	-
H	-	3	18	3	-
I	6	1	18	5	1
J	5	2	11	1	-
K	3	-	6	2	-
L	6	2	19	3	-
	37 (11%)	22 (7%)	248 (75%)	20 (6%)	2 (1%)

Table 22: Q52a In what is the garbage transported from the house?

	Plastic Bag	Bucket	Other Container	By Donkey	Wheelbarrow	Other
A	9	15	12	-	3	-
B	6	18	5	-	-	-
C	6	14	4	-	1	1
D	9	14	4	-	1	3
E	12	10	2	-	3	6
F	5	8	1	-	-	-
G	7	15	-	-	2	8
H	5	10	4	-	4	-
I	13	11	1	-	3	3
J	1	9	-	-	2	6
K	1	9	-	-	-	1
L	5	15	2	-	2	-
	79 (25%)	148 (47%)	35 (11%)	-	20 (6%)	34 (11%)

n=316

Table 23: Q52 Who is responsible for removing the rubbish from the house?

	Mother	Wife	Girls	Boys	Children	Men	Women	Anyone*
A	5	6	7	2	10	1	4	5
B	1	2	7	1	8	1	2	5
C	-	1	5	1	11	-	2	4
D	-	3	7	2	15	2	1	2
E	4	4	3	1	10	1	3	-
F	4	1	-	2	4	2	1	-
G	1	2	9	1	12	-	1	4
H	1	3	5	1	9	2	1	2
I	3	1	1	-	12	3	-	6
J	-	1	4	1	8	-	1	3
K	1	1	-	1	1	1	-	4
L	-	2	8	1	8	1	2	4
	20	27	57	14	108	14	18	39

*In addition, 33 gave a variety of "other" responses

Table 24: Responsibility for taking garbage, by gender and age.
(n=330)

Women and children	:	244 (74%)
Children	:	179 (54%)
Men and Boys	:	28 (8%)
Anyone	:	39 (12%)

Table 25: How children take garbage for deposition

Children who take garbage to a birmil	:	149
Children who take garbage in a bucket or container	:	77
Children who take garbage in a wheelbarrow	:	9

9.4 Recognition of Garbage as a Problem

9.4.1 In response to the question "do you think that rubbish is a problem in your area?", 327 people said "yes". Only 7 said "no".

Table 26: Q54 Do you think that rubbish is a problem in your area?

Yes	:	327
No	:	7

9.4.2 The most pressing reasons given for why it is a problem were that it brings flies and smells bad, closely followed by the fact that it looks bad. Only 8% of respondents said that the problem was that rubbish is 'aib' (shameless, against the teachings of Islam).

Table 27: Q55 Why is (garbage) a problem?

Looks bad	:	134 (40%)
Smells bad	:	175 (52%)
Is 'Aib	:	28 (8%)
Brings Flies	:	186 (55%)
* multiple answers given by some respondents		

9.4.3 Given that awareness of rubbish as a problem is so high it is encouraging to see from the survey results that people, where they have the means, are doing something about ensuring that rubbish is disposed of safely.

9.4.4 Analysis of the data shows that the "typical" path of garbage starts with its collection in a bucket in the home and its transportation by bucket in the hand of a child to its final deposition in a birmil.

- . the fact that 75% of the respondents cited a birmil as the place in which they deposit rubbish is indicative of the success of the garbage disposal component of the project to date. Whether people actually throw their rubbish away in the containers rather than in the road away from the house, they at least have a very high level of awareness that the birmil the place where rubbish should be thrown. They are aware that birmil exist; they are aware of their purpose and, possibly, of the importance of using them. Nevertheless, they may see the importance more in terms of the fact that they might be fined for irresponsible garbage disposal than that a clean environment is important for health and safety;
- . observation of the city of Rada'a makes it hard to believe that only 19% of all garbage is dumped in "visible" places. There are still many areas where piles of garbage are visibly rotting in the streets. This impression may, however, be exacerbated by the fact that so much of the rubbish destined for the birmil ends up on the street around the container rather than actually in it.

9.5 Children and Garbage

9.5.1 Answers to Q52, "Who is responsible for removing the rubbish from the house", gave good indication of why large amounts of rubbish never reach the birmil. 54% of the respondents said that it is children who are responsible for taking the rubbish. Whilst it may be possible for small children to deposit rubbish in the birmil if it is transported by plastic bag (they can throw it in), it is impossible if transported by bucket. Only 25% of rubbish is transported by plastic bag, 58% by bucket or other container. Nine cases were reported where children take rubbish to the birmil by wheelbarrow.

9.5.2 It is certainly common in the RUA to see young children struggling with buckets or cardboard boxes full of rubbish, dragging them across the road to the birmil, attempting to heave them above head height and tip them into the birmil. If the child does not itself end up covered in refuse, then it is likely that the bucket will be lost into the birmil in the effort and the child will be forced to elicit help, climb into the container and wade through the rubbish to extract the bucket.

9.5.3 Another problem, particularly difficult for children to negotiate, arises when birmil are over-filled. Despite careful monitoring by the project, some birmil fill up very quickly whilst

others seem to be hardly used. As has been mentioned, a fully reliable and regular collection service has yet to be established.

9.6 Adults and Garbage

9.6.1 Children are not the only ones who fail to get the garbage into the containers. It would seem, from observation, that some adults are simply unwilling to make the effort to ensure that garbage lands in the birmil rather than on the ground around it. Some women are themselves too short to reach the birmil. Despite problems of size, however, the overwhelming impression is that people are as yet unwilling to make the effort to ensure that garbage is deposited inside the biramil. Just as casual littering is not recognised as a problem -- is not, infact, recognised at all -- accuracy in deposition of household garbage is not recognised as essential.

9.6.2 The survey results show that men play a negligible part in rubbish disposal. Adult men were cited as responsible for garbage deposition in only 14 of the questionnaires. Boys, too, as distinct from any children were said to be responsible by only 14 respondents. Together, this means that people identified as male are responsible for garbage deposition in only 8% of cases. In-depth discussion revealed that men consider themselves responsible for "educating" (i.e. telling) their children about cleanliness and proper disposal of rubbish, but men rarely mention that they could serve as an example and show children what to do.

9.7 Payment for Services

9.7.1 In response to Q56 "Who should be responsible for paying for removing rubbish from your area?" the answer was overwhelmingly in favour of payment by the Baladiya (73%) rather than the family (6%).

Table 28: Q56 Who should be responsible for paying for removing rubbish from your area?

	Municipalities	Family
A	25	4
B	22	1
C	20	3
D	28	-
E	28	-
F	10	-
G	24	2
H	18	3
I	27	2
J	14	1
K	9	-
L	22	4
	247 (73%)	20 (6%)

9.7.2 These results are not surprising: the Baladiya has provided the service in the past, and people consider that their taxes are paid to cover such services. This does not mean, however, that people will not pay, if they see that there is an efficient and reliable service in operation. It would be unreasonable at present to expect people to express a willingness to pay whilst there is still a chance that they could get a service for free. The response to Q57 "If you had to pay to remove the rubbish how much would you be willing to pay?" were very varied, people being unwilling to commit themselves to any fixed sum. Many people did, however, respond by saying they would pay "what everybody else pays". One man said he did not care how much it cost, he would be willing to pay anything just so long as someone cleared up the rubbish.

9.7.3 Whilst the survey responses suggest that people are reluctant to pay for garbage removal, it would seem from in-depth discussion and observation that people will pay for the services once they are established and seen to be working.

9.8 The Implications for Health Education

9.8.1 Garbage deposition can be seen as "children's work". As a household task, it is one which would in any case be part of women's role, but which is seen as suitably delegated to children. The potential health risks of children dealing with open buckets of garbage and rotting food matter are obvious. These are further compounded by the difficulties experienced by children in the process of deposition. In addition, the biramil, which are not covered, attract many flies, dogs and vermin all of which spread disease.

9.9 Recommendations

9.9.1 Consideration should be given to devising a system which makes access to the containers easier for people under a certain height. Several suggestions have been put forward to achieve this. The biramil could be "set into" a slope so that they can be reached from above. Another possible solution would be to provide a circular concrete slab next to the biramil. If this had a ring in the centre it could be dragged into position by refuse collection staff if the biramil was moved put of position during emptying. Possibly the simplest solution, which is seen to work in some areas, would be to encourage people to place a large "steeping-stone" next to the container.

