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**REACH**

RESOURCES  
FOR CHILD  
HEALTH

# **RESULTS OF THE HEALTH MANPOWER SURVEY OF GOVERNMENT HEALTH FACILITIES IN YEMEN**

**Yemen**

**February 8 - March 8, 1992**



**CONSULTANCY REPORT**

**ON**

**RESULTS OF THE HEALTH MANPOWER SURVEY OF  
GOVERNMENT HEALTH FACILITIES IN YEMEN**

**by**

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**8 February - 8 March 1992**

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## ACRONYMS

<b>ACCS</b>	<b>Accelerated Cooperation for Child Survival</b>
<b>CSO</b>	<b>Central Statistical Office</b>
<b>MOPH</b>	<b>Ministry of Public Health</b>
<b>REACH</b>	<b>Resources for Child Health</b>
<b>TBA</b>	<b>Traditional Birth Attendants</b>
<b>TCHMP</b>	<b>Technical Committee for Health Manpower Projections</b>

## **I. EXECUTIVE SUMMARY**

REACH is providing support to the ACCS Project in Yemen by providing technical assistance to the MOPH and the four ACCS governorates (Hajjah, Hodeidah, Mareb and Saadah) in undertaking a health manpower needs assessment and health manpower projections for the Five Year Plan and the longer-term Health Manpower Plan. The assistance is planned as part of a five-step process:

- Step 1. Consultancy 1. Assist in the design of the health manpower survey form.
- Step 2. Survey data collected and entered into a computer database.
- Step 3. Consultancy 2. Assist in the analysis of the health manpower database to identify and quantify national and governorate health manpower problems.
- Step 4. MOPH and governorates identify alternative solutions.
- Step 5. Consultancy 3. Assist in manpower projections to evaluate these alternative solutions.

The first consultancy was completed in August 1991, and the present report describes the results of the second consultancy of the series.

The survey data has been successfully collected, but at the start of the consultancy data entry had not begun. During the consultancy the input of health manpower data for seven governorates, including the ACCS governorates, was achieved. A preliminary analysis of this data using four main staff categories (Medical, Nursing, Technical and Other) has already produced useful results:

- a) the proportion of Other staff i.e. administrators, clerks, cooks, guards, etc. is high, more than one third of the total staff in governorates and sometimes more than a half;
- b) the pattern of female employment in the four categories varies widely between the governorates; the proportion of females is highest in Nursing, as would be expected, but varies considerably in Other staff from 31% in Hodeidah to 0% in Jauf;
- c) the proportion of non-Yemeni staff also varies widely between the governorates but is highest in the Medical, Nursing and Technical categories. Non-Yemeni staff constitute only 1-3% of the Other category, except in Saadah, where they provide 41% of the category;
- d) the numbers of staff on contract correspond closely to the numbers of non-Yemeni staff in the Medical, Nursing and Technical categories in each governorate, as would be expected. However, there is a very high proportion of Other staff on contract; in four of the seven governorates it is the highest figure for the four categories, and in Dhamar it reaches 61%. Since virtually all these staff are Yemeni (except in Saadah), the question arises as to why they are not permanent employees.

In each case these results indicated that more detailed analyses would provide further useful information, although it was not possible to get these programmed for the database during the consultancy.

These analyses demonstrate that the survey will be able to produce the results which were intended, once all the survey data has been checked, coded and entered into the MOPH computers. However, these analyses constitute only a small proportion of one type of manpower analysis out of the

program of four basic types of analysis which was planned and agreed during the previous consultancy in August 1991. The results so far do not provide the essential data for the next planned consultancy (health manpower projections). More important, they do not provide MOPH and governorate staff with the comprehensive and detailed statistical picture of the health manpower situation in the country as a basis of producing a robust and practical Five Year Health Plan. This was always seen as the first and major benefit of the large investment in the survey and database, most of which has already been made.

In order to assist the MOPH to achieve these planned benefits, it is recommended that an extra consultancy visit should be scheduled, to be undertaken when the input of the survey data is complete and the MOPH staff have been trained to program the database to produce analyses. The purpose of this extra consultancy would be to assist MOPH staff to complete the planned program of health manpower analyses and to provide the essential data for the health manpower projections. It could take place about July 1992.

Longer-term developments of the health manpower database, after its immediate use for the health manpower analyses, were discussed with MOPH staff. The main task will be to design and implement an updating procedure to cover recruitment, transfer, promotion, new qualifications and resignation of staff. This will entail negotiating with a reliable source for this data and adding personal identification items to the computer records so that the changes can be made to the correct records. (These identification items are not essential for the manpower analyses.) When this has been done, the database could then be used as a Computerized Personnel Record System for personnel administration. A possible sequence of steps for this development is given in the report.

## **II. BACKGROUND AND SCOPE OF WORK**

Following the unification of the Republic of Yemen on 22 May 1990, the Ministry of Public Health (MOPH) has undertaken a major exercise to produce a detailed national Five Year Health Plan and a Health Manpower Plan covering the period up to 2010. All this work is being supervised by a Five Year Health Plan Committee, chaired by the Permanent Under Secretary for Health Development in the MOPH, Dr. Abdulla S. Assaedi. Executive responsibility for formulating the Plan, and the detailed work this involves, is shared between eight committees -- the Technical Committee for Health Manpower Projections (TCHMP) and seven other committees which cover policy and resources, basic health services, hospitals and medical care, health manpower development, logistics and maintenance, administration and health information, and education and research.

An Information Committee has also been appointed, chaired by the Permanent Under Secretary. Its task is to collect, analyze and make available all the information which will be required by each of the eight committees in the formulation of their different aspects of the Plan. Some of this information will be obtained from outside the MOPH, e.g. current and projected population figures based on national surveys by the Central Statistical Office. Some of this information will be the result of decisions made within MOPH, e.g. what different types of Government health facility will operate in the country in the future and what will be the standard staffing pattern of each. However by far the largest proportion of the information for the eight committees concerns the current situation in the field, and has been collected by means of a massive survey covering all Government health facilities in the country and the health manpower employed in each. Donors are supporting the survey and the subsequent planning exercise to the extent of \$135,000, of which USAID has contributed a grant of \$60,000 towards the cost of the national survey.

