

CHAPTER II

Can Social Marketing improve on the low usage of Oral Rehydration Therapy and continued feeding practices during Diarrhoeal Diseases among Children under-5 years of age in Nepal?

2.1 INTRODUCTION:

The National Control of Diarrhoeal Diseases Program (NCDDP) in 1996 indicated that the usage of Oral Rehydration Therapy (ORT) and continued feeding during diarrhea among the children of under 5 is very low in national level (only 49%). According to NCDDP, 53% of the children are not receiving any fluids and only 35% of them are getting the appropriate amount of food during diarrhea. Similarly, only 35% of the children are using Oral Rehydration Salt and even among them the percent of correct prepared Oral Rehydration Salt is very low (24%). These reports indicate that the usage of ORT and continued feeding needs to be improved. Social Marketing should provide a means to improve this problem situation.

A study for the low usage of ORT and feeding during Diarrhoeal Diseases (DD) has not been undertaken yet. Therefore, we do not know the actual cause of this problem situation. On analyzing the Precede-Proceed model, which is an analytical model for identifying the factors related to the health problems, behaviors and

program implementation (Dignan and Carr, 1992, Green and Kreuter, 1991), many factors have shown the relationship for the low usage. These factors are:

1. Predisposing factors (such as: low knowledge of the mothers (particularly on increased fluids and continued feeding, different beliefs).
2. Reinforcing factors (such as: low interpersonal communication between target population and the service providers).
3. Enabling factors (such as: low reaches of media/print- materials, and the breakage of Oral Rehydration Salt in the respective health facilities).

The above reasons suggest that the enabling factors should be highly prioritized, because, they are relatively easy to change in comparison to the other two factors. In addition, enabling factors can also improve other factors (predisposing and reinforcing) indirectly. Hence, the focus should be placed on the existing enabling factors (such as: less access of media, low access of health facility and low availability of ORS) that have a casual relationship with the low usage.

Mass media are effective channels of communication that can improve health-related knowledge, attitudes and beliefs of the target population. The main specialty of this channel is that it can reach thousands and millions of people simultaneously with the same message, and thus, the results are less time consuming. My argument is how can we get the expected results, if the existing communication channels have less access to the target population? Similarly, how to be more hopeful (about the improved usage of ORT and feeding practices), if they are inaccessible to the health facility and

even not ensured of ORS supply? Thus, there is an emergence of improving the existing enabling factors (such as: better access the media, health facility including round year availability of ORS) if to improve the existing problem.

Social Marketing is a multidisciplinary approach, which is concerned with the enabling factors including respective commodity [Lefebvre and Rochlin, 1997, Kaplan et al., 1993, Israel et al., 1987]. The main specialty of Social Marketing is that it deals with integrated approaches related to a variety of fields focused towards a specific change, such as: educating people, working with variety of organization, and also working with the other disciplines that may not have relationship with health improvement. Social Marketing approaches is more effective, because, they reinforce each other collectively and increase the access among the target population. On the other hand, other approaches complement the gap (if one approach may not be accessible in some cases) resulting increment on coverage. Thus, multidisciplinary approaches are less time consuming (Glanz, 1997, Israel et al, 1987).

In addition, Social Marketing approaches are more acceptable among the target population, because, they are carefully designed according to their needs and wants (preferences). Intuition and even expert ideas are not relied on as the process of Social Marketing since they have very little concern towards the consumer's satisfaction. Similarly, multidisciplinary health education approaches are directed to cover even less privileged group including minority population (Karen, 1997, Israel et al., 1987).

In the last decades, Social Marketing was successfully implemented in many public health, family planning and nutrition program in many countries. One of such example is the North Karelia Project, Finland (1972). This project was established to create awareness among community people to adopt healthy practices against cardiovascular diseases (CVD). Different approaches (setting up low fat cooking class, developing lower fat products and school health programs) were utilized in this intervention program. The results showed a positive attitude of target population towards anti-smoking, low fat and salt consumption practices, resulting in a 11-17% decreased CVD rate after 5 years of intervention (Manoff 1985, Kaplan et al., 1993).

Another example is The Stanford Three Community Study(1972), California, USA. This project dealt with a multidisciplinary mass media campaign such as: Television spots, Radio ads/and programs, mass mailing of printed information, Newspapers columns and stories, billboards etc. The intervention improved the healthy dietary practice and Physical exercise reducing 25-30% of CVD risk among Gilroy and Watson Ville, two community populations compared with Tracy, the control community after three years intervention (Manoff, 1985, Kaplan et al., 1993, Kotler et al., 1989). The result of the Stanford Three Community study stimulated several other larger projects in the United States, Europe and Australia including the Stanford Five-City Project, USA, 1980 (Kaplan et al, 1993).

Similarly, the Breast Cancer Education Program, USA, (1992), a five-year multidisciplinary educational program was also successful in increasing regular screening practices for Breast Cancer followed by increment on appropriate

mammography usage among African-American and Hispanic-American women of 50 or above (Lefebvre and Rochlin, 1997). A multidisciplinary team of state health departments and community health professionals, religious, voluntary health etc were involved in this program to provide health education through different communication channels such as: print media, broadcast media, educational film etc.

The concept of Social Marketing is not new in Nepal. Nepal Contraceptive Retail Sales Company (Nepal CRS Company) started Social Marketing practices in Nepal in 1978 being a pioneer in this field. To date the company has continued the same practices under the support of various donor agencies including UNICEF (Master Plan of Action, 1992-96). The government has full support for this agency, and thus, the Ministry of Health is one of the board of directors of this company. A Social Marketing program intervened in Gorkha district of Nepal by SCF/US showed positive results on knowledge, attitudes and practices of the target population towards the ORT and feeding practices (Frederick, 1992). The success of this project inspired them to introduce another similar Social Marketing project in the Nuwakot district of the country and the project is still in operation.

The reports of multidisciplinary approaches in other countries, such as: Social Marketing of vitamin A rich foods in Thailand (Smitasiri et al., 1993, Lefebvre and Rochlin, 1997), The National Breast Feeding Program: Brazil (Cunha, 1990), A Nutrition Education and Behavior Change Program in Indonesia (Manoff, 1985), have shown the increment of healthy practices of the target population followed by the improvement of health knowledge.

Social Marketing is often criticized as not being an ideological specific approach. It lacks a consistent theoretical base, thus, it relies on the systematic use of empirical investigation to improve public health behavior. Cost effectiveness is the main arbitrary aspect of this approach. Being consumer driven in nature and dealing with a variety of experts from different disciplines, Social Marketing should be supported with adequate research, time, money and manpower. At the same time, Social marketing is a flexible approach since there is not any strict limitation to choose its strategies. Any strategies can be selected, which seem to be cheap as well as effective. At the same time it is shown that multidisciplinary approaches are not always expensive. Many multidisciplinary interventions are found to be cheaper in comparison to clinical treatments of the diseases, and the results are also less time consuming. The Stanford Three Community and Five City Projects (Kaplan et al., 1993) and Indonesian Nutrition Education Program (Manoff, 1985) are some of the proved cost effective Social Marketing program.

On the basis of the above examples, it can be concluded that Social Marketing should be the appropriate intervention to improve the low usage of Oral Rehydration Therapy and continued feeding practices in the country. But, the strategies should be selected carefully in order to make the intervention cost effective.