9.9.2 Attention must be given to the development of messages as to the best mode of transporting garbage. At present buckets and other re-usable containers are generally used. From an environmental point of view, this is more satisfactory than the use of plastic bags. It does, however, expose children to open garbage; mean that more garbage is likely to be spilt along the route and mean that open, dirty containers and buckets are left around the house attracting flies and scavengers.

9.9.3 Garbage could be transported in plastic refuse sacks (provided by the project / Baladiya). This would avoid several health hazards. Refuse sacks are, however, quite expensive, large and easily over-filled. There is no guarantee that children could make it from the house to the biramil carrying such a load, nor that they could lift a full sack into the container.

9.9.4 Another possibility would be to encourage people always to collect garbage in the house in the small plastic bags (kees) handed out by all shops and bakali (small, neighbourhood kiosks). These, if securely tied, could be carried by bucket to the biramil and, if necessary, thrown individually into it. The drawback to suggesting this as a solution is that it is precisely small bags of rotting food matter that can be seen littering the streets over most of the RUA and around the biramil sites. Since the food is trapped inside the plastic bag, it tends to rot and ferment with a more offensive smell than if left to the open air.

9.9.5 Further education is necessary to encourage people to make the effort to deposit the garbage inside the biramil (existing video films could be used). Those people (table 21) who say that they still deposit garbage in the streets or in pits and wells in areas where biramil already exist, must be reached. It is, however, clear from the results that the highest incidences of rubbish deposition in places other than biramil come from the least accessible and least served areas (eg. Q'a Sharaf, area G).

9.9.6 Since it is largely children who take the rubbish, EHE in the schools should be given a high priority and should take this into account. Work should be carried out with the children and young people to develop ways of making garbage deposition easier and safer. Young people could, themselves, develop education packages and advertising around safer garbage disposal practices.

9.9.7 On the other hand, it is essential that these messages reach the older generations as well. Somehow, the message must be transmitted that garbage is everybody's responsibility, and that it is not 'aib to be seen to be "doing one's bit" in picking up, carrying or depositing garbage. Project staff should be especially careful that they never throw garbage in the streets or out of the project vehicles' windows.

9.9.8 There are also messages to be developed concerning personal hygiene and garbage disposal. Observation does not suggest that children are in any way encouraged to wash their hands after dealing with rubbish (since many still use biramil as play sites, this is not surprising). In schools and in homes the importance of hand-washing after touching garbage or garbage containers needs stressing. There is a possibility that children could be encouraged to wash their hands if garbage is taken in a bucket or other re-usable container which must be returned to the house. On the other hand, garbage taken in closed refuse sacks would mean that children had no pressing reason to return to the house immediately after taking the rubbish, but would probably be in less danger of direct contamination by refuse matter.

9.9.9 In the long term, it might be possible to discuss with people whether taking garbage is really fit work for children, who cannot be expected to be as responsible in terms of regarding safer garbage disposal practice as could their parents. More detail is needed as to why people consider taking the garbage is children's work. It might be suggested that, if there were not social stigmata attached to garbage, disposal would be best done by the men of the household, who go away from the house on a regular basis, move freely around the town and might be relied on to avoid contact with rotting matter and other dirt.

9.10 Conclusion

9.10.1 From an anthropological point of view, it would seem that it is very unlikely that adults, and especially men, will ever consider garbage deposition as "adult work". Garbage is "polluting". This means that not only is it dirty in a physical sense, it also causes uncleanliness in a moral sense. The idea exists, albeit on a subconscious, cultural level, that children -- being as yet "unformed" and less tied to social norms -- are neither pure nor polluted. For this reason, they are culturally less susceptible to "contamination" by garbage than are adults. That is, the social capital of children is not jeopardised by contact with garbage, but the social capital of adults is. Adults must strive to maintain their social purity, or suffer the consequences. This can be most clearly seen in the social stigma attached to carrying out particular jobs which are considered socially polluting. To be a barber or a butcher automatically defines an individual as belonging to a lower caste. Most importantly, sweeping and cleaning are jobs thought to be only for the erstwhile servant class. Though social attitudes to these people are changing somewhat (and, consider the influence of the socially desegregated southern part of the country) there is still much prejudice against them and they are often considered, on no evidence of course, by the highland tribesmen as "dirty", "lazy" and "morally impure".

CHAPTER X

KITCHEN, HYGIENE AND SANITATION

X KITCHEN, HYGIENE AND SANITATION

10.1 Introduction

10.1.1 Questions in this section were formulated to obtain information on practices and attitudes relating to the immediate home environment, personal hygiene and garbage disposal. Questions were also included to elicit response on whom people felt should be financially responsible for providing garbage disposal services within the RUA.

10.1.2 One question, Q34, "Do all people who live here eat from the same kitchen" was asked in an attempt to gain further information on the size and nature of the household. As discussion in other chapters has shown precise definition of the household is not possible, the nature of "dependency" being flexible and changing over time. Nevertheless, people state that it is a frequent demand, in families where a man has more than one wife, that each wife be provided with her own kitchen "to avoid argument and conflict". It was hoped, therefore, that answers to Q34 might suggest ways in which the extended, and possibly polygynous, household is split into smaller units under one roof. In the event, the record of 310 positive answers to the question "do all people here eat from the same kitchen" meant that the definition of the unit of measure was left as "those living in the house" unless it was categorically stated that they did not consider themselves as being of one household.

Table 29: Q34 Do all the people who live here eat food from the same kitchen?

Yes	:	310
No	:	29

10.2 Laundry, Hand-washing, Cleanliness and Social Cohesion

10.2.1 It was realised that questions surrounding hygiene and perceptions of cleanliness are ones which are highly socially loaded and can easily cause offence. Islamic teachings strongly emphasise the importance of preserving personal and environmental cleanliness and an inference that people or houses are dirty would be taken as a suggestion that people are failing in their religious duties. People are, in any case, well aware of the connections between dirt and disease.

10.2.2 Nevertheless, as the survey showed, traditional methods of washing, the rituals of hospitality etc. may tend to spread dirt rather than remove it. It was necessary to gain further insight into this so as to determine the health implications of these practices so that appropriate EH messages might be developed and delivered in ways which

are sensitive to cultural practice and customary belief¹.

10.2.3 Questions relating to personal hygiene were limited to the subjects of hand-washing and washing of children. No specific question was asked on the number of times that laundry is done. As responses to other questions showed, laundry is considered by women to be their hardest task (Q73), both because of the scarcity of water and because of the erratic town electricity supply. In in-depth conversation, women often comment that they would wash their own and their families' clothes more often if water was more plentiful and it was not such laborious work.

10.2.4 The importance of this for health status lies in the prevention of skin diseases. At present, clinic records (Rada'a MCH) show a large number of cases of skin irritation, some caused by allergy to soap powders. Soap powders and detergents are frequently used to wash the body and are often insufficiently rinsed out of clothing. The statement that more laundry would be done if more water was available and the task was easier suggests an important area for future development of H.E. messages. The fact that water will seem to be plentiful when project water services have been implemented does not alter the fact that water actually will remain a scarce resource. Laundry is an area where there is often marked wastage and misuse of water once a piped water supply has been installed.

10.2.5 Several questions were asked around the subject of hand-washing. Prior to implementation of the survey, this issue had raised considerable objection amongst project staff. It was felt that asking questions about whether people washed their hands, when they washed them and why, would alienate the respondents and carried a covert implication that "people were dirty". It was felt that if people answered at all, they would simply give the "ideal" answer mirroring the basic "shoulds" of how people ought to behave rather than how they actually do behave. Nevertheless, pursuit of information on handwashing practices was necessary since knowledge of traditional practices suggested that methods were more likely to spread disease than to control it.

10.2.6 Before a meal, hands are customarily washed only with water in a communal bowl. Most people will say that soap should be used, but that does not mean that it is used. Nevertheless, nowadays, many people do also use soap or washing powder -- particularly when there are foreign visitors to the house. Sometimes, extra water may be poured over the hands to rinse them. In the unconsciousness of culture, the act of communal handwashing, cements the bonds of family, hospitality and friendship. It is an important and ritualised aspect of social gatherings and can be seen as symbolically equivalent to the communal eating of a meal around a circular tray or array of dishes. "Washing together" is

¹ Debates as to the real relevance of personal 'cleanliness' to the spread of disease are wide-ranging, and often carry a heavy moral and political burden. 'Dirt' of many sorts is undoubtedly an important vector for disease in Yemen, but the project has sought to make distinction between degrees of 'dirt' which constitute a health risk, and 'dirt' which is likely to have little impact on health.

considered the "proper" way of doing things, of coming together before the meal and -- traditionally, where outsiders were participating in the meal -- of showing that nobody had anything "up their sleeves".