The Information Committee has designed seven survey forms covering:

1. Basic health services
2. Health establishments with beds (hospitals and health centers)
3. Health manpower
4. Health manpower training institutes
5. Faculty of medicine and health sciences
6. MOPH departments and projects
7. Health Guides

The 18 data items in the health manpower survey are listed in Annex 1. The survey has been conducted by teams in each governorate, trained by survey supervisors who themselves had been trained for the purpose at the MOPH. All the survey forms have been returned to MOPH where they have been checked, and the data they contain is being entered into computers for analysis and reports.

The Accelerated Cooperation for Child Survival (ACCS) Project in Yemen, funded by USAID, is working in four governorates (Hajjah, Hodeidah, Mareb and Sa'adah) and is being assisted and supported by the Resources for Child Health (REACH) Project of John Snow Inc. One component of this support is technical assistance to the MOPH and the four governorates in undertaking the health manpower needs assessment and the health manpower projections for the Five Year Plan and the longer-term Health Manpower Plan. The plan for this assistance was as follows:

- Step 1. Consultancy 1. Assist in the design of the health manpower survey form.
- Step 2. Survey data collected and entered into a computer database.

Step 3. Consultancy 2. Assist in the analysis of the health manpower database to identify and quantify national and governorate health manpower problems.

Step 4. MOPH and governorates identify alternative solutions.

Step 5. Consultancy 3. Assist in manpower projections to evaluate these alternative solutions.

An earlier consultancy, in August 1991, assisted in the design of the health manpower survey form, the training schools survey form and the two facility survey forms, and also set out the four main types of analysis which should be performed on the health manpower data (see "Interim Report on Health Manpower Needs Assessment for Government Health Facilities in Yemen" by Peter J. Shipp).

The present report describes the results of the second consultancy in the series, the planned aim of which was to assist MOPH staff in carrying out the analyses and in producing a Health Manpower Situation Report, based on the analyses, for each of the four ACCS governorates (see Annex 2 for the Scope of Work). A further aim has been to work closely with selected members of the MOPH during the consultancy so that they can use the same methodology and techniques in order to produce Health Manpower Situation Reports for the remaining fourteen governorates and the country as a whole.

A third consultancy is planned which will assist MOPH staff to set up and calculate manpower projections at the national level (in order to evaluate national health manpower policy options e.g. on training) and at the governorate level (in order to evaluate governorate manpower policy options e.g. on staff deployment). These evaluations will be the basis of the manpower components of the Five Year Plan and the longer-term Health Manpower Plan.

### III. HEALTH MANPOWER ANALYSES

#### The Planned Analyses

The four basic types of health manpower analysis which were planned for the assignment are:

1. Actual Staffing compared with Standard Staffing for all health facilities. The MOPH has decided that its health manpower requirements will be determined by setting standard staffing patterns for each different type of government health facility (in preference to using population ratios, service targets, etc.) This analysis is designed to show how the current staffing levels in government health facilities compare with the targets which MOPH sets for each staff category in each type of health facility throughout the country.
2. Staff characteristics based on the data collected in the health manpower survey (Form 3) e.g. age, length of service, sex, nationality, etc. (see Annex 1) and any combination of these factors. These analyses provide information on those issues related to:
  - a) personal factors e.g. the proportion of non-Yemenis, or females, or older staff, etc. employed in different categories in different types of health facility in different governorates;
  - b) staff stability, using age distributions and length of service distributions for different categories employed in different types of health facility in different governorates.

3. Training institutions, based on the data collected in the health manpower training institutes and Faculty of Medicine surveys (Forms 4 and 5) particularly the capacity, intakes and outputs for each course. This analysis shows the performance of each of these institutions in terms of proportion of capacity filled, proportion of intake graduated, etc.
4. Coverage or equity in the availability of health services. Insufficient health services can arise because of staff shortages in existing health facilities, or because of an insufficient number of health facilities -- even in an area where the health facilities are fully staffed. An approximate calculation based on estimated 1991 populations, to be obtained from the Central Statistical Office (CSO), is used in this analysis to identify:
  - the relative effects of staff shortages in existing facilities (based on standard staffing patterns) as compared with the lack of new facilities;
  - those situations where existing facilities and staff are under the most pressure because of the combined effect of the two types of shortage.

As well as providing a statistical picture of the current health manpower situation in the country, these analyses also produce some of the basic data for the manpower projections -- the next phase of the work.

#### Progress on the Health Manpower Survey

Since the previous visit in August 1991, it had been decided to undertake the whole survey using MOPH staff rather than using the services of the CSO for the coding and checking of the forms, the entry of the data into computers and the analysis of the records to produce tables of results. The aim here is to develop a capability within the MOPH for mounting such surveys in the future. Dr. Abdui Gabbar Ali Abdulla, Director of Health Research, who has worked for a period in CSO, is in charge of the survey operations in the MOPH. Other MOPH staff have been seconded to the Survey Team for coding, checking and data input. The MOPH has retained a computer consultant to do all the programming related to data input, analyses and the production of tables of results.

At the start of the present visit many of the completed survey forms had been delivered to MOPH from the governorates. In the processing of these forms the Health Manpower returns (Form 3) were given priority. The coding lists for most of the items on this form had already been produced and the coding and checking of these forms for the four ACCS governorates had begun. However, a disagreement about what to code and enter concerning qualifications (Question 18) had held up progress. This disagreement was quickly resolved, so that the coding lists for Form 3 could be finalized. Only then could the programming for data entry into the computer begin. The data entry from the health manpower forms for the ACCS governorates, employing all the available data entry clerks and computers, started a few days later.

When the entry of the manpower data for the four ACCS governorates had been completed, the focus shifted to the entry of data on health facilities (Forms 1 and 2). While the entry of manpower data for other governorates has continued, the coding lists for the items on Forms 1 and 2 have been completed so that the data entry program could be written. The data on the health facilities in the ACCS governorates is being entered, but the complete data for one of these governorates is not yet available. When it is, it will be possible to analyze the manpower data by type of health facility. Coding and data entry for the Faculty of Medicine (Form 5) and for the health manpower training institutes (Form 4) are scheduled to begin next.