2.2 SOCIAL MARKETING:

Social Marketing is not a theory itself. The term Social Marketing has been fitted in many public health interventions as a brand name, such as a process for increasing the acceptability of ideas or practices in a target group, a process for problem solving, a process to introduce and disseminate ideas and issues and a strategy to develop effective communication message (Lefebvre and Flora, 1988). [Kotler and Roberto, 1989, Manoff, 1985, and Green and Kreuter, 1991] converged the above definition as a strategy to bring acceptability of ideas or practices for changing behavior on a population wide basis. Similarly, Kaplan et al., 1993 define Social Marketing as a community intervention representing a hybrid of different approaches including educational and promotional programs. Fine (1990) explained Social Marketing as the application of marketing methods by public and nonprofit organizations for the dissemination of ideas and social issues. In addition, Wasek, (1984) and Andreason (1995) defined Social Marketing as the process of analyzing, planning, execution and evaluation of programs by commercial marketing technologies intended for the welfare of the target of population and even the entire society (Lefebvre and Rochlin, 1997). All These definitions and articles emphasis the following key aspects of Social Marketing:

1. The objective of Social Marketing is social welfare rather than the profit making of the program initiator
2. Emphasis on behavior al change, not only on increasing awareness or changing attitudes.

3. Usage of integrated approaches to provide education/information to the target population or the entire community.
4. Involvement of target-audiences (population), rather than relying on intuition or expert opinion in the process.
5. Attempt to cover a diverse population including minority groups as well as the less privileged population.

As Social Marketing lacks a consistent theory, its approaches are based on a variety of different theories and models including health, advertising, social science research, evaluation skills etc. Most of the multidisciplinary health education approaches use modern behavioral theory to promote healthy behavior. For example, one element in cancer prevention Social Marketing can be to work with food companies to reduce the fat and increase the fiber in their product, another element of the program can be to educate the population on the adoption of healthy eating behaviors (Kaplan et al., 1993). Similarly, one element in Heart Care Social Marketing can be the development and distribution of printed material, where another element can be to develop community coalition to identify safer areas, where individuals can exercise. and So on there may be other such types of elements in the program (Lefebvre and Rochlin, 1997). All These elements provide health education collectively focused towards behavior change of the target population and these multidisciplinary approaches are combined to formulate a complete health education package.

2.3 COMPONENT OF SOCIAL MARKETING:

The American Marketing Association has defined marketing as "the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchange that satisfy individual and organizational objectives" (Burn et al., 1997). Social Marketers acknowledge the same four components for a Social Marketing program (Dignan and Carr, 1992). These are product, price, place and promotion, also known as the marketing mix. Further, these four components have been expanded to seven Ps (Kotler and Roberto, 1989, Fine, 1990), which are producer, purchaser, and probing. The Social Marketers tend to cover these components while designing Social Marketing approaches. These seven Ps are discussed in brief as follows:

2.3.1 Product:

The product is the offer or any services provided by the producer to the target population. In a public health Social Marketing Program, the product can be of two types: intangible and tangible. Intangible products are any ideas or messages, which are designed as per the need and preferences of the target population and delivered to them through different possible approaches (Green and Kreuter, 1991, Fine, 1990). These are the main products of any Social Marketing approaches. Tangible products are the complementary products. These products are used to support the intangible products (idea). For example, Oral Rehydration Salt, in a Oral Rehydration Therapy promotion campaign is one of the tangible products of the intervention program, offered to enhance the idea of using Oral Rehydration Therapy during diarrhea.

Social products are more complex, some times conflicting (such as: providing family planning education in such a community, where the religion is against contraception) and even legislature (such as putting legislation for the usage of helmet among motorcycle riders). Health psychologists argue that legislative or persuading products are less effective and even impossible in many cases, because they lack personal choices as well as internalization (Kaplan et al., 1993). Therefore, a Social Marketing product should be acceptable and related with the internalization of the target population rather than being persuasive (legislature).

2.3.2 Price:

Price is the cost the target population has to bear to receive a Social Marketing product. Price in Social Marketing can be monetary and non-monetary. The Monetary price is the cost related to the tangible product, such as the price of Oral Rehydration Salt packets in an Oral Rehydration Therapy Social Marketing program and the price of condoms in a contraceptive Social Marketing Program. The Non monetary cost is the indirect cost, such as: time, effort and stress to achieve the proposed social product. For example, a mother may have to walk some kilometers from her house to a health facility, where she can inoculate her child against preventable diseases. To get this service (social product), she has to spend additional time, effort (such as walking the distance as well as other stresses (such as: waiting in a queue, the stress, that the child may cry during inoculation or get fever afterwards as well as the tension of the rest of the children left at home etc). Therefore, Social Marketers perceive the level of non-monetary cost and tend to minimize it as much as possible.

2.3.3 Place:

The Place is the means by which a social product is delivered to the target population. The Place is the channel of distribution. The place in a Social Marketing program should be within the reach of the target population as much as possible. The place plays a vital role for the success of any Social Marketing Program. If the place is not easily accessible including the distribution hour, the target population may not be able to utilize the offered product as much as expected. The place in a Social Marketing intervention Program can be in government facilities (such as: hospitals, health centers) or even in commercial outlets (such as: supermarket, pharmacy, grocery shops etc.), but, it should be more convenient in terms of accessibility, service hours etc.

2.3.4 Promotion :

Promotion or advertising is the vital component of a Social Marketing program. Promotion is the means through which a social product is promoted towards the target population. Social Marketers identify and utilize most of the possible channels to promote their product. Different channels (usually mass media and interpersonal channels) are used to promote Social Marketing products. Interpersonal channels, such as: face-to-face education are more effective channels to provide health education, because, they are two way communication and allow for repetition too. But interpersonal communication can also be a difficult medium to provide health education in a large population as well as to maintain good quality control and repetition since

the quality of this type of communication varies on the ability of the particular communicator.

Similarly, mass media is another important channel to promote a social product. Mass media can be a useful method to provide education in a short period among a large population, but this channel may not be equally useful to every target population. As the level of understanding differs from person to person and some people may need a lot of repetition to understand the message. In such a condition, mass media can not be as effective as much as expected. A successful Social Marketing should utilize the combination of both face- to- face education and mass media channels of communication.

2.3.5 Producer :

The Producer is the concept initiator or the source of the promotional message of a Social Marketing Program. A producer in a Social Marketing Program can be a government organization as well as other public and nonprofit organizations. The producer of a Social Marketing puts the emphasis on the benefits to the target population and objectives initiated by the project, rather than the in own profit. According to Fine, 1990, "a concept makes more sense to the audience when it is promulgated by a reliable and dependable person or organization". Thus, a doctor can be a more reliable evidence (or a producer) than an other person, if providing education in support of immunization or breast- feeding.

2.3.6 Purchaser :

The purchaser of a Social Marketing Program are those who receive the offered idea or education (based on the needs and preferences). In Social Marketing terminology, the purchaser is also known as the target audience, target population or the target consumer. The purchaser in a Social Marketing can be large in number, even with heterogeneous characteristics, which are segmented into possible homogeneous characteristics. Contrary to other conventional health education approaches, a Social Marketing program may deal with more than one type of purchaser. The Indonesian Nutrition Education and Behavior Change Program identified seven target audiences (Purchaser), such as: pregnant women, lactating women, mothers of infants from birth to four months, mothers of infants from five to eight months, mothers of infants from 9 to 24 months, mothers of children with diarrhea, all mothers of under 5 years age children (Manoff, 1985). Similarly, the National Breast Feeding Program in Brazil (1970) identified ten target audiences including pregnant and nursing mothers (Cunha, 1990).

