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NATIONAL WOMEN'S ASSOCIATION OF BHUTAN

GENDER ISSUES IN WATER AND SANITATION: THE CASE OF BHUTAN

Loke Buringa and Lham Tshering

Thimphu, September 1992

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The contents of this document do not necessarily reflect the opinion of NWAB or of the Royal Government of Bhutan.

This report has been prepared for the National Women's Association of Bhutan. As such it would be highly appreciated if documents in which references to this report have been made, are sent to:

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Contents

Acknowledgements

This report completes the series of three in which a gender-sensitive analysis is health, education and water & sanitation. Moreover, the papers are in agreement with the objectives of the National Women's Association of Bhutan, which focus on health, hygiene and education. There is no question that women contribute considerably to other sectors like agriculture and animal husbandry. Their role in environmental issues has yet to be described and analyzed, as well as women's activities in the formal and informal labour sector.

For the design of this study we are greatly indebted to Manika Pradhan, who also participated in the first fieldtrips. After she resigned her work was taken over by Lham Tshering. While travelling, invaluable assistance and hospitality was provided by government officials, local chapters and members of the National Women's Association and local women in varying areas of the country. Due to SNV-Netherlands Development Organization, transportation was never a problem. An SNV computer was invariably available to write up the experiences. This logistical support has been very helpful.

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Finally, at the completion of three studies, Roxanna needs to be mentioned who went along on most trips between the age of 8 months and 3 years. Her presence during the fieldwork for water and sanitation has been particularly important for her mother to appreciate the impressive efforts made by rural Bhutanese parents to look after their young children.

Abbreviations

ADB	Asian Development Bank
BBS	Bhutan Broadcasting Service
CC	Credit Component
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
DA	Development Associate
DANIDA	Danish International Development Agency
DASHO	Title for high ranking civil servant
DSCD	Development Support Communication Department
DWH	Department of Works and Housing (former name)
DWHR	Department of Works, Housing and Roads
FLS	Nairobi Forward Looking Strategies for the Advancement of Women
GNP	Gross National Product
HDI	Human Development Index
IECH	Information, Education and Communication for Health
IRDAW	Integrated Rural Development Activities for Women
NU	Ngultrum
NWAB	National Women's Association of Bhutan
PCRW	Production Credit for Rural Women
PHED	Public Health Engineering Division
RCSC	Royal Civil Service Commission
RGOB	Royal Government of Bhutan
SAARC	South Asian Association for Regional Cooperation
SDC	Social Development Component
SNV	Netherlands Development Organization
UNCHS	United Nations Centre for Human Settlements
UNDP	United Nations Development Programme
WATSAN	Water and Sanitation

Glossary

Chimi	Representative elected at block level for five years to attend the meetings of the National Assembly
Dzong	Home of secular and religious institutions
Dzongda	District Administrator
Dzongkha	Official language of Bhutan
Dzongkhag	Administrative unit/district
Gewog	Subdivision of dzongkhag/block
Gomchen	Mixture between lay person and monk
Gungdawoola	15 days of labour on a daily wage basis, to be contributed by each household to the government on a yearly basis
Gup	Elected headman of gewog
Lu	Some type of spirits
Mangi-ap	Village elder
Mangmi	Village elder
Nendjum	1. Female traditional healer in Western Bhutan 2. Traditional function for women in Haa and Paro districts, who have been identified by a pawo
Ngultrum	Bhutanese currency, at par with the Indian Rupee
Pamo	Female traditional healer in Central Bhutan
Pawo	Male traditional healer
Phadjo	Male traditional healer
Puja	Religious ceremony
Shabtawoola	A minimum of 15 days of unpaid labour, to be contributed by each household to the government on a yearly basis
Tsipa	Astrologer

Introduction

In the previous sector studies on health and education, the Human Development Index (HDI) as developed by UNDP has been used to explain the need for a gender sensitive analysis of that particular sector. This was based on the assumption that to look at the Gross National Product (GNP) as indicator of any socio-economic progress is not doing justice to the effects, or lack of these, of development programmes on the citizens of a given country. Development is seen in a wider context, in which economic growth and human development are seen as interlinked. The HDI is used as a tool to measure and compare indicators of development.

Looking at the HDI figures relevant for water and sanitation in the latest edition of the Human Development Report[1], we find that these data are not gender-specific. Access to services are known for different countries, and for urban and rural areas. Data are available on female/male population ratios, enrolment and literacy ratios, participation in the formal labour force etc. From these some gaps are evident, as described in the health and education reports[2] prepared recently. They do not explain however, why it is necessary to pay specific attention to women's role in water and sanitation. For these it is necessary to turn to relevant literature. From reviews in the sector it is clear that women's primary responsibility for water collection, storage and use combined with their important role in domestic hygiene and cleanliness necessitate women's involvement in all phases of any water and sanitation project.[3]

In Chapter 1 information from the UNDP Human Development Report will be presented on access to water and sanitation facilities in SAARC Countries. A summary of data on indicators of the situation of women will form the end of this chapter. To understand the local context a summary of government policy and achievements in the field of water and sanitation is presented in Chapter 2. The next chapter will start with a brief literature review, to explain why special attention to women in this sector is essential. This is followed by a description of fieldwork data. Chapter 4 will concentrate on the extend to which women are able to participate in decision-making process, with particular regard to water and sanitation. The final chapter then presents an analysis and some recommendations.

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1 UNDP, **Human Development Report 1992**, New York/Oxford University Press.

2 Joke Buringa and Manika Pradhan, **Women and Health in Bhutan: Practices, Beliefs and Care**, Thimphu/NWAB and SNV, 1991, and Joke Buringa and Lham Tshering, **Education and Gender in Bhutan: A Tentative Analysis**, Thimphu/NWAB and SNV, 1992.

3 This acknowledgement has led to a large number of publications that review the sector from a gender-sensitive perspective. These documents are subsequently abstracted in **Woman, Water and Sanitation, Annual Abstract Journal**, a joint publication of the IRC/International Water and Sanitation Centre and PROWESS/UNDP, with funds from NORAD. The first issue came out in May 1991

Relevant annexes have been included as follows. The questionnaire used is presented in Annex 1. The tabulated answers are reproduced in Annex 2. The next Annexes give some information on the methodology and the Human Development Index respectively. Water and Sanitation Related Paragraphs in the Nairobi Forward Looking Strategies for the Advancement of Women (FLS) have been included in Annex 5. No references to the sector could be found in the United Nations Convention 34/180.[4] With permission from the IRC/International Water and Sanitation Centre information of some of their relevant publications has been included in the following three annexes. In Annex 6 an overview of the literature may be found prepared by IRC in 1985 on the participation of women in water supply and sanitation. The summary on hygiene education in such projects is reproduced in Annex 7. The summary of the IRC book called *Community Participation and Women's Involvement in Water Supply and Sanitation Projects* can be found in Annex 8. In the final Annex a schematic overview is present on how women can participate in sanitation projects as prepared by H.E. Perett.[5]

[4] This Convention is also known as Convention on the Elimination on All Forms of Discrimination against Women (CEDAW), which was also ratified by Bhutan.

[5] Readers interested in more recent information or with particular questions on how to involve women in water and sanitation projects, are advised to contact the IRC, P.O. Box 93190, 2509 AD The Hague, The Netherlands.

Executive Summary

In the supply of safe water to its population, Bhutan has made tremendous progress between 1975 and 1990, just like all other SAARC countries. A common tendency is that the urban population has benefitted more from this expansion than the rural one. The rural/urban gap in sanitation tends to be considerably larger than the one identified for water supply, with the exception of Sri Lanka. There is no gender-specific information on the sector available in the 1992 edition of the Human Development Report. We do know however, that a disparity exists between men and women regarding life expectancy, population figures, literacy rates and primary enrolment rates. Bhutan's female/male ratio of 93 women to 100 men is at the low end on a global scale. The female/male literacy ratio of 48 according to the Human Development Index, but closer to 25 according to locally available data, is very low. Although female enrolment rates have increased considerably over the years, the female/male ratio here is also on the low side. These data do give an idea about the context in which female involvement in water and sanitation projects has to take shape.

Bhutan has a population of approximately 600,000 people, with 90% residing in rural areas. Water supply and sanitation is the responsibility of the Public Health Engineering Division of the Department of Works, Housing and Roads under the Ministry of Communication. The 'Support to the Rural Infrastructure Programme' contains six components: Rural Water Supply Programme, Improvements to Existing Water Supply Schemes, Rural Sanitation (latrines and smokeless stoves), Improvement in Design and Management Capacity, Human Resources Development and Preparation of Educational Materials. Under this Programme, the Royal Government anticipates to increase the use of improved water supplies from 40% to 57% of the population, to stimulate 11,000 households to build a sanitary latrine and to increase the use of smokeless stoves from 8% to 15% of the population by assisting 6000 households to have smokeless stoves. Currently a Royal Decree is being prepared regarding procedures of water and sanitation activities and the role of communities. In urban water supply and sanitation, the 'Support to the Urban Infrastructure Programme' includes four components: urban water supply in a number of towns, urban sanitation, flood control in urban areas, and programme support software. Relevant activities are also anticipated under 'Urban Development Works'. In this report attention will be focussed on rural water and sanitation.

Two major inventories of water supply schemes are mentioned. In 1990 503 schemes were visited in 9 districts of Western and Central Bhutan. Operation and maintenance turned out to be an area of major concern as well as the lack of attention to community participation and education, as perceived by the consultant. More recently, 581 schemes were checked in Zone IV. It was found that construction quality had clearly improved in recent years. The usefulness of an operation and maintenance policy was given due recognition, as well as the establishment of Village Maintenance Committees.

Approximately 13,000 smokeless stoves have been installed by the National Women's Association of Bhutan, with the assistance of UNICEF, between 1983 and 1990 when the Smokeless Stoves' Project was handed over to the Department of Works, Housing and Roads (then called Public Works Department). After a period in which the project did not have much output, a new phase started during the second half of 1991, when female representatives at block level were trained in the construction and maintenance of different types of stoves. So far, 168 women have been trained.

A 1990 evaluation of the Low Cost Sanitation Project learned that latrines had usually been constructed in wealthier households. These had contributed between Nu. 400 and Nu. 1,000 towards construction by the purchase of building materials and the hiring of labourers. Comparing this to an average income of Nu. 392 in Mongar, Nu. 1,025 in Gayleyphug and Nu. 455 in Dagana, all three included in the project, these latrines seem rather expensive. At the end of the 6th Plan, only 1,678 latrines had actually been built, whereas 6,211 had been planned.

Evaluating the plans and projects during the 6th Plan period, it may be generally concluded that emphasis was given to technology with a virtual absence of interest in the social side of these acivities. Only recently some attention seems to be emerging for community participation in general and women's involvement in particular. This development has also been taking place on a global level. Realizing that operation and maintenance turned out to be a problem, governments shifted more attention to the beneficiaries. Understanding has also grown after the United Nations Decade for Women (975-1980) and the International Drinking Water Supply and Sanitation Decade (1981-1990). In Bhutan, this development has not yet led to a gender-sensitive analysis of the sector and adjusted programmes.

Visits were made to four districts. In Lhuntsi 11 women were interviewed, 22 in Tongsa, 29 in Paro and 24 in Tashigang. Of the respondents only 2.3% was literate. Although 47% has a radio in the house, only 14% listen to BBS daily. Access to Kuensel is even more limited with 77.9% unaware of what Kuensel is. A clear majority of 73% wants to be a man in the next life, mainly to avoid giving birth, to have greater mobility and to be released from the responsibility for childcare and household chores. The world of rural women is very small.

Turning our attention to water supply and sanitation, some attention is needed for existing beliefs and practices. It is quite common to hear that 'Lu', spirits that protect water sources and streams, will become annoyed when someone urinates or defecates near their water. This will cause another human being to get sick. This belief might be very useful in designing culturally appropriate health education messages. More investigation in this area might be very worthwile.

Water is usually collected by a female adult, although not exclusively. Where it is collected is dependent on local circumstances, but households normally do not have to walk more than 10 minutes one way. Where possible provisions have been made to bring the water closer to the house mainly through rubber pipes. In the absence of timed observations, it is difficult to estimate time needed to secure daily water needs. Water is most often carried by hand, followed

by people who put the container on the back. Frequently the water is kept in the container in which it was collected, or in a metal or brass pot kept for that purpose.

In slightly over half of the households visited, water is never boiled. Some people believe that water can only cause sickness during the monsoon period. Re-use of water is hardly practised. Waste water is usually thrown outside. Water for the kitchengarden is often provided by diverting a nearby stream for that purpose. Cattle is usually allowed to roam around and drink in a stream or from the standpipe. Three-quarters of the respondents had heard about the importance of safe drinking water, usually from a health worker, NWAB member or a dzongkhag official. The knowledge did not necessarily change behaviour. Half of the women would prefer to have a tap inside the house. This relieves them from fetching water, makes it easier to wash children and utensils and provides them with the privacy and opportunity to wash themselves whenever they want to. The latter is mentioned by 66% of the respondents. Clothes for small children are washed often, but for adults only occasionally.

There appears to be a relationship between frequency of personal washing and of cleaning clothes. Small children are often given a daily bath during their first year. Afterwards the frequency declines quickly. 64 women were asked about their action when a child inadvertently urinates on the floor. Only 1 would clean the floor with water and a little less than half would use a cloth. A similar reaction is given in the case of involuntary defecation. Housecleaning is mainly done by women. They sweep the rooms at least once daily, but probably more often. The kitchen is swept at least after every meal. Considerable variation exists in the disposal of waste. It is usually thrown in the pigsty or in the fields.

Approximately 75% of the households had some kind of latrine, which matches the finding of the recent Zone IV inventory. Safe the Children mentioned that 40% of the households visited by them had a latrine, but UNICEF works with a national figure of 15%. In about half of the cases, latrines are never cleaned. When they are cleaned, it is usually the responsibility of women. Toilets are preferred by half of the women for passing urine and by slightly more for defecation. Over 70% of the respondents is aware of the need to dispose of urine and faeces in a safe way, although they can not always articulate why. Sources of information are again the healthworker, NWAB member or a dzongkhag official.

Considering that 13,600 smokeless stoves have been installed in 70,000 households, 19.4% of the households should have one. Among the respondents this figure amounted to 23.8%. In the Shemgang study 56.8% of the households had one. According to a 1990 survey, only 34% of th stoves were functioning properly however. The installation of smokeless stoves is thought to reduce women's workload and improve their health. It should be noted that fetching firewood is not a primary female responsibility. Their are important variations in who collects the firewood but sharing between men and women seems to be very common.

Fieldwork data demonstrate that women have major responsibilities in all activities under water and sanitation. Considering that they most often fetch the water, they will also be the first to notic a problem requiring maintenance. Wen existing latrines are cleaned, it is mainly done by women. Women cook, do or do not boil drinking water, wash utensils, look after kitchengarden and cattle, keep children clean and wash clothes. Women's input is easily overlooked however, when male staff visits a village as men are in the habit to speak on behalf women. In the presence of men, it is not uncommon for women to become less communucative. Men's contribution in all these areas is subordinate to the one by women. On the construction side, women tend to be responsible for smokeless stoves, men for latrines and the work for water schemes is usually done by whoever can be spared.

At block and district level, female influence is limited. The block development committees (gewog tshokpas) consists mainly of men and the same is true for staff at the district administration. In some areas, NWAB members have been included in block development committees, but this is by no means nationwide. Due to the policy of the Department of Works, Housing and Roads, women are now expected to join a Village Maintenance Committee and stimulated to be trained as caretakers of water schemes. In practice it is not easy to find interested female candidates however. Out of 131 trainees in 9 workshops held in 1991, 7.6% were women. At the central level, only one female civil engineer can be found in the Public Health Engineering Division, working in urban water supply and sanitation.

Activities to improve health and hygiene are specifically mentioned in the mandate of NWAB. In the past volunteers went to villages after a short training to pass on health educational messages. The smokeless stoves' project, initiated by NWAB, was transferred to the Department o Works, Housing and Roads in 1990. No activities in the sector are undertaken by NWAB at the moment, but the project proposal Integrated Development Activities for Rural Women (IRDAW) has been prepared which includes water supply and sanitation facilities and health education.

Looking at the activities on the whole, it may be concluded that commendable progress has been made in the technical design and the construction of water supply schemes, latrines and smokeless stoves, but that social aspects have been largely ignored. Emphasis has been target oriented and focused on technology. Quite recently, some interest seems to be emerging for community participation and women's involvement but it appears difficult to motivate women to step forward for training and joining of a Village Maintenance Committee. It is suggested that this reluctance may also be due to women's existing workload, whereby they have primary responsibility for household work and childcare. They are therefore less mobile than men. Men also tend to have the habit of not treating women too seriously through interrupting them and by automatically speaking and acting on their behalf. For example: even though male and female caretakers have received the same training and are equally qualified, minor repairs are done by the male caretaker with assistance from the woman.

The Royal Government has recognized the need to involve women in water supply and sanitation activities. In health education women should also be targeted, according to the Seventh Plan and the 'Communication Strategy for Water, Sanitation & Hygiene Promotion in Bhutan, prepared by DSCD. Unfamiliarity with a gender-sensitive approach does seem to create problems in the implementation of these policy guidelines. As major donor in the field, UNICEF is now also promoting women's involvement. It is expected that a Royal Decree, which is being drafted at present, will be supportive of the approach to ensure community participation and women's involvement.

In order to promote sustainability of projects and a change in behaviour that can be measured, it is vital that technology and communication are integrated and include a research section, or National Monitoring Unit as proposed by UNICEF. Data on beliefs, practices and preference of a cross section of the beneficiaries should form the basis on any planning, monitoring, evaluation or communication activity. Integration could be achieved through merging of existing organizational units or through the establishment of a coordinating agency. Without integration of the two components and the establishment of a National Monitoring Unit, it will be very difficult to implement a gender-sensitive approach in water supply and sanitation.

Chapter 1: Human Development and Women

The Human Development Index (HDI), as designed under the auspices of UNDP, is employed as frame of reference. Its basic elements constitute life expectancy, adult literacy and income per capita. It is used as a tool to see how Bhutan ranks on a number of relevant issues in comparison with other SAARC countries.[6] It is also utilized to explain the significance of studies like these to the development process in general. Economic growth and personal wellbeing are seen as interdependent. It is hoped that the ideas and data presented here will stimulate further discussion about how people in general and women in particular can play a more active role in increasing access to safe drinking water and improving the effective use of existing and envisaged sanitation facilities.

1.1. Human Development Index

The Human Development Index (HDI) was first presented in 1990 and is based on life expectancy, adult education and income. During a visit to Bhutan in May 1991 a revised and refined version of the HDI was introduced in Bhutan by Mr. K.G. Singh, Assistant Administrator and Director, Regional Bureau for Asia and the Pacific of UNDP.[7] As men and women should benefit equally from development efforts, the 1991 version of HDI has started to include a rudimentary version of a gender-sensitivity indicator to monitor possible disparities between the sexes. A gender-sensitive HDI figure is not yet available for the SAARC countries.

The presentation of the HDI is an inspiring occasion, because it attempts to measure progress in an all-encompassing approach. Development is not only seen in national financial terms, but also in how it is distributed between the people: men and women, boys and girls. The HDI provides us with a tool to measure the quality of life itself. It is made very clear that economic growth and human development[8]are interlinked and interdependent.

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6 It should be pointed out however, that this comparison is not necessarily fair. There is quite a difference between the SAARC countries regarding the starting point of development activities.

7 For more information about the HDI please consult Annex 3.

8 The distribution of income among the people should also be considered. CSO conducted a study in the mid-eighties, which showed that 40% of the income was earned by the top 17% of households. The lowest 20% of households generated 8% of the total income. (Quoted in Unicef, **A Review of the Situation of Children Bhutan**, New Delhi/Unicef for the SAARC Conference on South Asian Children, 1986·10).

1.2. Some Rankings on the Human Development Index

In order to get a clearer picture of where Bhutan stands on the HDI let us compare some of the rankings with those of neighbouring countries. In the first column of Table 1 the ranking is given on the HDI for the SAARC members out of 160 countries. It concerns the combined outcome of life expectancy, adult literacy and per capita income. In the second column the difference is shown for each country, between the HDI-Rank and the position based on Gross National Product (GNP) alone. A positive figure shows that the HDI is higher, a negative figure implies that GNP rating is better. It is obvious from Table 1, that all SAARC countries score higher on the HDI than they would on GNP ranking alone. This demonstrates that the SAARC Governments give high priority to human development. Bhutan scores last among the SAARC countries in both columns. The small difference between the ranking based on HDI and the one on GNP indicates that Bhutan can improve in activities to stimulate human development.

Table 1: HDI Ranking of SAARC Countries[9]

	HDI	GNP-HDI
Sri Lanka	76	44
Maldives	99	22
Pakistan	120	7
India	121	11
Bangladesh	135	15
Nepal	140	15
Bhutan	147	4

In Table 2 most recent figures are given for the percentage of the population of the SAARC countries that has access to safe drinking water and to sanitation. Nepal and Bhutan score considerably lower than the other SAARC countries on access to safe drinking water. The same is true for access to sanitation, with the exception of India, for which no figure was available.

It is interesting to compare the development of access to safe drinking water and sanitation over time. In Table 3 an overview has been given of the situation in the years between 1975 and 1980, which is compared with the figures for the 1988-90 period. Tremendous progress has taken place in all countries.

[9] UNDP, Human Development Report 1992, New York/Oxford University Press, 1992:128-129.

Table 2: Access of SAARC Population to Water and Sanitation[10]

	HDI	Population with Access to Safe Water (%) 1988-90	Population with Access to Sanitation (%) 1988-90
Sri Lanka	76	60	50
Maldives	99	70	31
Pakistan	120	55	18
India	121	75	n.a.
Bangladesh	135	81	10
Nepal	140	37	6
Bhutan	147	32	7

The percentages more than doubled in Pakistan and India. They tripled in Sri Lanka, whereas the progress in Nepal was almost five-fold. Figures for Maldives, Bangladesh and Bhutan cannot be given, as the situation in 1975-80 is unknown.

Table 3: Increased Access to Safe Water in SAARC Countries 1975-1990

	HDI	Population with Access to Safe Water (%) 1975-80	Population with Access to Safe Water (%) 1988-90
Sri Lanka	76	19	60
Maldives	99	n.a.	n.a.
Pakistan	120	25	55
India	121	31	75
Bangladesh	135	n.a.	n.a.
Nepal	140	8	37
Bhutan	147	n.a.	32[11]

In all countries the urban population has benefitted more than the rural one, as becomes clear from Table 4. No figure is available for the rural population of Bangladesh. Pakistan has the greatest disparity between its urban and rural population, immediately followed by Nepal and Bhutan for access to safe drinking water.[12]

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10 UNDP, **Human Development Report 1992**, New York/Oxford University Press, 1992:130-131.

11 See Table 2.

12 It is unclear what access to safe drinking water entails. If it means the percentage of the population having access to standpipes and urban piped water supply, than the definition is not strict enough. Piped water does not necessary mean safe water.

Table 4: Percentage of Population with Access to Safe Water[13]

	HDI	Rural 1987-90	Urban 1987-90	Rural-Urban Disparity (Parity=100)
Sri Lanka	76	55	80	69
Maldives	99	68	76	89
Pakistan	120	35	99	35
India	121	73	79	92
Bangladesh	135	n.a.	39	n.a.
Nepal	140	34	66	52
Bhutan	147	30	60	50

When we compare rural and urban percentages for access to sanitation, the discrepancy is even more extreme. For Maldives, Nepal and Bhutan the difference in access between rural and urban population to sanitation facilities is very high.

Table 5: Percentage of Population with Access to Sanitation[14]

	HDI	Rural 1987-90	Urban 1987-90	Rural-Urban Disparity (Parity=100)
Sri Lanka	76	45	68	66
Maldives	99	4	95	4
Pakistan	120	8	40	20
India	121	4	38	11
Bangladesh	135	4	40	10
Nepal	140	3	34	9
Bhutan	147	3	80	4

Summarizing this section, it is clear that although all SAARC countries have made impressive progress in the provision of safe water to their population, the urban population has benefitted more than the rural one everywhere. This discrepancy is more obvious for the presence of sanitary services. This information does not make it clear however, in which way this unequal distribution has a different impact on men and women. A closer look at this issue will be taken in 3.1. In concluding this chapter a number of indicators will be presented that demonstrate existing gaps between men and women in the SAARC region in population figures, literacy rates

13 UNDP, **Human Development Report 1992**, New York/Oxford University Press, 1992·146-147.

14 Ibid.

and enrolment figures. Moreover, the male/female ratio in literacy and enrolment for all countries at or below the average for developing countries is also given.