### The Completed Analyses and Their Results

The analyses of the computer database are at present being programed by the computer consultant and one consequence of the competing priority demands on his time is that only three manpower analyses are so far available. Attempts to find a copy of an analysis program (e.g. SPSS) which could be used on the health manpower database during the consultancy were unsuccessful. Training MOPH staff to be able to produce analysis tables from the databases is a high priority.

The three analyses available are Main Staff Category by Sex, Nationality and Type of Contract. The four Main Staff Categories are:

Medical covering doctors, dentists and pharmacists

Nursing including all nursing staff from professional nurses to TBAs and Primary Health Care Workers

Technical covering laboratory, X-ray, dispensary staff, etc.

Other including administrators, clerks, cooks, laundry staff, guards, etc.

These analyses are currently available for seven governorates, including the four ACCS governorates. Although these first analyses were intended to be a preliminary overview of the contents of the health manpower database, nevertheless they have produced useful results.

From these three analyses, four sets of results have been obtained:

1. Proportions of Staff Employed, by Main Category

The results for the seven governorates, including the four ACCS governorates, are shown in Table 1.

TABLE 1: PERCENT STAFF IN MAIN CATEGORIES

	MEDICAL	NURSING	TECH'L	OTHER
MAREB	4%	39%	5%	53%
SA'DAH	14%	37%	9%	40%
HAJJAH	9%	52%	7%	35%
HODEIDAH	12%	45%	7%	35%
JAUF	4%	46%	2%	47%
BAIDA	10%	47%	5%	38%
DHAMAR	6%	46%	6%	41%

The feature of interest here is that the proportion of "Other" staff in all these governorates is remarkably high, more than one third. In about half these governorates there are more "Other" staff employed than nurses, and in one governorate (Mareb) there are more "Other" staff employed than medical, nursing and technical staff combined. This result indicates that a more detailed analysis would be useful, showing the numbers of staff employed in each separate staff category (clerk, cashier, accountant, cook, guard, driver, economist, etc.) in the "Other" main category. The detailed results for each of seven governorates are shown in Annex 3.

2. Proportions of Female Staff Employed  
The results for the seven governorates are shown in Table 2.

TABLE 2: PERCENT FEMALE STAFF

	MEDICAL	NURSING	TECH'L	OTHER	TOTAL
MAREB	0%	25%	0%	4%	12%
SA'DAH	9%	35%	14%	13%	21%
HAJJAH	12%	35%	3%	16%	25%
HODEIDAH	18%	38%	14%	31%	31%
JAUF	0%	25%	0%	0%	12%
BAIDA	6%	38%	6%	19%	26%
DHAMAR	0%	27%	0%	12%	18%

The pattern is very variable between the governorates, but with the highest proportion of females in nursing, as would be expected. The proportion of "Other" staff which is female also varies widely from Hodeidah (31%) to Mareb (4%) and Jauf (0%). Again, a more detailed analysis would show what individual "Other" staff categories in Hodeidah employ most females, and whether similar employment opportunities could be made available in other governorates. The detailed results for each of seven governorates are shown in Annex 4.

3. Percentage of Non-Yemeni Staff Employed  
The results for the seven governorates are shown in Table 3.

TABLE 3: PERCENT NON-YEMENI STAFF

	MEDICAL	NURSING	TECH'L	OTHER
MAREB	40%	34%	38%	1%
SA'DAH	77%	59%	62%	41%
HAJJAH	63%	20%	29%	1%
HODEIDAH	49%	18%	6%	3%
JAUF	83%	61%	67%	2%
BAIDA	35%	23%	31%	3%
DHAMAR	19%	17%	11%	1%

Again the pattern is very variable between the governorates. In Sad'ah the proportion of non-Yemeni staff in the medical, nursing and technical categories is relatively high, presumably because of the Al-Salam hospital, but the corresponding figures for Jauf (with no foreign-run hospital) are even higher. By contrast, the figures for Dhamar are very low. The proportion of non-Yemeni staff in the "Other" main category is very low, except for Sad'ah, as would be expected, although the Sad'ah figure does seem to be extraordinarily high. Again, a more detailed analysis could show separate figures for staff in Al-Salam hospital and in all other government health establishments in the governorate; results for the latter group would be more useful for comparisons with other governorates. Such a more detailed analysis would also show whether all these "Other" non-Yemeni staff in Sad'ah are employed in the Al-Salam hospital, and if so, whether they are in jobs which could be performed by Yemenis. The detailed results for the seven governorates are shown in Annex 5.

4. Percent Contract Staff Employed

The results for the seven governorates are shown in Table 4.

TABLE 4: PERCENT CONTRACT STAFF

	MEDICAL	NURSING	TECH'L	OTHER
MAREB	50%	41%	46%	54%
SA'DAH	80%	66%	62%	82%
HAJJAH	60%	25%	31%	31%
HODEIDAH	49%	21%	12%	39%
JAUF	83%	58%	67%	49%
BAIDA	35%	28%	38%	51%
DHAMAR	19%	24%	20%	61%

Sad'ah has a high proportion of its medical, nursing and technical staff on contract, and so has Jauf, whereas Dhamar has few. This corresponds to the results of the nationality analysis above, since all non-Yemeni employees are expected to be on contract. The surprising result here is the very high proportion of "Other" staff on contract; in four of the seven governorates it is the highest figure for the four main categories, and in Dhamar it reaches 61%. Since virtually all these "Other" staff are Yemeni (from the previous analysis), the question arises as to why they are on contract and not permanently employed. Again, a more detailed analysis would show in which jobs these Yemeni staff on contract are employed. The detailed results for each of seven governorates are shown in Annex 6.

These results cover only three of the items in the health manpower database -- sex, nationality and type of contract -- for the four main staff categories. No analysis programs have yet been written for individual staff categories, age, length of service, qualifications, type of health facility, post held, salary, etc. It would be expected that the same analysis procedure would emerge -- relatively simple one-item analyses would indicate further more detailed analyses to investigate particular situations.