2.3.7 Probing:

Probing is also known as marketing research. Probing is done to identify the target consumers to divide them into homogeneous characteristics according to their needs, preferences and purchasing capacity. Market research is indispensable for planning and developing an educational message and identifying delivery channels of the Social Marketing program. Market researchers use a variety of social research techniques to design the message and develop communication channels (Manoff, 1985,

Cunha, 1990). In addition, marketing research helps to answer managerial questions related to controlling and monitoring systems of the intervention program (Kotler and Roberto, 1989, Israel et al., 1987).

Both qualitative and quantitative research methods can be used for probing. Qualitative research explores the needs of the target population and their acceptability (preferences) towards the proposed message, materials or services. Similarly, quantitative research techniques are used to profile the epidemiological numbers and trends, health related knowledge, attitudes and practices in pre-test, post-test score in quantifiable form. Focus group discussion, structured interviews, written surveys, behavioral observations, and key informant interview are some of the commonly used research techniques in Social Marketing probing.

However, not all Social Marketer agree with only the above seven components for a complete Social Marketing Program. Lefebvre and Flora (1988) developed eight specific components for a Social Marketing Program, which are considered to be one of the complete components required for Social Marketing intervention by many health planners/ educators. These eight components are described in brief as follows:

a. Consumer Orientation:

Social Marketing is a consumer oriented approach. It deals with the need and wants (preferences) of the target population. It also deals with consumer research in the formulation of concept and message design. Intuition and even experts opinion are not relied in many situations, because, they have little regard for consumer satisfaction.

b. Voluntary Exchanges:

Social Marketing strategies are developed on the assumption of voluntary exchanges of some resources (monetary as well as non-monetary costs) for the product or service between the producer (program initiator) and the purchasers (target population) of the proposed intervention program. The exchange should be win versus win to both the producers and the purchasers.

c. Audience Analysis and Segmentation:

Audience segmentation is the process of dividing large heterogeneous audiences into smaller and homogenous audiences. Audience segmentation is done by qualitative research methods. Segmentation is done into geographic (such as: nations, states, regions, cities, Villages etc.), demographic (such as: age, sex, family size, income, occupation and education etc.), psychographic (such as: conducting research on the life styles of disadvantages population) as well as behavioral (such as: knowledge, attitude, use to product etc.) segmentation variables.

d. Formative Research:

Formative research in a Social Marketing Program is done to test the designed message and materials. Formative research has the special roles in the Social Marketing intervention programs, because the message and materials are prepared and pre-tested several times among the target population and corrected as per the findings of the research, before it's duly presented.

e. Analysis of Distribution and Communication Channels:

Various channels related to time, place and situation are analyzed and determined where most of the target population can attend or respond to the offered product or services.

f. Marketing Mix:

Social Marketing often deals with the process of identifying the product, price, place and promotion characteristics including the planning and implementation. Marketing mix are carefully analyzed so that the proposed Social Marketing products can be responded to by a maximum target population with the best result.

g. Process Tracking System:

Each Social Marketing strategies are dealt with by a process tracking system in order to control (monitor and supervise) the program so that the ongoing activities of the intervention program could be identified in an advance and correction can be made in time.

h. Management:

The development of the managerial aspects for problem analysis, planning, implementation and feedback functions. The management process is dealt with to ensure the program timeliness, access towards the targeted audiences as well as meeting the project objectives. These Social Marketing concepts including five basic

components developed by Lefebvre and Flora, in 1988 are shown on the following table 2.1

Table 2.1 Social Marketing Concepts

Concept	Definition	Application
Consumer orientation	Focus of research, planning, implementation, and evaluation is consumer driven.	Use research methods to understand consumer reality, pretest materials with members of target group; use citizen advisory panels.
Audience segmentation	Differentiation of large groups of people into smaller, more homogeneous subgroups.	Determine behavior, motivational, cultural, and other variables that may affect the communication strategy and create specific target groups who share the same qualities and are distinct from other subgroups who share other attributes.
Channel analysis	Determination of the appropriate methods to reach target audience members where and when they are most likely to attend to and respond to the message.	Determine those places, times, and states of mind when the target audience may have the predisposition to be thinking about the subject area.
Strategy	Overarching concept(s) that focus program planning on achieving the stated objectives.	After determining the objective (s), create broad areas of program impact that can be refined by selecting related tactics.
Process tracking	Mechanisms established to monitor program implementation	Determine if program is implemented as planned; feedback results to redirect, refine, or revise implementation.

Source: Adopted from Lefebvre and Rochlin (1997). *Social Marketing Health Behavior and Health Education (Theory, research and practice)*. second edition. Jossey-Bass Publishers. p. 388.

2.4 ORAL REHYDRATION AND CONTINUED FEEDING:

Death from acute diarrhea is most often caused by loss of water and electrolytes (chemicals that are in balance in the body such as Sodium) causing circulatory collapses. This stage of loss is called dehydration. Dehydration is the main cause of death in acute diarrhea. An estimated 60-70% of diarrhoeal deaths are associated with dehydration only (WHO/UNICEF, 1985), which can be prevented by adequate fluid therapy (Vesikari and Torun, 1994). Therefore, prevention of dehydration is the primary therapy of Diarrhea Diseases particularly among children [Pickering et al., 1995, Guetierrez et al., 1996, Tulloch and Richards. 1993].

One of the most important medical discovery of this century is Oral Rehydration Therapy, which deals with the principles of the replacement of body water and sodium during diarrhea (Lancet, 1978). The Physiology of Oral Rehydration is that the water is absorbed from the intestine together with sodium and this absorption can be increased with sugar, starch, amino-acids etc. Therefore, sodium and sugar (such as: Glucose) are the basic ingredients of Oral rehydration fluid. Starch (such as: rice powder) are another alternatives of sugar. Oral Rehydration Therapy can be provided in two forms: home fluids and prepackaged Oral Rehydration Salt (ORS).

In severe diarrhea, additional replacement of potassium and sodium bicarbonate is necessary. Oral Rehydration Salt solution is recommended by WHO/UNICEF to contain all necessary ingredients including potassium and sodium bicarbonate (please refer appendix- 1 for the composition of WHO/UNICEF

recommended ORS). At least 90-95% of dehydration can be corrected and prevented by Oral Rehydration Therapy including Oral Rehydration Salt (Martines et al., 1993). Several modifications of Oral Rehydration Salt have been attempted during past years. Rice based (which contain cooked rice powder instead of glucose powder) or cereal based Oral Rehydration Salt are also found to be equally effective as glucose based Oral Rehydration Salt (Fayad et al., 1993, Greenough, 1995). But the large size of package, jelly- like consistency and relatively short life are some of the drawbacks of rice based/cereal based Oral Rehydration Salt (Vesikari and Torun, 1994).

In the last decades, ORS was widely recommended as a single remedy of Diarrhoeal Diseases, but in recent years the principles of ORT have been converged. Different biomedical researches concluded that all diarrhoeal cases do not need Oral Rehydration Salt, because, very few of diarrhea cases (less than 10%) become clinically dehydrated requiring Oral Rehydration Salt solution (Tulloch and Richards, 1993). The rest diarrhoeal disease cases can be easily managed by CDDP recommended home fluids (such as: water, fresh fruit juices, soups, gruel etc.), which is equally effective as Oral Rehydration Salt solution for the prevention of dehydration. But, if dehydration develops, Oral Rehydration Salt has to be used since it is the single ideal remedy for the correction of dehydration.