10.2.7 With regard to the control of infectious diseases, the method has obvious drawbacks. Only the first to wash does so in clean water, and it may soon become apparent that more dirt is being washed on than washed off. The benefits are therefore much more of symbolic purity than actual cleanliness. Nowadays, this has particularly serious implications. Whilst few people would willingly wash in water which is visibly clouded or coloured, clarity of water is thought to be indicative of its cleanliness. Thus, quite apart from micro-organisms which could be present in clear water, there lies considerable danger from the "invisible" modern chemicals which are widely used as pesticides, fertilisers etc. Not only disease, but also poison may be spread when the intention is really to secure good health, and to remove dirt. 334 of the 339 respondents said that hand-washing is important. Of these, 181 said that they washed their hands together with other people. In total, 50 respondents stated that the reason for washing together in a single bowl is "for cleanliness", whilst no respondent cited "cleanliness" as a reason for using poured water. Data relating to hand-washing practices are contained in the following tables.

Table 30: Q37 Is it important to wash your hands?

Yes	:	334
No/Don't Know	:	5

Table 31: Q39 If you wash your hands together with other people, how?

	Wash Together	In Bowl	With Poured H2O	Under a Tap	Wash Tog. in Bowl for Clean.
A	21	22	3	14	7
B	23	22	2	6	8
C	19	19	-	6	5
D	16	11	1	16	3
E	13	12	3	15	7
F	5	4	4	3	-
G	20	20	3	8	4
H	14	14	3	4	5
I	10	9	13	3	1
J	14	10	5	-	3
K	9	8	1	2	4
L	17	16	11	-	3
	181	167	49	77	50

* multiple answers possible

Undoubtedly, part of the reason why more people do not favour running water or soap in hand-washing is because of the belief that more water will be used up. Nevertheless, as the forgoing discussion has shown, there are other influencing factors.

10.2.8 The issue is an important one in the field of EHE as it gives perfect demonstration of the cultural load carried by seemingly simple, "practical" behaviours. It also shows the importance of recognising the rational nature of all social practice: it is simply that the process whereby the rationalisation is made is not always accessible to development workers and educators. Only with an understanding of the beliefs at work, is it possible to enter a debate which would allow for change and a move towards safer washing practices. Individual hand-washing under a tap with soap, may offer increased chances of personal good health but it does not offer the same kind of cultural "glue" and group affirmation that is, consciously or unconsciously, manifested in communal hand-washing in a single bowl. EHE messages must take these important social implications into account if changes in behaviour are to be effected. For the present, whilst piped water supply remains rare, messages need to centre on the tariq Sudani (the Sudanese way) of hand-washing. Water is poured over the hands from a kettle or jug, and soap is used. For the sceptical, demonstrations are useful to show that this method does not require a great deal of water and is, in fact, quite economic and water sparing.

10.3 Washing Children

10.3.1 The interviewers taking part in the survey were asked to give their subjective comments on cleanliness of the house and children as part of the questionnaire. In discussion afterwards, and from the observation notes submitted by the interviewers, it was clear that the standards of the interviewers were high (particularly those of the women). Conversation suggested that interviewers equated dirty children with less caring parenting (mothering), but there is no hard evidence to support this (see below).

10.3.2 Data relating to the number of times per week that children are washed, and how they are washed, are presented in the tables below. Many respondents stated that the frequency of bathing children depends on the season. It was feared that frequent washing in cold weather would cause children to catch cold. As reported in other areas of Yemen (Raymah, Mahweit), this means that children may remain in the same clothes for up to a week during cold weather, and remove their clothes only for a bath.

Table 32: Q40 How often do you wash your children?

	1x per week	2x per week	Everyday	n.a.
A	8	16	4	12
B	6	10	6	10
C	6	8	2	10
D	10	9	3	8
E	5	14	4	8
F	-	8	1	5
G	10	12	2	5
H	5	8	1	9
I	4	11	5	9
J	5	7	3	4
K	1	3	3	2
L	6	9	5	10
n=220	66 (30%)	115 (52%)	39 (18%)	92

Table 33: How children are washed

Under a tap	:	55
From a bucket	:	144

10.3.3 Whether the standards of the interviewers are judged to be overly high or not, it cannot escape the attention of an observer that many children look dirty. This is not surprising: the environment is extremely dusty during the dry season and turns to mud in the wetter months. Added to this is the constant hazard of open-sewers and, in most areas until recently, piles of open garbage. These latter areas have provided irresistible playgrounds and treasure troves for the more adventurous children. It would be beyond the capacities of the most diligent parent to prevent children from becoming dirty in such an environment.

10.3.4 Despite the considerable improvement during the life of the project, Rada'a is still not a "clean" town. It would make sense to encourage cleanliness for children in areas where project activities can support such attempts. The playground built by the Baladiya in Q'a Sharaf provides an example of this: where children can be provided with safe play areas, and where garbage collection services are already in place, increased emphasis on messages to do with child cleanliness might be purposeful. Whilst, however, children must still negotiate open sewers on even the shortest journey, messages emphasising the importance of cleanliness can only engender frustration amongst parents and lead to feelings of guilt. This, of course, on the basis of the fact that water

is too scarce to be used liberally -- and, if used in excess will, in any case, only go to further overload the inadequate sewerage system.

10.3.5 As an interim stop-gap, and with a view to the future, it would appear worthwhile to suggest that parents always provide children with shoes and that children be educated to wear them. Even flip-flops would provide children with some protection from environmental hazards such as faeces, broken glass, rusty tin cans, used injection equipment etc..

10.3.6 The importance of messages concerning hand-washing, particularly for children, in relation to garbage disposal practices, is described in Chapter 9.

10.3.7 Provision of adequate washing-facilities in schools and emphasis there on the ways in which disease can be spread through dirt and lack of personal hygiene could be effective. Once again, it is important that the messages be supported by adequate structures: there is little point in giving lessons describing the life-cycle of intestinal parasites, for example, unless there is real commitment on behalf of the schools to ensure that sanitary facilities are provided and maintained. These requirements might be seen as equally fundamental to child development as the provision of desks, chairs and schoolbooks.

10.4 Mosquitoes, Fleas and Other Pests

10.4.1 The results of the survey, and information from in-depth discussion during EHE sessions, show that there is considerable knowledge of the role of flies, mosquitoes and other pests (including stray dogs) as carriers of disease. Many people commented on the prevalence of flies and mosquitoes in their neighbourhoods and in their homes. People recognised these pests as potentially harmful beyond the "nuisance quotient".

Table 34: Prevalence of mosquitoes, flies and fleas

	Mosquitoes in house	Mosquitoes in area	Flies in area	Fleas in house
A	24	34	34	5
B	21	26	24	6
C	15	22	20	7
D	16	25	21	5
E	24	29	25	7
F	10	10	7	-
G	22	27	26	5
H	11	14	13	8
I	20	23	22	6
J	9	11	11	7
K	6	8	8	4
L	17	26	27	6
	195	255	238	66

10.4.2 In general, people were less than willing to acknowledge that there are fleas in their homes or that fleas are a problem. This unwillingness is most likely to be because to have fleas in the house is considered 'aib (shameless), a sign of uncleanness and poor house-keeping. Mosquitoes and flies, on the other hand, "can't be helped", or are somebody or something else's fault. Fleas are also thought to indicate a "backward" way of life. Only with people who have become friends is it possible to talk openly about fleas and to joke about the continual scratching occasioned by sitting in some mafrajes. The following table shows the responses of people who keep animals in the house basement when asked if fleas were found in the house. (Total keeping animals in the basement = 17).

Table 35:

People who keep animals in house basement and say there are no fleas in the house	:	12
People who keep animals in house basement and say there are fleas in the house	:	5

It is extremely unlikely that, if domestic animals are kept in the house basement or yard, fleas do not find their way into the home. No attempt was made to make a distinction between animal and human fleas.

10.4.3 The following table shows that people have knowledge of where mosquitoes come from. Although almost half the categorised responses erroneously stated garbage as a source of mosquitoes, the reasons for this response are quite logical: mosquitoes are often found around the dark and foetid piles of rotting garbage, even if they do not originate there. The respondents who cited trees as a cause of mosquitoes do so because the shade and damper atmosphere around and under trees act as a powerful attraction to mosquitoes.