### Presentation of the Results

A presentation was planned covering the progress which has been made on the survey, the results outlined above, the plans for completing the input of data, and the procedure for producing statistics at the request of governorate staff. A draft program for the presentation is at Annex 7. This presentation was to have been given to MOPH staff and senior health staff from selected governorates. It was not found possible to hold such an event during the consultancy, but a complete script of the presentation of the results to date (also in Annex 7) was written and left with MOPH staff for use when the event is arranged, and as a model for later presentations to other groups of governorate staff.

## **IV. FUTURE PLANS**

The planned aim of the current visit was to use the data collected in the survey in order to produce a complete quantitative picture of the current health manpower situation in the country using the four main types of analysis set out in Section III. These results were then to be used to help identify and quantify the health manpower problems facing the country as a prelude to MOPH staff identifying a number of possible alternatives for addressing each of these problems. A further visit was then planned to evaluate these alternatives and provide information for deciding which of the alternatives to select for implementation i.e. for inclusion in the Five Year Plan and the longer-term Health Manpower Plan.

Unfortunately, the planned aim of the present consultancy could not be achieved, for three reasons:

1. There has been no decision on what types of government health facility will operate in the country and the standard staffing pattern of each. These decisions are planned to be made at a MOPH meeting in April. Only after this meeting will it be possible to do an analysis of Actual Staffing compared with Standard Staffing (Section III, Analysis 1);
2. Input of the data had not been completed at the time of this consultancy, and there was no data on the health facilities (and therefore on where individual staff are employed) nor on the training establishments (medical schools and health manpower institutes) and their performance. Only when the input of the survey data is completed will it be possible to undertake the Training Institutions and Coverage/Equity analyses (Section III, Analyses 3 and 4);
3. Third, the analysis programs which have been produced cover only three of the eighteen items on the Health Manpower (Annex 1) and no programs are available for the more detailed analyses indicated by the results which are already available from these three analyses. Further analyses of all types will be much more readily available when MOPH staff have been trained to produce analysis programs. In summary, although there has been steady progress on preparing the survey data for computer analysis, it had not reached the stage where the planned program of manpower analyses could be undertaken.

In other words, it must be said that very little of the planned aim for the visit has been achieved. The essential data for the next phase (of manpower projections) has not been produced. But much more importantly, a comprehensive picture of the current manpower situation, both at the national and the governorate level (for whole cadres and for particular staff categories and staff characteristics) is not available. This information is to be the basis of a robust and practicable Five Year Plan. It is the planned benefit of the major investment of time, effort and money in the survey, most of which has already been made. Without some assistance in producing the information which can be provided by the analyses of the survey data, the MOPH will not achieve the full potential benefit of the investment in the survey and of the planned manpower projections.

Two possibilities now present themselves: 1. To continue with the current plan of one more consultancy to help undertake manpower projections. This implies that no more assistance will be given to the MOPH on the analyses. 2. To accept that the current consultancy has been able to do little more than demonstrate that the survey is a practicable tool for use and to indicate the power of that tool when the data input has been completed. This suggests scheduling an extra consultancy when the data input is finished in order to undertake the full program of the four proposed groups of manpower analyses. This would offer the major benefits to the MOPH which were originally envisaged for the current consultancy. If it can be made possible, a further consultancy to complete the planned program of manpower analyses should be scheduled. It would take place when the input of the survey data has been completed and some MOPH staff have been trained to produce analyses from the database.

## **V. LONGER TERM DEVELOPMENTS**

During the visit the opportunity arose to discuss with MOPH staff the possible longer-term developments of the health manpower database. At present the data input activities and the planned use of the database are focused solely on the priority objective of producing manpower analyses for the Five Year Plan and the Health Manpower Plan. For example, Items 2 and 3 of the manpower survey form (Names) are not relevant to these analyses and so to save time are not being entered into the database.

While the whole database offers comprehensive statistics on the current situation in government health facilities, it will become progressively out of date, particularly as regards the health manpower. If the health manpower database is to continue to be useful into the future it must be updated to take account of recruitment, transfer, promotion, new qualifications and leaving. A reliable source of accurate information about these changes must be identified and arrangements made to supply updated manpower information regularly. Furthermore, these changes in the circumstances of individuals can be entered into the database only if their records can be identified among the 30,000 it contains. Thus identification items will have to be added to the records. The names are already available on the survey forms, but this may not be enough and identification/passport numbers may also be required; these have been entered on the computer records where they are available on the survey forms, but since they also are not essential for the priority analyses some records have been included in the database without this item.

Once the identification items have been added and updating procedures have been implemented, it will become possible to use the health manpower database as a computerized personnel information system suitable for personnel administration. For this purpose, the items of data already in the records would be useful but probably insufficient. More personal items (place of birth, marital status, number of children, etc.) and career history would doubtless be considered for inclusion. Once again the sources of such data must be carefully considered.

Finally, the database could be extended to consider non-government health staff in the country, although this is unlikely to be practicable until there is legislation, which is enforced, requiring all health facilities or all practicing health staff in the country to be registered with an official body.

A fuller discussion of these issues and a possible sequence of steps for further development of the health manpower database is set out in Annex 8.

At present all the staff who have worked on the survey and are now working on creating the databases are seconded from other units in MOPH. The longer-term technical developments outlined above will be practicable only if they are accompanied by one item of organizational development, which is to officially recognize the staff undertaking all the survey and database activities as a separate organizational unit within MOPH, to establish posts in the unit and to establish a budget for it.

**ANNEX 1: LIST OF ITEMS ON THE HEALTH MANPOWER SURVEY**

1. Serial code number for the form
  2. Name
  3. Other names used
  4. Age, in years
  5. Sex
  6. Identity/passport number
  7. Nationality
  8. Post held
  9. Work location
    - a) health facility
    - b) village
    - c) sub-district (Ozlah)
    - d) district (Nahia)
    - e) governorate
  10. Staff category
  11. Type of employment contract
  12. Year of first recruitment to the Yemen Government health service
  13. Total years of work experience
  14. Monthly salary
  15. )
  16. )
  17. )
  18. Qualifications
- Three questions on the location of the respondent's living quarters in relation to the health facility

## ANNEX 2: SCOPE OF WORK

**NAME:** Peter J. Shipp  
**CONSULTANCY:** Manpower Needs Assessment  
**PERIOD:** 8 February - 8 March 1992  
**PURPOSE:** Perform the health manpower analyses and write the Health Manpower Situation Reports for the four ACCS/ REACH governorates.