Another main cause of death by diarrhea is undernutrition. Diarrhea can cause undernutrition and can make existing undernutrition worse, which is often caused by loss of body nutrients during diarrhea, as well as loss of appetite resulting in the refusal of food. In addition, the mother may not feed her child in the fear that foods may be

harder to digest in such a condition, where continuation of nutritious food along with ORT fluids is necessary to prevent undernutrition (Vesikari and Torun, 1994, Fayad et al., 1993). The recommended foods include cereal and locally available beans, meat or fish added oil to make them richer in energy. Similarly, dairy products, eggs, yellow vegetables (such as: pumpkins, carrot, sweet potatoes) dark green leafy vegetables (such as: mango, papaya) are also recommended during diarrhea. The breast-feeding should be continued, even increased, if the child is breast fed (Yoon et al., 1996). The goal of effective case management of Diarrhoeal Diseases at household level is that every children with diarrhea, should receive an increased amount of recommended home fluids along with nutritious foods and the children with dehydration should be treated with Oral Rehydration Salt. In addition, children with signs of dehydration and other complications (such as: fever, blood in stool, diarrhea with vomiting etc.) should be referred to health personnel as soon as possible. (Please refer appendix 2, 3, and 4 respectively for the details of home fluids and foods as well as seeking medical help during diarrhea, if the children is not getting better).

2.5 PROBLEM STATEMENT:

For the last decades, Diarrhoeal Diseases are continued to be one of the main causes of morbidity and mortality among children under 5 years of age in developing countries. In 1980, WHO estimated that five million children of this age group die every 10 minutes as a consequence of this disease resulting 1000 million episodes in the developing countries of Asia (excluding China), Africa and Latin America, among 338 million children of under 5 years of age (WHO, 1985). Another ten year study on the global problem of diarrhea also revealed that approximately 1000 million episodes

and 3.3 million death (range 1.5-5.1 million) are occurring each year among children under five years of age due to Diarrhoeal Diseases (Bern et al., 1992).

Recognizing the continuing public health importance of diarrhea, WHO established the Diarrhoeal Diseases Control Program (CDDP) in 1978, which has been fully operational since 1980. Since the establishment of CDDP, WHO is conducting a series of surveys to measure diarrhoeal morbidity and mortality rates using a consistent methodology. The results of 276 surveys (conducted in 60 countries between 1981 to 1986) estimated that one child under 5 years of age in developing countries suffer 3.5 episodes of diarrhea per year. The same survey estimated that 6.5 children of all regions per year (range 10.6 to 3.2) die of this disease excluding the Americas, China and other countries in Western Pacific region (Martines et al., 1993). The following tables 2.2 and 2.3 show the morbidity and mortality of Diarrhoeal Diseases in 276 surveys among children aged 4 years and younger using the WHO/CDD methodology (1981 to 1986):

Table 2.2 Diarrhoeal Diseases Morbidity in 276 Surveys in Children Aged 4 Years and Younger Using the WHO/CDD Methodology, 1981-86.

Region	Surveys	Countries	Annual Incidence (episodes/child/ year)
Latin America and the Caribbean	12	8	4.9
Sub-Saharan Africa	67	22	4.4
Middle East and North Africa	47	10	2.7
Asia and the Pacific	150	20	2.6
India	-	1	2.7
China	-	1	1.2
Other	-	1	2.6
All regions	276	60	3.5

Source: Modified from Martines et al. (1993). *Diarrhoeal Diseases. Disease Control Priorities in developing countries*. Oxford Medical Publication.

Table 2.3 Diarrhoeal Diseases Mortality in 276 Surveys in Children Aged 4 years and Younger using WHO/CDD Methodology, 1981-86.

Region	Surveys	Countries	Diarrhoeal Mortality Rate, death/1000 children /year
Latin America and the Caribbean	12	8	4.2
Sub-Saharan Africa	67	22	10.6
Middle East and North Africa	47	10	5.8
Asia and the Pacific	150	20	3.2
India	-	1	3.2
China	-	1	0.0
Other	-	18	3.3
All Regions	276	60	6.5

Source: Modified from Martines et al. (1993). *Diarrhoeal Diseases. Disease control priorities in developing countries*. Oxford Medical publication.

Diarrhea is still a major global public health problem, especially in developing countries. About 2.9 million of children died in 1994, because of this disease, which was ranked second among the five major causes of death, after pneumonia in the developing countries (UNICEF, 1994). Still 8000 children in the world, particularly in developing countries, die every day, because of diarrhea associated dehydration (UNICEF 1996).

Diarrhoeal Diseases among children under five years of age, cause a heavy economic burden society. It hampers working days of parents as well as the significant loss of study of the victim (if the victim is a school child). In many developing

countries as much as 30% of beds in children hospital are occupied by Diarrhoeal Diseases (WHO, 1988). As a consequence, the disease places a heavy burden on health facilities and national health budgets. It may affect the structure of society as the people may give birth to more child rather than the real need because of the fear of losing their child by this disease (NCDDP, 2052).

2.6 DIARRHOEAL DISEASES PROBLEM IN NEPAL:

Diarrhoeal Diseases are considered to cause over one third of all childhood deaths in the country. The first National Diarrhoeal Diseases Survey (1985) of the country indicated that an estimated 44,000 children of under five years of age die annually because of this disease. The same survey estimated that 44% of children under five deaths were caused by diarrhea with 31% two weeks period prevalence rate during the peak season May and June. The number of diarrhoeal episodes was 6.2 times per child per year. The second survey was carried out in 1990, which showed some decreased number of episodes (3.3 episodes per children per year).

According to National Medical Indicator Surveillance (NMIS), 1996, the prevalence of diarrhoea at the National level among the children aged 0 to 36 months is 15% and the diarrhoeal attacks lasted at least a week in 17% of cases. To the date the disease is still a great public health problem among small children. The Annual report, 1994/95, of the Ministry of Health, Department of Health Services revealed that diarrhea was the highest cause of mortality and morbidity among children under 5 years of age group. According to the report 4,33,160 diarrhoeal cases were reported among this age group with 1279 deaths in the year 1994/95. The following table 2. 4 show the

morbidity and mortality of this disease among the children under 5 years of age in the year 1994/95.

Table 2.4 Morbidity and Mortality Rates of Diarrhoeal Diseases among the children of under 5 years age in the year 1994/95.

Regions	Target Population	Total Diarrhoeal Visits	Morbidity Rate/1000	Mortality Per 1000 Visits	Total Diarrhoeal Deaths	Case Fatality Rate (%)
Eastern Development Region	688,817	116,171	168	0.8	545	0.46%
Central Development Region	965,486	143,048	148	0.3	319	0.22%
Western Development Region	617,661	100,180	162	0.3	180	0.17%
Mid Western Development Region	433,947	42,812	98	0.18	81	0.18%
Far-Western Development Region	321,538	30,949	96	0.47	154	0.49%
National	3,027,449	433,160	143	0.42	1279	0.29%

Source: Modified from National Control of Diarrhoeal Diseases Program (NCDDP). *Annual Report of Department of Health Services (1994/95)*. HMG/Ministry of Health, Nepal.

According to the table the number of diarrhoeal visits were high in the eastern development region (EDR) and central development region (CDR) compared with the mid-western development region (MWDR) and far-western development region (FWDR). (Please Refer Appendix 5 for the details of regions). Similarly, the mortality rate was higher in FWDR and MWDR. At the same time the case fatality rate was

found to be higher in FWDR and EDR compared with WDR and MWDR. The following Table 2.5 reveals the situation of Diarrhoeal Diseases dehydration and its treatment in the country in the year 1994/95.