Table 36: Q44 Where do you think mosquitoes come from?
(multiple responses possible)

	Sewers	Garbage	Puddles
A	19	32	12
B	13	26	10
C	12	20	14
D	13	26	3
E	21	24	20
F	11	14	5
G	14	27	10
H	9	16	8
I	15	23	10
J	7	10	4
K	4	7	1
L	22	24	13
	160	249	110
Records of "don't know"			: 10
Records of "other" (trees)			: 64

10.4.4 From the survey results and the above discussion, the possibility for developing EHE messages around the well-founded existing knowledge of the population can be seen.

10.5 Recommendations

10.5.1 Discuss the potential hazards of hand-washing in water that has been contaminated and encourage the use of poured water. Show that pouring water may not mean that very much more is used, and that the benefits outweigh the disadvantages.

10.5.2 Encourage the use of soap and discourage the use of washing powders which cause skin irritations (especially in children and especially when insufficiently rinsed away).

10.5.3 When the new piped water system is to be introduced, consider what the implications of freely available tap water will be to the rituals of hospitality and hand-washing, and develop appropriate messages.

10.5.4 When the new piped water system is to be introduced, discuss the possibilities for developing messages on increased clothes washing, the responsible use of water in the laundry and the amount of washing-powder to be used.

10.5.5 Encourage discussion on the balance between the possibility of children catching cold if washed too often during cold weather, and the potential for ill-health if children are not kept clean. Further investigation (in-depth) is necessary into the belief that washing may in itself be deliterious to health. Here again, in-depth knowledge is necessary to allow for separation between the concepts of "good, clean dirt" and "polluting" dirt. See, for example the rituals and taboos which surround washing and sex or menstruation. The ritual purification in the baths after menstruation and the 40 days after childbirth are also examples.

10.5.6 Emphasis could be given to the development of messages in the schools as well as in the home. It is recommended, however, that "competitiveness" in personal cleanliness be avoided amongst school students.

10.5.7 EHE staff must be careful to restrict messages on cleanliness to the achievable and not aim for an ideal. It would be useful to hold workshops amongst EHE staff to explore attitudes to cleanliness and personal hygiene.

CHAPTER XI

CONCLUSION

XI CONCLUSION

11.1 Throughout this report, conclusions and recommendations have been made in the course of data analysis and discussion. There is no need to reiterate them here.

11.2 If general conclusions were to be drawn from the findings of the survey, they would definitely show that the possibilities for achieving the overall goal -- that of improving the health status of the Rada'a population -- will be realisable through the chosen strategies and activities of the project. The people of Rada'a are ready and willing to accept and make use of new and improved services. There is already a foundation of knowledge on environmental health issues on which to build. Through the processes of environmental health education, the possibilities for effective and responsible use of those services will be enhanced. Nevertheless, the improvement of health status is not dependent solely on the efforts of RWSSP. To maximise the potential for achieving such a goal, the efforts of a multitude of authorities will be imperative. It is hoped that close cooperation between these authorities, and between all the projects based in Rada'a, can be maintained and can grow so that the people of Rada'a can gain most benefit.

11.3 Ultimately, it is with the continued and expanded cooperation of the people of Rada'a that the success of the project rests. The relationships built up with the Rada'a population by all sections of the project, and most especially by the EHE section, must continue to flourish. From the results of the survey and from the continuing efforts of the EHE section, the project management and all project staff, it can be seen that these considerations are given the highest priority by RWSSP. Many more people are now aware of the project and its activities than were so at the time of implementation of the questionnaire. Many people are now kept regularly informed of project activities, and given a chance to offer their own feedback by the project's periodical publication "Sadiq al Biah" (Friend of the Environment).

11.4 Problems still exist, of course. It is doubtful that there could ever come a time when every citizen of Rada'a was, for example, "cured" of the practice of throwing litter on the ground or fully aware of the reasons why seemingly plentiful water should still be used with economy and discretion. Nevertheless, the opportunities for successful project implementation are there. So is the will to achieve it.

ANNEXE 1

The Questionnaire and Training

مشروع المياه والمجاري والاصحاح البيئي برداع
الاستبيان البيئي لعام ١٩٨٩م
RWSSP ENVIRONMENTAL HEALTH QUESTIONNAIRE 1989

- (١) رقم المنزل
(1) House number
- (٢) رقم المستجوب
(2) Interviewer number
- (٣) التاريخ
(3) Date
- (٤) بحضور طاهر او كرستينا نعم () لا ()
(4) TQ or CV present Yes () No ()
- لمحة عن صحة الاسره
Family health profile
- (٥) الجنس ذكر () انثى ()
(5) Sex M () F ()
- (٦) صلة القرابه برب الاسره
(6) Relation to head of household
- (٧) كم عدد الاشخاص الذي تسكن معهم
(7) How many people do you live with
- (٨) هل عندك اطفال نعم () لا ()
(8) Do you have any children Yes () No ()

(٩) كم عدد الاولاد اعمارهم

(9) How many are boys Aged

0 - 5	٥ - ٠
5 - 10	١٠ - ٥
10 - 15	١٥ - ١٠
15 - 20	٢٠ - ١٥
20 - 30	٣٠ - ٢٥
30 - 35	٣٥ - ٣٠

(١٠) كم عدد البنات اعمارهن

(10) How many are girls Aged

0 - 5	٥ - ٠
5 - 10	١٠ - ٥
10 - 15	١٥ - ١٠
15 - 20	٢٠ - ١٥
20 - 30	٣٠ - ٢٥
30 - 35	٣٥ - ٣٠

(١١) كم عدد اولادك العائشين معك ؟

(11) How many of your children live with you ?

(١٢) هل ماتو عليك اطفال ؟ نعم () لا ()

(12) Have you had any children who died ? Yes () No ()

(١٣) كم عدد الاطفال الذي ماتو ؟

(13) How many children died ?

(١٤) كم كانت اعمارهم ؟

تحت السنه
١ - ٥ سنين
٥ - ١٠ سنين
فوق العشره

(14) How old were they when they died ?

above 10	5 - 10	Under 1
		1 - 5

..... (15) تعرف من ايش ماتو ؟

_____ اسهال
_____ طرش
_____ سعال وبروده
_____ حمى وطنج
_____ اخرى (حددها)

(15) Do you know what did they die of ?

Diarrhoea _____
Vomiting _____
Cough and cold _____
Fever and rash _____
Other (specify) _____

(16) هل حدث لك / لزوجتك اجهاس ؟ نعم () لا ()

_____ كم مرات

(16) Have you (your wife) had any miscarriages ? Yes () No ()

How many _____

(17) هل احد من الاطفال العائشين معك مرضوا منذ اسبوعين ؟ نعم () لا ()

(17) Have any of the children who live with you been ill since Ramadan ?

Yes () No ()

(18) ايش الذى حدث لهم ؟

_____ اسهال
_____ طرش
_____ سعال وبروده
_____ حمى وطنج

(18) What was /is wrong with them ?

Diarrhoea _____
Vomiting _____
Cough and cold _____
Fever and rash _____
Other (specify) _____

(19) لمدى كم مرضوا / مرض ؟

_____ يوم
_____ 1-3 ايام
_____ اسبوع
_____ اسبوعين
_____ اطول

(19) How long were they ill ?

1 day _____
1-3 days _____
1 week _____
weeks _____
longer _____

(٢٠) الى عند من ذهبت لمعالجتهم ؟

الطبيب المحلي _____
الميدليسيه _____
عياده طبيب خاص _____
مركز الامومه والطفوله _____
مستشفى ذمار _____
اخرى (حدد) _____

(20) Did you go to get treatment for them :

From a local healer _____
From a pharmacy _____
From a private doctor _____
From the MCH clinic _____
From Dhamar Hospital _____
Other (specify) _____

(٢١) عندما يمرضوا اطفالك هل ياكلوا ؟ نعم () لا ()

(٢٢) ماذا ياكلوا ؟

(21) When your children are ill, do they eat ? Yes () No ()

(22) What do they eat ?.....

(٢٣) عندما يمرضون اطفالك هل يشربوا ؟ نعم () لا ()

(٢٤) ماذا يشربوا ؟

(23) When your children are ill , do they drink ? Yes () No ()

(24) What do they drink ?.....

(٢٥) هل انت / زوجتك حامل الان ؟ نعم () لا ()

(25) Are you (your wife) pregnant at the moment ? Yes () No ()

(٢٦) هل انت مريض الان ؟ نعم () لا ()

(٢٧) ايش نيك من مرض ؟

(26) Are you ill at present ? Yes () No ()

(27) What is wrong with you ?