This second consultancy is a result of the August 1991 consultancy which developed the plan for the national health manpower planning exercise to develop health manpower projections for the period 1991-2010 as part of the Five Year Health Plan exercise.

Before the tasks in the second consultancy are performed, the MOPH is expected to complete the data collection phase of the exercise and a number of other activities as follows:

1. All the data (Health Manpower Survey, Basic Health Units Survey and Hospitals/Health Centers Survey) in the four ACCS/REACH governorates (Marab, Hajjah, Hodeidah, Saadah) must be collected.
2. The data from the training institutes must be collected.
3. Input of all the data into a computer database must be completed.
4. The future use of health facilities (mainly which sub-centers are to be designated health centers) in the four ACCS/REACH governorates has been decided.
5. The options for standard staffing patterns for all types of current and proposed health facilities in the four ACCS/REACH governorates has been specified.

Confirmation in writing from the MOPH is required ... that the above assignments ... will be completed by 1 February 1992.

### **SPECIFIC TASKS**

The consultant will complete the following tasks for the four ACCS/REACH governorates and work closely with staff who can use the same methodology and techniques for the remaining fourteen governorates and for the country as a whole:

1. Perform the health manpower analyses for each governorate.
2. Produce a Health Manpower Situation Report for each governorate.
3. Carry out the baseline manpower projections for each governorate.

The aim is to provide the MOPH not only with national and governorate health manpower analyses, situation reports and projections it requires for its immediate planning tasks; but also, with a trained staff with some knowledge and experience of how to produce these essential aids for health manpower management exercises in the future.

### **END OF CONSULTANCY PRODUCTS**

1. Technical report covering the above tasks.
2. Tentative: suggested scope of work for the third consultancy.

**ANNEX 3: NUMBERS OF STAFF EMPLOYED, BY MAIN CATEGORY**

**MAREB: PERCENT STAFF IN MAIN CATEGORIES**

MAIN CATEGORIES	TOTAL IN CATEGY	% TOTAL STAFF
MEDICAL	10	4%
NURSING	110	40%
TECHNICAL	13	5%
OTHER	144	52%
TOTAL	277	100%

**SA'DAH: PERCENT STAFF IN MAIN CATEGORIES**

MAIN CATEGORIES	TOTAL IN CATEGY	% TOTAL STAFF
MEDICAL	66	14%
NURSING	170	37%
TECHNICAL	42	9%
OTHER	186	40%
TOTAL	464	100%

**HAJJAH: PERCENT STAFF IN MAIN CATEGORIES**

MAIN CATEGORIES	TOTAL IN CATEGY	% TOTAL STAFF
MEDICAL	43	9%
NURSING	254	52%
TECHNICAL	35	7%
OTHER	156	32%
TOTAL	488	100%

HODEIDAH: PERCENT STAFF IN MAIN CATEGORIES

MAIN CATEGORIES	TOTAL IN CATEGORY	% TOTAL STAFF
MEDICAL	175	12%
NURSING	635	45%
TECHNICAL	103	7%
OTHER	494	35%
TOTAL	1407	100%

JAUF: PERCENT STAFF IN MAIN CATEGORIES

MAIN CATEGORIES	TOTAL IN CATEGORY	% TOTAL STAFF
MEDICAL	6	4%
NURSING	64	46%
TECHNICAL	3	2%
OTHER	65	47%
TOTAL	138	100%

DHAMAR: PERCENT STAFF IN MAIN CATEGORIES

MAIN CATEGORIES	TOTAL IN CATEGORY	% TOTAL STAFF
MEDICAL	42	6%
NURSING	313	46%
TECHNICAL	44	6%
OTHER	278	41%
TOTAL	677	100%

BAIDA: PERCENT STAFF IN MAIN CATEGORIES

MAIN CATEGORIES	TOTAL IN CATEGORY	% TOTAL STAFF
MEDICAL	31	10%
NURSING	144	47%
TECHNICAL	16	5%
OTHER	118	38%
TOTAL	309	100%

ANNEX 4: NUMBERS OF STAFF EMPLOYED BY MAIN CATEGORY AND SEX

TABLE MAREB 1: MAIN CATEGORIES x SEX

MAIN CATEGORIES	MALE	FEMALE	TOTAL	% FEMALE	% TOTAL
MEDICAL	10	0	10	0%	4%
NURSING	83	27	110	25%	40%
TECHNICAL	13	0	13	0%	5%
OTHER	138	6	144	4%	52%
TOTAL	244	33	277	12%	100%

TABLE SA'DAH 1: MAIN CATEGORIES x SEX

MAIN CATEGORIES	MALE	FEMALE	TOTAL	% FEMALE	% TOTAL
MEDICAL	60	6	66	9%	14%
NURSING	110	60	170	35%	37%
TECHNICAL	36	6	42	14%	9%
OTHER	161	25	186	13%	40%
TOTAL	367	97	464	21%	100%

TABLE HAJJAH 1: MAIN CATEGORIES x SEX

MAIN CATEGORIES	MALE	FEMALE	TOTAL	% FEMALE	% TOTAL
MEDICAL	38	5	43	12%	9%
NURSING	165	89	254	35%	52%
TECHNICAL	34	1	35	3%	7%
OTHER	131	25	156	16%	32%
TOTAL	368	120	488	25%	100%

TABLE HODEIDAH 1: MAIN CATEGORIES x SEX

MAIN CATEGORIES	MALE	FEMALE	TOTAL	% FEMALE	% TOTAL
MEDICAL	143	32	175	18%	12%
NURSING	393	242	635	38%	45%
TECHNICAL	89	14	103	14%	7%
OTHER	339	155	494	31%	35%
TOTAL	964	443	1407	31%	100%

TABLE JAUF 1: MAIN CATEGORIES x SEX

MAIN CATEGORIES	MALE	FEMALE	TOTAL	% FEMALE	% TOTAL
MEDICAL	6	0	6	0%	4%
NURSING	48	16	64	25%	46%
TECHNICAL	3	0	3	0%	2%
OTHER	65	0	65	0%	47%
TOTAL	122	16	138	12%	100%