Table 2.5 Classification of Reported Diarrhoeal Diseases Dehydration and Treatment Schedule of this Disease in the Country in the Year 1994/95.

Regions	Total Diarrhoeal Visits	Dehydration				Treatment			
		Some		Severe		Treated by ORS		Treated by Fluids	
		Visits	(%)	Visits	(%)	Visits	(%)	Visits	(%)
Eastern Development Region	116171	90,104	77.6	12,360	10.6	102218	88.01	10,193	8.8
Central Development Region	142048	114045	80.8	15,356	10.7	120164	84.01	10,657	7.5
Western Development Region	100180	77,189	77.1	10,311	10.3	86,675	86.5	7675	7.6
Mid Western Development Region	42,812	35,224	82.3	4945	11.6	36,932	86.3	3,593	8.4
Far-Western Development Region	30949	23689	76.5	3721	12.0	25542	82.5	2628	8.5
National	433160	340260	78.6	46,693	10.8	371831	85.8	34,746	8.0

Source: Adopted from National Control of Diarrhoeal Disease Program (NCDDP), *Annual Report of Department of Health Services (1995)*. HMG/Ministry of Health, Nepal. P. 34.

According to Table 2.5, the percentage of severe dehydrated cases of diarrhea is higher in MWDR and FWDR. 78% of reported diarrhoeal cases were mild and 11% were severely dehydrated. The same table shows that Oral Rehydration Salt is widely accepted and used (86%) for the treatment of diarrhea and the national average requirement of intravenous fluids is 8%.

Service statistics from the Department of Health Services show that visits to health facilities for the treatment of diarrhea is high from mid April to mid August (Annual report, 1994/1995). Although, the disease is common even outside the expected summer peak suggesting that diarrhoeal episodes are common throughout the year. In spite of the decreased number of diarrhea episodes, the Gastroenteritis epidemics are increasing, particularly during the premonsoon and Monsoon seasons since 1990 (Children and Women of Nepal, 1996).

2.7 DIARRHOEAL DISEASES AND DIARRHOEA:

The term Diarrhoeal Diseases refers to a group of diseases in which the main symptom is diarrhea. Diarrhea is a complex of symptoms and signs, usually defined as passing of increased number of stools of liquid or semi liquid consistency. WHO has defined diarrhea as "passing loose stools three or more times within 24 hours after the age of three months". Cases of diarrhea are categorized as acute and chronic. Passing loose or watery stools three or more times within 24 hours is called acute diarrhea. WHO/ UNICEF have defined acute diarrhea as "an attack of sudden onset, usually caused by infection in bowel, which usually lasts 3-7 days and even up to 10-14 days". Acute diarrhea is further categorized as watery diarrhea and dysentery.

Watery diarrhea accounts for most diarrhoeal deaths, where dehydration is the main cause of the death. Dysentery is characterized by the presence of blood and mucus in the stool. Deaths due to dysentery are caused by fever and other associated complications (mainly associated with undernutrition), rather than by dehydration. Passing three or more loose or watery stools within 24 hours and lasting three weeks or even more may be called chronic diarrhea. Chronic diarrhea is usually associated with mal absorption and malnutrition.

In developing countries, diarrhea is almost universally infectious in origin. A number of viruses, bacteria and other organisms cause acute diarrhea, which is the main cause of mortality associated with Diarrhoeal Diseases. Viruses (specifically Rotavirus), Bacteria (*E. Coli*, *Shigella*, *Campylobacter Jejuni*, *Vibrio Cholera*, *Salmonella*- non- typhoid) and Protozoa (*Giardia Lamblia*, *E. Histolytica*) are the main agents of acute diarrhea among infants and younger children in Nepal (NCDDP, 1996). The main pathogens associated with acute diarrhea among children of the developing countries is shown Appendix 6.

Diarrhea is most common between 6 months and 2 years of age. The risk of diarrhoeal morbidity and mortality is greater among infants who are not breast-fed or who are of low birth weight (Martines et al., 1993). Similarly, it is more common to people with malnutrition. Malnutrition leads to infection and infection to diarrhea, which is a well known vicious cycle. Diarrhea may also be associated with infections outside the intestinal tract such as: Malaria, Measles, Respiratory Infections and Acquired Immuno Deficiency Syndrome (Martines et al., 1993). Poverty, pre-maturity,

reduced gastric acidity, Immuno deficiency, lack of personal and domestic hygiene and in correct feeding practices are contributory factors to diarrhea. Most of the pathogenic organisms are transmitted by faecal-oral routes, which may be waterborne, food borne or direct transmission such as: via fingers, or fomites (non-animated contaminating agents like, toys, spoon, towel etc.), or dirt which may be ingested by the children.

2.8 CONTROL OF DIARRHOEAL DISEASES PROGRAM:

WHO initiated the Diarrhoeal Diseases Control Program (CDDP) in 1980. Since then several measures have been advocated and a lot of studies have been performed into the cause and management of diarrhea. After the establishment of CDDP, WHO and UNICEF have been conducting different medical and operational research on the cause of Diarrhoeal Diseases as well as on the development of Oral Rehydration Therapy.

The National Control of Diarrhoeal Disease Program (NCDDP) in Nepal was launched in November 1982. The main objective of the program was to reduce the morbidity and mortality of Diarrhoeal Diseases in children under five years of age. According to the new health policy (1991), NCDDP has come under the Control of Diarrhoeal Diseases (CDD) section. The main responsibility of the CDD section is to formulate, implement, monitor and supervise the NCDDP, which is functional in all districts of the country, and to find out the budget from the government and other donor agencies, such as UNICEF, WHO etc. Similarly, to co-ordinate different divisions for the epidemic control of Diarrhoeal Diseases is also another responsibility of the CDD section.

2.9 GOVERNMENT POLICY ON DIARRHOEAL DISEASES CONTROL PROGRAM:

The government has adopted long-term and short-term objectives (developed by WHO/CDDP) for the control and treatment of Diarrhoeal Diseases. Reduction of the mortality associated with Diarrhoeal Diseases is the short-term objective, where the reduction of morbidity is the long term objective. The global goals, present situation, intermediate goals and goals of National Control of Diarrhoeal Disease Program by the year 2000 AD are shown in the following Table 2.6.

Table 2.6 The Global Goals, Present Situation, Intermediate Goals and NCDDP Goals by the year 2000 AD.

Global Goals for 2000	1990 Situation in Nepal	Intermediate Goals		NCDDP goal for 2000 AD
		1996	1998	
1. Diarrhea related deaths in children under 5 years old children to be decreased by 50%	45,000 deaths per year	15% i.e. (8000) deaths to be prevented	35% i.e. (15000) deaths to be prevented	Reduction by 55% i.e. (24000) deaths to be prevented
2. Knowledge about Diarrhoeal Diseases Control and the correct use of Oral Rehydration Therapy	65% knowledge 2% correct use	90% 25%	90% 50%	100% knowledge 65% correct use

Source: Modified from *Master Plan of Operations (1992-1996)*. HMG/Nepal and the UNICEF.