1.3. HDI and Women in Bhutan

Gender-specific data and analyses in Bhutan are rather scarce. The 1992 Human Development Index shows some identified gaps in life expectancy, population figures, literacy and primary enrolment rates between males and females. In Table 6 these are presented, together with figures for the other SAARC countries, whereby the number mentioned must be seen in comparison with the relevant situation for men, which has been set at 100. The life expectancy for women in Bhutan rates 97, when the one for men is put at 100. Likewise, there are 93 females living in the country against 100 males. In the field of literacy the report mentions 48 literate women against 100 literate men[15] and 65 girls enrolled in primary school against 100 boys.

Table 6: Female/Male Gaps for SAARC Countries[16]

	HDI	Life Expectancy 1990	Population 1990	Literacy 1990	Primary Enrolment 1988-89
Sri Lanka	76	106	99	89	100
Maldives	99	n.a.	n.a.	n.a.	n.a.
Pakistan	120	100	92	45	55
India	121	101	93	55	97
Bangladesh	135	99	94	47	85
Nepal	140	98	95	35	51
Bhutan	147	97	93	48	65

Let us take a closer look at the 1992 edition of the Human Development Report. Firstly, it is mentioned that in Bhutan there are 93 women for every 100 men. The world average is 99, and the average for industrial countries 106. India and Papua New Guinea report the same female/male ratio as Bhutan. There are only 9 countries in the world, which have a lower female/male ratio than Bhutan.[17] These include Kuwait, Qatar, Bahrain, United Arab Emirates, Saudi Arabia, Libya, Oman, Vanuatu and Pakistan. In the following Table an overview is given of this index for a number of ratios.

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15 In the education report, it is argued that this figure of 48 comes closer to 25 in reality, see J. Buringa and L. Tshering, **Education and Gender in Bhutan: A Tentative Analysis**, Thimphu/NWAB and SNV 1992:17.

16 UNDP, **Human Development Report 1992**, New York/Oxford University Press, 1992:144-145.

17 Of 10 small countries no data were available

Table 7: Female/Male Population Gaps in 1990[18]

Below 93	93	94	95	96	97	98	99
Kuwait	Papua New	Hong Kong	Turkey	Iraq	Singapore	Costa Rica	Colombia
Qatar	Guinea	Brunei	Jordan		Cuba	Venezuela	Fiji
Bahrain	India	China	Nepal		Panama	Malaysia	Thailand
UAE	Bhutan	Bangladesh			Paraguay	Syria	Sri Lanka
Saudi Arabia		Afghanistan			Dominican Rep.	Tunesia	Ecuador
Libya					Iran	Guatemala	Philippines
Oman					Egypt	Honduras	Peru
Vanuatu					Cote d'Ivoire	Liberia	Mongolia
Pakistan						Djibouti	Guyana
							Laos
							Sudan

Secondly, in the field of education, Bhutan is reported to have 48 literate women for every 100 literate men. It is interesting to note here that Yemen, where formal education started at the same time as in Bhutan, scores 49. The low female literacy rate in Yemen is usually explained by the influence of Islam, which makes parents hesitant to send their daughters to school. Comparing it with the experience in Bhutan may mean that an explanation is more complex. Out of 160 countries, there are 15 countries only that have lower female/male ratios in literacy than Bhutan: Burkina Faso, Afghanistan, Pakistan, Bangladesh, Cambodia, Nepal, Sudan, Guinea, Mozambique, Sierra Leone, Mauritania, Chad, Somalia, Gambia and Niger. For 38 countries however, data on literacy rates were not available. However, it would be more appropriate to use a figure of 25 instead of 48, considering that 40% of the male population is thought to be literate, against 10% of the female population. In this case only Sudan, with 27 literate women to every 100 literate men, would compare with Bhutan. The average for all developing countries is 69. The rankings of all states showing 69 or less are listed in Table 8.

Thirdly, gender-specific enrolment figures at primary level show that all developing countries together enrol 93 girls for every 100 boys in primary school. Bhutan scores 65 in 1990. Again, only 13 countries score less favourable than Bhutan, whereas data were not available for 25 countries.

[18] UNDP, Human Development Report 1992, New York/Oxford University Press, 1992:144-145.

Table 8: Female/Male Literacy Ratios Below 69 in 1990[19]

Below 28	28-37	38-47	48	49-58	59-69
Sudan	Nepal	Pakistan	Senegal	Egypt	Saudi Arabia
	Burkina Faso	Bangladesh	Central African Rep	Papua New	Syria
	Afghanistan	Cambodia	Bhutan	Guinea	Libya
	Sierra Leone	Mozambique	Guinea Bissau	India	Iran
	Guinea	Mauretania		Yemen	Gabon
		Chad		Liberia	Algeria
		Somalia		Togo	Morocco
		Gambia		Uganda	Congo
		Niger		Rwanda	Cameroon
				Angola	Cote d'Ivoire
				Equa. Guinea	Nigeria
				Benin	Burundi

Below Bhutan are listed: Pakistan, Cote d'Ivoire, Liberia, Nepal, Benin, Chad, Somalia, Guinea-Bissau, Mali, Niger, Burkina Faso, Afghanistan and Guinea. Table 9 lists the countries that score under the average for all developing countries of 93.

Table 9: Female/Male Primary Enrolment Ratios Below 93 in 1990[20]

Below 44	45-54	55-64	65	66-75	76-85	86-93
Cote d'Ivoire	Nepal	Pakistan	Bhutan	Saudi Arabia	Algeria	Chile
Chad	Afghanistan	Liberia		Morocco	Guatemala	Turkey
	Guinea	Benin		Togo	Egypt	Syria
		Somalia		Senegal	Papua New	Libya
		Guinea Bissau		Ethiopia	Guinea	Iraq
		Mali		Central African Rep.	Cameroon	Tunesia
		Niger		Sudan	Ghana	Iran
		Burkina Faso		Mauretania	Comoros	Bolivia
				Gambia	Zaire	Nigeria
				Sierra Leone	Laos	Uganda
					Bangladesh	
					Angola	
					Burundi	
					Mozambique	
					Djibouti	

[19] UNDP, Human Development Report 1992, New York/Oxford University Press, 1992:144-145.

[20] Ibid. pp. 132 133

From the data presented in this chapter it is obvious that the water and sanitation sector deserves attention. Striking progress has taken place in all SAARC countries during the past 15 years or so, but access to safe drinking water and sanitation is higher in urban areas, with the discrepancy much larger for sanitation than for drinking water. The situation of women in Bhutan ranks rather low in the world, when female/male discrepancies are compared in the field of population ratios, literacy and enrolment rates. Before going on to describe the importance of including women in all phases of water and sanitation projects and the fieldwork data in Chapter 3, a description will be given in the following chapter on government policy in the water and sanitation sector.

Chapter 2: Infrastructure for Rural Water & Sanitation

Water and sanitation are the responsibility of the Public Health Engineering (PHED) Division, headed by a Superintending Engineer, in the Department of Works, Housing and Roads (DWHR) under the Ministry of Communication. Currently there are five divisions: Roads and Bridges, Building and Services, Establishment and Overheads, Urban Planning and Public Health Engineering. The Department formulates policy, gives guidance, makes designs etc. It also works in close cooperation with the districts, who are responsible for the implementation of projects that have been selected by the Dzongkhag Development Committees.

The 'Support to the Rural Infrastructure Programme' contains six components: Rural Water Supply Programme, Improvements to Existing Water Supply Schemes, Rural Sanitation (latrines and smokeless stoves), Improvement in Design and Management Capacity, Human Resources Development and Preparation of Educational Materials.[21] The 'Support to the Urban Infrastructure Programme' includes four components: urban water supply in a number of towns, urban sanitation, flood control in urban areas, and programme support software.[22] Relevant activities are also anticipated under 'Urban Development Works'. In this report attention will be focussed on rural water and sanitation.

2.1.: Government Policy

Bhutan's population amounts to approximately 600.000 people, of whom 90% are living in rural areas. There is no documentation on rural-urban migration, nor on the growth of urbanization. The tendency of rural people to live in scattered dwellings has its advantages for the local population, but forms a serious obstacle to the Royal Government in providing basic services. Activities in these areas will be combined with the construction of latrines and smokeless stoves. The Department also cooperates with the Department of Health in the field of public health.

Difficulties in improving the health and hygiene situation of rural people include poor insulation of their houses, ill-designed or absence of chimneys and the traditional lack of a place to wash inside the house as well as a toilet in large areas of the country. Investment in rural housing is limited, apart from investments made by the Royal Government. Moreover, beneficiaries of water supply schemes usually do not know how to maintain the schemes properly. This has stimulated a policy on maintenance and operation, which came into effect in 1990. There is still much to be done in this area. A number of schemes are not effective in design or were installed

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21 RGOB, 7th Five Year Plan (1992-1997) Vol. 2 Project Proposals, Thimphu/Planning Commission, 1991:115-116.

22 Ibid. page 118-119.

improperly. This situation is aggravated by a general lack of awareness among the people about basic principles of hygiene at different levels. Finally, the sector has to struggle with the general problem of limited national skilled manpower.[23]

2.1.1.: Sixth Five Year Plan (1987-1992)

The objectives in the Sixth Five Year Plan for the Human Settlements sector, which included water and sanitation, have been summarized by the Planning Commission as follows:

- to achieve a balanced development of all urban centres and create a functional, health and aesthetically pleasing physical environment for urban living. This objective included the provision of basic infrastructure such as roads, power, drainage, water, sanitation, recreation, communication and trading facilities. The conservation of environmental character, architecture and agriculture land were also important objectives.
- to improve public health by reducing the incidence of water borne diseases through provision and promotion of adequate water and sanitation facilities. In quantitative terms, the following rural coverage was envisaged by the end of 6FYP: water supply in 40% of the total number of villages by constructing 600 new schemes; sanitation facilities in 30% of the households with a target of building 6,211 toilets; smokeless stoves in 100% of the households; and rehabilitation of 303 water supply schemes.
- the promotion of prototype rural houses with a view to bring about a better utilization of private investments being made in construction of new rural houses, improve general living conditions and to reduce rural urban disparities to stem migration. This objective envisaged the construction of a total of 210 houses following the prototype designs.
- to ensure that rural and urban areas are developed in a systematic and environmentally sound manner, and that the administration of land registration is improved.[24]

2.1.2.: Seventh Five Year Plan (1992-1997)

For the coming years, the Royal Government anticipates to work according to the objectives mentioned below:

- to increase the use of improved water supplies from 40% to 57% of the population.
- to improve the water quality from existing supply schemes so that by 1997 45% of the population have access to safe water from improved schemes.
- to universalize the use of household latrines and also assist 11,000 households (15% of the rural population) to build hygienic latrines.

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23 Royal Government of Bhutan, **Seventh Five Year Plan (1992-1997), Vol. 1. Main Plan Document**, Thimphu/Planning Commission, 1991:105-108.

24 Ibid. page 108

- to increase the use of smokeless stoves from 8% to 15% of the population by assisting 6000 households to have smokeless stoves.
- to enable 90% of the rural primary schools, community schools and monastic schools and health units as well as the main monasteries to use and maintain safe water and hygienic conditions;
- to achieve a balanced development of all urban centres and create a functional, health and aesthetically pleasing physical environment for urban living. This objective would include the provision of basic infrastructure such as roads, power, drainage, water, sanitation, recreation, communication and trading facilities. It would also imply the conservation of environmental character, architecture and agriculture land to the extent possible.
- to continue the surveying and map production activities to provide the necessary information to ensure that rural and urban planning is based on sound information.

2.2.: Urban Water Supply & Sanitation

There are 24 urban areas in the country, out of which 21 provide piped water to their residents. During the 6th Plan the water systems of Thimphu, Phuntsholing, Paro, Gayleyhug, Ṭashigang and Samdrup Jongkhar were repaired and expanded.[25] This project was financed by DANIDA and ADB. The project concentrated on technical achievements. The social side had been completely overlooked. A recent evaluation by DANIDA included as one of its eight recommendations:

> *Conduct consumer education and awareness campaigns in order to enhance the appreciation of safe water and thus the application of water use practices which may improve the health situation of the population of the six towns.*[26]

The comments by the Department of Works, Housing and Roads to the DANIDA report did not include any reference to the lack of community participation.[27]

The 1990 Sector Review of Human Settlements mentions a study undertaken during the previous year under a technical assistance project by the Asian Development Bank called: 'Urban Centres Sewerage Project - Health Education Campaign'. The initial terms of reference were not kept,

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25 Royal Government of Bhutan, **Seventh Five Year Plan (1992-1997), Vol. 1 Main Plan Document**, Thimphu/Planning Commission 1991:109.

26 DANIDA, Draft **An Evaluation of the Sustainability of Six Urban Centres Water Supply and Sanitation Project, Executive Summary of Preliminary Findings**, 1992:20.

27 Royal Government of Bhutan, **Urban Centres Water Supply and Sanitation Project, Project Completion Report**, Thimphu, 1992.

according to the Sector Review. Apparently a health educational programme had not been designed in the end. We were not able to find this document.[28]

Urban water supply has received considerably less attention than rural water schemes as urbanization is a relatively new phenomenon in Bhutan. Recently, the topic has been receiving increased attention and a number of urban development plans have been prepared. Water consumption is considerably higher in urban areas than in rural ones. Most urban areas face a water shortage in that they cannot provide safe water to its residents 24 hours per day. This is attributed to inadequate rehabilitation work to keep up with growing population numbers and inadequate planning, designing and construction.[29]

With regard to sanitation one can find a number of towns with flush toilets and septic tanks, whereas in others there are hardly any facilities whatsoever. A Project Profile has been written to support the urban infrastructure. It consists of rehabilitation and extension of water supply in 7 towns, as well as garbage disposal, improved drainage and sewage schemes for Thimphu and Phuntsholing. The project also foresees activities in floodcontrol for urban areas and programme support software.[30] A second project profile on urban development works also focuses on an improvement of infrastructure, including toilets, solid waste disposal and crematories in Thimphu and 24 other urban areas across the country.[31]

Waste disposal is increasingly becoming a problem in urban areas. In Thimphu residents are expected to deposit their garbage in open cement containers. Shops often have wooden disposal bins in front of them. The refuse is collected by trucks and deposited a little south of Thimphu to a valley, from where it rolls down to a stream that leads to the river traversing Thimphu. This situation will become past history after the onset of the solid waste disposal project with assistance from DANIDA.

2.3.: Rural Water Supply & Sanitation

The Government initiated activities in rural water supply in 1974. From then to 1990 1,387 schemes were constructed. Sanitation started to receive attention in 1984. Before the start of the 6th Plan, in 1984, UNICEF initiated a review of the sector, in which it was found that the

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28 UNCHS, Draft **Kingdom of Bhutan, Human Settlements, Sector Review**, 1990 29.

29 Royal Government of Bhutan, **7th Five Year Plan Proposal (1992-1997)**, Thimphu/Department of Works and Housing, n.d..paragraph 7.

30 Royal Government of Bhutan, **Seventh Five Year Plan (1992-1997) Vol. 2 Project Profiles**, Thimphu/Planning Commission, 1991 118-119.

31 Ibid page 122-123

ongoing rural water and sanitation programme is primarily focusing on construction. As such it is almost exclusively involved in technical matters without giving proper attention to social issues, particularly regarding operation and maintenance of the facilities.[32] The report also drew attention to the design of tapstands, which do not facilitate lifting of water containers to the back or head of women, thus illustrating the absence of female consultation during the planning phase.[33]

2.3.1.: Water

The 600 new schemes planned for the 6th Plan Period did not all materialize: 258 were completed and 123 in varying stages of construction. Out of 70,000 rural households, 26,000 (225,000 people) are thought to benefit from currently functioning schemes.[34] UNICEF uses different figures and estimates that 26% of the rural population and 40% of all villages is thought to have access to safe drinking water.[35] In 1990 an inventory study was conducted in Thimphu, Paro, Haa, Punakha, Wangdi, Chirang, Chhukha, Dagana and Tongsa, in a joint effort by the Department of Works, Housing and Roads with UNICEF with the assistance of a regional consultant. It is interesting to repeat some findings here.

The inventory was mainly of a technical nature. 503 schemes were visited, benefitting 5791 households with 55,247 people. The major problem encountered considered inadequate maintenance of the scheme by the communities. The team found that 155 out of 429 water sources (28.6%) were well protected. Only in 6 cases (1.1%) a conflict of water rights had emerged and 482 (95.8%) had sufficient water throughout the year. It is common to find illegal connections, leaking pipes, missing faucets and poor drainage. Water schemes are often used in other ways than intended: for kitchengardens and orchards, whereas drinking water is still collected from a nearby stream.[36] Of the 503 schemes, 78 (15.5%) needed no repair, 272 (54.1%) minor repair, 129 (25.6%) major repair and 24 (4.8%) rehabilitation.[37] When visited, 17% of the schemes were completely out of order.

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32 Joseph Christmas and Ragnar Schonborg, A Review of the Unicef-Assisted Rural Water and Sanitation Programme in Bhutan, New Delhi/ROSCA and UNICEF, 1984:1.

33 Ibid. page 24.

34 Royal Government of Bhutan, Seventh Five Year Plan (1992-1997) Vol. 1, Main Document, Thimphu/Planning Commission, 1991:108.

35 UNICEF, Draft Children and Women of Bhutan: A Situation Analysis, Thimphu 1991:86.

36 Royal Government of Bhutan and UNICEF, Inventory Study of Rural Water Supply Projects in Nine Dzongkhags, Final Report, Volume I: Main Report, Thimphu/Department of Works and Housing and UNICEF and Kathmandu/East Consult (P) Ltd, 1991.29, 40-42.

37 Ibid page 30.

The consultants stresses the importance of community participation in maintenance of the scheme. Up till now, people's participation consisted of providing unskilled labour, which equals approximately 15% of the cost of an average scheme.[38] Two beneficiaries should be trained to safeguard the technical well being after handing over of a completed scheme to a village maintenance committee. Health education is also seen as crucial to achieve the objectives of improved water supply and sanitation.[39] Despite the emphasis on community participation, there is no specific reference to women's role. The Department had already been working on a maintenance and operation policy in 1990 to ensure that such activities are done by the beneficiaries. It includes the establishment of Village Maintenance Committees and two caretakers per scheme, one man and one woman.

More recently, an inventory was made of the water schemes in Zone IV, including Tashigang, Tashi Yangtsi, Mongar, Lhuntsi, Samdrup Jongkhar and Pema Gatshel. 581 schemes were evaluated, out of which 3% could not be located. 20% of the schemes were not working, 38% were working although perhaps needing minor repair, whereas 18% of the schemes needed rehabilitation. The schemes that are working cover 27% of the households (or 30% of the population). 61% of the schemes reported having a caretaker, among whom 20% had received some training.[40] In return for their work, caretakers most often did not get anything. 56% reported the absence of any kind of compensation, 24% were exempted from gundawoola or shabto lemi and the remaining 20% were paid. The study also found that approximately 74% of the households in the villages visited had some kind of latrine.

The main conclusions of the inventory are that the construction quality has clealy improved in recent years. The need for an integrated maintenance policy, training of village caretakers and Village Maintenance Committees is highly recommended.[41] No further observations or recommendations regarding community participation were made. Indeed, after reformulating the database there will no longer be space to record information on community participation and health. Although there are perhaps valid reasons for this decision, the exclusive emphasis on the technical side is unfortunate.

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38 Royal Government of Bhutan, **Seventh Five Year Plan (1992-1997) Vol. 1 Main Document**, Thimphu/Planning Commission, 1991-108.

39 Ibid. pp. 45-46.

40 It must be remembered that training of caretakers and the provision of toolboxes only started in 1991 in Zone IV.

41 Royal Government of Bhutan, **Rural Water Supply Inventory, Volume 1, Executive Summary**, Yonphula/Zonal Administration Zone IV, 1992.

2.3.2.: Smokeless Stoves

Smokeless stoves were introduced by the National Women's Association of Bhutan in 1983. The initial number of 22 in Thimphu District increased to 118 in 1984, in close cooperation with the Department of Works, Housing and Roads (then called Public Works Department). An additional 4000 stoves were installed all over the country in 1985. NWAB started this activity in order to reduce time spent by households on fuelwood collection, to assist in reducing deforestation and to reduce the prevalence of respiratory and eye problems associated with smoky kitchens.[42]

In 1989, 540 women were trained for 1 week on maintenance and operation of smokeless stoves. This training was financed by UNICEF. These women apparently quickly lost interest after realizing that there was no incentive for them in putting to practice what they had learned. An additional 136 technicians were trained that year, and the project employed 84 of them on contract basis. As they were not offered regular employment through RCSC in 1990, when the project was transferred from NWAB to DWHR, they also looked for income-generating opportunities elsewhere. When the project was handed over, about 13,000 stoves had been installed. Records of all these activities stayed with NWAB, which forms an obstacle to the evaluation of smokeless stoves that were provided in the past. Few new constructions were undertaken since then.[43]

Currently the smokeless stoves' project has 1 coordinator, 1 technical adviser and 4 supervisors. In September 1991 the project started to train village women, preferably female school dropouts who do not have to be a member of NWAB. During the past year NWAB has approached the different district administrators to ensure that a local chapter of the women's association is established. The dasho dzongdag subsequently requests the gups of respective gewogs to appoint two women as members of NWAB. Whenever NWAB or its local chapter organizes something, these women are expected to come. They are expected to follow the smokeless stoves' training independent of their individual interest, as was learned during fieldtrips. Being volunteered as a member can therefore be rather time consuming. The selection of trainees needs to be improved by checking the motivation of the trainees.

The women are taught how to build 4 different types of stoves as well as how to fabricate chimney pipes during a 33 days' course. They receive free fooding and lodging plus an additional Nu. 25[44] per day. From among the trainees, a number of women are chosen to train women in other districts under the same conditions, but with Nu. 50 per day. Training costs are

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42 NWAB, National Women's Association of Bhutan, Thimphu/NWAB, 1986:10-13

43 Royal Government of Bhutan, Seventh Five Year Plan (1992-1997) Vol. 1 Main Document, Thimphu/Planning Commission, 1991.109

44 1 US dollar equals approximately Nu. 28 in August 1992.

borne by UNICEF. As such 168 women have been trained: 20 in Paro, 28 in Punakha, 30 in Wangdi Phodrang, 20 in Lhuntsi, 20 in Haa, 20 in Chukha and 30 in Thimphu. The next training will be organized in Bumthang, for women from Bumthang, Tongsa and Shemgang. After completing the training, the women receive Nu. 60 for each newly installed stove and Nu. 25 for a rehabilitated one. This money is provided by the Royal Government. In the districts mentioned above, a female coordinating volunteer has been appointed who works with the district administration. She does not receive a salary however. According to the project coordinator, all women are relieved from gundawoola and shabtawoola after completing their training. So far, no evaluation has been done on the effectiveness of this type of training.

After the adoption of an integrated approach consisting of water schemes, latrines and smokeless stoves by DWHR, smokeless stoves will be offered along with latrines in rural areas. It is estimated to provide 6,000 improved stoves during the coming years and thus reach 15% of the rural population.[45]

2.3.3.: Latrines

Latrines were introduced during the 6th Plan with the Low Cost Sanitation Project which started in 1985. Its objective was to provide facilities to schools, Basic Health Units, dispensaries and a number of households. After two years an evaluation exercise revealed that beneficiaries were not so enthusiastic.[46]

Some aspects of the impact of the Low Cost Sanitation Project BHU/82/001 were described in an evaluation conducted in 1990. In 9 districts 457 household latrines had been built. For the evaluation 59 households (12.9%) were interviewed, 50 with a latrine constructed under the project and 9 with a traditional one. In principle interviews were held with women. Female literacy was established at 10%.

It was found that men are generally responsible for the construction of a latrine and that households with relatively higher socio-economic status tended to be overrepresented among the beneficiaries of the project. Most households had spent between Nu. 400 and Nu. 1,000 on the construction of their latrine. The money was spent on sand, stones, wood and hired labourers. This has to be compared with the average monthly income of Nu. 392 in Mongar, Nu. 1,025

[45] Royal Government of Bhutan, Seventh Five Year Plan (1992-1997) Vol. 1 Main Document, Thimphu/Planning Commission, 1991:108.