(28) Have you gone to get treatment..... من ذهب للحصول على علاج من

From a local healer..... عند الطبيب المحلي
From a pharmacy..... عند طبيب الصيدليه
From a private doctor..... عند العياده الخارجيه
From the MCH clinic..... مركز الامومه والطفوله
From rada a Hospital..... مستشفى رداح
From Dhamar Hospital..... مستشفى مار
Other (specify)
اخرى (حدد)

(29) أين ولد طفلك الاخير

في المنزل
في المستشفى

(29) Where was your child born
At home
In hospital

(30) من ساعد في الولاده

(30) Who assited the birth

Relative..... احدى القريبات
Giddah..... احدى الجدات
PHCW..... عامله صحيه
Hospital..... المستشفى
No one..... والاحد

(31) هل ذهبت / ذهبت زوجتك الى المستشفى ؟ نعم () لا ()

(31) Have you/your wife ever been to the MCH cllic ? Yes () No ()

(32) كان نعم هل ساعدوكم في المستشفى ؟ نعم () لا ()

(32) If Yes,did they help you ? Yes () No ()

حدد المساعده
How (specify).....

(33) هل تمحنت طفلك

مرات 3 ()
3times
مرتين ()
2times
مره ()
1times
لا ()
No

Kitchen Hygiene and Sanitation

(٣٤) هل الساكنين في هذا البيت يأكلون من نفس المطبخ ؟

نعم () لا ()

(43) Do all the people who live here eat food from the same kitchen ,
Yes () No ()

(٣٥) ما نوع الوقود المستخدم للمطبخ في هذا المنزل ؟

(35) What type of fuel is used for cooking in this house ,

Charcoal..... نعم
Gas..... غاز
Wood..... حطب
Dung..... مخلفات البقر
Kerosine..... قاز

(٣٦) كم عدد الوجبات التي تعددها يوميا ؟

.....

(36) How many meals are prepared each day ,

.....

(٣٧) هل من الضروري غسل يديك ؟ نعم () لا ()

(37) Is it important to wash your hands , Yes () No ()

لماذا غسلهم ضروري ؟

.....

Why is it important ,

١
٢

لماذا غسلهم غير ضروريا ؟

.....

Or

Why is it not important ,

.....

(٣٨) متى يمكن غسل يديك ضروريا ؟

.....

(38) When is it important to wash hands ,

.....

(٣٩) هل تغسل يديك جماعيا ؟

في دست اوبالدي
بالصابون بصب الماء على يديك
من الحنفية

(39) Do you wash your hands all together :

In a bowlwith soap
with poured water

اي من طرق غسل الايدي المفضله لديك ؟

.....

..... لماذا ؟

Which method do you prefer :

.....

Why?.....

(٤٠) كم مرات تغسل اطفالك (كل الجسم) ؟

(40) How often do you wash your children all over :

لاقطعيا
مره في الاسبوع
٢-٣ مرات بالاسبوع
كل يوم
Never.....
1-time a week.....
2-3times a week.....
Every day.....

(٤١) كيف تغسلهم ؟

(41) How do you wash them :

تحت الرشاش (الحنفيه)
بواسطة السطل
اخر
Under a tap.....
From a bucket.....
Other.....

(٤٢) تلاحظ نامس كثير في منزلك ؟ نعم () لا ()

(42) Do you see mosquitoes in your house : Yes () No ()

(٤٣) تلاحظ نامس في منطقه سكنك ؟ نعم () لا ()

(43) Are there mosquitoes in your neighbourhood : Yes () No ()

(٤٤) من اين ياتوا النامس ؟

(44) Where do you think they come from ✓

من المجاري
من القمامه
من المستنقعات
اخرى (حدد)
لااعدن
Sewers.....
Rubbish.....
Puddles.....
Other (specify).....
Dont know.....

✓

() لا () نعم ؟ منطقتك ؟ (٤٥)

(45) Are there many flies in your neighbourhood , Yes () No ()

() لا () نعم ؟ منزلك ؟ (٤٦)

(46) Do you have fleas your house , Yes () No ()

() لا () نعم

(47) Are you willing to pay for changing the connection of water and sewerage in your house , Yes () No ()

(48) Are you willing to pay for the connection fees , Yes () No ()

(٤٩) ما نوع الحيوانات التي تربيهم ؟

(49) What animals do you keep :

no	عددهم
Sheep / goats.....	ماعز(غنم)خروف
Cow.....	بقرة
Chickens.....	دجاج
Donkey.....	حمير
Cat.....	قطه
Dogs.....	كلاب
Other (specify).....	اخرى (حدد)

(٥٠) اين تسكن الحيوانات؟

(50)Where basement :

.....

Yard.....	في الطابق الاسفل
Other.....	في الحوش
	اخرى

(٥١) كيف تتخلص من القمامه في محلك / منزلك ؟

(51) Where do you get rid of your household rubbish ,

In the road outside house.....	ارميها الى الطريق خارج البيت
In the road away from house.	بعيد عن البيت ~ ~ ~
In a birmil.....	البرميل ~ ~
In a Pit/wall.....	بئر(حفر قديمه) ~ ~
Other (sPecify).....	اخر(حدد)

(52) Where do you collect rubbish in :

.....

(٥٣) من ينقل القمامه الى البرميل ؟

(53) Who takes the rubbish to the container :

.....

(٥٤) هل تعتقد ان القمامه مشكله فى حارتك ؟ نعم () لا ()

(54) Do you think rubbish is a problem in your area : Yes () No ()

(55) If yes, why :..... اذ كان نعم ليش (٥٥)

It looks bad..... منظرها مؤدى

It smells bad..... ريحتها كريهه

It is alb..... عيب بقائها فى الشارع

It brings flies..... تجلب الذباب

Other (specify)..... اخر (حدد)

(٥٦) من المفروض ان يكن مسؤول عن نفقات جمع القمامه فى حارتك ؟

(56) Who should be responsible for paying for removing rubbish from your area :

Baladiya..... البلديه

Individual families..... الاسره

Other..... اخر

(٥٧) بانتراض انه يجب عليك دفع نفقات النظامه كم بمقدورك تدفع ؟

(57) If you had to pay to remove the rubbish how much would you be willing to pay :

Nothing..... لاشئ

Up to 50YR p.m..... الى ٥٠ ريال بالشهر

Up to 100YR p.m..... الى ١٠٠ ريال "

(٥٨) هل تشاهد البرامج الصحيه ؟ نعم () لا ()

(58) Do you watch the health programmes on the television : Yes () No ()

(٥٩) ماذا تعلمت منها ؟

(59) What do you learn from them :

.....

(60) هل تعتقد ان تعليم الاطفال للقراءة والكتابة ضروري ؟

اولاد نعم () لا ()

بنات نعم () لا ()

(60) Do you think it important if children learn to read and write :

Boys Yes () No ()

Girls Yes () No ()

(61) Do your children go to school :

(61) هل يدرسوا اولادك ؟

اولاد نعم () لا ()
Boys () Yes () No ()
بنات نعم () لا ()
Girls () Yes () No ()

If no, why not : اذا كان لا لماذا

(62) الى اي مرحلة تريدهم يدرسوا انشاء الله ؟

(62) Until what age will they go in sh ALLAH :

.....

هل تكتب ؟ نعم () لا ()
هل تقراء ؟ نعم () لا ()

(63) Can you read : () write ()
No Yes No Yes

(64) هل زوجك / زوجتك تقراء نعم () لا () تكتب نعم () لا ()

(64) Can your spouse read : Yes () No () write Yes () No ()

General

اشياء عامه

(66) تعرف اي شئ عن مشروع المياه والمجارى والاصحاح البيئى ؟

نعم () لا ()

(66) Do you know about the mashruhr :

Yes () No ()

(67) What does it do..... ماذا يعمل المشروع

Sewers..... المجارى

Water..... المياه

Roads / drains..... الطرقات / القنوات

Health..... الصحه

Rubbish..... القمامه

Dont know..... لا اعرف

Other (specify)..... اخر (حدد)

(IMPORTANT , DO NOT PROMPT ON THIS QUESTION)

(٦٨) ماهو مصدر دخلك الرئيسي لمصاريك المنزل ؟

(68) What is the main source of income for your household :

.....