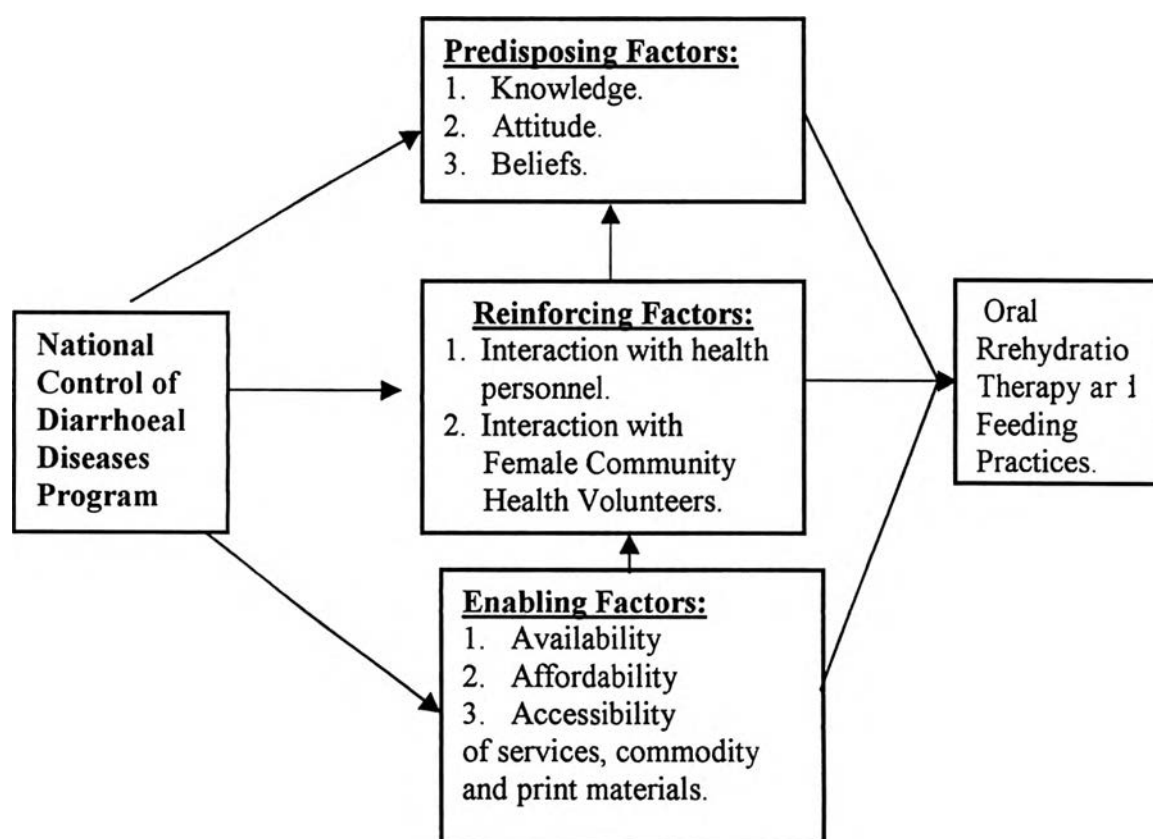
The primary strategy of NCDDP is to improve the diarrhea case management to reduce the mortality associated with Diarrhoeal Diseases at household level, which includes the usage of recommended home fluids (such as rice gruel, bean soup and vegetable soup with some salt) and continued feeding during and after Diarrhoeal Diseases. For this, NCDDP has developed a standard chart under the guidance of WHO/CDDP. (Please Refer to Appendix 2 and 3 for the details of Oral Rehydration and the feeding chart developed by NCDDP).

2.10 ANALYZING PRECEDE-PROCEED MODEL:

A study for the low usage of Oral Rehydration Therapy and continued feeding practices in the country has not been undertaken yet. Hence, we do not know the actual reason for this problem situation. Therefore, Precede-Proceed model has been analyzed to identify the possible reasons. This model provides a format for diagnosing different factors related to health problem, behaviors and program implementation (Dignan and Carr, 1992, Green and Kreuter, 1991). Precede-Proceed model was developed by Green and Kreuter, which is widely used in many health education interventions in conducting a thorough education of all factors that may be involved in planning a community wide health problem. "Precede" describes behavior (individual and collective) through predisposing, reinforcing, and enabling factors, thus, the same three factors have been analyzed to identify the possible reasons for low usage. "Proceed" part is concerned with administrative diagnosis, such as implementation and evaluation (Please refer to Appendix 7 for Precede-Proceed model).

The Precede-Proceed model is not a separate behavioral theory. The whole model is a nine phase process, which concludes that health behavior is not simple, but, multidimensional and influenced by a variety of factors (Gielen and Donald, 1997, Dignan and Carr, 1992). Similarly, both individual and environmental factors influence health and health behavior, because, human behavior (including life styles) and environment are interrelated to each other. The details of factors and their casual relationship are shown on figure 2.1 These factors are discussed in brief as below:

Figure 2.1 The Casual Relationship of Different Factors Affecting the Usage of Oral Rehydration Therapy and feeding Practices during Diarrhoeal Diseases.



Source: Modified from Green and Kreuter (1991). *An Educational and Environmental Approach. Health Promotion Planning*. Mayfield Publishing Company.

2.10.1 Predisposing factors:

Predisposing factors are those psychological antecedents, which provide the rationale for a certain behavior. In another words, predisposing factors motivate an individual or group to take an action. Predisposing factors include the cognitive and effective dimensions of knowing, feeling, valuing and having selfconfidence or a sense of efficacy. Knowledge, attitudes, beliefs, values, cultural modes and folkways are some of the examples of predisposing factors. Demographic factors such as: age, gender, family size including socioeconomic status: education, income, occupation etc. are also the predisposing determinants of behavior, but they will not be included in this study, because these factors are not easily and directly influenced by a health promotion program. However, predisposing factors, such as: knowledge and belief of the target population will be analyzed below based on the available documents.

2.10.1.1 Knowledge:

knowledge is an essential factor to decide individually or collectively to use or not use certain practices. Knowledge brings positive association towards the changes. Therefore, it can be hoped that if there is an increase in knowledge, there will be the possibility of increment in practices.

Knowledge of ORT usage in the country is on an increasing trend. According to National Diarrhoeal Diseases Survey (1985), 35.8% of mothers had the knowledge of Oral Rehydration Salt. However the attempt in this survey was focused on identifying the knowledge of Oral Rehydration Salt only (not on increased fluids and

feeding). Similarly, another National Diarrhoeal Diseases Survey carried out after five years in 1990 revealed that 65.4% of caretakers had the knowledge of Oral Rehydration Salt. This survey also dealt with the knowledge of Oral Rehydration Salt only. The recent Survey, Nepal Family Health Survey, 1996 (NFH Survey), gave a glimpse that the knowledge of Oral Rehydration Salt among the mothers of children under 5 years of age is above 95%, but their knowledge on increased fluids and foods during Diarrhoeal Diseases is 31% and 69% only.

2.10.1.2 Beliefs:

As in many parts of the world there are different beliefs among different cultures and places in the country regarding the causes and treatment of diarrhea. These beliefs also play an important role for the usage of fluids and foods during Diarrhoeal Diseases. Many caretakers still consider Diarrhoeal Diseases as a normal part of the children's life during milk teething. In such a perceived case the disease is not considered as a health problem, therefore, not treated by any means unless the child gets serious episodes. In many cultures, particularly in rural areas of the country, the disease is still associated with witchcraft and evil eyes. In such a condition, mothers go to the traditional healers for treating the child by power rather than providing fluids and foods. The medical advice is not taken unless the child gets worse.