[46] SNV, Project Report Rural Water Supply and Sanitation Project, Thimphu, 1992:7.

in Gaylegphug and Nu. 455 in Dagana, districts that were included in the evaluation.[47] From the perspective of the beneficiaries, latrines may therefore not be qualified as 'low cost'. Almost 70% of the respondents found the required financial input acceptable however. This may be explained by the finding that latrines were usually constructed in the homes of wealthier families. The construction took two weeks to one month. In slightly over half of the cases, the latrine had been constructed during the previous year. Correct use of the facilities was calculated at 60% and 62% of the latrines had no smell.[48]

Until January 1991, 1,678 latrines were constructed under this project against the aim of establishing 6,211. 85% of the rural and 40% of the urban households do not have a sanitary latrine.[49] There are three types of latrines considered suitable for Bhutan: ventilated improved double pit latrine, pour flush latrine and long drop composting latrine.[50] During the 7th Plan Period 10,000 latrines are to be constructed around the country.

Just recently, the coordinator of the Smokeless Stoves' Project has also been appointed as coordinator of the latrines. He is anticipating to give additional training to the women who learned to build and maintain smokeless stoves during the previous year. They in turn would have to assist households to build their own latrine. The work on latrine construction is expected to be less time consuming than the construction of smokeless stoves. People can build their own latrines, but the construction of stoves needs more assistance from the trained women. The women would be working under the jurisdiction of the dzongkhag administration. This proposal still has to be finalized within the PHED and with UNICEF, the main donor.

Garbage disposal is as yet not a significant problem in rural areas. What can be burned is thrown in the fire and other refuse is thrown in the pigsty or outside where it can be eaten by animals. As yet villages do not show much refuse.

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47 Royal Government of Bhutan, **Household Income and Expenditure Survey 1990, Thimphu, Mongar, Gayleyphug & Dagana Dzongkhags**, Thimphu/Central Statistical Office, 1991:3.

48 Moniek de Boer, **Socio-Economic Aspects of Low Cost Sanitation Programme, BHU/82/001**, Thimphu/Department of Works and Housing and UNDP, 1990

49 Royal Government of Bhutan, **Seventh Five Year Plan (1992-1997) Vol. 1 Main Document**, Thimphu/Planning Commission, 1991.109.

50 Royal Government of Bhutan, **Seventh Five Year Plan (1992-1997) Vol. 1 Main Document**, Thimphu/Planning Commission, 1991:112

2.4.: Role of Women

The undated **6th Five Year Plan** prepared by the Public Works Department as it was known then, makes explicit reference to the importance of analyzing women's role in the sector in the introduction. It is argued that safe drinking water reduces morbidity and mortality esp. among children. As such women would be spending less time on looking after sick children. Where time is saved through the establishment of standpipes closer to the homes, women are expected to have more time for their other responsibilities and income-generating activities. Reference is also made to the close working relationship with the National Women's Association of Bhutan on these issues.[51] However, in the rest of the document there is little reference to women. They are not specified in the general objectives nor in project profiles, with the exception of the one regarding improved cooking stoves. It is expected that the provision of these stoves will 'reduce the drudgery of women through reduced firewood collection' and allow women to spend more time on looking after their children.[52]

Going through the consultancies' profiles, in particular the one regarding the input of one male and one female senior social anthropologist to collect baseline data, specific mention is made of the need to analyze gender roles for the successful implementation of water and sanitation projects.[53] Baseline studies as envisaged in this document have however not been conducted so far.

The Main Document for the 7th Plan Period explicitly mentions the importance of involving women for both water supply as well as sanitation activities.[54] In the following chapter we will look in more detail at the importance of giving specific attention to women's role in this sector, followed by relevant research findings. Currently a Royal Decree is being prepared to establish procedures for the water supply and sanitation section in which community participation will also be outlined.

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51 Royal Government of Bhutan, **Sixth Five Year Plan**, Thimphu/Public Works Department, n.d.:1

52 Ibid. page 40

53 Royal Government of Bhutan, **Sixth Five Year Plan**, Thimphu/Public Works Department, n.d.:90

54 Royal Government of Bhutan, **Seventh Five Year Plan (1992-1997) Vol. 1 Main Document**, Thimphu/Planning Commission, 1991 111.

Chapter 3: Women's Role in Rural Water and Sanitation

Women's role so far has been rather invisible in policy and project documents. It has not been documented and analyzed. The major part of this chapter is therefore dealing with presenting research findings on current beliefs and practices. Most data are based on own fieldwork. Where possible information from other sources has been included, but data are still very scarce.

3.1.: Introduction[55]

The partial overlap of the United Nations Decade for Women (1975-1985) and the International Drinking Water Supply and Sanitation Decade (1981-1990) have stimulated the increasing focus on the role of women in the sector. Through lack of maintenance by the beneficiaries of installed water schemes, attention shifted to these beneficiaries, to community participation. In Bhutan as well, maintenance and operation constitute a major problem that has stimulated the 1990 policy on maintenance and operation. There is still some hesitation to approach the issue from a gender-specific objective, presumably because benefits and responsibilities are assumed to be distributed evenly between the sexes. Further on in this chapter research findings will be presented that will assist in analyzing extend to which this assumption is valid.

On a global level, a gender sensitive perspective is gaining ground. Practical reasons are stimulating this development. Women are the prime caretakers and socializers of children and they are often primarily responsible for domestic water collection, storage and use. Their participation can be through collecting data on women's role and responsibilities in a particular projects area and use the data for planning purposes. It is also possible to encourage female participation in different project phases.

Literature makes it clear that it is not enough to include women in Village Maintenance Committees or as caretakers for example, although this constitutes an important step. The environment needs to be supportive. From a practical point of view, there need to be a toolbox and spare parts. Moreover women need to have been included in the planning stage and represented at higher levels in the governmental structure. Male beneficiaries also need to support the women.[56] This applies to both water schemes as well as latrines. Let us now look at possible negative repercussions for women by water and sanitation projects that are not gender-sensitive.

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55 More background information has been included in Annexes 6, 7 and 8.

56 C. van Wijk-Sijbesma, 'Women, Water and Sanitation: State-of-the-Art Review' in Woman, Water, Sanitation, Annual Abstract Journal, No. 1, The Hague/IRC International Water and Sanitation Centre, 1991:2.

Table 10: Potential Negative Impact of WATSAN Projects on Women[57]

1.	Certain categories of women are excluded from access:	- poor women - minority groups - female heads of households
2.	Special needs of women are not met, e.g.:	- location, design of facilities - bathing, laundry provisions - service operating hours - alternative opportunities for meeting and social learning
3.	Involvement of women has been limited to:	- physical labour to construction, maintenance - passive audiences for health education - separate women's projects
4.	Introduction of new technologies and systems has led to a:	- reduced control of women over water and sanitation conditions - bypassing of women's traditional expertise - neglect of existing water systems
5.	Workload of women has been increased by:	- loss of assistance in water collection - bypassing of women's traditional expertise - neglect of existing water systems
6.	Poor women, or their husbands, have lost employment in:	- water collection - waste collection - waste recycling
7.	Wealthier households benefit most from better access, flat tariffs and/or productive uses of domestic water, thus widening further the gap between rich and poor	
8.	Women use time and energy gains or surplus water from an improved water supply for work in agriculture, horticulture or dairying, but have no access to the resulting income or say over its use.	

From the fieldwork it was found that in Bhutan special needs of women regarding the location and design of facilities are not necessarily met. No provisions are made so far to accommodate provisions for bathing and laundry. Women's participation is indeed limited to labour input at

[57] C van Wijk-Sijbesma, 'Women, Water and Sanitation: State-of-the-Art Review' in **Woman, Water, Sanitation, Annual Abstract Journal, No. 1, The Hague/IRC International Water and Sanitation Centre, 1991.5.**

construction time and as target group for health education. It is not known if which way the introduction of water schemes and latrines has influenced female control. Women's workload may even be increased sometimes, for example when standpipes are located further away from the house than the previously used stream, and also in the case of installation of pour-flush toilets needing larger quantities of water.

3.2.: General Characteristics Respondents

Interviews were held with 86 women: 11 in Lhuntsi, 22 in Tongsa, 29 in Paro and 24 in Tashigang. Only 1 interview, in Tongsa, could not be completed. The respondents had 243 children, 133 boys and 110 girls. These were grouped into three age categories, under 6, 6-14 and over 14. In the youngest and oldest group the number of boys and girls are similar. Noteworthy is the considerable gap between boys and girls between 6 and 14: 66 boys against 40 girls. The difference is remarkable in all districts with the exception of Paro. 13 out of 104 girls (12.5%) are currently going to school, against 33 out of 103 boys (32%). On the other hand, 8 sons reportedly dropped out of school against 4 girls.

72 (83.7%) of the respondents were married at the time, but only 65% of them were living with their husband. The extended family is on the decline in rural areas also, with 38 women (32.3%) living with husband and/or children only. Female heads of households were not counted separately.

Only 3 women (3.5%) did not know where the nearest school was located. Traditional and Buddhist healers could be found everywhere, but there is geographical variation. A pawo, nendjum, phadjo or bloodsucker is more frequent in western and central Bhutan. Tsipa, gomchen, monk or lama are mentioned considerably more often in the east. 58% of the respondents reported the presence of a Village Health Worker in their own or nearby village. Health facilities were available within walking distances of 30 minutes to 4 hours. 30 women (34.9%) lived in villages that had experienced previous water and sanitation activities.

3.2.1.: Small World of Rural Women[58]

In the analysis of the educational sector attention was already given to the isolation of rural women. Literacy among the respondents is considerably below national average, estimated at 10% for women, with 2 out of 86 (2.3%) able to read and write. Although 41 (47.7%) has a

[58] For a compilation of answers on access to media and opinions about being a woman from this study as well as the education one, please refer to Annex 10.

radio in the house, only 12 women (14%) listen to BBS daily. Even then, the music seems to be preferred to the information. Women complain that they cannot understand the spoken parts.

Table 11: Female Access to BBS

	No Radio	Has Radio	Never Listens	Listens Sometimes	Listens Daily
Tongsa	18	4	15	5	2
Paro	11	18	15	11	3
Tashigang	9	15	8	11	5
Lhuntsi	7	4	7	2	2
Total	45	41	45	29	12

As source of information the Kuensel is even less relevant. 67 women (77.9%) have never heard of the newspaper. In 4 households (4.6%) the Kuensel is read regularly. 13 women (15.1%) mention that somebody in their village or neighbourhood reads the Kuensel. News is shared with women by less than half of the readers.

Table 12: Female Access to Kuensel

	Kuensel Unknown	Someone in Household Reads	Nobody in Household Reads
Tongsa	17	3	2
Paro	28	-	1
Tashigang	21	2	1
Lhuntsi	1	5	5
Total	67	10	9

In order to get some understanding about women's opinion regarding their current situation, they were asked whether they would like to be reborn as a man or a woman. Out of 74 women 54 (73%) wanted to become a man, 1 (1.4%) a woman and 19 (25.7%) expressed no preference. It is quite commonly believed that one has to be born nine times as a woman before one can become a man. But such reasons were not reflected in the answers given by the respondents as to their motivation. 31 (41.9%) did not want to be a woman because of the pain of delivery and fear of childbirth. 19 (25.7%) mentioned men's greater mobility and an additional 7 (9.5%) women's primary responsibility for domestic chores and childcare that is tying them to the house.

Table 13: Female Preference for Next Life

	Man	Woman	No Preference	No Answer
Tongsa	13	-	8	1
Paro	24	-	5	-
Tashigang	17	1	6	-
Lhuntsi	n.a.	n.a.	n.a.	11
Total	54	1	19	12

3.3.: Some Local Beliefs Related to Water

It is generally believed that water is protected by spirits called 'Lu'. If one urinates or defecates near water the spirit will be angered an punish the owner of the source or nearby residents with sickness. On the one hand this belief necessitates efforts to ensure good relationships with the particular spirits. To that end, the tsipa (astrologer) is called to identify the auspicious days for making offerings and holding a puja.[59]

Being a tsipa (astrologer) is a part time profession for which one has to study with an established colleague. Tsipas are males, so far no female tsipa seems to be present in Bhutan. Once a year every household has to consult a tsipa. During the yearly consultation, the tsipa will take into consideration the size of the household as well as the sex and year of birth of each member. All members do not necessarily need to be present. In order to do his work he will have brought along quite a few black and white stones, a piece of plastic to spread on the floor and a prayerbook. The stones are arranged on the piece of plastic, according to the year of birth of each family member in chronological order and a rectangular shape, clockwise. The tsipa will then be able to foretell for each member whether any puja's or other religious activities need to be organized and if so during which month. He can also say in which direction one should not travel, activities that one should not undertake. The time he spends on this work is at least half a day for a family of 12 people. For these activities he may be paid Nu 25-70. In the past tsipas came to each household, where they received a basket with approximately eight kilograms of wheat and an odd number of Ngultrums. Nowadays tsipas do not come to the house anymore on their own initiative, only when they are called.

While foretelling the coming year, the tsipa will have included giving advice on how to ward off disease and stay healthy. In that sense he is important for prevention of ill health. His guidance

[59] For a more extensive description of local beliefs regarding sickness and health see Joke Buringa and Manika Pradhan, **Women and Health in Bhutan: Practices, Beliefs and Care**, Thimphu/NWAB and SNV, 1991.

may also be sought in case of disease, esp. in the absence of a pawo or nendjum to identify the cause, whether evil spirit, dead person or deity.[60]

The belief in 'Lu' can also stimulate local dispute over use of water. The owner of a watersource in Lhuntsi was very much opposed to the construction of a watertank at this source and a connecting supply scheme as she claimed that it made her sick. In another case a source was owned by a tsipa who fell sick every time somebody urinated and passed a stool near his water, or so he believed. Neighbours recounted how at such occasions the tsipa scolds them.

Given the connection in people's minds between soiling water and sickness, it may be worthwhile to investigate the possibility of designing health educational campaigns along this theme which are adapted to the local situation as much as possible.

3.4.: Water

Even in areas without drinking water schemes, most households have made provisions for water collection nearby the house. Where there are standpipes, those people who can afford it have bought rubber hose to bring the water to their house. In the absence of standpipes, small wooden devices are stuck into any nearby stream under which water is collected in plastic jerrycans and containers. Wooden tubs may be found on many a veranda in western Bhutan, filled with water from a nearby spring through a rubber hose. Whenever required, people have no reservations about cutting into a water scheme to connect their own house and kitchengarden. There seems to be enough water through most of the year in the vicinity of villages. People are more eager to have easy access than that they are concerned about the cleanliness of the water. Local streams will be diverted to let the water reach kitchengardens or if possible a rubber pipe is connected from a standpipe to the garden. Also, cattle will be allowed to drink while grazing, or from a tub or bowl near the standpipe. From a hygienic perspective this is undesirable, but from a practical one quite logical. Bhutan is not a society where women walk increasingly long hours to collect water. But a short distance can also be trying, esp. in the monsoon period carrying water and small children over slippery paths, with additionally frequent infestation with leeches and other insects.

3.4.1.: Collecting Water

Fetching water is predominantly a female task, as can be seen from Table 14. 81 out of 86 households need to collect water. In 67 (82.7%) households this is normally done by a female

[60] Joke Buringa and Manika Pradhan, **Women and Health in Bhutan: Practices, Beliefs and Care**, Thimphu/NWAB and SNV, 1991.28-29

adult, in an additional 13 (16%) by a girl. 10 households (12.3%) mention that men regularly fetch water and 6 (7.4%) name male children. In 4 households (4.9%) there is not a particular person, but all household members fetch water when necessary. In fact this figure may be higher, considering that a number of households clearly mentioned several people who regularly fetch water. The baseline survey done by Save the Children/USA in Shemgang district mentions that generally women and girls fetch the water, but that other household members easily contribute whenever their tasks permit.[61]

Table 14: Sex of Main Water Fetchers[62]

	Female Adult	Female Child	Male Adult	Male Child	No Specific Person
Tongsa	23	3	2	2	2
Paro	23	4	3	2	-
Tashigang	14	5	3	1	2
Lhuntsi	7	1	2	1	-
Total	67	13	10	6	4

30 out of 86 women (34.8%) mentioned that their sources were protected in some way. Their main source provides 70 households (81.4%) with water throughout the year. Ownership of sources is acknowledged by 6 (7%) of the respondents only. Regarding the maintenance of their main source, 40 (46.5%) mentions that such activities are not required, 22 (25.6%) might need a caretaker but does not have one. The remaining 24 women (27.9%) report that their water system indeed has a caretaker. Preference for a particular source is not relevant, people have no choice or are happy with the water available. Out of 68 households answering the question, 33 (48.5%) mention the presence of other water sources that are not being used.

Table 15 gives an overview of the type of water source mainly used. Answers are varied and depend strongly on local circumstances. 29 households (33.7%) have access to a standpipe. 13 (15.1%) put a container under a traditional wooden pipe, (11.6%) go straight to a nearby river, 21 (24.4%) collect from a nearby stream and 13 (15.1%) have a rubber hose going into or close to their houses.

61 SCF, Baseline Survey, 14 Villages in Tong and Nangkhor Villages of Shemgang District, Thimphu/Safe the Children USA, Bhutan Field Office, 1990:45.

62 In 5 households there is not need to collect water as provisions have been made to lead the water to the house. Answers total over 81, as several respondents mentioned more than one main person.

Table 15: Water Sources Used by Respondents

	Standpipe	Traditional Pipe	River	Stream	Rubberpipe to House
Tongsa	7	5	-	10	-
Paro	6	8	10	5	-
Tashigang	7	-	-	4	13
Lhuntsi	9	-	-	2	-
Total	29	13	10	21	13

It is not easy to determine the number of trips made per household per day. First of all, more than one person may fetch water. Secondly, people cannot remember the exact number of trips made during the previous day. Answers therefore need to be interpreted with caution. Frequency depends on need. When alcohol is being brewed for example, the consumption of water is considerably higher than otherwise. 29 (33.7%) went from 1 to 4 times. Another 21 (24.4%) between 5 to 10 times. All other answers were put together.

Table 16: Frequency of Daily Water Collection

	1-4 Times	5-10 Times	Varies
Tongsa	9	6	7
Paro	9	12	8
Tashigang	8	1	10
Lhuntsi	3	2	6
Total	29	21	31

Among the households interviewed for the health study, water collection is also mainly a female responsibility. Of the 79 households without tapped water supply inside, women were solely responsible for water collection in 68 cases or 86%. A husband was only mentioned once, in other instances children would fetch water. All households had water close to the house, the longest distance recorded was ten minutes one way and that only once. Water sources include standpipes, spring, well, stream but often a personal adaptation to provide water close to the house. In general collecting water is not the drudgery it is for women in other countries, who may have to walk for hours. The time spent on bringing water may vary from 15 minutes to 4

[illegible] depending on the flow of the source and the type of activities for which water is need[illegible]

The 1984 UNICEF evaluation mentioned that the introduction of water schemes had reduced the time needed by women to fetch water. They needed only [illegible] of the previous time. This additional time was apparently used for agricultural activities.[illegible] We tried to calculate the total time spent on water collection per person but had to abandon this [illegible] as it was impossible for people to remember how often they went. They also cannot [illegible] say how much [illegible] is involved. Pertinent observations which the [illegible] of trips made per household, the volume of the containers used and the time needed for each trip is required for getting accurate data [illegible]. Hence does cast some doubt on the reliability of the UNICEF finding, esp. because water sources are often within 5 if not 10 minutes walk from the house. In the 1990 Shemgang study it is reported that households need on average 10.4 minutes during the monsoon and [illegible] minutes during the dry season to fetch water.[illegible]

The water is most often carried [illegible] [illegible] (66.7%) [illegible] containers on their back [illegible] the water [illegible] (27.6%) [illegible] cleaning [illegible] from house to house and from daily to never [illegible]

[illegible] never boil their drinking water and 8 (8.9%) only sometimes. There are [illegible] families (29.7%) reported that they always drink boiled water. The remaining 5 (5.8%) boil [illegible] for sick persons only. Quite a number of people believe that water can only carry sickness during the monsoon season, leading to a seasonal pattern of water boiling.

[illegible] Water and Health [illegible] Beliefs and [illegible] SNV

[illegible] Rural Water and Sanitation Programme of Bhutan, [illegible]

[illegible] Survey [illegible] Kheng and Nangkhor [illegible] of Shemgang District [illegible] 1990.45

Table 17: Boiling of Drinking Water

	Always	For Sick Persons Only	Sometimes	Never
Tongsa	14	2	2	4
Paro	-	1	2	26
Tashigang	9	1	4	10
Lhuntsi	2	1	-	8
Total	25	5	8	48

Re-use of water is not common practice. People wash themselves outside the house, so there is no waste water from bathing or from washing clothes. But water previously used for washing dishes or for cooking purposes is simply thrown outside in 68 households (80%). In the other cases it is put into pig's food. 82 households (95.3%) have a kitchen garden, but water is only put sometimes. Where possible, water supply to the kitchen garden has been arranged to avoid carrying water. A majority of respondents (86%) report having cattle to look after. Sometimes water is collected for them as well, but usually they are allowed to roam free and drink, water is diverted from a nearby stream or they are led to the standpipe.

Although 30 households mentioned that their village had a water & sanitation project, the spread of information was wider. Health educational activities about the importance of clean and safe drinking water had reached 64 households (74.4%), usually through a health worker, NWAB member or the dzongkhag administration. Considering the limited catchment of BBS and Kuensel as described in paragraph 3.2.1. it is not surprising that these sources were hardly mentioned.

Table 18: Female Preference for Location of Water Taps

	Inside the House	Just Outside the House (Private Tap)	No Preference
Tongsa	10	8	3
Paro	9	20	-
Tashigang	21	1	2
Lhuntsi	2	4	5
Total	42	33	10

Asked about their preference for installation of a drinking water tap, 42 women (49.4%) would like to have a tap inside the house. This eliminates water fetching, enables them to wash dishes and children more often and finally ensures privacy for the women to wash themselves more

frequently whenever they like. At present they usually wait until after dark to wash outside near the house or their water source, where they may always be surprised by others. 33 women (38.8%) would be happy with their own tap just outside the house and the remaining 10 (11.8%) expressed no preference.

3.5.: Sanitation

Caution is necessary in the interpretation of data on hygiene and sanitation. It is human to present a better picture to others, esp. strangers than is practiced in every day life. We were often accompanied by a blond little girl. People were fascinated with every aspect of her care: washing, diaper change, brushing teeth, cleaning plates, cups, utensils, boiling and filtering drinking water etc. It was easier for the local counterpart to adapt her hygiene routine to village life than for the foreign researcher, who always found herself balancing between the felt need for a minimum of personal care for herself and daughter and the wish to avoid giving non-verbal judgements about habits and practices. It would be surprising if our mere presence did not influence the nature of the answers to some extent, thus presenting a somewhat better picture than is actually the case.

A major sanitation problem in rural areas is of course caused by the flies, esp. in the spring just before the onset of the monsoon. The practice of keeping animals on the ground floor of the house aggravates this problem. There may seem to be thousands of flies in a kitchen waiting for an opportunity to take a dive in one's cup of tea of partake of the rice. Sleeping infants can be seen with dozens of flies on their heads and faces. When it is raining, people like to go barefoot, as it gives them more grip on slippery paths. They walk through mud, dung and faeces, bringing this with them into the houses. Dogs also walk in and out of houses freely. Children, who cannot control their bladder and bowels, add to the umhygienic situation. It has to be remembered however, that villages do not generally have the knowledge or resources to improve hygienic conditions in their environment.

3.5.1.: Personal Hygiene

Women wash themselves completely quite frequently, 48 (55.8%) between once a day to once a week and 10 (11.6%) from once a week to once a month. The rest washes themselves less than once a month with 3 (3.5%) never wash completely. Usual washing places include the local bath with 27 women (31.4%) in Paro and just outside the house by 31 respondents (36%). We asked women where they would like to wash themselves if they had a choice. 5 (5.9%) did not have any preference. An overwhelming majority of 56 women (65.9%) ideally would like to have the opportunity to wash themselves inside the house to ensure their privacy and to be able to take

a bath more often. 9 respondents (10.6%) prefers their compound, 5 (5.9%) the standpipe, 6 (7.1%) a bathroom and 4 women (4.7%) either a local tap, local bath or the river.

Particularly in Haa and Paro, it is quite common to find wooden bath tubs, located near a stream or river. Some households own one, others borrow one and again in other places one will find public bath tubs, used by several households. Baths are usually taken at night, but not necessarily. Preparation may start before darkness sets in, by making a fire to heat the stones. This may take one to two hours. Clean water is let in the tub and hot stones are added to heat up the water to quite a hot temperature. When a hot bath has been prepared, all household members will use the opportunity. A visit to the tub is taken in the order of respected guests, men and older male children, followed by women and girls with small children. The water is kept at the desired temperature by removing some stones and adding hot ones. Water is not removed, but the top part is merely skimmed off.