- Land.....أرض زراعيه
 Civil S ervant.....وظيفه
 Business in Rada a.....تاجر في رداع
 Business outside Rada a.....تاجر خارج رداع
 Remittances.....مصاريك خارج البلد
 Other (specify).....اخر(حدد)

(٦٩) تخزني - زوجك ، هل تخزن - زوجتك ؟

(69) Do you / your spouse chew qat :

- Never.....لاقطعيا
 Once a week.....مره في الاسبوع
 2-3 times a week.....٢-٣ مرات بالاسبوع
 Every day.....كل يوم

(70) Do you own : (٧٠) هل تملك

- Refridgerator.....ثلاجه
 Washing machine.....غساله
 T .V.....تلفزيون
 Video.....فيديو
 Generatorمولد كهربائيه
 Hot water Boller.....سخانه كهربائيه
 Gas tannur.....تنور الغاز

(٧١) ماهي الخدمات التي تعتقد انه يلزم تحسينها اولاً في رداع ؟

(71) What do you thing should be improved first in Rada a ,(Give number in order chosen)

- Whater supply.....مياه الشرب
 Rubbish disposal.....تصريف القمامه
 Sewers.....المجارى
 Electricity.....الكهرباء
 Roads.....الطرق
 Education facilities.....التعليم
 Health facilities.....الصحه
 Other (specify).....اخر(حدد)

(72) What do you think is the most important thing to make yuor life and work esslor ,

.....

(٧٣) ماهي كل الاعمال التي تعملها او الاعمال التي تتعبك اكثر ؟
من كل الاعمال

(73) Of all the work you do what makes you feel most therd ,

.....

(٧٤) ماهي في اعتقادك اكبر مشكله صفيه لك ؟

(74) What do you think is the biggest health health problem for you ,

.....

(75) How old are you : (٧٥) كم عمرك

٤٠ - ٣٥

٢٠ - ١٦

٤٥ - ٤٠

٢٥ - ٢٠

٥٠ - ٤٥

٣٠ - ٢٥

٦٥ - ٥٥

٣٥ - ٣٠

٦٥ فوق

(76) Who owns this house: (٧٦) ملك من هذا البيت ؟

Owned ملك

Rent ايجار

- ١- الحصول على معلومات مضمونه في مجال الصحة البيئية ذات العلاقة بمياه الشرب والإصحاح
- ٢- الحصول على معلومات معرفيه وسلوكيه وممارسه تتعلق بصحة البيئه والنظافه العامه
تتبقى كمراجع رئيسيه لخدمات المشروع
- ٣- الحصول على معلومات معرفيه تبين رغبه الناس في مدينه رداغ في مساهمتهم الماليه
لاستمراريه المشروع بعد انتهاء الجانب الاستشاري في المشروع
- ٤- الحصول على هُنههم اعمق يبين وجهه نظر الناس لاولويات خدمات المشروع حتى يوجد
المشروع الاساليب المناسبه لمعالجتها .

هدف الدور

- ١- شرح اهدف المسح الميداني
- ٢- توضيح بالخارطة أماكن المسح
- ٥- مواءمة العمل وأماكن التجمع والمواصلات
- ٧- توضيح وتوزيع نسخ من الأستبيانات لكل مشارك
- ٩- مواءمة التقييم اليومي لإعداد النظر في الأفراد والأسئلة
- ١٠- المواءمة الماليه . لكل مشارك/ باليوم
- ٢- مواءمة السائل (المسح)
- ٤- عدد الفرق بالأسماء
- ٦- شرح جدول المسح الميداني
- ٨- تجربة عمليه بالفيديو تبين
 - ٢- أسلوب التقديم ب- طهرية الأيدي
 - ج- الملاحظات د- إيصال المعلومات
 - د- طهرية كتاب المعلومات
- ١١- كيفية بقا ملف الأستبيانات ومحتوياته

TRAINING

The first course was organised for the interviewers. It was attended by male and female PHC trainees. There were no objections whatsoever against having a mixed group. The course was implemented in the RMCH training room.

Full details of the course content are contained in RWSSP records.

The female team was hesitant at first about the micro teaching (using the video as feedback for self criticism). After explaining the purpose of it, however, and promising to erase the tape immediately after demonstration, they agreed. Their interest and enthusiasm about the role-play exercises they made on video, made them rush to ask their female colleagues to come and see what they had done. So the video was played once again for all the female PHC workers.

The second course was carried out in the same manner as the first, but for a female only group. It was implemented in RWSSP's training room during the afternoon. Four of the team members were recruited through the Rada'a Non-Formal Training Centre for Women. All were secondary school students. The other two women were working in the RMCH. Two of RWSSP's male staff joined the course. This was a fall-back measure in case there were drop-outs from the male team.

The female group (mainly the students) was determined -- without negotiation -- to drop the micro teaching using the video. However, the students welcomed the idea of the role play whilst members of the RMCH were extremely hesitant. These women claimed that interview was part of their daily job and therefore, practice was not necessary. In the end, they agreed to do it. The play was organised to demonstrate the real situation in the house. When reviewing the play, it was proved that those who were too confident of doing the interview needed the play most for support and improvement of performance.

TAQ/RWSSP

ANNEXE 2

Terms of Reference and Interview Training

RADA'A WATER SUPPLY AND SANITATION PROJECT
SURVEY ON ENVIRONMENTAL HEALTH AND SANITATION

TERMS OF REFERENCE

1. Background

- 1.1 RWSSP started its first garbage cleaning campaign in Rada'a in September 1988 in line with its planned programme of activities. The Rada'a population, 35,000, will be provided with five services by RWSSP: solid waste disposal; drainage of rainwater; drinking water supply; sewerage facilities and environmental health education. The aim of these interventions is to improve the Rada'a environment which will, in turn, improve the health of the population and lead to a higher standard of living.

Prior to September 1988, drainage of stormwater was non-existent and surface water collected in depression sites and in large puddles across all roads in the town. The original sewerage channel in the old part of town had collapsed and become blocked with garbage and foul-smelling water. Environmental health education had not been attempted and although casual contact with the population suggested that there existed a great knowledge of the connection between sanitation and health (c.f. Crawford 1988), conditions did not allow the population to exploit this knowledge to their own benefit. Solid waste disposal services were provided only to the new suq area and the piped water system, although connected, was poorly supplied and maintained: drinking water often being contaminated with sewerage (c.f Inception Report, July 1988, RWSSP).

- 1.2 It is the role of the Environmental Health Department to liaise between the people of the Rada'a Urban Area and the technical division of the RWSSP. To this end, the EHE department seeks to gather and make available information which has bearing on the design and implementation of appropriate technical strategies. It also seeks to increase the awareness and understanding of the people so as to allow them to participate fully in project activities. Now that RWSSP has begun its provision of services to Rada'a town (c.f Progress Reports etc. 1989) the EHE Department can implement surveys which will increase the baseline information available to the project. The reasons for delaying the survey process until this time are given below (2.2i). To date, there has been no detailed survey on Health and Sanitation in the RUA: An Economic and Social Survey was implemented in 1982 (RURDP Final Report April 83) but this was severely hampered by the prevailing political circumstances which prevented adequate collection and assessment of data. Since that time there has been little attempt to analyse health information on a systematic basis.

2. Method

2.1. Goals

- i. The goals of the survey were decided on the basis of the needs of the RWSSP in the implementation of project strategies (see Inception Report, July 88).
- ii. To this end, data collection has been focused, where possible, on issues which may be directly related to water supply, hygiene and sanitation. This focus means that baseline health information will inevitably be partial, but should be adequate to give an overall view sufficient to project needs. It is recommended that the project look towards future increased cooperation with the Rada'a MCH clinic staff and RIRDP to develop strategies for increasing the baseline health information for Rada'a, amassing data of benefit to all three projects.
- iii. The immediate goals of the survey are:
 - a) To gain reliable information on environmental health issues in relation to water supply, hygiene and sanitation.
 - b) To gain understanding about the range of knowledge, attitudes and practices which relate to environmental health, hygiene and sanitation and which may act as resource or constraint to project activities.
 - c) To gain knowledge of the present degree of willingness among Rada'ai people to pay for garbage disposal services and to participate in the upkeep of all project services after expatriate withdrawal.
 - d) To gain greater understanding of people's perceived needs and priorities in relation to project services, and knowledge on how to approach these issues.
- iv. In determining the areas for attention in the survey, use has been made of existing health status data from other parts of Yemen and knowledge of health and sanitation problems throughout the country (c.f eg. Johnson, O'Reilly and Soutar, 1985; Hoskins, 1987; Buringa, 1988 Beatty and van Dijk 1988). The Rada'a clinic MCH records for April-May 1988 also provide valuable pointers to areas for enquiry, as do the reports of RIRDP (Inception Report 1988:7-25).
- v. The survey report will incorporate data from various different sources (see 2.4 below) including the results of the March 89 sanitation questionnaire (Terraneo).