TABLE BAIDA 1: MAIN CATEGORIES x SEX

MAIN CATEGORIES	MALE	FEMALE	TOTAL	% FEMALE	% TOTAL
MEDICAL	29	2	31	6%	10%
NURSING	89	55	144	38%	47%
TECHNICAL	15	1	16	6%	5%
OTHER	96	22	118	19%	38%
TOTAL	229	80	309	26%	100%

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TABLE DHAMAR 1: MAIN CATEGORIES x SEX

MAIN CATEGORIES	MALE	FEMALE	TOTAL	% FEMALE	% TOTAL
MEDICAL	42	0	42	0%	6%
NURSING	227	86	313	27%	46%
TECHNICAL	44	0	44	0%	6%
OTHER	244	34	278	12%	41%
TOTAL	557	120	677	18%	100%

ANNEX 5: NUMBERS OF STAFF EMPLOYED BY MAIN CATEGORY  
AND NATIONALITY

TABLE MAREB 2: MAIN CATEGORIES x NATIONALITY

MAIN CATEGORIES	YEMENI	NON-YEMENI	TOTAL	% NON-YEMENI
MEDICAL	6	4	10	40%
NURSING	73	37	110	34%
TECHNICAL	8	5	13	38%
OTHER	143	1	144	1%
TOTAL	230	47	277	17%

TABLE SA'DAH 2: MAIN CATEGORIES x NATIONALITY

MAIN CATEGORIES	YEMENI	NON-YEMENI	TOTAL	% NON-YEMENI
MEDICAL	15	51	66	77%
NURSING	69	101	170	59%
TECHNICAL	16	26	42	62%
OTHER	109	77	186	41%
TOTAL	209	255	464	55%

TABLE HAJJAH 2: MAIN CATEGORIES x NATIONALITY

MAIN CATEGORIES	YEMENI	NON-YEMENI	TOTAL	% NON-YEMENI
MEDICAL	16	27	43	63%
NURSING	204	50	254	20%
TECHNICAL	25	10	35	29%
OTHER	154	2	156	1%
TOTAL	399	89	488	18%

TABLE HODEIDAH 2: MAIN CATEGORIES x NATIONALITY

MAIN CATEGORIES	YEMENI	NON-YEMENI	TOTAL	% NON-YEMENI
MEDICAL	90	85	175	49%
NURSING	521	114	635	18%
TECHNICAL	97	6	103	6%
OTHER	481	13	494	3%
TOTAL	1189	218	1407	15%

TABLE JAUF 2: MAIN CATEGORIES x NATIONALITY

MAIN CATEGORIES	YEMENI	NON-YEMENI	TOTAL	% NON-YEMENI
MEDICAL	1	5	6	83%
NURSING	25	39	64	61%
TECHNICAL	1	2	3	67%
OTHER	64	1	65	2%
TOTAL	91	47	138	34%

TABLE BAIDA 2: MAIN CATEGORIES x NATIONALITY

MAIN CATEGORIES	YEMENI	NON-YEMENI	TOTAL	% NON-YEMENI
MEDICAL	20	11	31	35%
NURSING	111	33	144	23%
TECHNICAL	11	5	16	31%
OTHER	115	3	118	3%
TOTAL	257	52	309	17%

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TABLE DHAMAR 2: MAIN CATEGORIES x NATIONALITY

MAIN CATEGORIES	YEMENI	NON-YEMENI	TOTAL	% NON-YEMENI
MEDICAL	34	8	42	19%
NURSING	259	54	313	17%
TECHNICAL	39	5	44	11%
OTHER	275	3	278	1%
TOTAL	607	70	677	10%

ANNEX 6: NUMBERS OF STAFF EMPLOYED BY MAIN CATEGORY  
AND TYPE OF CONTRACT

TABLE MAREB 3: MAIN CATEGORIES x TYPE OF CONTRACT

MAIN CATEGORIES	PERMAN- ENT	CONT- RACT	TOTAL	% CONT- RACT
MEDICAL	5	5	10	50%
NURSING	66	44	110	40%
TECHNICAL	7	6	13	46%
OTHER	63	81	144	56%
TOTAL	141	136	277	49%

TABLE SA'DAH 3: MAIN CATEGORIES x TYPE OF CONTRACT

MAIN CATEGORIES	PERMAN- ENT	CONT- RACT	TOTAL	% CONT- RACT
MEDICAL	13	53	66	80%
NURSING	57	113	170	66%
TECHNICAL	16	26	42	62%
OTHER	34	152	186	82%
TOTAL	120	344	464	74%

TABLE HAJJAH 3: MAIN CATEGORIES x TYPE OF CONTRACT

MAIN CATEGORIES	PERMAN- ENT	CONT- RACT	TOTAL	% CONT- RACT
MEDICAL	17	26	43	60%
NURSING	191	63	254	25%
TECHNICAL	24	11	35	31%
OTHER	107	49	156	31%
TOTAL	339	149	488	31%

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TABLE HODEIDAH 3: MAIN CATEGORIES x TYPE OF CONTRACT

MAIN CATEGORIES	PERMAN-ENT	CONT-RACT	TOTAL	% CONT-RACT
MEDICAL	90	85	175	49%
NURSING	504	131	635	21%
TECHNICAL	91	12	103	12%
OTHER	303	191	494	39%
TOTAL	988	419	1407	30%

TABLE JAUF 3: MAIN CATEGORIES x TYPE OF CONTRACT

MAIN CATEGORIES	PERMAN-ENT	CONT-RACT	TOTAL	% CONT-RACT
MEDICAL	1	5	6	83%
NURSING	27	37	64	58%
TECHNICAL	1	2	3	67%
OTHER	33	32	65	49%
TOTAL	62	76	138	55%

TABLE BAIDA 3: MAIN CATEGORIES x TYPE OF CONTRACT

MAIN CATEGORIES	PERMAN-ENT	CONT-RACT	TOTAL	% CONT-RACT
MEDICAL	20	11	31	35%
NURSING	104	40	144	28%
TECHNICAL	10	6	16	38%
OTHER	58	60	118	51%
TOTAL	192	117	309	38%