Table 19: Preferred Washing Place by Women

	Inside the House	Just Outside the House (Private Tap)	Other	No Preference
Tongsa	12	4	4	1
Paro	23	2	4	-
Tashigang	20	1	2	1
Lhuntsi	1	2	5	3
Total	56	9	15	5

73 women (84.9%) reportedly wash their hands always before preparing or eating food. This figure is completely unreliable. Observations do not support the high frequency mentioned by the respondents. As was also pointed out by Wikan and Barth, the absence of a place to wash inside the house forms a serious obstacle in making the washing of hands of regular habit.[66] Teeth are cleaned daily by 46 women (53.5%) and sometimes by 22 (25.6%). Methods mention include toothbrush and toothpaste by 32 (37.1%), finger and water 24 (27.8%) and toothbrush with water 13 (15.1%). In houses visited the number of toothbrushes, if at all present, certainly did not match the number of household members. It is therefore presumed that toothbrushes are commonly used.

An improvement in personal hygiene has been recorded by the 1984 UNICEF consultants after the introduction of water schemes. Water used increased 1.5 to two times. Instead of monthly

66 Unni Wikan and Fredrik Barth, **Bhutan Report: Results of a Fact-Finding Mission**, Oslo, 1989:50.

or bi-monthly washing, the frequency increased to weekly. Soap was widely used.[67] The comparison between before and after onset of the project was made simultaneously which sheds some doubt on the reliability of data on the previous situation. The report also does not substantiate their findings or elaborate on methodology.

Women were asked about the frequency with which they wash clothes. There appears to be a correlation between the number of times women wash themselves and when they wash their clothes. Clothes of small children are washed often, if not daily. Particularly in Eastern Bhutan it appears to be quite common for men and older children to wash their own clothes. 49 respondents (57%) mentioned that they washed clothes of themselves or relatives at least once a week if not more often. An additional 21 (24.4%) engage themselves in this activity between once a week and once a month, the rest washes less often.

Table 20: Frequency of Washing Clothes

	Up to Weekly	Weekly to Monthly	Less Often
Tongsa	11	8	3
Paro	12	8	9
Tashigang	22	1	1
Lhuntsi	4	4	3
Total	49	21	16

The place where clothes are washed, depends on the local situation. 30 households (34.9%) use a nearby standpipe, 11 (12.8%) a traditional pipe in a nearby stream and 28 (32.6%) wash directly in a river or stream. The remaining families mentioned a variety of alternatives.

3.5.2.: Hygiene of Children

Babies are generally washed once or twice a day. As they grow older than 4 or 5 this frequency decreases to the one of the parents. 21 women (28.3%) wash their children once or twice a day and another 34 (45.9%) several times to once weekly. This is quite remarkable considering the effort involved in fetching and boiling water. The children are washed in the kitchen near the fire in 29 households (39.2%) or just outside in 24 families (32.4%).

[67] Joseph Christmas and Ragnar Schonborg, A Review of the Unicef-Assisted Rural Water and Sanitation Programme in Bhutan, New Delhi/ROSC'A and UNICEF, 1984:37.

It is commonly believed that children of about one year old can control their bladder and bowel movements. Interviews with women looking after children under 5 learned that out of 29 children 5 (17.3%) could do so before they were one year old. 13 (44.8%) mastered the art during their second year and an additional 11 (37.9%) after they had completed two years. The difference between expectation and reality is considerable. Attention was therefore given to ways parents dealt with this period. Babies usually are wrapped in clothes around the lower part of their bodies. When it is cold, a blanket is wrapped around the body on top of the diaper when it is being carried. When children are approximately eight months old, they learn to sit up by themselves and soon after start their attempts to crawl. At this point in particular, diapers used Bhutanese style become useless. The child loses them while moving about. The cloths are then stitched into pants, which are used instead of diapers, or the children are allowed to go with a bare bottom. When asking questions about the frequency of washing diapers, we were usually informed that they were washed every time they were dirty. Observation showed however, that it is not uncommon for diapers wet with urine to be dried only.

Table 21: Frequency of Washing Small Children

	Once or Twice Daily	Daily to Weekly	Weekly to Monthly	Less Often
Tongsa	3	13	-	6
Paro	7	8	2	12
Tashigang	9	9	3	3
Lhuntsi	2	4	1	4
Total	21	34	6	25

Inevitably, a child will at some point urinate inside the house on the floor. In that case, 28 women (43.8%) said that they would clean the floor with the diaper, a sack or a cloth. 15 (23.4%) reports to use a broom, 1 (1.6%) applies water and 8 (12.5%) does not do anything at all. Finally 12 women (18.8%) use a variety of other means.

Defecation on the floor is also not unlikely. 8 respondents (13.3%) reported that with their youngest child this had not yet happened. 7 women (11.7%) would not clean the floor. Translated this means that they will call the dog and expect him to eat their offspring's product. 27 women (45%) will clean the floor with a cloth or diaper and 18 (30%) with hay, sticks and/or leaves. 5 women (8.3%) do not clean the baby's bottom. 38 (63.3%) use the dirty diaper or cloth to clean the behind, 1 (1.7%) uses water and 8 (13.3%) paper, leaves etc. for this purpose.

Table 22: Response to Urinating on the Floor

	No Action	Clean Floor with Broom	Clean Floor with Diaper, Cloth or Sack	Clean Floor with Water	Other
Tongsa	-	5	9	1	-
Paro	5	9	9	-	6
Tashigang	3	-	8	-	3
Lhuntsi	-	1	2	-	3
Total	8	15	28	1	12

Finally, the majority of the women (90.2%) do tell children to go to a particular place to urinate or defecate. Places include toilet (65.4%), just outside the house/veranda (16.4%) and a variety of other places (18.2%). Respondents do complain however that their children do not listen to them. A major reason for this phenomenon might be that parents do not practice what they preach themselves.

Table 23: Response to Defecating on the Floor

	No Action	Clean Floor with Diaper, Cloth or Sack	Clean Floor with Hay, Sticks or Leaves
Tongsa	6	4	4
Paro	1	12	6
Tashigang	-	8	5
Lhuntsi	-	3	3
Total	7	27	18

3.5.3.: Housecleaning

Most commonly women keep the house clean. They sweep the floors and throw the dust out. Sweeping is done once a day by 6 women (7.1%) only, whereas 39 (45.9%) sweeps after every meal and 40 (47%) more often. The kitchen, where people eat and sleep, tends to be swept more often than other rooms. The frequency also depends on other activities. During peak agricultural seasons for example, cleaning and washing clothes or oneself will be done less often.

Collected dust is thrown out immediately by 29 women (34.1%), once a day by 14 respondents (17.6%), up to once a week by (32.9%) and less often by the remaining 13 households (15.3%). We also enquired where it was disposed of, and found that 23 families (27.1%) used the traditional toilet or pigsty. Another popular area was the kitchengarden, agricultural field or the 'jungle' as any area with more than 1 tree tends to be called: 38 references (44.7%). The area between houses was mentioned by 15 women (17.65).

Table 24: Frequency of Rural Refuse Disposal

	Immediately	Daily	Daily to Weekly	Less Often
Tongsa	4	5	7	5
Paro	14	2	13	-
Tashigang	10	6	5	3
Lhuntsi	1	2	3	5
Total	29	15	28	13

Dishes tend to be washed before a meal, if at all. Local wooden bowls and cups are rarely washed. They are put away until the next meal. Metal plates and cups are cleaned more often however, but not regularly before or after they have been used.

3.6.: Latrines

A quarter of the households visited did not have access to a latrine. This percentage matches the one found during the recent inventory in Zone IV, where 74% of the houses had some type of latrine.[68] Comparing this with the Shemgang study, it appears that the situation in Shemgang is considerably less favourable with 60% of the households not having a sanitation facility.[69] UNICEF reports however, that 15% of rural households have some tyope of latrine. This figure

[68] Royal Government of Bhutan, **Rural Water Supply Inventory, Volume I, Executive Summary**, Yonphula/Zonal Administration Zone IV, 1992:34

[69] SCF, **Baseline Survey, 14 Villages in Tong and Nangkhor Gewogs of Shemgang District**, Thimphu/Safe the Children Federation USA, Bhutan Field Office, 1990:48.

differs markedly from both our findings and the one for Shemgang. It is not know on which data the UNICEF figure is based.[70]

Table 25: Cleaning of Latrines

	Not Cleaned	Respondent Cleans	Other Person
Tongsa	5	7	6
Paro	4	12	-
Tashigang	15	5	2
Lhuntsi	5	-	4
Total	29	24	12

Traditional toilets are found in Paro inside the house, consisting of a small room on the veranda with a hole in the floor leading to the pigsty. Modern latrines can have a variety of structures. Apart from the official three modern types, the locally made outside pit type has also been included as it is considered a modern one by local standards. The presence of latrines does not necessarily mean that they were also used. Proper location, use and maintenance could be improved. We have found latrines built on top of a stream that is used by others in lower locations as source of drinking water. Other structures could be found on a main footpath without proper enclosure. Sometimes holes might be so big that even an adult might be overcome with fear of falling inside. Out of 65 toilets, 29 (44.6%) were never cleaned at all. Respondents took care of the cleaning in 24 households (36.9%). In 10 families (11.6%) the latrines was cleaned each time by the respective user.

Women were asked which place they preferred for urinating during the day. 45 (52.3%) mentioned a latrine, whether they had one or not, and 33 (38.4%) expressed that they had no particular preference. 1 woman liked her cowshed the best and 7 (8.1%) tried to urinate close to their house. After dark preferences were stronger. 52 women (60.5%) prefer their own toilet, 15 (17.4%) the vicinity of their dwelling, 3 (3.4%) the cowshed and the indifferent ones had decreased to 16 (18.6%). Nights in villages without electricity can be very dark, and it is no wonder for that reason that women like to venture out less. 82.5% of the women gives in to the call of nature immediately, whereas a minority reported that they might have to wait for a suitable moment if they were to be very busy. Their is no notion of cleaning oneself after urinating.

[70] Royal Government of Bhutan and UNICEF, Country Programme for Bhutan's Children 1992-1996, Goals and Strategies, Thimphu, 1991:46.

Table 26: Female Preference for Place to Urinate

	Toilet	Cowshed	Near the House	No Preference
Tongsa	11	-	-	11
Paro	18	1	3	7
Tashigang	12	-	1	11
Lhuntsi	4	-	3	4
Total	45	1	7	33

This part of the interview invariably elicited increasing giggling and uneasiness among informants. Particularly when the habits surrounding defecation were brought up, hilarious laughter might start, at times accompanied by crude remarks and jokes about sex. It was found that women appreciate privacy more for defecation than for urinating. 69 (80.2%) of the respondents prefers to visit the toilet for this activity, 8 (9.3%) would settle for any quiet place and 1 woman prefers to defecate close to her house. 7 women (8.1%) did not mention their preference. Slightly more women give in immediately to their need than with urination: 74 or 86%. Favourite cleaning habits reflect the common practices in northern Bhutan. Sticks and leaves, even stones, are reported by 66 ladies (76.7%). 7 (8.1%) have adopted the foreign habit of using toilet paper (particularly expensive in rural areas) and 11 report the use of water (12.8%). 1 respondent never cleans herself after defecation.

Table 27: Female Cleansing Habits after Defecation

	No Cleansing	Sticks and Leaves	Water	Paper
Tongsa	-	13	8	-
Paro	1	26	-	2
Tashigang	-	17	3	4
Lhuntsi	-	10	-	1
Total	1	66	11	7

The use of water is particularly noticeable in Kormey, Tongsa district, where just before our visit cement slab latrines had been introduced. These pour-flush toilets necessitate the continuous presence of water in the toilet. No data were collected before the onset of this project, that also included a water scheme, of time spent by women on fetching water. It is therefore not possible

to compare the old situation with the one after the introduction of the waterscheme, as well as before and after the latrines were installed. It is not unlikely that women's workload in collecting water actually increased after the project was completed. Also, with due reverence to the tremendous input by the health workers, this type of latrine requires a big change in behaviour from the beneficiaries: from wiping with sticks and leaves to washing with water. Traditional behaviour would immediately lead to blockages.

The majority of respondents is aware of the importance of disposing of urine and excreta in a safe way: 60 out of 85 of 70.6%. Sources have again been the health worker, NWAB member of dzongkhag administration. Their is less understanding about the role of flies in the passing on of disease.

3.7.: Smokeless Stoves

All women except one cook three times a day. There is one woman who keeps a fire going all day. Cooking is almost exclusively done with firewood. Except for one household in Tashigang that cooks on butagas, all households use firewood. The presence of smokeless stoves was reported by 20 families (23.8%). In general enthusiasm was not that great. Beneficiaries complained that they found controlling the temperature more difficult as they were not able to see the flames. Lack of maintenance instruction caused the smokeless stove to stop functioning properly after some time.

In a study done by Save the Children/USA in Shemgang district, a much higher number of households reported to have a smokeless stove than our average: 56.8%. Satisfaction was also much higher. 72.6% of the households interviewed considered this stove to be an improvement.[71] UNICEF reports that 13.600 were placed by NWAB with its assistance. Assuming a total of 70.000 households, 19.4% of the households should have received one. A 1990 survey quoted by UNICEF found that on 34% of the stoves were functioning properly.[72]

It is worthwhile to draw attention to differences in firewood collection and the responsibility of the sexes. Firewood collection is by no means only the responsibility of women, as was found during the analysis of the health sector last year. Firewood, invariably used for cooking, is collected once a year in Haa during wintertime. One woman reported that she just buys a truckload for Nu 600, another household uses leftovers from a construction site. In other households everybody, except grandmother, participates in firewood collection. One or two trips per

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[71] SCF, Baseline Survey, 14 Villages in Tong and Nangkhor Gewogs of Shemgang District, Thimphu/Save the Children Federation USA, Bhutan Field Program, 1990 47.

[72] Royal Government of Bhutan and UNICEF, Country Programme for Bhutan's Children 1992-1997, Goals and Strategies, Thimphu, 1991-44

day are made from one and a half weeks to two months, depending on the number of people collecting. A license is needed for cutting down two trees, for which people sometimes pay a few ngultrums, and in other cases is obtained free of charge. Those who can afford it may also hire labourers. These have to be supplied with food and are paid 25-30 for males and 15-20 for females per day. The wage differential is justified on the ground that men are capable of carrying more than women.

In Wangdi three possibilities for firewood collection were identified. Three households who can afford it hire labourers, costing between Nu. 200 and Nu. 1500. Four households collect themselves either more or less daily, or by the end of the winter for the whole year. Thirteen households mentioned getting together to collect firewood for a large number of households on the basis of exchange labour. In Bumthang firewood was cut by men once (in winter) or twice (also in summer) a year usually in groups, and most often it was carried to the house by, usually, the women when needed. One household in Mongar bought one truckload from a contractor at Nu. 1500. Firewood was not cut in Mongar, but collected on a daily basis with the men taking a larger share in the collection than the women. In one third of the households visited, men were exclusively responsible for this task and in the other two thirds it was shared.[73]

A description of women's current role in water and sanitation would not be complete without attention to relevant decision making processes. This will be dealth with in the following chapter.

[73] Joke Buringa and Manika Pradhan, **Women and Health in Bhutan: Practices, Beliefs and Care**, Thimphu/NWAB and SNV, 1991:34.

Chapter 4: Women's Participation in Decision Making

A general conclusion from the previous chapter might entail, that current knowledge about practices and beliefs related to water and sanitation is limited. In this chapter the focus will shift to the possibilities women have at different levels to influence relevant activities.

4.1.: Decisions regarding Water and Sanitation at Household Level

Fieldwork data have demonstrated, that women have major responsibilities albeit by no means exclusive ones, in all activities under rural water and sanitation. Considering that they most often fetch the water, they will be the first to notice a problem requiring maintenance. When existing latrines are cleaned, it is also mainly done by women. Women cook, do or do not boil drinking water, wash utensils, look after kitchengarden and cattle, keep children clean and wash clothes. Men's contribution in all these areas is subordinate to the one by women.

Current activities in the sector concern construction of water supply schemes, latrines and smokeless stoves. There seems to be a tendency among women to participate in smokeless stoves construction themselves, but leave the latrines to the men. Water supply schemes require a different input. Households contribute labour, according to whom can be spared at a particular point, usually under the shabto lemi scheme. For example, the construction in Kormey, Tongsa district, was mostly done by women as the work was done during the ploughing season. This agricultural task is traditionally done by men.

The importance of sending women to talk with women was underlined for example by the reaction of a group of women in Paro. They asked us if we could not arrange that 'Thimphu' would sent us whenever some information was needed. Normally, men would come and somehow they never managed to say what they were actually thinking. In the subsequent discussion it came out that women had rather outspoken ideas about what kind of activities they would like to see conducted in their area. The impact of male presence was demonstrated time and time again. If a male was present during the interview process, be it the husband, brother or a local official, he would almost always volunteer the answers to our questions. Women automatically became less communicative in their presence. They had no opinion or could not elaborate their reasons behind what they said.

4.2.: Female Participation on Gewog and District Level

Bhutan is divided in 18 districts[74], each headed by a Dzongda. A district is further divided in a varying number of blocks or gewogs. Each block is to have a block development committee, which in principle exists of headmaster, healthworker, extension officer and local officials like gup, chimi, mangi-ap etc. Considering that most of these people are male, it is not easy for women to become a member of the block development committee and to advocate women's interests.

In 1991 the request was made by the different dasho dzongdas to the gups under their jurisdiction to appoint two NWAB members. These would then serve as the focal point for women's activities. In practice they are called for training on how to install and maintain smokeless stoves, they may be trained on health and hygiene and expected to share their knowledge in their gewog. In Eastern Bhutan in particular they have also become a member of the block development committee. During a recent RRA in Zone IV it was found that in Lhuntsi 17%, in Mongar 16.2%, in Pemagatshel 32.3%, in Samdrup Jongkhar 18.8% and in Tashigang 10.1% of the members of the respective block development committees were female.[75]

In her description of female participation in decision making at block level in the five eastern dzongkhags mentioned above, Choeki Ongmo reported:

> *Gewog Tshokpas are chaired by the 'Gup' and 'Chimi'. Women do not say much in such gatherings and one could say that their suggestions are not respected. Women are also not elected as a 'Gup' or 'Chimi'. The main reason is not because they are bogged down by the law, but because in olden days the administrative unit was situated in the Dzongs far away from the villages and one had to walk 2-3 days. In such instances women, especially with babies, encountered problems. Thus women are less interested in legal matters and decision making on a large scale. Perhaps one could say that even with the modern transportation system women are not tempted to participate in decision making.*[76]

It is not known to which extent women in other districts participate in decision making at gewog level. The development to include the two NWAB members in the block development committee is rather new. It is also not certain whether this practice will continue, as some people in the

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74 Just recently this number has been increased to 20 after Tashi Yangtsi and Gasa were established as separate districts.

75 Chocki Ongmo, Draft Report of the Findings of the Rapid Rural Appraisal Conducted by NWAB in Cooperation with the Ministry of Agriculture December 1991-April 1992, Thimphu/NWAB 1992:15, 31, 43, 54 and 73

76 Ibid page 83.

administration feel that being a member of NWAB as such should not be enough to sit on the committee. All members however do participate in district development meetings. Because female participation at this level is so new and no analysis of the impact of their presence has been made, it is actually too early to say to which extent the women can identify women's needs and effectively raise these issues in this forum.

In 1991, 9 training workshops were organized for village caretakers in different parts of the country, with the exception of Zone IV. Out of 131 participants, 10 (7.6%) were female.[77] An evaluation was recently undertaken to measure the impact of caretakers' training in Punakha Dzongkhag. One of its objectives was to find out the reasons for the lack of interest among women to be trained as caretakers. This issue is however not discussed in the findings. It was reported that in villages where one male and female caretaker had been trained, they would equally contribute to preventive activities. Minor repairs however, were done by the man even though the woman was equally qualified. As compensation these caretakers are exempted from shabto lemi and in two out of the five villages visited, they get an additional cash income between Nu. 170 and Nu. 400 on a yearly basis. Caretakers are appointed by the gup.[78]

4.3.: Women in the Department of Works, Housing and Roads

The department employs technical people. The Public Health Engineering Division employs one female civil engineer in the urban water supply and sanitation section. Considering that the Royal Bhutan Polytechnic in Deothang only started accepting female students from 1988, the number of women with a technical education is bound to stay small for quite some time to come. At zonal and district level no national female technical staff can be found. There is one female civil engineer attached by SNV to the zonal administration in Yongphula.[79]

4.4.: NWAB's Activities in Water and Sanitation

Among its eight objectives, NWAB has one that says:

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77 SNV, Project Report Rural Water and Sanitation Project, Thimphu, 1992:Annex 2.

78 Aart van Wessel, Evaluation Caretaker Training Punakha Dzongkhag, Thimphu/DWH and SNV, 1992:3.

79 Zone IV, comprising Tashigang, Tashi Yangtsi, Mongar, Pemagatshel, Samdrup Jongkhar and Lhuntsi, will cease to be an administrative unit. It is not known exactly what this will imply for zonal staff in general and the female engineer in particular.

To create an awareness among women of the importance of proper maternal and child care, nutrition, clean drinking water, hygiene, sanitation, etc. in order to improve the general health of the people.[80]

During the first years after its establishment, NWAB members received a short training of the principles of hygiene and sanitation and subsequently visited villages to explain these facts to the people. The work was done on a voluntary basis and members stopped with it after some time. In 3.7. NWAB's involvement with smokeless stoves between 1985 and 1990 has been described. After transfer of the project to the Department of Works, Housing and Roads, the association has not undertaken other activities in this field.

Currently, there are plans to change this. After a lengthy period of internal and external discussions, NWAB concluded that it should not concentrate its efforts on building up a separate infrastructure with activities aimed at women, but instead organize women to bring them in contact with existing services. On the other hand, NWAB should cooperate with relevant line ministries and departments to inform them of any interventions or adjustments necessary to reach women. This aim has been translated into a project proposal on integrated development activities for rural women (IRDAW). The project has benefitted considerably from the experiences of the Grameen Bank in Bangladesh and the Production Credit for Rural Women (PCRW) in Nepal. It consists of two components: the social development component (SDC) and the credit component (CC). The SDC includes non-formal education, knowledge on health and hygiene, water and sanitation, agriculture and livestock and environmental aspects, amongst others. The women, organized into small groups, will decide which activity they would like to get involved in first. Should they want credit for an income-generating activity, that may be covered under the credit component.[81] Although the project is only in the planning stage and a number of questions have yet to be answered, for example about the envisaged cooperation with other agencies, the idea itself is innovative in the local context.

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80 NWAB, National Women's Association of Bhutan, Thimphu/NWAB, 1986:6.

81 NWAB, Integrated Development Activities for Rural Women, Project Proposal, Thimphu/NWAB, 1992.

Chapter 5: Analysis and Recommendations

The emphasis on technology in water and sanitation projects is evident. However, recently some understanding seems to be developing for the need to ensure community participation in general and women's involvement in particular. To support this emerging dialogue, some suggestions have been included that emerged from a global literature review by IRC/International Water and Sanitation Centre. A number of recommendations conclude the report.

5.1.: Analysis

Although tremendous progress has been made since 1974 in the technical design and construction of water schemes, latrines and smokeless stoves, there has been virtually no attention to social impact. Baseline studies, community participation, evaluations of effect, health education campaigns etc. have hardly been done. Indeed, it has to be mentioned, that the number of local people qualified in social studies and related fields is remarkably small. The importance of technology and targets is emphasized at the expense of changing behaviour and understanding. It is hardly surprising that women are not identified as a specific target group in such a context. The current institutional setup, whereby technology and construction are assigned to the Public Health Engineering Division of the Department of Works, Housing and Roads and the social side to the Health Department, does not seem to work satisfactorily. Ideally, the two should be merged and complement each other's activities, but this does not seem to be feasible at present. Secondly, here, as in other sectors, there seems to be little understanding of the different roles men and women have and how these might affect project design, implementation, maintenance etc. This situation is obviously a logical consequence of the lack of attention for the views of the beneficiaries.

Just during the past year, a start has been made with the selection and training of caretakers and with the establishment of village maintenance committees (VMC). It is quite understandable, that it takes time for such groups to function adequately. As such it was quite interesting to hear of the intention to train members of VMCs in the rights and responsibilities of the VMC, scheduled to take place in Tongsa. If it was successful, it might be worthwhile to repeat this initiative on a wider scale. The first evaluation of the impact of the caretakers' training also deserves mentioning. It is very useful to measure the effect and check what knowledge has been retained and how it is put to use.