2.2 Research Design

- i. During the formulation stage of the EHE component of RWSSP, it was decided that baseline studies should not be carried out until technical project activities were underway. Although it was realised that this decision runs contrary to usual practice, it was deemed imperative for the following reasons:
 - a) The nature of any social research is extremely sensitive in Yemen and requires that a degree of understanding (if not trust) of the project researchers has developed in the target population.
 - b) Experience in Yemen has shown that attempts at action-orientated social research without concomitant provision of observably "useful" services can end in disaster at worst, lack of cooperation at best.
 - c) Whilst no specific analytic data on the Rada'a urban context were available to facilitate project formulation and inception, the general health, hygiene and sanitation issues were well known and often immediately observable (c.f Inception Report vol.1 ch 7 and vol.2 E3). It was not felt, therefore, that the lack of baseline data would seriously impede the beginning of project implementation.
 - d) The lack of baseline information available before this period is not felt to diminish possibilities for evaluation of impact of the project activities. To date, implementation of the water supply and sewerage systems have not begun, and solid waste disposal services are still at an early stage. Furthermore, it was considered preferable to delay collection of baseline data until this stage rather than risk antagonising and alienating the target population. This consideration is supported in another Yemeni situation by Beatty and van Dijk who emphasise the need for good public relations in the implementation of social surveys:

"... because understanding, trust and a sense of mutual benefit as experienced by the population involved were essential in order to enhance the honesty with which questions were answered and to promote full cooperation with the research team."
(1988:23).

2.3 Sample

- i. An original sample of 333 houses was chosen for the March 89 sanitation questionnaire. The sample was based on 7.5% of houses throughout the 12 urban districts of Rada'a (c.f Inception Report, July 88). By numbering off on the 1:1000 map prepared and updated by RWSSP and choosing houses sequentially, a cross-section of houses in old and new districts and relatively "rich" and "poor" areas was obtained.

- ii. Since the original sample was found to give an adequate representation of the desired variables, it is to be maintained for the implementation of the health questionnaire. For the questionnaire, an additional 15 houses will be surveyed (chosen as a judgemental sample) and both the sanitation and health questionnaires will be administered to provide a measure of check against time-lag between the two questionnaires.
- iii. The size of sample and the spread across the 12 districts allow for a factorial analysis on four variables: old/new houses; male/female respondents; literate/non-literate respondents; "poor"/"medium"/"rich" living conditions (criteria to determine these latter categories have yet to be fully determined).
- iv. It will also be possible to make comparison between areas which have already received technical project services and those which have not.
- v. The formal sample of 333 houses will be augmented by further categories of data gained in other EHE activities (section 2.4iii and iii below).
- vi. Although the questionnaire will be designed to consider issues which relate to both men and women, a strong bias towards female respondents is expected as the questionnaire is to be administered within the home (expected: 2/3rds women, 1/3rd men respondents). The bias is in line with the role of Yemeni women as "household managers", managers of the domestic water supply and custodians of family health (see Buringa 1988). The inclusion of women's active voice is also in line with the Dutch Cooperation Policy on WAD, Programme of Action June 1987 and the recommendations made by Buringa in her analysis of Yemeni Women in Transition:

"Women's knowledge, needs and wishes tend not to be taken into account while identifying, implementing or evaluating water projects..." (1988:43).

The project fully acknowledges, however, the need to ensure that male opinion and understanding is solicited at all stages:

"As Yemen is still a society where gender-segregation is quite strict it is suggested that men's ideas and responsibilities are involved in the formulation of WAD activities so as not to upset the delicate balance between male and female worlds." (ibid.:63).

2.4 Data Collection Technique

Data to be analysed as part of the sanitation and health survey are to be collected in three main ways:

- i. By formal questionnaires.
- ii. By record of formal meetings with Environmental Health Facilitators and the people of the RUA and between Environmental Health Facilitators and the people.
- iii. By informal meetings attended by EHE staff and by observations made by them in the course of their work.

i. Formal Questionnaires:

- a) A formal questionnaire regarding basic sanitation and water use was designed by the EHE Division and administered by V. Terraneo in March 89. The results were written up (Terraneo March 89).
- b) A more extensive questionnaire on health, hygiene and sanitation has been designed by S. Crawford and T. Ali Qassim. This questionnaire will be piloted in late May 89 and will then be refined and adjusted before administration to the sample population in August/September 1989.
- c) The implementation of the questionnaire will be supervised by the Survey Coordinator (T. Ali Qassim). Implementation will be carried out by EHE department staff.
- d) Training in survey techniques and the development of a high understanding of the goals of the survey are essential for all staff who participate in survey implementation. Training to ensure that staff motivation is high, and that questionnaires are administered responsibly and in standard fashion, will be designed by S. Crawford and T. Ali Qassim, and carried out by T. Ali Qassim.
- e) Recording techniques will be standardised under the supervision of T. Ali Qassim.
- f) It is envisaged that data collection and record will take approximately 6 weeks and be undertaken initially by 8 workers. It is strongly recommended that women be recruited to assist in the questionnaire team owing to the female bias in the sample outlined in section 2.3vi above (see "personnel" notes). Questionnaires will be administered in the mornings where possible, taking up to 2 hours per house visit. The remainder of the working day will be devoted to central recording of data. The Survey Coordinator will make occasional visits with the questionnaire team so as to offer support and check that the questionnaire is being administered in standard fashion.

ii. Formal Meetings:

a) Following the identification of E.H facilitators from the various urban districts, formal records of meetings, discussion issues, topics for consideration and recommendations are to be kept. Records are kept by project staff and will be kept by a number of the facilitators in their meetings with the people.

b) Records are in standard format on form FV/EHE/1/89, and will provide information to supplement the data collected in the questionnaires.

c) It is expected that records of these meetings will provide good information on the attitudes of the people. Discussion of attitudinal issues and perceived priorities and needs will be encouraged.

iii. Informal Meetings and Observations:

a) In the course of their everyday work, project staff discuss with the people and make observations on issues relating to water supply, hygiene, sanitation and health. It is intended that full use should be made of this informal and anecdotal information, both by consultation of staff's daily records and by discussion and interview to be carried out by the Social Researcher (S. Crawford).

2.5 Record and Analysis of Data

i. Records of all survey data will be held centrally in the EHE department.

ii. Consultations with a local expert will be held to determine the most effective way of transferring data to computer, ready for analysis by the Social Researcher.

iii. After recording of all survey data, the Social Researcher will make a return visit to Rada'a to analyse the data and begin the report. The visit will be for 3-4 weeks in Autumn 1989 (though it is recognised that completion of the report will extend beyond this period).

iv. In line with project policies, and following project procedures, the report will be translated into Arabic and will be disseminated to all relevant authorities.

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Sheena Crawford
May 1989.

PERSONNEL AND TRAINING REQUIREMENTS FOR SURVEY IMPLEMENTATION

NOTES:

It is suggested that 5 survey teams be used to implement the questionnaire. These would comprise: 2 men working individually, and 3 teams of two women each. TQ and CvS would operate as supervisors and Cvs would "fill in" as part of a team if anyone was missing.

This would necessitate finding 5 extra women: perhaps Sameera would be willing to assist. Another 4 might be recruited from the Women's Training Centre here in Rada'a (TQ and CvS to investigate if management willing?).

TRAINING

It is imperative that all team members have a complete understanding of the goals, methods and procedures of the survey and that the training offered to them ensures a high level of commitment to carrying out the questionnaire as effectively as possible. It is recommended that at least 3 half-day sessions are devoted to training and preparing the survey team. Training would take the form of discussions and workshops designed to strengthen interviewing, observation, communication and recording skills. The final session would involve going through the questionnaire question by question and making sure it is fully understood.

Feuerstein, chapter 4 (in Partners in Evaluation) gives a useful outline of the topics which need to be covered with survey personnel and how to approach the issues. Page 94 gives an example of "good" and "bad" interviewing practice.

Suggested exercises:

- Role play of interview: Interviewer to devise 10 questions to ask colleague. Attention to procedures of introduction, preparation of respondent, and record of answers. Afterwards, interviewer to give a summary of what was learned and respondent to say whether they felt they had been given/taken opportunities to answer honestly and fully.

If possible, video the exercise and play back to "actors". (If women don't want to be video-ed, could use eg. CvS and Mohammed).

Audience to comment on what they saw happening: good things and bad. Eg.: did the interviewers introduce themselves, did they explain why they were there, did they behave in a way to make the respondent feel as comfortable as possible? What was their attitude to the respondent, did they really

listen? How could you tell they were listening? Did they give a fair summary of the interview?