2.10.2 Reinforcing Factors:

Reinforcing factors are those antecedents, which determine whether the actor receives positive (or negative) feedback and support for a behavior including its repetition. Reinforcement may come from an individual or a group, from people or

institutions in the immediate environment or from society. For example, in a smoking cessation program, an actor can get reinforcement in the form of social support from peers, spouse, health providers. Thus, reinforcing factors include social support, peer influences, advice and feedback by health care providers for the continuation or discontinuation of a behavior. Social recognition, physical support, tangible rewards (such as: financial costs), intangible rewards (such as: self respects, admiration) etc. are also some of the reinforcing factors that affect behavior. Similarly, negative reinforcement against some adverse behavior also effects the continuation of behavior, and thus falls on the side of reinforcement factors.

In Nepal, the decision making of a woman mostly depends on the view of the husband. Usually, a woman cannot decide without the consent of her husband. Similarly, elder people (such as: mother-in-law, father-in-law), peers and friends, neighbors, formal and informal leaders of the community can have an influence on the decision making of a woman. Thus, it is necessary that they also should have proper knowledge about the importance of ORT and feeding practices. Unfortunately, the reviewed documents do not show the actual situation of these people in terms of ORT and feeding practices. Still, it can be assumed that these peoples will not have sufficient knowledge in a country like Nepal, where illiteracy and ignorance prevails.

According to the government policy, CDD services are provided by health workers at health facility and by female community health volunteers (FCHVs) at community level. Both of them play an important role to provide reinforcement of the target population in the form of support and advice for the usage of Oral Rehydration

Therapy and feeding followed by its repetition. Their activities will be described in brief as following:

2.10.2.1 Interaction with Health Workers:

According to the government policy, there will be one Oral Rehydration Therapy corner/center in each health facilities up to district level, where all diarrhoeal cases will be treated according to the treatment chart developed by WHO/CDDP. In principle the health workers will teach the mothers (while treating the child in the treatment center) about the case management of diarrhea at household level, such as: when and how to use home fluids and foods, when to start Oral Rehydration Salt, How to prepare Oral Rehydration Salt solution, when to seek medical help etc. and check the understanding of the care takers as well as to repeat if necessary. In addition, they will ask the mothers different questions related to the management of the diarrhea and encourage her to practice as per this acquired knowledge. However, in practice the level of educating the mothers by the health people is not as satisfactory as expected by NCDDP. Either the information is less informative or not provided at all (Health Facility Survey, 1994). The health persons think that health education should be provided by others (probably by female community health volunteers) at community level rather by themselves (Health Facility Survey, 1994).

2.10.2.2 Interaction with Community Health Volunteers:

Another health care provider of CDD services are Female Community Health Volunteers (FCHVs). FCHVs are trained women and exposed to promote the utilization of available health services in the community level. They convey the basic knowledge on first-aid, family planning and maternal child health services in their community, including prevention and case management of Diarrhoeal Diseases at household level (which comprises the provision of increased fluids and foods and contacting health personal in need). They are the key people to link the gap between the community and health facilities. For CDD activities, they are provided 10 packets of Oral Rehydration Salt at once from the respective health facility and expected to provide it to the needy cases. They are also expected to provide face-to-face education on the cause, prevention and case management of diarrhea including the usage of Oral Rehydration Therapy and feeding. They are asked to maintain a regular stock of Oral Rehydration Salt with them and to provide it in the community whenever needed. Usually, they visit their respective health facility every six months and collect Oral Rehydration Salt and other commodities, which are distributed among the needy community people.

Performance of FCHVs for CDD activities is satisfactory and should be continued (Ware, 1996, Lamichhane and Dawson, 1994). However, inadequate supervision of FCHVs at community level has been considered as one of the main constraints of the program (Dawson, 1996, FCHV Program, 1994/95) resulting in falter among the FCHV (Paudel, Marahatta, 1997).

2.10.3 Enabling Factors:

Enabling factors often deal with the environment. These factors attribute the action of any individual or organization including the availability, accessibility and affordability of health care and community resources needed to perform a behavior. Enabling factors also include new skills that a person, organization or community needs to carry out a behavioral or environmental change.

Green and Kreuter (1991) have distinguished enabling factors between health care environment and other environmental influences. Health care environments include health care resources, such as: outreach clinic, hospitals, health personnel etc that affect the availability and accessibility of the health care services. Similarly, cost, distance, service hour, transportation-facility also affects the availability and accessibility of health care services. On the other hand, negative environmental conditions such as: availability, affordability and accessibility of unhealthy products can influence adverse health behavior. For example, the availability and easy accessibility of cigarette, alcoholic beverages, too salty and fatty diets etc. also can encourage the people to practice unhealthy behavior. Some of the identified enabling factors will be described in brief as follows:

2.10.3.1 Accessibility of Media:

Health information, education and communication (IEC) are basic components for the successful implementation of health education program. IEC are intended to

provide different information relating to the health problem and encourage the people to adopt healthy behavior for the prevention and control of that health problem.

IEC materials are developed by the National Health Education Information Communication Center (NHEICC) in consultation with NCDDP. The common IEC materials for CDD services include printed materials, posters, pamphlets, flip charts, wall chart and booklets for mothers, which are distributed to the Village level health facilities. But, the programmers are not sure about the proper distribution and access of these materials in the community level to the targeted population (Khadka, 1997). A survey carried out by the Ministry of Health in 200 subhealth posts (the peripheral level health facility) also revealed that only 64% of the health facilities are found to have IEC materials (K.C., 1994)), which suggests that many health facilities may not have IEC materials in their stock.

On the other hand, the access of mass media including printed materials up to the target population is also not satisfactory. The messages related to CDD services are provided through Radio, Television and Newspapers, particularly during the peak Diarrhoeal season (mid April - mid August). The access and usage of this media in the rural and remote areas of the country is limited. The actual data on the usage of mass media by the caretakers related to CDD services is not available. However on the consultation of National Family Health Survey, 1996, the usage rate of Radio, Television and Newspapers by the women of reproductive age (which are the possible target population of this study) is unsatisfactory. According to the survey, 58.9% of Nepalese women of reproductive age (15-49 years) are not exposed to any of the

existing media. Only 5.3% of them read Newspapers and Magazines weekly, 12.3% watch Television and 36.4% listen Radio. Therefore, it can be concluded that we can not rely only on the existing channels of communication related to CDD services. It is necessary to modify the existing communication channels that have better access and usage among the target population.

2.10.3.2 Affordability of services:

According to Nepal Medical Indicator Surveillance, 1996, in most of the Diarrhoeal Diseases cases no paid treatment was sought. However, in 22% of urban and 11% of rural cases, treatment cost was about RS. 100 NC (US\$ 1.66). The most common form of ORT was Jeevan Jal (ORS packet) which was available at free of cost to the Village level health facilities. In the market, government subsidize price of Oral Rehydration Salt is available at NC RS. 3.00 (US\$ 0.05) per packet. Diarrhoeal Diseases survey conducted in 1990 indicated that the most common sources of Oral Rehydration Salt were government health worker (51%), where the Oral Rehydration Salt could be available freely, commercial (39%), Private sector (7%), friends and relatives (2%). The actual role of affordability of the target population, according to the available data is unknown.

2.10.3.3 Availability of Respective Commodity :

Government recommended fluids, nutritious foods and Oral Rehydration Salt are the commodities related to the case management of Diarrhoeal Diseases. Government recommended home fluids are rice gruel, bean soup, and vegetable soups

(with some salt). These commodities are available and culturally acceptable in most parts of the country. Similarly, calorie rich and nutritious foods (such as: cereals or other staples mixed with pulses or vegetables, meat, fish, eggs, dairy products etc) are recommended by the government during diarrhea and these things are also locally available, familiar and culturally acceptable in the most parts of the country. Since these things are already available, familiar and even acceptable, the main concern is to promote these things in order to improve its usage.