The fact remains, that mainly men come forward for training and membership of VMCs. The question of why women are less interested has so far not been addressed adequately. We would like to suggest that this is caused by a number of reasons. First of all, in practice women have primary responsibility for domestic work and childcare. It is generally more difficult for them

to go away for training or repair work than for men. This is supported by some technical staff at district level, who remarked that increased use of contraceptives leading to less children, might prove more stimulating to women's decision to function as caretaker or member of the VMC than any other measure they could think of. Some people suggest that perhaps the toolbox is too heavy for them, but considering the heavy loads carried by them this does not seem so likely.

Secondly, there is tendency for men not to treat women as responsible persons in their own right. This argument is strengthened by the behaviour of men to speak and act on behalf of women, even when the latter are specifically addressed. Also, as was pointed out in the previous chapter, when a man and a woman are both trained and equally qualified in maintenance of a water system, the man will conduct minor repairs. Finally, women are also concerned about their safety when they are away on training for example. It is considered inappropriate for a woman to put herself into a situation where she might be compromised. One may hear that sexual relations between men and women are casual, esp. from men, women themselves most likely will regard this issue differently. They are always worried about men taking advantage of them and of the fear of unwanted sexual advances.

Such issues so far have not received adequate attention. At the onset of the Fifth Plan (1981-1986) there seems to have been a National Commission on Water and Sanitation that conducted a comprehensive study on the sector, which included a Plan of Action for the International Drinking Water and Sanitation Decade (1981-1990).[82] Unfortunately, we were not able to locate this document. Just now, under the auspices of UNDP, another position paper on water and sanitation is being written by representatives from various governmental institutions.[83] It is hoped that due attention will be given in this paper to women's needs.

5.2.: Meeting Rural Women's Needs

The Seventh Five Year Plan from the Department of Works and Housing makes no explicit reference to women at all, not even under the smokeless stoves' section. The Main Document however, explicitly mentions the importance of involving women for both water supply as well as sanitation activities, by stating that:

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[82] UNICEF, A Programme of Cooperation for Services for Children and Women in Bhutan, Plan of Operations 1981-1985, New Delhi/UNICEF, n.d..24

[83] NWAB is not participating in this exercise.

> *The main strategy will be to assist communities to develop the necessary technical and organisational skills to maintain and operate the facilities once they are created. The involvement of women will be emphasized. Since mothers and women have set the habits of the young in health and hygiene, the sanitation programme will focus strongly on women.*[84]

Attention to women is not a recent phenomenon in the Department of Works & Housing. As was described in 2.1.1., some reference was given to women in the 6th Plan Document of the Department. More recently, the Department is advocating, together with UNICEF, 'Better Health for All: But for Women and Children in Particular'. [85] In the section on communication skills for technical staff, they are encouraged to develop good relationships with 'village women, men and children'. Women should also be explicitly invited to any meetings and take part in the Village Maintenance Committee (VMC).[86] The VMC should appoint one man and one woman as caretakers of the water scheme.[87] Obviously, it is very important that women should join the VMC and be equally responsible for maintenance. At district level these guidelines do seem to cause some confusion however, as well-intending staff do not know how to persuade female candidates to undergo training or join the VMC.

The Development Support Communication Department (DSCD) decided to approach the Information, Education and Communication for Health Bureau (IECH) and the Public Health Engineering Division (PHED) of the Department of Works and Housing as partners for the the first year of the 7th Plan Period, mid 1992-mid 1993. In a five day workshop from June 22-26 1992, organized with assistance from UNICEF, the two major themes for the coming year were formulated. These are 'Water, Sanitation and Hygiene' and 'Domestic and Environmental Hygiene'. DSCD subsequently prepared a 'Communication Strategy for Water, Sanitation & Hygiene Promotion in Bhutan'. It is a very welcome and important initiative.[88] The strategy might be further improved by including attention to gender-specific habits and practices related to water, sanitation and hygiene.

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84 Royal Government of Bhutan, **Seventh Five Year Plan (1992-1997), Vol. 1 Main Plan Document**, Thimphu/Planning Commission, 1991:111.

85 Royal Government of Bhutan, **Handouts for the Integrated Approach Training**, Thimphu, n.d.:1.

86 Royal Government of Bhutan, **Remedial/Rehabilitation Survey Form, Rural Water Supply Programme**, Thimphu/Department of Works and Housing, n.d..3.

87 Royal Government of Bhutan, **Handouts for the Integrated Approach Training**, Thimphu/DWH, n.d.:119-138.

88 Royal Government of Bhutan, **Communication Strategy for Water, Sanitation & Hygiene Promotion in Bhutan**, Thimphu/DCSC, 1992.5 and 7.

UNICEF has been the main donor in the sector since the first activities were started in 1974. Technical support featured prominently in the previous plan of operations (1986-1991). Attention to the need for health education in conjunction with planned project activities. It did not specify the need to collect basic data before project design and evaluation. People seem to have been be regarded as passive beneficiaries of services provided. No specific attention was given to women.

This trend continues in the 1991 Draft Situation Analysis on children and women in the country, which includes a chapter on water and sanitation. Attention is given to the presence and quality of facilities, the necessity to reduce instances of diarrhoea and increase the use of Oral Rehydration Solution (ORS). The link between onset of diarrhoea and awareness of sanitation is summarized as well. Moreover, maintenance of water facilities is discussed and the storage of water, all in general terms. Interest subsequently shifts to the habits of defecation, washing and cleanliness including solid waste disposal. The word 'women' is not mentioned once in the chapter, which is a bit surprising considering the nature of the document.[89]

The document describing the goals and strategies for the 1992-1996 period however, written jointly with the Royal Government, is much more specific. First of all, it is intended to:

> *activate women's roles in development programmes not only as users and receivers, but also as active decision-makers and participants in planning, implementation and monitoring.*[90]

It is realized that lack of community involvement in general, but of women in particular seriously hampers the sustainability of water and sanitation projects.[91] Governmental legislation is being prepared in which relevant procedures are laid down. These are expected to enable women to contribute their fair share in water and sanitation activities.[92]

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89 UNICEF, Draft **Children and Women of Bhutan: A Situation Analysis**, Thimphu, 1991.86-96.

90 Royal Government of Bhutan and UNICEF, **Country Programme for Bhutan's Children 1992-1996**, Goals and Strategies, Thimphu, 1991:24.

91 Ibid. page 41.

92 Ibid. page 45.

Table 28: Ways to Stimulate Female Participation[93]

1.	Contact with male leadership for understanding and support;	
2.	Use of project information channels which reach women;	
3.	Facilitation for women to participate in project meetings:	- time and place of meetings - awareness and invitation to attend - appropriate seating arrangements - facilitation of speaking out (vernacular language, discussion breaks, choice spokeswoman, etc. - separate meetings with women where necessary
4.	Involvement in local planning and planning decisions:	- choice caretakers, mechanics - choice committee members - design and location facilities - local management arrangements - local financing system
5.	Women to choose their own representatives for trust, ease of contacts, leadership capacities and feasibility;	
6.	Representation of women also in higher level committees;	
7.	Expansion of traditional tasks and responsibilities of women to roles in new projects:	- management of water, waste and soil use - maintenance and repair of waterpoints - hygiene education with fellow women - construction of household latrines and monitoring of their maintenance and use - collection of tariffs and management of funds
8.	Linkage of water and sanitation projects with income-generating activities for women;	
9.	Training of women for technical and managerial tasks;	
10.	Conscientization and training of project staff and management on reasons and practicalities of women's involvement.	

[93] C. van Wijk-Sijbesma, 'Women, Water and Sanitation: State-of-the Art Review' in **Woman, Water, Sanitation, Annual Abstract Journal, No. 1**, The Hague/IRC International Water and Sanitation Centre, 1991:3.

SNV-Netherlands Development Organization, who has also been making a substantial contribution to the sector in recent years, currently has five engineers working on rural water supply and sanitation in the country. In the recent project document a useful overview is given of the history and present state of the sector. The lack of community participation, apart from construction activities, is mentioned as one of the major problems facing the project. No specific mention is made of women here. They are referred to under the evaluation and justification chapter. It is thought that the supply of water schemes reduces women's workload in fetching water and in caring for sick family members. These assumptions are not supported by data however. SNV wants to give more emphasis to training female caretakers in the near future.[94]

5.3.: Stimulation of Female Involvement[95]

It may be concluded from the previous section, that a gender-sensitive approach in the water supply and sanitation sector is still in its infancy. Emerging interest moreover, seems to be hampered by questions relating to implement such a strategy. Even though the situation in Bhutan has unique features, it is still worthwhile to consider experiences made elsewhere. Ms. C. van Wijk of the IRC/International Water and Sanitation Centre has prepared the table on the previous page, regarding ways to stimulate female participation, which is based on an overview of existing relevant literature.

Currently in Bhutan, a start has been made with enlisting support from male leadership. Women are encouraged to sign up for training as caretakers and to join the Village Maintenance Committees. The information reproduced in Table 28 may stimulate ideas for other types of measures.

5.4.: Recommendations

The possibilities mentioned in the previous chapter are not all equally important in or relevant for Bhutan. The following recommendations have been formulated while keeping the local situation in mind.

1. To increase the impact of rural water and sanitation projects, it is essential that the social side will receive more attention. Community participation is required in all phases of a project if the operation and maintenance is to be succesfully undertaken by the community. The communication strategy designed by DSCD is an important step, but

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94 SNV, Project Report Rural Water Supply and Sanitation Project, Thimphu, 1992:16, 19-22.

95 See also Annex 9.

deals with educational aspects only. The integration of technology and communication needs to be further considered either through the merging of relevant divisions and departments, or perhaps through the establishment of a coordinating agency.

2. This coordinating agency could be a new body, but the possibility to entrust this task to an existing one should not be overlooked. For example, during the preparation phase for the 7th Plan Period, a number of government institutions indicated that the National Women's Association of Bhutan should concentrate on the mobilization of people. Meanwhile NWAB has prepared a project profile along this line. At any rate, NWAB should be included in the integration process, esp. considering the importance of female involvement.

3. Social research, through which baseline data are collected that serve to design communication activities, compare changes and evaluate impact need support. Such data are also necessary to establish whether facilities are socially acceptable, wanted, used properly or need changes in design. A research cell needs to be established somewhere, either with the Public Health Engineering Division, with RIM, NWAB or DSCD for example, but it should also be closely involved in the integration of technology and communication.[96]

4. A noticeable finding of the fieldwork has been the desire expressed by women for privacy in the use of sanitary facilities and possibilities to wash themselves. The latter is certainly not met by the practice of providing one standpipe for 2 to 3 households. This issue deserves more attention. It could for example be considered to experiment with village bathing houses, structured according to the traditional type of bathtub. The procedure should ensure privacy, but also reduce the work required to prepare the fire for heating stones that warm the water in their turn.

5. The wish for privacy is connected to the request for a private tap inside the house. This issue was raised time and time again. When possible women had made connections to standpipes or to nearby streams to materialize this wish. It is also motivated by the realization that water in the house reduces the efforts needed for transportation, enables more frequent washing of children and household utensils. It is recommended strongly to investigate the possibilities of supplying house connections.

6. The recent procedure of stimulating women to join the village maintenance committee or receive training as caretaker needs further analysis to understand existing constraints hampering their involvement. When necessary and appropriate, specific measures or adjustments might be considered, for example child care and a safe place to stay.

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[96] This recommendation is in line with the one made by UNICEF for a National Monitoring Unit.

7. The preference for an integrated approach, including water schemes, latrines and smokeless stoves combined with health education, in dealing with communities, should perhaps be reflected in the composition and responsibilities of the Village Maintenance Committees. People trained in constructing and maintaining smokeless stoves and in building latrines should be expected to join. This would probably increase the number of women on the VMC considerably and also stimulate integration at community level.

8. Community participation so far has mainly consisted of contributing labour in the construction phase. Labour is usually done under the shabto lemi schemes, as beneficiaries are expected to contribute. With an increased number of development activities and shortage of government funds, the workload for beneficiaries is anticipated to increase. However, as yet there is no coordination between different governmental institutions and donor agencies on the absorptive capacity of receiving communities. It is therefore not impossible that a project overtaxes the resources of a village. This needs to be carefully assessed with the community.

9. The initiative taken in Tongsa to train VMC members on their responsibilities, how to keep accounts, how to keep the system in working order etc. might be taken as starting point for the development of a methodology for training VMC members nationwide. This might be very supportive for the effective functioning of the VMCs.

10. There needs to be an evaluation of the smokeless stoves' training which started in 1991.

11. The communication strategy as designed by DSCD for water, sanitation and hygiene in Bhutan could be improved by making it more gender-sensitive and incorporate the implementation of KAP studies to serve as basis for the formulation of messages and the choice of channel.

12. BBS appears to have the greatest potential in rural areas for reaching men and women. Research among the listeners of BBS and the readers of Kuensel could generate important data on the appreciation for and understanding of the respective audiences for the type of information provided. This might make the use of radio and newspaper more effective.

List of Tables

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Annex 1: Questionnaire Women, Water and Sanitation

Name of respondent: ..... Age: .....
Village: ..... Gewog: ..... Block: .....

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1. How many living children do you have?
   0 .. boys, ages:
   0 .. girls, ages:
2. Is any of these children not living with you?
   O no
   0 yes, which one(s)
   why
3. Are you married?
   0 no
   0 yes, husband with you during the past six months?
   0 yes
   0 no, why
4. Who else has been living in your household for the past six months?
   0 mother 0 mother-in-law
   0 father 0 father-in-law
   0 brother 0 brother-in-law
   0 sister 0 sister-in-law
   0 other, specify
5. Do you know how to read and write? 0 yes
   0 no
6. Does anybody in your family know how to read and write?
   0 no
   0 yes, specify
7. Does any of your children go to school?
   0 no, why not
   0 yes, which one
8. Did any of your children drop out of school?
   0 no
   0 yes, which one and why
9. Do you or anybody from your family read the Kuensel regularly?
   0 no
   0 yes, in English/Dzongkha/Nepali
10. Does anybody in the village read the Kuensel?
    0 no
    0 yes, does this person tell you the news? 0 no 0 yes

11. Do you have a radio in your house? 0 no
0 yes

12. Do you listen to BBS? 0 never
0 sometimes
0 several times a week
0 every day

13. Where is the nearest primary school/extended classroom?

14. Is there a traditional healer in your village/block?
0 pawo village/block
0 pamo/nendjum village/block
0 phadjo village/block
O bloodsucker village/block
who practices?
0 other, specify

15. Is there a VVHW in your village? 0 no
0 yes, sex: 0 male
0 female

16. Where is the nearest BHU/Hospital?

17. From where do you get your drinking water?
(specify distance and source)

18. Who normally collects the water? 0 respondent
0 female adult
0 male adult
0 female child
0 male child

19. How many water sources are there for this village?
Are they protected?

20. Where are they located?

21. Do they give water throughout the year?

22. Does anybody own these sources?

23. Who is responsible for the maintenance of the sources?

24. Which source do you think gives the nicest drinking water?

25. Are there any sources which are not used?

26. How often does your household collect drinking water a day?
At which time of the day? 0 morning .. times
0 afternoon .. times
0 evening .. times
0 varies .. times

27. How is the water transported to your house?
0 in a container of .. litres
0 ..... of .. litres

carried: 0 back O horse/mule
0 hand 0 other (specify)

28. Where do you keep the water in your house?
    0 oildrum
    0 container in which it was collected
    0 other (specify)
29. Do you boil water before drinking?
    0 never
    0 only for sick children/adults
    0 sometimes
    0 frequently
    0 always
30. Where do you wash your clothes?
    0 at home, water is collected from
    0 other (specify)
31. When do you normally wash them:
    0 once a week
    0 once every two weeks
    0 once a month
    0 other (specify)
32. Do you have a kitchengarden?
    0 no
    0 yes, water is collected from:
33. Do you have cattle?
    0 no 0 yes, water is collected from:
34. How much time is needed each day for water collection? (Add drinking water, kitchengarden, cattle, laundry etc.)
35. How often do your children have a bath?
    0 never
    0 sometimes
    0 once a week
    0 every day
36. Where do they have their bath?
    0 in the kitchen near the stove
    0 on the veranda
    0 elsewhere (specify)
37. How often do you wash yourself completely?
    0 never, because
    0 sometimes, because
    0 once a week, because
    0 every day, because

38. Where do you wash yourself completely?
    0 in the kitchen near the stove
    0 on the veranda
    0 elsewhere (specify)
39. Do you wash your hands before preparing or eating food?
    0 never
    0 sometimes
    0 at least once a day
    0 always
    0 other
40. Do you clean your teeth?
    0 never
    0 sometimes
    0 at least once a week
    0 once a day
    0 other (specify)
41. What do you use to clean your teeth?
    0 water
    0 toothbrush
    0 toothbrush and toothpaste
    0 other (specify)
42. Do you have a toilet?
    0 no
    0 traditional one (describe)
    0 inside the house (describe)
    0 outside the house (describe)
43. If yes: who cleans the toilet?
    How often is it cleaned?
    How is it cleaned?
    Does everybody use the toilet?
    0 yes
    0 no, because
44. Where do you prefer to urinate during the day?
    0 own toilet
    0 other toilet
    0 in the jungle
    0 cowshed
    0 elsewhere (specify)
    because:

45. Where do you prefer to urinate during the night?
    0 own toilet
    0 cowshed
    0 other toilet
    0 in the jungle
    0 elsewhere (specify)
    because:
46. When you feel the urge to urinate do you give in immediately to the call of nature?
    0 yes, I will look for
    0 no, because:
47. Do you clean yourself after urinating?
    0 no
    0 yes, how?
48. Where do you prefer to defecate?
    0 own toilet
    0 other toilet
    0 in the jungle
    0 cowshed
    0 elsewhere (specify)
    because
49. When you feel the urge to defecate, do you give in immediately?
    0 yes, I go to
    0 no, because:
50. After defecation, do you clean yourself?
    0 no
    0 yes, with

<u>For those with children under 5</u>

51. At what age did your youngest child start to control his/her urine passing and bowel movements?
52. What did you do before that time?
    0 nothing
    0 diapers, number? ..
    0 other (specify)
53. When your child passes urine on the floor in your house, what do you do?
    0 nothing
    0 spread the urine with hands
    0 clean up with dry cloth
    0 clean up with wet cloth
    0 other (specify)

54. When your child defecates on the floor of your house, what do you do?
    0 nothing
    0 clean its bottom with dry cloth/wet cloth/water
    0 remove with my hands
    0 remove with a cloth
    0 clean the floor with dry/wet cloth/water after removing
    0 other (specify)

55. Do you tell your child to go to a particular place to urinate and/or defecate?
    0 no
    0 yes, to
        0 toilet
        0 jungle
        0 just outside
        0 cowshed
        0 elsewhere (specify)

General

56. How many times a day do you cook?
    0 once, in the morning/afternoon/evening (cross not app.)
    0 twice, in the morning/afternoon/evening
    0 three times
    0 keep a fire going all day
    0 other (describe)

57. What do you use for cooking?
    0 firewood
    0 kerosine
    0 bottled gas
    0 other

    Do you have a smokeless stove?
    0 no
    0 yes, since

59. What do you do with:
    - wastewater from washing clothes:
    - wastewater from washing people:
    - wastewater from washing dishes:
    - wastewater from cooking:

60. How often do you sweep the rooms in your house?
    0 daily
    0 several times a week
    0 several times a month
    0 other

61. When do you throw the dust out?
    0 immediately
    0 daily
    0 other
62. What do you do with your garbage?
    0 burn it
    0 give it to animals
    0 throw it in the street
    0 other
63. Has there been a water and sanitation project in your village?
    0 no
    0 yes, when
64. Which people were consulted by the project people before the project started?
65. Where would you like a tap for getting drinking water?
66. Where would you like to wash yourself? Why?
67. Has anybody explained to you the importance of clean and safe drinking water?
    0 no
    0 yes: what did you learn?
68. Has anybody explained to you the importance of disposing of urine and excreta in a safe way?
    0 no
    0 yes: what did you learn?
69. Would you like to be men or woman in the next life? Why?

Annex 2: Answers to the Questions

In total 86 women were interviewed, 11 in Lhuntsi, 22 in Tongsa, 29 in Paro and 24 in Tashigang.

1. How many living children do you have?

	Boys <6	Girls <6	Boys 6-14	Girls 6-14	Boys >14	Girls >14	Total Boys	Total Girls
Tongsa	9	9	15	6	6	4	30	19
Paro	11	15	14	13	14	13	39	41
Tashigang	7	9	22	15	11	10	40	34
Lhuntsi	5	-	15	6	4	10	24	16
Total	32	33	66	40	35	37	133	110

2. Is any of these children not living with you?

	Yes	No	No Children	Total
Tongsa	2	20	-	22
Paro	10	15	4	29
Tashigang	15	4	5	24
Lhuntsi	7	3	1	11
Total	34	42	10	86

3. Are you married?

	Yes	No	Living Together	Unknown	Not Living Together
Tongsa	14	8	11	-	3
Paro	25	4	22	-	3
Tashigang	22	2	17	1	6
Lhuntsi	11	-	6	-	5
Total	72	14	56	1	17

4 Who else has been living in your household for the past six months?
More answers are possible, when households contain people from different categories. Between brackets the number of households is given in which relatives of both husband and wife are living

	Nobody	Relatives Respondents		Relatives Spouse	Other
Tongsa	-	17		-	5
Paro	10	11	(1)	4	10
Tashigang	13	8		1	3
Lhuntsi	5	4		-	2
Total	28	40	(1)	5	20

5. Do you know how to read and write?

	Yes	No
Tongsa	1	21
Paro	-	29
Tashigang	1	23
Lhuntsi	-	11
Total	2	84

6. Does anybody in your family know how to read and write?

	Yes	No
Tongsa	8	14
Paro	11	18
Tashigang	13	11
Lhuntsi	6	5
Total	38	48

7. Does any of your children go to school?

	Boys Yes	Girls Yes	Boys No	Girls No	No Children
Tongsa	5	-	24	20	3
Paro	7	5	36	33	3
Tashigang	11	6	30	30	3
Lhuntsi	10	2	13	21	1
Total	33	13	103	104	10

8. Did any of your children drop out of school?

	Boys Yes	Girls Yes
Tongsa	2	-
Paro	3	-
Tashigang	3	2
Lhuntsi	-	2
Total	8	4

9. Do you or anybody from your family read the Kuensel regularly?

	Yes	No	Kuensel Unknown
Tongsa	3	2	17
Paro	2	1	28
Tashigang	-	1	21
Lhuntsi	5	5	1
Total	10	9	67

10. Does anybody in the village read the Kuensel?

	Kuensel Unknown	No	Yes	Shares News	Does not Share News
Tongsa	17	2	3	-	3
Paro	28	1	-	-	-
Tashigang	21	1	2	1	1
Lhuntsi	1	1	9	5	4
Total	67	5	14	6	8

11 Do you have a radio in your house?

	Yes	No	Listens with Neighbours
Tongsa	4	18	3
Paro	18	11	3
Tashigang	15	9	-
Lhuntsi	4	7	-
Total	41	45	6

12. Do you listen to BBS?

	Never	Sometimes	Daily
Tongsa	15	5	2
Paro	15	11	3
Tashigang	8	11	5
Lhuntsi	7	2	2
Total	45	29	12

13. Where is the nearest primary school/extended classroom?

	Knows School	Does Not Know School
Tongsa	19	3
Paro	29	-
Tashigang	24	-
Lhuntsi	11	-
Total	83	3

14. Is there a traditional healer in your village/block?
More answers per respondent are possible.

	Pawo, Nendjum, Phadjo, Bloodsucker	Tsipa, Gomchen, Monk, Lama	Nobody/ Not asked
Tongsa	15	5	10
Paro	28	6	1
Tashigang	4	22	2
Lhuntsi	10	5	-

15. Is there a VVHW in your village?

	No	Yes
Tongsa	1	21
Paro	15	14
Tashigang	23	1
Lhuntsi	11	-
Total	50	36

16. Where is the nearest BHU/Hospital?

Tongsa
Nobi Gewog: 2 hour walk

Isa Gewog: 1.5 hour walk

Paro
Dotey Gewog: 2 hour walk
Tshento Gewog: 4 hour walk

Tashigang
Kanglung Gewog: 1-2 hours walk
Yangtsi Gewog: 1/2 - 4 hours walk

Lhuntsi
Gangzur Gewog: 45 minutes walk
Tangmachu Gewog: 5 minutes - 1 1/2 hours walk
Chenkha Gewog: 15 - 30 minutes walk

17. From where do you get your drinking water?

TONGSA DISTRICT	Stand-pipe	Traditional Pipe	Stream	Total Interviews
Shangung village	1	-	-	1
Kormey	2	-	-	2
Changtong	1	-	-	1
Samteling	1	-	-	1
Chakha	1	-	-	1
Semtsheri	1	-	-	1
Sarchang	-	5	-	5
Sembdji	-	-	10	10
Total	7	5	10	22

PARO	Standpipe	Traditional Pipe	River	Stream	Total Interviews
Chubar	-	-	9	-	9
Atso	5	-	1	-	6
Dongji	1	1	-	2	4
Gonju	-	2	-	-	2
Yugophu	-	1	-	2	3
Phitay	-	2	-	-	2
Gensakha	-	1	-	1	2
Tongsjing	-	1	-	-	1
Total	6	8	10	5	29

TASHIGANG	Standpipe	Stream	Rubberpipe to House	Total Interviews
Fashi Pangtang	1	-	-	1
Kanglung	1	-	1	2
Dejoenthang	1	-	-	1
Tsagom	1	-	-	1
Pam	-	1	-	1
Mertsam	1	-	3	4
Pangthang	1	-	-	1
Yongphula	-	-	1	1
Deling	-	1	1	2
Dejanphu	-	1	-	1
Rolam	1	-	-	1
Bimkar	-	-	1	1
Chorten Kora	-	1	5	6
Lechen	-	-	1	1
Total	7	4	13	24

LHUNTSI	Standpipe	Stream	Total Interviews
Dzang	2	-	2
Tsokora	1	-	1
Koma	3	-	3
Radi	1	-	1
Minjibi	2	-	2
Bominbranza	-	2	2
Total	9	2	11

18. Who normally collects the water?

	No Need	Respondents	Female Adult	Male Adult	Female Child	Male Child	Whoever is Home
Tongsa	-	19	4	2	3	2	2
Paro	-	20	3	3	4	2	-
Tashigang	5	13	1	3	5	1	2
Lhuntsi	-	6	1	2	1	1	-
Total	5	58	9	10	13	6	4

19. How many water sources are there for this village?

Tongsa
Nobi Gewog: 2-3 streams
Isa Gewog: 1 source

Paro
Dotey Gewog: 1 river and 1 small stream to watertank
Tshento Gewog: each village 1 small stream

Tashigang
Kanglung Gewog: 3 sources for the villages visited
Yangtsi Gewog: several sources/streams for each village

Lhuntsi
Gangzur Gewog: 1 stream leading to watertank
Tangmachu Gewog: 1 stream
Chenkha Gewog: 1 stream and 1 watertank

Are they protected?
When sources are protected, it may not be adequate enough to eliminate possible contamination of the water. For example, a stream may be led into a watertank which is surrounded by barbed wire and adequately covered. The stream may be contaminated before it reaches the tank.