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TABLE DHAMAR 3: MAIN CATEGORIES x TYPE OF CONTRACT

MAIN CATEGORIES	PERMAN-ENT	CONT-RACT	TOTAL	% CONT-RACT
MEDICAL	34	8	42	19%
NURSING	239	74	313	24%
TECHNICAL	35	9	44	20%
OTHER	108	170	278	61%
TOTAL	416	261	677	39%

**ANNEX 7: PRESENTATION OF HEALTH MANPOWER SURVEY  
TO GOVERNORATE STAFF**

1. WELCOME: Dr. Assaedi
2. THE HEALTH MANPOWER SURVEY: Dr. Gabbar
  - a) Brief reminder of the whole survey -- 7 Forms. This session concentrates on the Manpower survey, Form 3.
  - b) The list of items in Form 3.
  - c) The forms have been completed and returned. They are now being checked, coded and entered into the computer.
  - d) We have started with the Health Manpower Database. This means entering 30,000 forms to produce 30,000 individual records on the computer. ?? governorates have now been input. We have now started entering the data which has been collected on the health facilities. There are 1,500 of these forms.
  - e) When the data is entered into the computer, we must perform analyses to produce useful information from all these records. This requires a computer program to instruct the computer to collect certain numbers from the database and arrange them in a table of statistics. So far for the Health Manpower Database we have programed three analyses : by Sex, Nationality and Type of Contract.
  - f) DEMONSTRATION OF THESE ANALYSES IN THE COMPUTER ROOM.
3. SAMPLE RESULTS FROM THE HEALTH MANPOWER DATABASE: Mr. Shipp  
Draft presentation notes attached.
4. THE USE OF THE HEALTH MANPOWER DATABASE: Dr. Gabbar
  - a) MOPH will be using analyses from all the survey data for preparing the Five Year Health Plan and a longer-term Health Manpower Plan.
  - b) This Health Manpower Database is a tool available for the governorates' use also. It can produce analyses based on any combination of the items on Form 3 (show the list again).
  - c) Describe the procedure for governorates to obtain analyses from the Health Manpower Database.
  - d) The other databases will be available soon.

**ITEM 3: SAMPLE RESULTS FROM THE HEALTH MANPOWER DATABASE**

These results are a small sample of what can be extracted from the Health Manpower Database. They are based on three simple analyses which have been programed so far -- by Sex, Nationality and Type of Contract for the four Main Categories (Medical, Nursing, Technical, Other). [Explain the four Main Categories.]

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### EXAMPLE TABLE 1. HAJJAH: PERCENT STAFF IN MAIN CATEGORIES

Explanation of structure and contents of Table.

Comments:

1. Nurses are more than half the employees.
2. Ratio medical/nursing is about 1:6, which is fairly common.
3. Proportion of technical staff small, about the same as medical, which is also fairly common.
4. 'Other' staff are administrative staff, clerks, cooks, laundry, guards, drivers, etc. i.e. all staff not medical or nursing or technical. The proportion is high, particularly considering there are none of these staff in the Basic Health Units.

### EXAMPLE TABLE 2. GOVERNORATES TABLE 2: PERCENT STAFF IN MAIN CATEGORIES

Explanation of structure and contents of Table.

Comments:

1. Proportion of Medical staff very variable ... 4% - 14%. Sa'dah presumably because of Al-Salam hospital. Mareb and Jauf very low.
2. Nurses always a large group, between one third and a half.
3. Proportion of Technical staff small, less than 10%.
4. Proportion of 'Other' staff is high in all these governorates, more than one third and reaching to over 50%. The figure in developed countries is 5-10%. In about half these governorates there are more 'Other' staff than there are nurses. If over half the government health employees in a governorate (Mareb) are not medical, nursing or technical, what are they all doing? A FURTHER ANALYSIS, showing the numbers employed in each staff category within the main category 'Other' would give more useful information.
4. Ratio medical/nursing varies widely between 2.6 (Sa'dah) and 11.5 (Jauf). Many nurses work in Basic Health Units, where there are no medical staff, but these nurses are included in the figure for total nurses used in these ratios. It would be better to do A FURTHER ANALYSIS and find the ratio for medical/nursing staff in health centres and hospitals only.

### EXAMPLE TABLE 3. HODEIDAH 1: MAIN CATEGORIES X SEX.

Explanation of structure and contents of the Table.

Comments:

1. The highest proportion of females is in nursing, as would be expected.
2. The next highest proportion of females is in 'Other'. Clerks? Cleaners? Cooks? Laundry staff? A FURTHER ANALYSIS, showing the numbers employed in each staff category within the main category 'Other' would show in which categories most of these female staff are employed.
3. Medical and Technical have the lowest proportion of females -- 15-20%

#### EXAMPLE TABLE 4. GOVERNORATES 1: PERCENT FEMALE STAFF

Explanation of structure and contents of the Table.

Comments:

1. The pattern is very variable. Hodeidah is at one extreme -- it employs the highest proportion of female staff of any of the 7 governorates shown. At the other extreme is Mareb and Jauf, with females in nursing only (or nearly so). Is there a national policy on the employment of females? Where is the employment of females essential? What FURTHER ANALYSES would show to what extent females are now employed in jobs where they should be?
2. The proportion of 'Other' staff which is female also varies widely from Hodeidah (31%) to Mareb (4%) and Jauf (0%), with the other governorates in the range 12-20%.

#### EXAMPLE TABLE 5. MAREB 2: MAIN CATEGORIES X NATIONALITY

Explanation of structure and contents of Table.

Comments:

1. Proportion of non-Yemeni staff in Medical, Nursing and Technical is relatively high, as would be expected.
2. Proportion of non-Yemeni in 'Other' is very small, as would be expected.

#### EXAMPLE TABLE 6. GOVERNORATES 4: PERCENT NON-YEMENI STAFF IN MAIN CATEGORIES

Explanation of structure and contents of the Table

Comments:

1. Percent non-Yemeni staff in 'Other' is very small, except in Sa'dah, presumably because of the Al-Salam hospital; but the figure in Sa'dah does seem remarkably high.
2. The figures for the other main categories in Sa'dah are also high, because of the hospital, but the figures for Jauf are even higher.
3. There is a wide range in the figures here. The figures for Dhamar are very low.