- In pairs: Each partner has 5 uninterrupted minutes to tell their biography to their partner (could be made up, but only if it can be remembered by the person who tells it). partner listens, but does not make notes. When everyone has done this, each person takes a turn at introducing his/her partner to the group. Develops listening skills, attention, mental recording, accurate representation.
- Give a person an object. The object must be studied for a while and then described to the group, who have not seen it. The description must not say what the object is or what it is used for, but should be so complete that the group can guess what the object is! (Could be, eg. a tea kettle or a pair of glasses).
- In pairs, spend 10 - 15 minutes discussing the major issues in doing the questionnaire. The feedback to group and record group fears, expectations on flip-chart paper.

Important things to remember:

- All questions must have a recorded answer. If the respondent does not answer, then write "no answer given". Do not leave blanks as this causes confusion later.
- It is better to have "no answer given" than an answer made up by the interviewer.
- Do not assume you know what answer the respondent will give: wait for them to give it.
- Allow ample time for the respondent to think about the question and answer it.
- If the respondent really does not understand the question, you may try to explain it to them, then ask the question again.
- Try to be friendly, you do not have to pretend you are a machine.
- TQ will explain during the session, when and how prompting is allowable. Follow these guidelines exactly.
- Do not forget to spend time explaining to the respondents what and why you are doing. Follow the rules of hospitality etc. that you would normally follow. Obviously, thank the respondents on behalf of the project.
- Accurate and legible recording is vital. Finish the whole record for each house before you move on to the next: ie. all the questionnaire sheets, plus interviewer observation sheet, and mark

off the house on the correct map section.

- Be prepared to discuss the visits done each day with TQ and CvS.
- Do not be afraid to tell TQ of the problems you encountered or if you felt an interview went badly, or if you felt the respondent was not telling the "truth" or was withholding information.

SEC, May 1989.

TRAINING PROGRAMME INTERVIEWERS BASELINE SURVEY

To be held at the MCH clinic Rada' on 2 and 3 October 1989
Course leaders Taher and Chrisje.

AIMS AND OBJECTIVES:

- To explain the aims of the survey
- To explain the tasks, role and desired behaviour of the interviewers
- To explain and discuss the questionnaire, question by question
- To make the interviewers aware of easy-to-make mistakes and to discuss how to avoid them
- To train the interviewers how to observe, how to deal with the questions and how to record them
- To explain the use of the map where upon the houses are indicated
- To explain the following logistics:
 - selection of teams and their identification number
 - arrangement of transport
 - working time and where to meet
 - distribution of questionnaires and use of files
 - daily evaluation, where and supervised by whom

MATERIALS NEEDED

- Overhead projector
- Video camera and monitor
- 12 copies of aims of the survey
- 12 copies of the questionnaire

PROGRAMME OF THE TRAINING COURSE

Monday 2 October

- 09.00 - 09.30 Introduction
Participants introduce each other (in pairs) to the group
Objectives: To get to know each other to ease the atmosphere
to make participants aware that information is easily lost and/or distorted and that one has to listen carefully
- 09.30 - 09.45 Opinion of the participants on what they think about the survey
Objective: to find out what participants know already and what their expectations are
- 09.45 - 10.15 Explanation about the aim of the survey
- 10.15 - 10.30 Break
- 10.30 - 10.40 Distribution of the questionnaires and reading by the participants
- 10.40 - 11.00 Discussion about the questions of the participants on the questionnaires
- 11.00 - 11.10 One participant explains something unknown to the group (e.g. intricate poster) to make participants aware that people often misinterpret or don't understand certain information.
- 11.10 - 11.30 Discussion on this exercise
- 11.30 - 12.00 Extra time, if needed.

Tuesday 3 October 1989

- 09.00 - 09.15 Participants give their ideas about the role and behaviour of the interviewer
- 09.15 - 09.30 Discussion and explanation about the role and behaviour of the interviewer, including the recommendations of Mrs. Crawford. Team selection and their number
- 09.30 - 09.40 Work in small groups, discussing per team what kind of obstacles they might expect
- 09.40 - 10.10 Feed back and discussion
- 10.10 - 10.30 Break
- 10.30 - 10.40 Video recording of simulation play 2 survey teams. One good and one bad.
- 10.40 - 11.10 Replay first video (the good team) and explanation and discussion step by step about their behaviour and the reaction of the respondent
- 11.10 - 11.30 Replay second video (the bad team) and explanation and discussion about their behaviour and the reaction of the respondent. Comparison between the two videos
- 11.30 - 12.00 Extra time if needed.

ANNEXE 3

"Old and New" (Afraah Abdullah)

"OLD AND NEW" HOUSES IN RADA'A

Description of Old Houses:

An old house consists of one or two floors. Rooms are separated and distributed between those two floors. Usually there is a big room on the ground floor and smaller rooms upstairs. The kitchen is sometimes built upstairs, while bathrooms are found on the ground floor.

The ground floor may be used as a shed for livestock like cattle, sheep or even poultry. This may generate a bad smell and attracts insects like flies, mosquitoes and lice. A yard may be found. It is either in front of or behind the house. Here onion, pepper tree, pomegranate, grapes, flowers and other aromatic plants are grown.

The advantages of old houses:

1. Since they are made of earth, they can conserve temperature for a long time.
2. They maintain the old architecture and tradition of Yemen.

The disadvantages:

1. Neither efficient sewerage nor water supply system are available (no clean basins, taps, no modern bathroom). It is not easy to get water. The drinking water supply is liable to contamination.
2. Since the floor is earth and is renewed by adding a layer each year, it gets cracked. The plentiful cracks provide good breeding and living places for insects.
3. Old houses are built close to each other with very narrow roads in between. Because of this, no garbage containers can be placed close-by. So, people throw their rubbish outside the houses and this gives insects and germs a nice environment in which to multiply.

Description of new houses:

New houses are made of blocks, cement, sand, iron etc.. They are provided with all modern facilities (bathrooms, water heaters, taps, efficient water supply and sewerage systems). They are easy to keep clean. The disadvantage is that they are high, and with height, available oxygen decreases. Also, high buildings may obstruct fresh air currents.

I had already asked participants at the Rada'a Non-Formal training centre for Women the following question: "which would you prefer, to live in a modern house or in an old house? Why?" One group said "we prefer to live in an old house because it is simple and it connects us deeply to our roots as the beautiful days of the past". The other group said "we should certainly prefer to live in new houses where cleanliness, hygiene and all means and facilities of modern life are available".

Afrah Abdullah (in translation)
1990.

ANNEXE 4

Rada' Hospital Records

RADA' HOSPITAL AND MCH RECORDS
1/10/89 - 31/12/89

No.	Cases	No. of Cases	Percent
1.	Chest infection, bronchitis	300	23.48
2.	Fever, inc. 37 cases malaria	147	11.7
3.	Abdominal pain	141	11.2
4.	Inflammation of joints	105	8.2
5.	Enteritis	90	7.1
6.	Skin diseases	87	7
7.	Fractures	75	6
8.	Hypertension	45	3.6
9.	Urinary Tract Infections	42	3.3
10.	Headache	33	2.6
11.	Kidney spasm	30	2.4
12.	Eye infections	24	2
13.	Nerves (inc. 19 women)	21	1.6
14.	Epilepsy	9	.7
15.	Mental deficiency in children	6	.6
16.	Psychopathy	5	.4
17.	Psychosis	4	.3
18.	Diabetes	3	.2
19.	Fright	3	.2
20.	Anxiety	2	.15
21.	Neural paralysis	2	.15
22.	Heart failure	2	.15
23.	Tuberculosis	-	-

Oral rehydration solution used during the period - 876

Cases of diarrhoea and various skin diseases over period:

Diarrhoea - 123 Skin diseases - 54 miscellaneous - 93

TB: Pulmonary - 46 non-pulmonary - 10

Malaria - 292

Bilharzia: Urinary schisto. - 14 Colonic schisto. - 131

(n.b. This is a direct translation of the clinic records as they were presented to RWSSP).

ANNEXE 5

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ANNEXE 6
Map of Rada'



MAP OF RADA'
SCALE 1:4000
LEGEND:

- | | |
|------------------------|------------------------|
| 1. Harat Al Q'ana | 7. Q'a Sharaf |
| 2. Al Q'ala (Fort) | 8. Shutar (Police st.) |
| 3. Hayzaz | 9. S. Safiya |
| 4. Al Rawda (Hospital) | 10. N. Safiya |
| 5. Al Hafrah | 11. W. Safiya |
| 6. Suq Al Merkazi | 12. Musala |