	Yes	No
Tongsa	11	11
Paro	6	23
Tashigang	9	15
Lhuntsi	4	7
Total	30	56

20. Where are they located?
The answers to this question have not been put into a table.

21. Do they give water throughout the year?

	Yes	No
Tongsa	21	1
Paro	24	5
Tashigang	17	7
Lhuntsi	8	3
Total	70	16

22. Does anybody own these sources?

	Yes	No
Tongsa	-	22
Paro	-	29
Tashigang	-	24
Lhuntsi	6	5
Total	6	80

23. Who is responsible for the maintenance of the sources?

	Nobody	Caretaker	Other/ No Need
Tongsa	10	11	1
Paro	-	-	29
Tashigang	9	6	9
Lhuntsi	3	7	1
Total	22	24	40

24. Which source do you think gives the nicest drinking water?
Answers to this question were not calculated. People either had no choice or were happy with the water they were drinking.

25. Are there any sources which are not used?

	No	Yes	Other/ Not Asked
Tongsa	4	16	2
Paro	7	11	11
Tashigang	19	3	2
Lhuntsi	5	3	3
Total	35	33	18

26. How often does your household collect drinking water a day?

	1-4 Times	5-10 Times	Varies/ No Need	Total
Tongsa	9	6	7	22
Paro	9	12	8	29
Tashigang	8	1	15	24
Lhuntsi	3	2	6	11
Total	29	21	36	86

At which time of the day?
The number of water fetching trips is dependent on the size of the household, the work (for example alcohol brewing), the presence of cattle etc. It varies from nihil in cases where a rubber pipe is bringing water to the home to 20 or more trips a day. Women often cannot recall the number of trips made. Often there is no particular time for fetching water. The task is done whenever water is needed.

27. How is the water transported to your house?

	Hand	Back	Others
Tongsa	14	7	1
Paro	15	4	10
Tashigang	16	1	7
Lhuntsi	8	2	1
Total	53	14	19

28. Where do you keep the water in your house?

	Container in which Collected	Brass Pot	Metal Pot	Oil Drum	Others
Tongsa	6	7	4	3	2
Paro	8	10	10	2	3
Tashigang	8	-	7	-	9
Lhuntsi	3	-	3	-	8
Total	25	17	24	5	22

29. Do you boil water before drinking?

	Always	For Sick Persons Only	Sometimes	Never
Tongsa	14	2	2	4
Paro	-	1	2	26
Tashigang	9	1	4	10
Lhuntsi	2	1	-	8
Total	25	5	8	48

30 Where do you wash your clothes?

	Stand-pipe	Traditional Pipe	River/ Stream	Others
Tongsa	10	-	8	4
Paro	5	11	11	2
Tashigang	8	-	7	9
Lhuntsi	7	-	2	2
Total	30	11	28	17

31. When do you normally wash them:
Answers concern the washing of children's and adults' clothes. The clothes of small children tend to be washed frequently, if not daily. Women wash their own clothes less often, varying from once a week to once a year. The frequency with which women wash their own clothes was not recorded systematically.

	Once a Week or More	Once a Week - Once a Month	Once a Month - Once Every 3 Months	Less than Quarterly
Tongsa	11	8	-	3
Paro	12	8	2	7
Tashigang	22	1	1	-
Lhuntsi	4	4	-	3
Total	49	21	3	13

32. Do you have a kitchengarden?

	Yes	No
Tongsa	21	1
Paro	29	-
Tashigang	21	3
Lhuntsi	11	-
Total	82	4

33 Do you have cattle?

	Yes	No
Tongsa	21	1
Paro	29	-
Tashigang	17	7
Lhuntsi	7	4
Total	74	12

34. How much time is needed each day for water collection?
This could not be calculated as women often could not remember the exact number of trips they made during the previous day. The only way to find out is to spend at least one day with a household accompanying the ones that fetch water.

35. How often do your children have a bath?

	Once/Twice Daily	Daily - Once a Week	Once a Week - Once a Month	Less Than Once a Month	No Children
Tongsa	3	13	-	3	3
Paro	7	8	2	8	4
Tashigang	9	9	3	-	3
Lhuntsi	2	4	1	2	2
Total	21	34	6	13	12

36. Where do they have their bath?

	Inside House	Just Outside House	Standpipe	Other
Tongsa	8	5	3	3
Paro	18	-	-	7
Tashigang	3	13	5	-
Lhuntsi	-	6	3	-
Total	29	24	11	10

37. How often do you wash yourself completely?

	Daily - Once a Week	Once a Week - Once a Month	Once a Month - Once every 3 Months	Less than Quarterly	Never
Tongsa	11	-	8	2	1
Paro	14	2	-	13	-
Tashigang	15	8	-	-	1
Lhuntsi	8	-	-	2	1
Total	48	10	8	17	3

38. Where do you wash yourself completely?

	Inside the House	Just Outside the House	Standpipe	Local Bath/Tap	Other
Tongsa	1	9	1	-	10[97]
Paro	-	1	-	27	1
Tashigang	3	15	3	-	2[98]
Lhuntsi	-	6	3	1	1
Total	4	31	7	28	14

39. Do you wash your hands before preparing or eating?

	Always	Sometimes	Never
Tongsa	20	2	-
Paro	20	8	1
Tashigang	23	1	-
Lhuntsi	10	1	-
Total	73	12	1

40. Do you clean your teeth?

	Daily	Sometimes	Never
Tongsa	20	2	-
Paro	8	7	14
Tashigang	15	8	1
Lhuntsi	3	5	3
Total	46	22	18

97 One respondent never takes a bath.

98 Ibid

41. What do you use to clean your teeth?

	Toothbrush & Toothpaste	Toothbrush & Water	Finger & Water
Tongsa	7	6	9
Paro	5	6	4
Tashigang	14	1	8
Lhuntsi	6	-	3
Total	32	13	24

42. Do you have a toilet?

	No	Traditional Inside House	Pit Type/ Modern One[99]
Tongsa	4	-	18
Paro	13	16	-
Tashigang	2	-	22
Lhuntsi	2	-	9
Total	21	16	49

43. If yes: who cleans the toilet?

	Nobody	Respondent	Children	Chowkidar	Whoever uses it
Tongsa	5	7	-	-	6
Paro	4	12	-	-	-
Tashigang	15	5	-	-	2
Lhuntsi	5	-	1	1	2
Total	29	24	1	1	10

[99] This category includes pit type latrines ranging from a simple construction of wooden shelves above a hole in the ground to cement slabs. The latter were only found in Kormey, Tongsa District.

How often is it cleaned?

	Each Time Used	Daily	Daily-Weekly	Weekly-Monthly
Tongsa	6	4	-	3
Paro	-	4	6	2
Tashigang	-	3	2	2
Lhuntsi	-	-	2	2
Total	6	11	10	9

How is it cleaned?

	Throw Water	Sweep Clean
Tongsa	7	6
Paro	2	10
Tashigang	3	4
Lhuntsi	1	3
Total	13	23

Does everybody use the toilet?

	Yes	No
Tongsa	14	4
Paro	14	2
Tashigang	21	1
Lhuntsi	5	4
Total	54	11

44. Where do you prefer to urinate during the day?

	Toilet	Cowshed	Near the House	No Preference
Tongsa	11	-	-	11
Paro	18	1	3	7
Tashigang	12	-	1	11
Lhuntsi	4	-	3	4
Total	45	1	7	33

45. Where do you prefer to urinate during the night?

	Toilet[100]	Cowshed	Near the House	No Preference
Tongsa	17	1	1	3
Paro	19	1	2	7
Tashigang	13	-	5	6
Lhuntsi	3	1	7	-
Total	52	3	15	16

46 When you feel the urge to urinate do you give in immediately to the call of nature?

	Yes	No/Unknown
Tongsa	18	4
Paro	27	2
Tashigang	16	8
Lhuntsi	10	1
Total	71	15

47. Do you clean yourself after urinating?
Nobody cleans herself after urinating.

[100] This includes women who do not have a toilet, but would like to have one.

48. Where do you prefer to defecate?

	Toilet[101]	Quiet Place	Near the House	No Preference/ Unknown
Tongsa[102]	19	2	-	-
Paro	22	2	1	4
Tashigang	22	1	-	1
Lhuntsi	6	3	-	2
Total	69	8	1	7

49. When you feel the urge to defecate, do you give in immediately?

	Yes	No
Tongsa	21	-
Paro	26	3
Tashigang	17	7
Lhuntsi	10	1
Total	74	11

50. After defecation, do you clean yourself?

	No	With Sticks/ Leaves, Stones etc.	With Water	With Paper
Tongsa	-	13	8	-
Paro	1	26	-	2
Tashigang	-	17	3	4
Lhuntsi	-	10	-	1
Total	1	66	11	7

[101] This includes women who do not have a toilet, but would like to have one.

[102] From here on one interview was discontinued.

51. At what age did your youngest child start to control his/her urine passing and bowel movements?

	Before 1 Year	1-2 Year	Over 2 Yrs
Tongsa	1	1	5
Paro	3	6	4
Tashigang	1	3	1
Lhuntsi	-	3	1
Total	5	13	11

52. What did you do before that time?

	Nothing	Diapers/Pants	Others
Tongsa	-	16	-
Paro	1	24	-
Tashigang	3	11	1
Lhuntsi	-	6	-
Total	4	57	1

53. When your child passes urine on the floor in your house, what do you do?[103]

	Nothing	Clean with Broom	Clean with Diaper/ Cloth or Sack	Clean with Water	Other
Tongsa	-	5	9	1	-
Paro	5	9	9	-	6
Tashigang	3	-	8	-	3
Lhuntsi	-	1	2	-	3
Total	8	15	28	1	12

[103] This table and others in this section do not tally with the number of children under 5, as answers for grandchildren, nieces and nephews etc. living in the household were also included.

54. When your child defecates on the floor of your house, what do you do?

	Nothing	Clean Floor with Cloth	Clean Floor with Hay, Sticks, Leaves	Clean Bottom with Cloth	Clean Bottom with Water	Clean Bottom with Paper, Leaves Etc.	Bottom Not Cleaned	Never Happened
Tongsa	6	4	4	12	1	1	-	-
Paro	1	12	6	16	-	3	-	6
Tashigang	-	8	5	9	-	4	-	2
Lhuntsi	-	3	3	1	-	-	5	-
Total	7	27	18	38	1	8	5	8

55. Do you tell your child to go to a particular place to urinate and/or defecate?

	No	Yes	Just Outside the House	Toilet	Other Particular Place
Tongsa	2	13	4	9	-
Paro	2	23	4	10	9
Tashigang	-	15	1	13	1
Lhuntsi	2	4	-	4	-
Total	6	55	9	36	10

56. How many times a day do you cook?
All respondents cook three times a day. One woman keeps a fire going all day.

57. What do you use for cooking?

	Firewood	Gas
Tongsa	21	-
Paro	29	-
Tashigang	23	1
Lhuntsi	11	-
Total	84	1

58. Do you have a smokeless stove?

	Yes	No
Tongsa	7	14
Paro	6	23
Tashigang	4	20
Lhuntsi	3	8
Total	20	64

59. What do you do with:
- wastewater from washing clothes
- wastewater from washing people
- wastewater from washing dishes
- wastewater from cooking

People wash themselves and their clothes outside the house near a water supply. Waste water is not reused for anything else.

	Thrown Outside	Put into Pig's Food
Tongsa	19	2
Paro	19	10
Tashigang	24	-
Lhuntsi	6	5
Total	68	17

60. How often do you sweep the rooms in your house?

	Once a Day	After Every Meal	More Often
Tongsa	2	12	7
Paro	-	22	7
Tashigang	1	2	21
Lhuntsi	3	3	5
Total	6	39	40

61. When do you throw the dust out?

	Immediately	Daily	Daily-Weekly	Less Often
Tongsa	4	5	7	5
Paro	14	2	13	-
Tashigang	10	6	5	3
Lhuntsi	1	2	3	5
Total	29	15	28	13

62. What do you do with your garbage?

	Down Pit Toilet/ Pigsty	Kitchengarden/ Field/Jungle	Street	River/ Stream	Other
Tongsa	4	13	4	-	-
Paro	11	7	8	-	3
Tashigang	6	16	1	1	-
Lhuntsi	2	2	2	-	5
Total	23	38	15	1	8

63. Has there been a water and sanitation project in your village?

	Yes	No
Tongsa	11	10
Paro	4	25
Tashigang	6	18
Lhuntsi	9	2
Total	30	55

64. Which people were consulted by the project people before the project started?
Consultation did not take place in the villages visited. People were informed about what would happen, but their wishes usually were not taken into account.

65. Where would you like a tap for getting drinking water?

	Inside the House	Just Outside the House (Private Tap)	No Preference
Tongsa	10	8	3
Paro	9	20	-
Tashigang	21	1	2
Lhuntsi	2	4	5
Total	42	33	10

66. Where would you like to wash yourself? Why?

	No Preference	Inside the House	Just Outside the House	Standpipe	Bathroom	Local Tap/ Bath/River
Tongsa	1	12	4	1	3	-
Paro	-	23	2	-	-	4
Tashigang	1	20	1	-	2	-
Lhuntsi	3	1	2	4	1	-
Total	5	56	9	5	6	4

67. Has anybody explained to you the importance of clean and safe drinking water?

	Yes	No
Tongsa	19	2
Paro	12	17
Tashigang	24	-
Lhuntsi	9	2
Total	64	21

68. Has anybody explained to you the importance of disposing of urine and excreta in a safe way?

	Yes	No
Tongsa	19	2
Paro	9	20
Tashigang	24	-
Lhuntsi	8	3
Total	60	25

69. Would you like to be men or woman in the next life? Why?

	Man	Woman	No Preference	Not Asked/ No Answer
Tongsa	13	-	8	1
Paro	24	-	5	-
Tashigang	17	1	6	-
Lhuntsi	n.a.	n.a.	n.a.	11
Total	54	1	19	12

In the following table main reasons for women's preference are given. More answers were possible.

	Pain of Delivery	Man More Mobile	Woman has Housework and Childcare	No Reason/ Others
Tongsa	10	1	-	10
Paro	14	7	3	8
Tashigang	9	11	4	1
Lhuntsi	n.a.	n.a.	n.a.	n.a.
Total	33	19	7	19

Annex 3: Methodology

A research plan was designed by the SNV researcher and the local counterpart, based on international experiences in the field of women, water and sanitation. It consisted of collecting relevant written documents, drafting a list of key informants, checklists of topics to be discussed with them and a questionnaire which was to be put to a number of women in selected places distributed over the country.

Fieldtrips were undertaken to Paro, Tongsa, Tashigang and Lhuntsi. In total 86 women were interviewed. Existing facilities were visited in each location. A conscious effort was made to select two research areas in each district based on the presence of earlier rural water supply and sanitation activities. Three to four days were usually spent at the location. It was thought that the presence of a project might have an influence on people's beliefs and practices. Interviews with women were conducted by the Bhutanese counterpart, while recording was done by the SNV researcher. Additional information was elicited by both, from village and block elders, teachers, health workers, NWAB members etc. Data obtained on fieldtrips were supplemented by existing documentation and discussions with relevant people in Thimphu.

In selecting the research areas, the previous zonal composition was used as a point of reference, whereby at least one district was chosen from each zone. Due to existing disturbances in southern areas, we chose to exclude these parts from the study. The validity of the document therefore does not extend to these parts.

Annex 4: Human Development Index (HDI)[104]

No attempt will be made here to explain how the Human Development Index is actually calculated, as this is less relevant for this report. Interested readers are referred to the Technical Notes in the 1991 Report. Of more relevance in this context is the philosophy behind the HDI.

To talk about human development is to discuss a perspective on development. The issue is not only human resource development or perhaps creating another sector in economic planning. Human development ranges across sectors and should form part and parcel of macro economic planning. The HDI has been designed to measure development in a broader sense than looking at income per capita. Naturally, a considerable number of aspects under this approach are difficult if not impossible to measure. The exciting aspect of the HDI that it provides us with a tool to measure development process as it effects people themselves. As such it attempts to build a bridge between adherents of those who believe in monitoring changes in the Gross National Product as indicator of development and their critics, who have argued about the importance of focusing on the impact of these interventions on people. It also tries to show that planning for human development is essential to all countries in the world, both developing as well as industrial nations.

In the developing countries major issues identified include how to tackle poverty, combat malnutrition and ill health, how to raise educational levels and diminish gender disparities. Industrial countries are also faced with poverty, with unemployment, gender disparities and a changing social structure leading to social upheaval. It clearly tries to show the interdependency of all nations and all people. In 1990 the HDI was presented initially. It was based on the sum of three variables: life expectancy, adult literacy and income per capita. Economic growth and human development are interlinked, one cannot take place without the other. Participatory development is the key to both and the development process needs to be sustainable.

The main message of the 1991 revised version may be summarised as encouragement of human development financing through the stimulation of more evenly distributed economic growth and development. This in turn should be channelled into increased human well-being. People themselves need to be actively involved in creating this increased economic output. The index underwent several refinements in the calculation of education, life expectancy and income rankings. A start was made to include existing gender disparities in the HDI, but for the time being there is a lack of data in this field. Gender disparities are however observed worldwide and its effects are more severe under conditions of scarce resources.

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[104] Based on UNDP, **Human Development Report 1991**, New York/Oxford University Press, 1991.

These changes, as well as attention to:

> *income distribution differences, and the computation of the HDI over time to monitor human progress - are all significant improvements. They add to the operational relevance of the HDI. And they greatly increase its contribution to understanding socio-economic progress. But there is still some distance to travel before the HDI can be used confidently to interpret reality and make key policy decisions.*[105]

The authors also mention that data on people's private investments in human development are hard to come by. Indications exist however that private spending often amounts to more than public spending. Many activities are not monetised either, like for example the work women perform in the domestic sphere including taking care of children, although from the point of view of human development this work is crucial. It is clear that the indicators as well as the database need improvement. Therefore the HDI should only be used with caution. Nevertheless, it points to a direction that merits extensive discussion.

[105] UNDP, **Human Development Report 1991**, New York/Oxford University Press, 1991·18

Annex 5: Water and Sanitation Related Paragraphs in the Nairobi Forward Looking Strategies for the Advancement of Women (FLS)

Paragraph 151

(..) To provide immediate access to water and sanitary facilities for women, Governments should ensure that women are consulted and involved in the planning and implementation of water and sanitation projects, trained in the maintenance of water-supply systems, and consulted with regard to technologies used in water and sanitation projects. In this regard, recommendations arising from the activities generated by the International Drinking Water Supply and Sanitation Decade and other public health programmes should be taken into account.

Paragraph 176

Governments should establish multisectoral programmes to promote the productive capacity of rural poor women in food and animal production, create off-farm employment opportunities, reduce their work-load, inter-alia, by supporting the establishment of adequate child-care facilities and that of their children, reverse their pauperization, improve their access to all sources of energy, and probide them with adequate water, health, education, effective extension services and transportation within their region. (..)

Paragraph 188

Governments should pay greater attention to the preservation and the maintenance free from pollution of any kind of sources of water supply for irrigation and domestic consumption, applying special remedial measures to relieve the burden placed on women by the task of fetching water. To this end, they should construct wells, bore-holes, dams and locally made water-catchment devices sufficient for all irrigation and domestic needs, including those of livestock. Women should be included by Governments and agencies in all policy planning, implementation and administration of water supply projects and trained to take responsibility for the management of hydraulic infrastructures and equipment and for its maintenance.

Paragraph 210

Women and women's groups should be participants in and equal beneficiaries of housing and infrastructure construction projects. They should be consulted in the choice of design and technology of construction and should be involved in the management and maintenance of the

facilities. To this end, women should be provided with construction, maintenance and management skills and should be participants in related training and educational programmes. Special attention must be given to the provision of adequate water to all communities, in consultation with women.

Paragraph 215

Rural transportation planning in developing countries should aim at reducing the heavy burden on women who carry agricultural produce, water and fuelwood as head-loads. In exploring modes of transportation, efforts should be made to avoid loss of income and employment for women by introducing costs that may be too high for them.

Paragraph 225

Efforts to improve sanitary conditions, including drinking water supplies, in all communities should be strengthened, especially in urban slums and squatter settlements and in rural areas, with due regard to relevant environmental factors. These efforts should be extended to include improvements of the home and the work environment and should be effected with the participation of women at all levels in the planning and implementation process.

Annex 6: Overview of the Sector by Ms. C. Van Wijk-Sijbesma[106]

Participation of Women in Water Supply and Sanitation: An Overview

The review of the literature has indicated many aspects of the traditional involvement of women in water supply and sanitation which have implications for projects and programmes designed to improve these provisions. Their traditional involvement demonstrates that women have a potential role to play in such projects, which will benefit both the project and the women themselves and which will contribute to wider development. These potential roles have been compared with their actual participation in subsequent project stages, planning, construction, maintenance, and evaluation, in various cultures and with various types of technologies. The compilation and analysis of information from widely scattered sources allows those involved in projects and training to benefit from the experience of other and to build on this experience to develop a more systematic approach to the active involvement of women in all project stages and at all levels. Feedback will clarify, provide support for and adjust present ideas about the methods and benefits of the participation of women as an accepted feature of all water supply and sanitation programmes.

1.1. Why Involve Women

As already stated, the participation of women in water supply and sanitation projects can have several benefits. It can contribute to the achievement of specific project objectives of functioning and use of facilities and also the attainment of wider development goals. Further, their participation can also be of both direct and indirect benefit to the women themselves.

Traditional Roles

The potential contribution of women to these objectives emerges logically from their traditional participation in water supply and sanitation. As domestic managers, women decide where to collect water for various purposes and in various seasons, how much water to collect and how to use it. In their choice of water sources, they make reasoned decisions based on their own criteria of access, time, effort, water quantity, quality, and reliability. In addition, much of the informal learning about water and sanitation takes place through interpersonal contacts between women. Thus, their opinions and needs have important consequences for the acceptance, use and readiness to maintain new water supplies and for the ultimate health impact of the project.