#### EXAMPLE TABLE 7. HAJJAH 3: MAIN CATEGORIES X TYPE OF CONTRACT

Explanation of structure and content of Table

Comments:

1. The highest proportion of staff on contract is in the Medical category -- over half the staff.
2. The Nursing and Technical categories have a quarter to a third on contract.
3. The surprising figure is for the 'Other' main category. Although, as we have seen, virtually all the staff in this category are Yemenis, 31% are on contract.

## EXAMPLE TABLE 8. GOVERNORATES 5: PERCENT CONTRACT STAFF IN MAIN CATEGORIES

Explanation of structure and content of the Table.

Comment:

1. Sa'dah has many non-Yemeni staff and so it has a high proportion of Medical, Nursing and Technical staff on contract. And so has Jauf, presumably for the same reason. Dhamar has a very low proportion of these staff on contract. This all corresponds to the results of the Nationality analysis, just presented.
2. The surprising result here is the proportion of 'Other' staff on contract. We saw before that virtually all the 'Other' staff are Yemeni, except in Sa'dah. But the proportion of these staff on contract is very high; in four of the seven governorates it is the highest figure of all the categories. Although the figure for Mareb, 31%, looked high, it is the lowest figure for all the governorates in the Table. In Dhamar the figure is 61%.
3. Remember also that the 'Other' main category was found to be surprisingly large, 35-53% of the total government health staff employed. This means that large numbers of health staff are on contract. To whose advantage is this?

Only four basic analyses have been covered and already several interesting questions have emerged. There are many important factors in the Health Manpower Database which have not yet been touched -- age, length of service, qualifications, type of health facility, post held. When these analyses have been programed into the computer it will be possible to produce more tables and more useful information.

Again the same procedure will be followed. The simple analyses (such as I have shown) will identify particular situations which are unusual or unexpected. Then a further, more detailed analysis table, focused on one particular group of staff, can be produced which will provide more detailed information about these specific situations. [Medical diagnosis.]

[If there is time, display and explain the structure of a Table which will show numbers and percentages of the 'Other' staff categories by Sex and Type of Contract. This will answer many of the questions raised above.]

P. Shipp  
3 March 1992

EXAMPLE TABLE 1

HAJJAH: PERCENT STAFF IN MAIN CATEGORIES

MAIN CATEGORIES	TOTAL IN CATEGORY	% TOTAL STAFF
MEDICAL	43	9%
NURSING	254	52%
TECHNICAL	35	7%
OTHER	156	32%
TOTAL	488	100%

EXAMPLE TABLE 3

TABLE HODEIDAH 1: MAIN CATEGORIES x SEX

MAIN CATEGORIES	MALE	FEMALE	TOTAL	% FEMALE	% TOTAL
MEDICAL	143	32	175	18%	12%
NURSING	393	242	635	38%	45%
TECHNICAL	89	14	103	14%	7%
OTHER	339	155	494	31%	35%
TOTAL	964	443	1407	31%	100%

EXAMPLE TABLE 5

TABLE MAREB 2: MAIN CATEGORIES x NATIONALITY

MAIN CATEGORIES	YEMENI	NON-YEMENI	TOTAL	% NON-YEMENI
MEDICAL	6	4	10	40%
NURSING	73	37	110	34%
TECHNICAL	8	5	13	38%
OTHER	143	1	144	1%
TOTAL	230	47	277	17%

EXAMPLE TABLE 7

TABLE HAJJAH 3: MAIN CATEGORIES x TYPE OF CONTRACT

MAIN CATEGORIES	PERMAN-ENT	CONT-RACT	TOTAL	% CONT-RACT
MEDICAL	17	26	43	60%
NURSING	191	63	254	25%
TECHNICAL	24	11	35	31%
OTHER	107	49	156	31%
TOTAL	339	149	488	31%

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EXAMPLE TABLE 2

TABLE GOVERNORATES 2: PERCENT STAFF IN MAIN CATEGORIES  
 GOV'TES MEDICAL NURSING TECH'L OTHER MED/NUR

MAREB	4%	39%	5%	53%	9.8
SA'DAH	14%	37%	9%	40%	2.6
HAJJAH	9%	52%	7%	32%	5.8
HODEIDAH	12%	45%	7%	35%	3.8
JAUF	4%	46%	2%	47%	11.5
BAIDA	10%	47%	5%	38%	4.7
DHAMAR	6%	46%	6%	41%	7.7

EXAMPLE TABLE 4

TABLE GOVERNORATES 1: PERCENT FEMALE STAFF					
GOV'TES	MEDICAL	NURSING	TECH'L	OTHER	TOTAL
MAREB	0%	25%	0%	4%	12%
SA'DAH	9%	35%	14%	13%	21%
HAJJAH	12%	35%	3%	16%	25%
HODEIDAH	18%	38%	14%	31%	31%
JAUF	0%	25%	0%	0%	12%
BAIDA	6%	38%	6%	19%	26%
DHAMAR	0%	27%	0%	12%	18%

EXAMPLE TABLE 6

TABLE GOVERNORATES 4: PERCENT NON-YEMENI STAFF IN MAIN CATEGORIES  
 GOV'TES MEDICAL NURSING TECH'L OTHER

MAREB	40%	34%	38%	1%
SA'DAH	77%	59%	62%	41%
HAJJAH	63%	20%	29%	1%
HODEIDAH	49%	18%	6%	3%
JAUF	83%	61%	67%	2%
BAIDA	35%	23%	31%	3%
DHAMAR	19%	17%	11%	1%

EXAMPLE TABLE 8

TABLE GOVERNORATES 5: PERCENT CONTRACT STAFF IN MAIN CATEGORIES  
 GOV'TES MEDICAL NURSING TECH'L OTHER

MAREB	50%	41%	46%	54%
SA'DAH	80%	66%	62%	82%
HAJJAH	60%	25%	31%	31%
HODEIDAH	49%	21%	12%	39%
JAUF	83%	58%	67%	49%
BAIDA	35%	28%	38%	51%
DHAMAR	19%	24%	20%	61%