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[106] Copied from: **Participation of Women in Water Supply and Sanitation, Roles and Realities**, The Hague/IRC and UNDP 1985:1-12.

women. Thus, their opinions and needs have important consequences for the acceptance, use and readiness to maintain new water supplies and for the ultimate health impact of the project.

While several studies show that traditionally women have a role in maintenance and management of community water supplies, more recent studies indicate that this role may be more comprehensive than realized previously. Their involvement has included communal efforts and user agreements, arrangements by particular women or women's groups for the upkeep of shared facilities, and the exertion of influence on male community leaders and owners of source sites. Further in-depth studies and reporting of information obtained from women in the planning and evaluation of new projects will increase insight into this traditional role. It may also disclose the difference made to maintenance of new facilities when projects are based on existing management traditions and source ratings by women.

In sanitation, demand for privacy of women is a determining factor in latrine acceptance by men and women alike, especially in densely settled communities. Women also maintain latrines or supervise maintenance by children, provide handwashing facilities, take care of excreta disposal and hygiene of young children, and assist and educate them in correct latrine use. Factors influencing latrine acceptance and use which have emerged from a review of a large number of publications are the desire to avoid visibility, cost, acceptable arrangements for sharing, status, location, appropriateness for children, and ease of operation and maintenance.

Economic Benefits

The introduction of improved water supply and sanitation may have welfare benefits, particularly when time and energy spent by women on water collection and waste disposal is reduced. The review of the literature indicated that these benefits differ considerably between and within households, depending on environmental conditions, the age and position of women in the household, and socio-economic class.

Potential economic benefits from the time saved in fetching water are closely related to the extent of women's involvement in domestic, economic, and community development work. In many rural areas, women are actively involved in agriculture, particularly food crop production and processing, and in animal care. In poorer households often they contribute substantially to the household income by working for others. Conflicting demands on time and energy, especially at peak periods of agricultural work have sometimes led to neglect of household tasks, such as cooking and child care, or agricultural tasks, such as weeding, which in turn may lead to reduced harvest. Time and energy gains from reduction in water collection may also be used for community development and educational activities. In some areas, when time permits, women

make the largest contribution to community self-help projects. Lack of time is often a major constraint to their participation in non-formal education.

Traditionally, women are also the main users of water and waste for the household economy, for example in vegetable gardening, animal husbandry, brewing, processing organic waste for fuel and compost, and plastering walls and floors. These activities have consequences for the level of nutrition, income and hygiene of the family. There are strong indications in the literature, although not always supported by quantitative data, that the income of women is spent on basic family needs, such as food, clothing and household utensils, and also on improvements to and payments for domestic water supply and household hygiene. These patterns make women valuable partners in the expansion of productive use of water, time gains, and processed waste, as part of water supply and sanitation projects.

Health Benefits

Water and sanitation related diseases are responsible for most of the morbidity and mortality in developing countries. The use of more water of improved quality and safe methods of excreta disposal, adequate personal hygiene, and food hygiene by all members of the community can lead to significant reduction in these diseases. These measures can also decrease considerably the economic cost of these diseases and their treatment for individual households and for governments, and reduce the human suffering associated with them. Women play a key role in this process because traditionally, they manage domestic water use and household hygiene, educate and care for young children, provide health care in their household and often also in their community, and make decisions on use, and to some extent maintenance, of water supply and sanitation facilities.

Project Benefits

Their traditional roles are the obvious rationale for involvement of women in the introduction of improvements to water supply and sanitation and in concurrent arrangements for operation, maintenance and health education. The literature reviewed indicated that many cases of rejection and problems in the functioning and use can be explained, either partly or fully, by insufficient attention to the traditional roles and positions of women, and that the women have had sound reasons for non-use of facilities.

On the other hand, there are many accounts of specific contributions of women resulting in direct benefits to the projects and communities. As prime beneficiaries, they have promoted the interest and willingness of men to contribute to improving water supplies and installation of latrines.

Other projects have benefitted from their knowledge of local socio-cultural and environmental circumstances, including the identification of reliable water sources of acceptable quality and accessibility; reduction in construction cost by having shorter pipeline tracks, thus enabling more communities to be served with the material available, adaptation of the design of equipment for improved operation and use; and socially acceptable arrangements for sharing facilities.

Although awareness is increasing that participation in rural water supply and sanitation is more than merely the contribution of voluntary labour, the notion of self-help construction being equivalent to community involvement still persists. The main value of this type of participation is that, when well-organized, it has sometimes led to considerable savings in capital cost, particularly in gravity schemes. In areas with communal facilities, these cost savings have reverted to the agency or led to the provision of an extra tap or facility for the users. In areas with house connections, contributions in kind have reduced the connection cost so that at the time of installation more households could participate in the project. However, increased coverage has not necessarily resulted in access to all, and this form of participation in itself does not guarantee that facilities will be maintained. This depends more on joint agreement between agency and community, both men and women, that a particular improvement is wanted; is within the capability of the community to maintain, with additional institutional support and training where necessary; and that the design and location of facilities meet the needs of the users.

An important issue emerging from the literature review is that the traditional skills and knowledge of women can benefit water supply and sanitation projects. The value of their knowledge to local planning has already been discussed. Women have also made well-reasoned selections of community workers, such as members of local committees and candidates for training in health education and maintenance. Often, the women selected are older women heads of household because of their greater freedom of movement. Other reasons for preferring these women as community workers may be their greater need for and interest in part-time work which can be integrated with their household tasks, and their greater job motivation. Other more subtle criteria may also play a role. The main point is that when asked to select suitable community workers, women can make use of inside knowledge not necessarily available to the agency.

1.2. How to Involve Women

Most accounts of the involvement of women concern isolated projects. There is a need to integrate the involvement of women in a systems approach to water supply and sanitation, including regular monitoring and feedback on both the process and the effect of their involvement in relation to the type of technology and the socio-economic and cultural circumstances.

Planning

For projects which have adopted a community participation approach, a common strategy in local planning is to inform all users, including minority and disadvantaged groups, about the project; to consult them about their needs, preferences and expectations; to discuss options and to reach an agreement on all major issues such as community maintenance and finance. Many reports and studies from the field show that, in spite of their traditional roles, women face problems in participating in this planning process. This also affects their participation in follow-up arrangements for health education, maintenance and management. These problems originate partly from the position of women in different socio-economic classes, age and stages in the life-cycle, and in different cultures. In some cultures, integration of women in local socio-political structures is possible, and sometimes occurs. However, these structures do no always represent poorer women. In other cultures, men and women have separate and complementary tasks and responsibilities, which may have or have had equal status. Often women in these communities have traditional organizations and networks which could be involved in the planning process. In secluded societies, women are confined to the house and the immediate environment and contacts with other women are informal and usually limited to the family. Lack of involvement may also stem from the fact that external projects take water supply, sanitation and health out of the women's sphere into the male public decision-making domain. This occurs because the projects are carried out by male staff who communicate with male community leaders, and may also explain why much traditional maintenance done by women has remained hidden. Both community leaders and women themselves have ascribed to men only decisions and work actually done by women. Very often the true role of women has not emerged until traditional maintenance and decision-making processes have been discussed, for example, in a meeting of local women with a woman field-worker.

From the literature review, several strategies have emerged which have been used to involve women more actively in local planning. They have been integrated directly in general community participation structures by practical measures, such as facilitation of attendance at meetings and training activities, and by the development of positive attitudes of men to their involvement in accordance with women's customary tasks. Various measures reported in the literature which have contributed to this type of involvement are summarized in this review. Elsewhere, especially in areas where women and men have segregated but complementary and equivalent spheres of influence, women have been consulted at separate meetings or at places where they gather for daily activities, and eventually join in other project activities. An alternative to an integrated approach is the involvement or development of separate women's organizations, either formal or informal, as for example in health education and site maintenance of communal water collection points. Finally, women have been reached individually at home, for example in community surveys in project planning or evaluation, and in health education, using both women workers and trained community women.

It is not clear whether in more segregated societies, preference should be given to integration or separate organization of women. In the literature, there are a number of examples of women and women's committees being excluded from planning and management decision-making by local leaders and project staff, and also examples of women's representatives and organizations contributing substantially to the continued functioning of community water supplies and to improvement of environmental hygiene. There is evidence that the women themselves know best which is the most appropriate approach in their society. Contributing factors to the success of either approach seem to be that the women are aware of their common interests, have united, and have received the support of the project. However, from the practical point of view of the agencies, each approach may have different implications. The process and effect of alternative approaches is an area for further study including aspects, such as inputs, costs, appropriate design and maintenance, changes in household and community level hygiene and training of women for group development, situation analysis and problem solving. Irrespective of whether such studies are carried out, agencies should ascertain whether their approach leads to involvement of women in the project in a way which the women themselves consider to be meaningful.

An issue for special consideration in agency planning is the integration or linkage to income generating activities for women. This is related to expenditure patterns of income controlled by women, as mentioned previously. The income generated would not only benefit women and their families, but also contribute to the attainment of project benefits, such as total community coverage, cost recovery, continued functioning and improvement of public health.

In comparison with rural areas, very little information is available on the involvement of women in water supply and sanitation in low-income urban areas, in spite of rapidly increasing urbanization. Experiments with women's groups initiating or managing their own systems show that there is potential for greater involvement of women in these areas, especially if the systems cater for both domestic and income-generating use, such as vegetable gardening, compost making, and laundries.

Health Education

Many locally specific risks of transmission of water and sanitation related diseases, based on behaviour which continues after the introduction of improved facilities, make health education support programmes necessary. Where such a programme is added to a project, frequently it is the only part of the project in which women are involved. In many instances, local women have been involved in these programmes as individual receivers of health information in their homes and meeting places. Sometimes, programmes have been limited to the transfer of general health information, without attention to the accessibility of the information, the attitudes and practices

of women, and the factors underlying these practices. In other cases, information programmes are based on careful inventory of the local situation, practical knowledge, beliefs and behaviour of women. Even the rather conventional knowledge, attitudes and practices (KAP) studies which, with standardized questions, do not make it easy to gain insight into the practical knowledge of women, have revealed some sound practices and basic knowledge on which participatory health programmes can be based. Their practical knowledge of community practices, conditions and beliefs requires that women be involved, not as passive beneficiaries of general and academic health education programmes, but as active co-planners, implementers and evaluators of local action programmes.

Women have participated more actively in health education as community health workers, members of community committees and women's organizations. However, some of these organizations focus mainly on development of skills or only involve wealthier women. Further evaluation and reporting is required on the membership of these women's groups and their effect on changes in hygiene behaviour and conditions in the household and community. Projects should also report whether such changes were achieved by a didactic approach, or methods of joint analysis, planning, implementation and evaluation.

There are reports in the literature of poorer women in particular expressing a need for health education that is more adapted to the economic conditions of their families. In response to their needs, some programmes have provided implements or have helped women to make these with local materials, other programmes have included activities to generate income and to reduce expenditure. It is possible that the inclusion of economic components in health education programmes is in the long term more cost-effective than more conventional health education for the total elimination of local risks of transmission of water and sanitation related diseases. This is not yet clear, because this type of health education programme with women is comparatively new.

There are also indications that men should be involved in local health education as husbands and fathers, and also because of traditional divisions of labour between men and women. Opposition from husbands to the participation of their wives in education programmes has been overcome by involving the men in some way in these activities. Traditional divisions of labour and authority have sometimes prevented women from achieving necessary improvements, such as roofing of latrines and kitchen improvements which are male responsibilities. In both cases, the women have drawn the attention of the agency to these problems or have suggested culturally appropriate solutions. More evaluation is required to assess the effectiveness of health education programmes involving men and also of school health education in relation to domestic improvements.

Construction

In Latin America, Africa and in parts of Asia, women have participated actively in the construction of facilities, especially piped water supplies. This has taken the form of voluntary labour especially in areas where women are traditionally involved in agricultural field-work. Elsewhere, they have motivated and supported men to do unskilled voluntary construction work, or have fed and lodged construction workers, and have raised community funds for the project.

The interest and successful training of women in some areas in cement construction work, such as latrine slabs and rain-water collection tanks, may possibly be explained in terms of a connection with traditional skills in plastering, their responsibilities for domestic water supply and sanitation, and women workers being more acceptable to preserve household privacy. Water supply and sanitation projects, and also food-for-work projects may benefit from the interest of women in sanitation improvements, both as domestic managers and project workers. Such interests exist particularly in areas where husbands disapprove of work being carried out in their homes in their absence, where the need for privacy creates a demand for better sanitation facilities, and where women work in modern or traditional construction.

Maintenance

Where women have been involved in maintenance, their role has been closely related to their traditional management tasks. They have been involved especially in the preservation of site hygiene and the control of source use. In some cases, arrangements have been made spontaneously, thus preserving their original tasks as users and informal managers. In other cases, special tasks have been formulated in consultation with the agency. These have varied from appointment of a nearby woman to look after the water point, to a site committee, user roster, or a team of a male and a female caretaker with the woman responsible for hygiene and the man for technical matters. Experience indicates that factors relevant in site upkeep are that maintenance is not imposed but agreed upon jointly; that the women know what to do and why; and that there is two-way communication with higher level maintenance so that users are informed when, for example, storage tanks are cleaned, an know whom to contact about problems. It has also become clear that to increase the welfare, health and economic benefits of the system, women as the main users and managers, should be involved in decision-making on water use at the tap or well.

Women have been involved in more technical maintenance and repair tasks, especially in areas of high male migration, and in specific women's projects. Although there are several positive accounts of their commitment and performance, no methodologically sound quantitative

evaluation has been carried out which compares the performance of men and women caretakers under similar technical, social and environmental conditions.

Administration

In local administration, women seem to be particularly active in financial matters, including fund raising, fee collection, fund keeping and supervision of the local board. This may not only show their willingness to put effort into a good water supply and indicate the most recurrent problem and problem-solving approach, but also reflect their dependability in fund-keeping. Other factors which facilitate fund collection by women may be the link with their roles in managing the domestic budget and in making social visits. At present, there are too few reports in the literature on which conclusions and implications for programme development and training can be based. This is obviously an area for further information and investigation.

Evaluation

Originally, the emphasis in evaluation of the benefits of water supply and sanitation projects was on separate impact studies on public health and socio-economic development. While the large number of health impact studies in totality indicates that projects have important benefits, they also show that demonstration of these benefits depends on the soundness of the methodology of the studies. Factors for consideration include whether improved water supplies and sanitation facilities are better that existing facilities, function appropriately, and are used adequately by all, men, women and children. Therefore, the focus has moved from ultimate impact studies to intermediate studies which investigate the functioning of systems and the behaviour of the people in the community as part of ongoing water supply and sanitation programmes. This means not only involving women as knowledgeable informants in a survey, but also investigating the degree to which they were actively involved in the preceding process, and also whether greater involvement is indicated and feasible.

A similar shift may also be necessary with socio-economic impact studies, as the literature review indicated that these benefits are locally specific. As with health impact studies, there are also indications that these benefits do not occur automatically in all cases, but depend on the way projects are carried out and on the associated support programmes. For an impact on public health, usually a supplementary health education programme is necessary. For greater socio-economic impact, support programmes may be the integration or link with developmental use of time gains, for example for non-formal education, and of surplus water and processed excreta and organic waste, for example for vegetable gardening and tree nurseries. Cost-effectiveness studies can demonstrate the value of these additional inputs, and also disclose benefits to the

financing of operation and maintenance. Further, information on such developmental use of project benefits would be valuable for policy development on project allocation, and promotion and subsidization of composting latrines in some areas.

Compared with the many studies on women's traditional roles showing the potential benefits of time and energy gains, increased welfare and socio-economic development, there are very few studies which have measured the multiple benefits of community water supply and sanitation projects in quantitative as well as qualitative terms. More studies are needed in order to demonstrate more clearly that water supply and sanitation projects can improve the situation of women, their families and their communities in a multitude of ways. and to indicate which type of communities and which participation process will bring about the most benefit.

A matter of special concern in evaluation are the issues to be addressed to ensure that improvements in water supply and sanitation do not lead to deterioration of the position of some or all women in the communities concerned. Most of these problems can be prevented by more careful planning and better dialogue with the women themselves. A special issue for study and experiment in this respect, which has already been taken up by some water agencies, is the development of an equitable system of water rates for systems with unmetered yard or house connections.

1.3. Implications for National Programmes

The review of the literature indicated a number of steps which can be taken at national level to enhance the involvement of women in water supply and sanitation. These are mainly in human resources development and training, the development and testing of field procedures for involvement of women as part of the general community participation process, and the coordination and cooperation with other departments and organizations which can contribute to the achievement of the long-term objectives and targets of programmes.

Project Staff - Tasks, Selection and Training

Stimulation of the participation of local women in all phases and activities of water supply and sanitation projects has in particular implications for information exchange and training. It implies that throughout the project, project staff communicate as partners with all groups in the community, including women. In this process, the project provides the basic information which they have, and the community contributes their local knowledge and expresses their needs, in order to attain joint agreement. This requires that field staff have the attitudes and communication

skills necessary for this dialogue, and that the project build in sufficient, although not necessarily excessive, time for two-way communication.

It also implies that for meaningful consultation with local women in areas where culture requires their segregation or seclusion, either field staff will need to be women, or local women intermediaries may be involved, Also, water supply and sanitation projects can often work more closely with women field-workers in other departments and programmes, such as community development and preventive health. Successful involvement of women project workers often depends on whether those selected fit in with the local culture, and whether training and working conditions are adapted to their situation.

Strategies suggested to involve women in ongoing and new water supply and sanitation programmes include integration of women in general community participation procedures; refocusing to water supply and sanitation of existing participatory activities of women; inauguration of separate organizations for women's participation linked to those of men; strengthening existing forms of women's involvement, or combinations of these. In all cases, programmes can benefit by using a "learning-by-doing" approach whereby field staff are invited to discuss experiences periodically, and intermediate evaluations are carried out to adapt ongoing programmes. Integration of the findings of this process in field manuals and training for community participation and education will help to ensure that knowledge thus developed is invested and used by organizations rather than individual workers. Reporting on meetings and evaluations and exchange of manuals will facilitate the sharing of knowledge between agencies and countries. In addition, there is a need to update existing manuals for field-work and training in community participation and education for water supply and sanitation. At present, many of these do not pay specific attention to the involvement of women in the various phases of local projects.

A weak element in many water supply and sanitation programmes is the training for community members, who voluntarily or for small compensation from the community, carry out local maintenance and management. This is probably due to the relatively recent change from centralized, agency-managed systems to more decentralized participatory approaches and also to the limited number of evaluations on functioning of local facilities. Also, in recruitment and training of higher level staff, technical agencies involved in community water supply and sanitation programmes still often emphasize technical skills, and pay less attention to management and socio-organizational aspects. The adaptation of training courses for programme managers and engineers and the introduction of training courses for community workers provide good opportunities to introduce the involvement of women as one of the factors from which both projects and communities can benefit.

Small-scale Village Initiatives

The participation of women is not only important for ongoing and new water supply and sanitation projects, but can also contribute to the achievement of the target of improved water and sanitation for all. Programmes and organizations for women at the national level have the particular potential to assist women to make their own improvements to water supply and sanitation. These programmes and organizations may supplement higher level projects by assisting women to make additional improvements, such as household transport for general use of improved water sources and better household hygiene. They have an even greater potential to assist communities and scattered households not served by larger scale projects. The literature gives many examples of interesting approaches in this area. However, there is a need for more evaluation of the scope and impact of some of the most popular outreach programmes, such as appropriate technology centres, and to define their roles in the national strategy, including arrangements for coordination and cooperation with ongoing technical programmes in water and sanitation.

Conclusion

The involvement of women in all project stages and at all levels, by building on their roles in domestic water supply and sanitation, can be a contributing factor to the achievement of short and long term benefits of water supply and sanitation improvements. In the subsequent chapters, these traditional roles, their implications for new projects, and the experiences and effects of women's involvement as realized in practice are reviewed in detail.

Annex 7: Summary Hygiene Education in Water Supply and Sanitation Programmes[107]

Water and sanitation related diseases such as various types of diarrhoea, women infestations, skin and eye infections and vector-borne diseases account for most of the morbidity and mortality in developing countries. Water supply and sanitation programmes generally aim to reduce these diseases and thus to contribute to improving public health, to reducing curative health costs and to decreasing production losses due to poor health and illness. Until recently the main emphasis was on the provision of improved facilities. However, it is increasingly being recognized that additional changes in hygiene conditions and behaviour are also required to reduce the multiple transmission routes of water and sanitation related diseases. Hygiene education aims to address these changes and thus to provide the essential link between improved facilities and practices.

This literature review and selected and annotated bibliography which is based on more than 550 documents, gives an overview of current knowledge and experience in hygiene education. Although many project documents and policy papers stress the need to integrate hygiene education in planning and implementation of water supply and sanitation projects, inputs are often limited and many programmes suffer from being inadequately planned, funded and implemented. Often more comprehensive efforts have not been evaluated or recorded for a wider audience with the result that still little is known about hygiene education programmes in relation to cost, manpower, organization and possible impact.

There is an urgent need for a more comprehensive record of hygiene education experience which at present is lost to ongoing and future projects. More attention needs to be given to the planning, implementation and evaluation of hygiene education as an integral component of water supply and sanitation programmes. Effort should be made to set realistic hygiene education objectives and to provide the necessary funds, manpower and time. Monitoring and evaluation based on key indicators and valid measurement methods should be a regular programme activity to demonstrate and maximize the potential of hygiene education and to safeguard funds. Comparative evaluation is needed on various approaches to hygiene education in relation to cost, organization and manpower involved to increase its cost-effectiveness and to allow for more realistic assessments of possible impact. For the further development and implementation of hygiene education, curricula development and training courses are urgently needed for all levels of manpower, including community level workers, project staff, trainers, planners and policy makers. Government commitment and inter-sectoral co-operation will be needed for the development of sector plans and division of responsibilities and tasks of the various departments to allow

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[107] Copied from IRC, **Hygiene Education in Water Supply and Sanitation Programmes**, Literature Review with Selected and Annotated Bibliography, Technical Paper 27, The Hague/IRC International Water and Sanitation Centre, 1988·ix-xvi.

for integrated improvements in water supply, sanitation and health, making economic use of limited resources.

Areas of Focus

The focus of hygiene education is establishing links between water and sanitation facilities on the one hand and human practices on the other hand, especially with regard to the use, care and maintenance of the facilities; the preservation of water safety and its use in sufficient quantities; and the safe disposal of wastewater, human and other solid waste.

Adoption and use of improved water and sanitation facilities is a prerequisite for health benefits from new and improved facilities. Hygiene education has been shown to be instrumental in getting facilities adapted to the needs and conditions of the users, to ensuring their exclusive use, and to providing for their upkeep and maintenance. Hygiene eduction can also help to prevent contamination of water between collection and use, and to stimulate the use of sufficient quantities of water for personal and household hygiene. Safe wastewater disposal is another important aspect of health education, also because improved water supplies often create additional wastewater problems and thus new health risks. The fact that most water and sanitation related diseases are transmitted faecally-orally demonstrates the importance of safe disposal of human waste. Thus a major concern in hygiene education is the integration of sanitation improvements in water supply and sanitation projects.

Definitions and Objectives

Hygiene education may be defined as all activities aimed to change attitudes and behaviour in order to break the chain of disease transmission associated with inadequate hygiene and sanitation. As such, hygiene eduction is part of the wider concept of health education which is any combination of learning experiences that facilitate voluntary adaptation of behaviour conducive to health.

The objectives of the hygiene education programmes reviewed varied from narrow and short-term objectives, such as the promotion of hand-washing with soap, to broad and long-term objectives differing little from the general objectives of water supply and sanitation projects themselves. Hygiene education programmes would benefit more from precise and measurable formulation of objectives leading to more realistic project inputs, implementation and evaluation.

Potentials and Limitations

It would seem that hygiene education can be instrumental in bringing about desired health improvements only when certain conditions are met and realistic targets set. Thus, hygiene education programmes which are poorly funded, staffed, planned and implemented are unlikely to achieve their objectives.

Further, to ensure that new water supply and sanitation facilities are used and maintained, projects will have to be prepared to make changes in their own technical design and procedures, instead of demanding that only the users adapt their behaviour through hygiene education.

Target Groups

A careful assessment of the various target groups within a project area will help to ensure that hygiene education programmes reach all relevant groups, and to prevent the risk of reaching foremost those with a higher income, more education and wider external contacts. Programmes which worked directly with target groups with the greatest needs and programmes which differentiated their activities according to the needs and the potentials of the various target groups in the community generally met with better results than more general programmes.

Most hygiene education programmes tend to focus on women because they are primarily responsible for the family and for water management and sanitation. Yet, the involvement of men is equally important because women's programmes usually require their support, and improvements at home and at the water source are often their responsibility. Men also have a personal interest in the well-being of their families as husbands and fathers.

School-aged children are increasingly being recognized as an important target group in hygiene education because they are a vulnerable group and because they are the generation of the future. Yet many children, often more girls than boys, do not attend school or leave school at an early age. However, in the literature survey only a few hygiene education programmes for children not attending school could be found.

Technicians and caretakers are frequently referred to as specific target groups because of their direct contact with user groups. However, training is needed to ensure that caretakers become effective health communicators. Particularly as most of them are men and mainly concerned with the technical aspects, whereas primary users are women.

Adoption of New Facilities and Practices

New facilities and practices are more likely to be adopted when target groups are involved in identifying and setting hygiene education priorities. There is clear evidence that behavioural changes are influenced by a number of factors other than health considerations. The main incentives tend to be affordability, making life easier and solving a felt problem. Well constructed, conveniently functioning facilities, accessible to all, are more likely to be used in the desired way. Changes in behaviour may be brought about by incentives such as time gain, economic gain, or increased status. Rewards and punishments are also reported to have influenced people to adopt certain practices, usually not for long, however.

Further, the success of a hygiene education programme depends on the extent to which it builds on existing cultural values, and on the practical understanding of health and disease transmission of the target group. Respected key persons in the community may contribute greatly to promoting behavioural change by their example and programme support.

Approaches

Three broad approaches to hygiene education can be distinguished from the literature study. The most frequent, but probably least effective, appears to be the didactic approach by which target groups are instructed to adopt certain practices in order to overcome hygiene related problems as identified by the project agency. The effectiveness of such programmes depends largely on the extent to which these solutions meet the urgent needs and available means of the target groups.

The promotional approach, of which social marketing is the most common example, is characterized by careful consideration of target group needs and preferences. Nevertheless, the objectives and contents of the hygiene education programme are largely determined by the project agency. This is a realistic approach to address single, widespread and urgent health risks. Large numbers of people can be reached in a short period and at relatively low cost. For more complex behavioural changes, this approach appears to be less effective because more active community involvement is needed for sustained impact.

The participatory approach aims to create conditions to help people to solve their own problems. The objectives, contents and methods are determined as far as possible by the target groups in dialogue with the educator and by means of community self-surveys and evaluation. Although reportedly quite successful, the long term effects of this approach have never really been assessed. Because of the greater flexibility required and high demands on the social and technical skills of the educators, this approach is seldom used in large-scale programmes.

The potentials and limitations of both the promotional and participatory approaches need to be investigated further including the extent to which it would be fruitful to combine these two approaches. More information about their short and long-term cost effectiveness would enable programmes to make better use of limited budgets.

Organization

Hygiene education programmes may be organized in a number of ways. In many water supply and sanitation projects, hygiene education is organized as part of the technical programme. Activities are undertaken by technical field staff or project health educators, whether or not assisted by community level workers. While having the advantage of easy communication between project staff, this organizational set up also has disadvantages. Educational and technical activities may have different time spans, thus creating problems in matching activities. Often priority is given to technical aspects because of the greater prestige involved, or confusion and competition may develop with staff from the regular health services.

The need for closer co-operation between technical and health services is increasingly being recognized in a number of projects. This is mainly because of the need for more economic use of limited resources, greater efficiency in implementation and continuity of activities after construction of facilities. For these purposes interdepartmental bodies have been set up in a number of countries. However, to achieve greater co-operation, more government support at policy level and training of staff to work in a multidisciplinary setting are also required.

Potentially, primary health care programmes provide excellent opportunities to integrate hygiene education in water supply and sanitation, particularly when a more participatory approach is used. Provided higher priority and prestige is given to preventive health, more training and supervision is given to primary health care staff and higher budget allocations are made for programme implementation, hygiene education can be effectively incorporated in primary health care programmes. More experience and research will be needed to determine the conditions which yield the best results.

Mass campaigns for hygiene education have also been organized, either in isolation or as part of an ongoing programme. These campaigns usually generate great enthusiasm, both in the target groups and agency staff, and because of their dramatic short-term results attract funding more easily. However, they also place an enormous demand on available manpower and other resources, thus hampering the continuity of regular programmes. Further research may indicate how campaigns can be used most effectively.

Cost and Cost-Effectiveness

There is a surprising lack of cost data of hygiene education and what data are available are generally difficult to interpret. The proportion of project budgets reserved exclusively for hygiene education tends to range from 2 to 9.5% with varying proportions being spent on training, materials, and implementation. Even less data are available on cost-effectiveness. There is an indication that expenditure on non-technical activities may contribute to reducing overall project costs, in particular for maintenance. International and bilateral donor agencies have recommended that spending on non-technical aspects be at least 5% of the total investment. For low cost programmes, this would be more because community commitment and inputs are expected to be much higher.

Support to hygiene education programmes could be increased if more accurate data were available on the costs, cost definitions and cost-effectiveness of individual programmes. An increasing number of water use and hygiene practices studies are being carried out on the combined effects of technology and hygiene education programmes, but they are not yet sufficiently linked with descriptions of the processes, the organization and finances underlying the results. Good indicators and valid measurement methods should also be established and disseminated to increase the comparativeness of individual programmes so that generalizations on hygiene education can be made more easily and firmly than is at present possible.

Manpower

Little information is available on ministerial level staff responsible for planning and organization of hygiene education programmes. Shortage of staff at this level is reported to be a common and serious obstacle to hygiene education development. However, a number of efforts are reported to familiarize high level staff with integrated water supply and sanitation programming and to establish a structure for interdepartmental co-operation. These efforts need the backing of explicit government policies and measures for policy implementation.

At project level, field technicians, public health workers, and project hygiene educators may be involved either directly or indirectly in planning and implementation of hygiene education. Where project level staff work through community level workers, their primary task is to support them actively in hygiene education implementation, to co-ordinate training, and to liaise for technical and/or financial assistance.

Irrespective of the approach and organizational set up, community level workers are the main group of hygiene educators. They may be volunteers, semi-volunteers remunerated by the community, or health staff from local health centres. Sometimes, local caretakers are given promotional and educational tasks.

In a number of programmes, community level hygiene educators have also been involved in technical improvements. Often they are supported by community committees who provide motivational, organizational, and logistic assistance. Both community committees and workers have been reported to become demotivated and inactive without regular contact with higher level staff. Continued and active project support to local hygiene education is required.

Methods and criteria used to select suitable voluntary hygiene educators vary from country to country. Ability and motivation together with acceptance by the community seem to be universal criteria. Selection of suitable candidates is often best left to the target groups. Some guidance may be needed to prevent candidates being selected who do not remain in the community, who are too closely involved in local politics, or who do not have the respect or support of the majority of the target group.

The training period for voluntary hygiene educators may vary from a few days to several months. Special provisions may be needed to give equal training opportunities to men and women. In many countries the shortage of trained trainers, especially in the participatory approach is felt to be a serious constraint. Some interesting efforts to address this problem need to be made more widely known so that other programmes can benefit from this experience. Also, a number of educational and training materials have been prepared that may help to close this gap.

Lack of motivation and unclear task description of community level workers especially for volunteers is a serious long-term problem in many programmes. Lack of recognition, compensation and remuneration and ongoing programme support all threaten their sustained dedication. Long-term solutions have to be found to these problems. Remuneration especially is a matter of serious concern and should not be left to the community alone. In some countries trials are underway to increase recognition through linkage of hygiene education to curative health services and/or technical advice. These and other alternatives deserve further attention.

Audio-Visual Tools

Development of audio-visual materials is a popular and much emphasized component of hygiene education programmes. The effectiveness of such materials very much depends on how they are used. They can be very helpful in motivating and activating an audience, but they are not substitute for group discussions and activities. However, audio-visuals are often used not as a tool but as an end in themselves. There is widespread misunderstanding that hygiene education is synonymous with the use of audio-visuals. One of the undesired effects is that their production and distribution frequently takes a large proportion of project time and budget.

Although often not met, a number of conditions govern the effective use of audio-visuals. These materials must actually reach the intended groups, be of interest and relate to their felt needs. Both the materials and the messages must be clearly and easily understood. The best way to achieve this is to involve target groups in the development and preparation of materials appropriate to the local situation. Protesting will help to prevent costly mistakes being made. The selection of appropriate types of audio-visuals will be influenced by the intended messages, resources available and environmental conditions. Useful guidelines exist on how to design and test audio-visual materials.

School Hygiene Education

Schools have a role to play in imparting hygiene information and in altering hygiene practices both at school and at home. A favourable condition for hygiene education at schools is that in developing countries the budget for primary education is often higher than for health services, and there is a wider distribution of schools and teachers. However, in many countries school hygiene education is still far from being a regular and integrated component of primary school curricula. Further, the type of hygiene education, if given at all, differs widely between and within countries.

Hygiene education usually takes the form of classroom lecturing. Little attention has been given to measuring the impact of classroom learning on actual hygiene knowledge and practices of the students. In some cases hygiene education is combined with improving school hygiene facilities and practices. Other schools also have out-reach programmes whereby pupils participate in community environmental sanitation programmes and are encouraged to influence hygiene practices of siblings and parents. Alternatively, water supply and sanitation programmes sometimes include school hygiene education in their activities.

School hygiene education is usually the task of primary school teachers, and occasionally of health staff. Lack of trained teachers is still a serious limitation to effective school hygiene education. In the last few years more attention has been given to this problem. In a number of cases teachers training institutions have been linked to water, sanitation and primary health care agencies, often with UN agencies support.

For the further development of school hygiene education, the high level support from the ministries of health and education is required to arrive at not only clearly defined policy and inter-sectoral co-operation, but also for curriculum development, including teaching aids, training and evaluation.

Annex 8: Summary Community Participation and Women's Involvement in Water Supply and Saniation Projects[108]

This paper seeks to clarify forms and methods of community participation to consider its value and limitations, and to indicate areas for further knowledge development through demonstration projects, research or other means.

Community participation, the organized involvement of a community in a development effort, is expected to reduce increasingly project costs, increase service coverage and encourage technical and administrative flexibility. It is also anticipated that it will help improve operation and maintenance, stimulate broader socio-economic development and enhance community capacities for problem solving. There is evidence to support these expectations, although only limited amounts of data are currently available to demonstrate the cost-effectiveness. The danger is also noted that community participation may be used to absolve governments of their responsibilities, and to place undue demands on local resources.

A number of salient issues concern planners who seek to build community participation components into water and sanitation projects. Ways need to be found to expand the roles of women in all project stages because they take major responsibility for securing and using water, and in promoting household and personal hygiene. While there are countless forms of participation, the central issue to planners is the extent to which communities will have responsibility and authority for changes in their environment. New modes of planning, training and supervision need to be developed which are consistent with community participation principles. Excessive emphasis must not be placed on participation in construction or maintenance stages at the expense of involvement in pre-planning and planning including technical and administrative decision-making, and evaluation.

Techniques of community organization, manpower selection, training, supervision and logistic support are primary determinants of successful community participation. There is a need to make community participation information available to donor and national agency officials, and to develop suitable training programmes for planners and project implementers. Evaluation procedures need strengthening, including the collection of cost-effectiveness data. Donors must agree on comparable indicators of cost-effectiveness for measuring inputs and effects.

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[108] Copied from IRC, **Community Participation and Women's Involvement in Water Supply and Sanitation Projects**, Occasional Paper Series 12, The Hague/IRC International Water and Sanitation Centre 1988:v-ix.

The conclusions drawn from the study are as follows:

1. *Need for Community Participation*

There is overwhelming evidence that water and sanitation projects often fail to achieve their longer-term goals of reliable functioning, general use and progressive development. This paper generally confirms the theory that community participation based on joint planning and decision-making helps to serve more people with reliable and acceptable improvements in water supply and sanitation within the available budgets, and can be a catalyst for further community development. It is therefore recommended that project plans and evaluation proposals always include a community participation component, and that future project proposals are reviewed in this light.

2. *Development of Models*

The paper also shows that with adequate political readiness and sufficient support community participation models can be developed which are applicable in large-scale water.supply and sanitation programmes. Measuring social and political readiness is suggested for various types and intensities of community participation. Although achieving desired levels of community participation is sometimes very complex, it appears to be cost-effective and to promote better use of facilities.

3. *Assessment and Exchange of Experience*

Better use can be made of existing community participation experiences with improved documentation and dissemination of results. Assessing results of varying levels of community participation in ongoing programmes in a particular country or region can encourage use of field experience in national programmes and policies and stimulate inter-programme co-ordination among programme planners and donors.

4. *Planning and Decision-Making*

Prior to the Alma Ata declaration and the proclamation of the International Drinking Water Supply and Sanitation Decade, it was generally assumed that a level of community participation equivalent to compliance with official requests would be sufficient. The present trend is toward joint decision-making between agency and community organization representatives in charge of

water supply or health. Clearly defined rights and responsibilities and training are integral parts of this community-based approach to improved water supply and sanitation.

5. Maintenance and Use

Concern for and maintenance of water supply and sanitation systems is often associated with convenience and a pride of ownership which comes from early involvement in decision-making, rather than with considerations of health protection. Organized community action also puts peer pressure on residents to accept new technologies and behavioural patterns.

6. Involvement of Women

An impressive amount of field material shows that women play important roles in achieving project success through participation in local planning, design and management. nevertheless, they continue to have only limited involvement in large-scale programmes. Participation of women should be systematically encouraged by indicating during project identification and programme planning how and for what purposes they will be involved in each phase of the project, and by allocating required resources for project staff, research, training and financing.

7. Community Financing

More flexible approaches stressing community choice, affordability of options and locally appropriate financing systems are emerging to enable communities to meet the recurrent costs of improved water supply and sanitation. In some programmes communities also contribute to capital costs through long-term loans. Actual terms depend on local socio-economic conditions and may vary from zero to 100% repayment over a period of 20 years.

8. Project Cycle

There is a danger in inviting local participation too late in the project planning and implementation process. Already during the pre-planning at the local level, organized community support in data collection and problem identification can influence future relationships and lay a basis for partnership.

9. Planning of Community Participation

The professional quality planning required for technical aspects of water supply and sanitation projects is also needed with respect to community participation. Social scientists have played valuable roles in vital data collection, in anticipating potential pitfalls, in developing and testing community participation procedures as part of new or ongoing projects, and in training field workers, including preparation of very useful field manuals.

10. Organizational Demands and Financing

Community organization and education processes leading to high and appropriate levels of community participation require sufficient time, specially trained manpower and enough flexibility to cope with varying socio-economic and cultural circumstances. Each project plan should indicate how it will allow for this process and earmark reasonable and separate funds for this purpose. Experiences of present field-programmes indicate that a reservation of 5% of the total project budget for community participation and hygiene education, as recommended by a recent donor meeting, is on the low side for low-cost technology projects such as handpumps, wells and piped gravity systems.

11. Change of Attitudes

Achieving higher levels of community participation sometimes requires painful changes within agencies, requiring greater flexibility, sensitivity, and less paternalism; as well as within communities which have come to expect governments to take care of them.

12. Water and Sanitation for All

Marginal groups, such as dispersed populations and people in low-income urban areas are too often excluded from large-scale programmes. Programmes which foster community self-improvements in water supply and sanitation, such as carried out by many non-governmental organizations, offer an excellent potential to serve these groups. They deserve greater and more co-ordinated support.

13. Urban Areas

Community participation for improved water supply and sanitation in urban areas has received little attention from donors in spite of the realities of rapid urbanization, inadequacy of present

types of services and high risks to public health. There is a need for a systematic and extensive review of current approaches and experiments to develop greater insight in effective community participation for various types of low-income urban areas.

14. Research

There is still a lack of systematic operational research on community participation in water supply and sanitation programmes. Reliable data are needed describing the cost-effectiveness of various aspects of community participation, including various levels of local involvement in planning, forms of decision making, innovative educational and motivational techniques, manpower training and secondary benefits such as reduced health risks and productive use of water and time gains. To increase comparability of findings, donors should agree on a common definition of indicators used in such studies.

15. Follow-Up of Recommendations

A number of steps need to be taken to implement the above recommendations. Information about community participation and education should be made available in appropriate forms to officials in donor and national agencies with responsibilities for project planning and implementation. There is a need to promote the exchange of existing information about community participation at region/country level and to generate additional information on selected issues, such as cost-effectiveness or participatory approaches, community-based financing and management, socio-economic benefits at micro (community and household) level, and agency support and monitoring systems. Further, at region/country level donor agencies and national governments involved in water supply and sanitation programmes need to clarify and co-ordinate their policies to ensure strong and consistent community participation activities.

Annex 9: How Women are Able to Participate in Sanitation Projects[109]

PROJECT STAGE	ACTIVITY	POTENTIAL ROLES OF WOMEN IN THE PROJECT AREA
Planning Stage	Data Collection	- Assisting in identifying priority data to be collected.[110] - Taking responsibility in data collection. - Participating in data analysis and interpretation.[111]
	Decision-making	- Setting of priorities for women or the community as a whole. *[112] Deciding on how women can best be involved in project activities. - Deciding whether to stress purchase of new latrines of improvement of existing latrines. * Selecting between available alternative sanitation technologies or major options. * Making detailed design decisions (about type of enclosure, building materials, doors, locks, size or type of superstructure, lighting, siting, orientation, etc. - Making decisions on construction techniques to be employed (for example, whether to use small contractors or self-help labor for production of materials such as bricks, thatch, etc., or for building the superstructure). - Making decisions on levels and systems for payment. - Deciding on the timing of the proect. - Planning the selection, training and remuneration of field workers (primarily those from the area). - Deciding on the composition of community saniation committees (for example, half men, half women, reserving three positions for women etc.)

109 Copied from Heli E. Perrett, **Involving Women in Sanitation Projects**, TAG Discussion Paper Number 3, Washington DC/The International Bank for Reconstruction and Development with The World Bank 1985.28-31.

110 This can occur, for instance, through very open-ended discussions as a first step, helping to formulate more structured interviewing subsequently.

111 For instance, the implication of findings can be discussed with women leaders, or women's groups.

112 This marks most likely forms of participation.

PROJECT STAGE	ACTIVITY	POTENTIAL ROLES OF WOMEN IN THE PROJECT AREA
Implementation Stage	Promotion	- General promotion of sanitation improvements at the community level, often through a women's organization. * Household level promotion of improvements, to encourage acceptance, with women acting either as paid or voluntary project representatives.
	Construction and Related Tasks	- Local level management of the construction activity (through the structure of a women's organization). - Training of field workers or agency staff, or briefing them on local needs and conditions. * Latrine construction work (pit digging, pit lining, erecting walls, roofing, etc. usually as assistants to men, where self-help construction is involved). * Manufacture of materials to be used in construction (for example, bricks, bamboo matting, jute sticks, tiles, etc.) - Housing, feeding of skilled craftsmen or laborers from outside the area, feeding community workers where communal efforts are involved (less likely with sanitation than with water supply). - Providing instructions on how to use, clean and do routine repairs on latrines.
	Monitoring[113]	* Working as data collectors; acting as respondents in interviews. - Helping to interpret data and apply the results of the monitoring.

[113] Obviously evaluation should begin as an activity prior to the operation and maintenance stage, if baseline data are being collected.

PROJECT STAGE	ACTIVITY	POTENTIAL ROLES OF WOMEN IN THE PROJECT AREA
Operation & Maintenance Stage	Use[114]	* Personal use of latrines on a regular basis. * Facilitating hygienic family use by making paper, soap, water, etc. available. * Supervising children's use.
	Education	* Teaching of children and motivating other members of the family to use new or improved latrines with proper hygiene habits (family level role). * As project voluntary or paid workers, educating and motivating other local people to use, care for and maintain latrines properly and use good hygiene habits.
	Operation	* Carrying water for flushing pour-flush latrines and for general latrine cleaning.
	Maintenance	* Cleaning and general routine care (such as unplugging). - Some maintenance tasks (such as repairing the superstructure, requesting service when needed).
	Financing	- Developing a workable program of regular personal savings, in cash or in kind, for use towards sanitation improvements. - Collection of installments from others and enforcement of social sanctions against those who do not pay.
	Income Generation	- Production and sale of materials to be used by latrine owners for purposes of income (for example, toilet brushes, paper or soap holders, water storage jugs, etc.).
	Evaluation	* Helping to assess the extent to which, and why, the project has succeeded or not succeeded.

[114] Use and education obviously begin during what, for the project as a whole, is the implementation stage.

Annex 10: Compilation of Answers on Female Isolation

The tables presented below are compiled from this report and the one on the educational sector.[115] Table 29 shows the number of literate and illiterate respondents in the different districts visited. The literacy rate in the sample amounts to 9.76%.

Table 29: Combined Female Literacy

	Literate	Illiterate
Chukha	1	24
Lhuntsi	-	11
Paro	-	29
Pemagatshel	-	4
Samdrup Jongkhar	-	10
Shemgang	3	29
Tashigang	1	23
Thimphu Town	7	7
Thimphu	7	27
Tongsa	1	21
Total	20	185

In Table 30 an overview if given of the exposures of the respondents to the Kuensel. In 43 households (21%) the Kuensel is read and in 103 (50.2%) the female respondents were unfamiliar with the newspaper.

[115] Joke Buringa and Lham Tshering, **Education and Gender in Bhutan, A Tentative Analysis**, Thimphu/NWAB and SNV, 1992.

Table 30: Exposure to the Kuensel

	Household Reads	Household Does not Read	Kuensel Unknown
Chukha	3	5	17
Lhuntsi	5	5	1
Paro	-	1	28
Pemagatshel	-	4	-
Samdrup Jongkhar	1	9	-
Shemgang	4	11	17
Tashigang	2	1	21
Thimphu Town	9	3	2
Thimphu	16	18	-
Tongsa	3	2	17
Total	43	59	103

Table 31 presents an overview of female access to the Bhutan Broadcasting Service (BBS). 131 women (63.9%) have potential access to a radio, usually because there is a radio in the house.

Table 31: Combined Female Access to BBS

	Has Radio	Does Not Have Radio	Listens with Neighbours
Chukha	16	9	1
Lhuntsi	4	7	-
Paro	18	11	3
Pemagatshel	1	3	2
Samdrup Jongkhar	7	3	2
Shemgang	15	17	3
Tashigang	15	9	-
Thimphu Town	13	1	-
Thimphu	24	10	-
Tongsa	4	18	3
Total	117	88	14

Owning a radio does not necessarily imply listening to BBS regularly. Table 32 gives an overview of female listening frequency. Although 63.9% of the women have access to a radio, only 40 (19.5%) listens daily to BBS and 84 (41%) listens less than once a week.

Table 32: Female Listening Frequency

	Never Listens to BBS	Listens Sometimes	Listens Daily
Chukha	10	8	7
Lhuntsi	7	2	2
Paro	15	11	3
Pemagatshel	1	3	-
Samdrup Jongkhar	-	8	2
Shemgang	14	12	6
Tashigang	8	11	5
Thimphu Town	3	7	4
Thimphu	8	17	9
Tongsa	15	5	2
Total	81	84	40

Because we were interested in women's views about their situation, they were asked which sex they preferred to have during their next life. This question was not asked in Lhuntsi, Pemagatshel and Samdrup Jongkhar. Table 33 gives an overview of the answers. Of the 163 women who answered the question, 118 (72.4%) wanted to become a man, 2 (1.2%) a woman and the remaining 43 (26.4%) had no preference.[116]

Table 33: Gender Preference in Next Life

	Man	Woman	No Preference	Not Asked/ No Answer
Chukha	16	-	9	-
Paro	24	-	5	-
Shemgang	24	1	5	2
Tashigang	17	1	6	11
Thimphu Town	10	-	4	-
Thimphu	14	-	6	14
Tongsa	13	-	8	1
Total	118	2	43	28

The reasons for their preference have been compiled in Table 34. Of the 163 respondents who specified their preference, 52 (31.9%) mentioned the pain of delivery (fear of childbirth) first.

[116] It should be noted that women were more inclined to answer 'no preference' if men were present during that stage of the interview

40 (24.5%) was of the opinion that men had much greater mobility than women, more opportunities to study, to learn and to travel, whereas 22 (13.5%) immediately pointed to domestic and childcare responsibilities that kept women at home.

Table 34: Reasons for Gender Preference in Next Life

	Pain of Delivery	Man More Mobile	Woman has Housework and Childcare	No Reason/ Others[117]
Chukha	3	10	2	10
Paro	14	7	3	8
Shemgang	2	8	11	9
Tashigang	9	11	4	1
Thimphu	5	3	1	5
Town	9	-	1	10
Thimphu	10	1	-	10
Tongsa				
Total	52	40	22	

[117] It was often difficult for women to verbalise the explanation for their preference in the company of others, esp men