Another related commodity is prepackaged ORS recommended by WHO/UNICEF, which is available in all health facilities (up to district level) free of cost. In many rural parts of the country, government health facilities may be the single source of medicines including ORS. Thus, NCDDP and UNICEF (the donor agency) have given a special attention for the regular availability of Oral Rehydration Salt to the peripheral level health facilities. Nepal is a mountainous country and about 2/3rd of the total country land is covered by hill and mountains. Still, many parts of these regions are less accessible by transportation and communication means and the distribution of commodities including its regular availability is a problem in such an area (Children and Women of Nepal, 1992). Thus, reports have shown that there is a breakage in the stock of Oral Rehydration Salt in many health facilities due to different reasons including improper distribution system. (Health Facility Survey, 1994). NCDDP also accept that the distribution of Oral Rehydration Salt, particularly in rural areas of the country is a problem of the government (NCDDP, 1994). Therefore, it can be concluded that ORS may not be available all year round in many health facilities, particularly in remote rural areas of the country.

2.10.3.4 Accessibility of the Services:

The accessibility of the service also plays an important role to influence the use of ORT and feeding practices. It is assumed that if the services are accessible among the target population, they can increase the contact with health personnel resulting in an improvement on predisposing factors related to ORT and feeding practices. Accessibility is the expected time to reach the nearest health facility from the residence. Until recently, accessibility was considered to be one of the main problems for the low usage of services. Still, in many parts of the country, the people are supposed to walk 3-4 hours to reach the nearest health facility.

According to new health policy, 1991, NCDDP is part of primary health care services and there will be one health facility in each Village where services related to Diarrhoeal Diseases will be available free of cost. The Central Bureau of Statistics in 1996 indicated that 45% of the household are within travel of 30 minutes from a health post and the other 55% within half an hour to 3 hours. But, the establishment of sub-health posts and the provision of at least one type of health facility in each Village has minimized the problem of the inaccessibility in the country (Children and Women of Nepal, 1996). Similarly, Female Community Health Volunteers, which are the community people, are also one of the most important sources of CDD services and are supposed to be accessible in most of the communities. Therefore, it can be concluded that, if utilized properly FCHVs can decrease the problems of inaccessibility of CDD services.

2.11 PRIORITIZING THE FACTORS:

On analysis of the Precede- Proceed model, different factors show the relationship for a low usage of ORT and feeding practices. But, it is necessary to analyze these factors and to prioritize the most important one.

Predisposing factors need long term intervention for improvement. The existing predisposing factors, such as: lack of knowledge, existing beliefs cannot be solved within a short period. It needs a continuous effort. Apart from the above, predisposing factors are also influenced by other socioeconomic status, such as: education, occupation, income etc. Improvement of socioeconomic factors needs the strong commitment of the government. Thus, improvement of these factors is rather complex.

Reinforcing factors are usually social feedback and support towards a behavior change. For social feedback or support, the entire society should have proper knowledge about the importance of the proposed behavior change. It needs the alteration of existing social norms, beliefs, culture, traditions etc., which needs long term efforts. Hence, reinforcing factors tend to be more complex and diverse in origin, which are also difficult to change.

Enabling factors are considered as the barriers to change of the environmental systems of the community. The existing enabling factors like the low access of media, low access of health facility, and low availability of ORS are the products of the social

system. These systems are easy to change compared to other factors. Improvement of enabling factors (such as: availability, accessibility, affordability) have a direct relationship with behavior. In existing situations, it can be hypothesized that better access of media will promote healthy behavior among the target population and create its demand. Similarly, improvement on availability, accessibility and affordability of the services will create its own demand. In addition, enabling factors can also improve the predisposing or reinforcing factors indirectly. Thus, these factors are highly prioritized in the existing situation.

2.12 CONCLUSION:

Social Marketing can improve low usage of ORT and feeding practices in Nepal. The Precede-Proceed model suggests that health related behavior is multi-dimensional and influenced by a variety of factors (such as: predisposing, reinforcing and enabling), and thus, changing health behavior is not simple. It requires a variety of disciplines, such as: educating people, working with people in diverse disciplines, working with other organizations that may not be concerned with health improvement etc.

In a less developed and geographically diverse country like Nepal, where ORT and feeding practices are related to a variety of enabling factors (such as: less access to media and printed materials, low accessibility of health facilities and low availability of commodities), a single strategy intervention cannot be effective. Social Marketing deals with a variety of enabling approaches, such as: educating people, working with

different organization/disciplines etc. including commodity. Therefore, it can be concluded that Social Marketing can be an effective means to improve this problem situation (low usage of ORT and feeding practices), and thus, will be proposed in the following chapter.

REFERENCES

1. Bern, C., Martines, J., Zoysa, I. D., and Glass, R. I. (1992). The magnitude of the global problem of diarrhoeal diseases; a ten year update. *WHO Bulletin OMS, Vol. 70*. Geneva. pp. 705-71.
2. Burns, A. C. and Bush, R. F. (1997). Introduction to Marketing. *Marketing Research*. International Edition. Prentice Hall International Inc. Singapore. p.3.
3. Central Bureau of Statistics (1997). Access to facilities. *Nepal living standards Survey report, vol.1*. National Planning Commission, HMG, Nepal. pp. 41-47.
4. *Children and Women of Nepal,' A situation analysis (1996)*. National Planning Commission Secretariat HMG/ NEPAL, UNICEF. pp.1-51.
5. Cunha, G.D.,(1990). Marketing Third world social change. *Social marketing; Promoting the causes of public and non profit agencies*. Allyn and Bacon. pp.311-321.
6. *Diarrhoeal Diseases Household Case management Survey, Nepal (1990)*. Ministry of Health, Public Health Division, Diarrhoeal Diseases Control Program, HMG, WHO, Nepal. pp. 1-22.
7. Dignan, B. M., Carr P. A. (1992). Program planning; putting the parts together. *Program Planning for health Education and promotion*. Second edition. Lea & Febiger. pp. 81-83.
8. Fayad, I. M., Hashan, M., Duggan, C., Rafat, M., Bakir, M., Fontaine and Santosham M. (1993). Comparative efficacy of rice based and glucose based ORS plus early reintroduction of food. *The Lancet*. Vol.342, September 25, 1993. pp. 772-775.
9. Female Community Health Volunteer Program (FCHV program). *Annual Report of Department of Health Services (1994/95)*. HMG, Ministry of Health, Nepal. pp. 1-41.
10. Fine, S. H. (1990). *Social Marketing; Promoting the causes of Public and non profit agencies*. Allyn and Bacon. pp. 1-55.
11. Frederick, A. (1992). *Child Survival Project III Social Marketing Project, Gorkha District, Nepal. Final Survey Report*. Save the Children US, Nepal. pp. 1-69.
12. Gielen, A. C., and Donald E. M. (1997). The Precede-Proceed Planning Model. *Health Behavior and Health Education, Theory, Research and Practice*. Second edition. Jossey Bass. pp. 359-383.

13. Glanz, K. (1997). Perspectives on Using Theory. *Health Behavior and Health Education; Theory, Research and Practices*. Jossey- Bass Publishers. pp. 442-443.
14. Green, L. W., and Kreuter, M.W. (1991). Educational and Organizational Diagnosis; Factors affecting health behavior and environments. *Health Promotion Planning, 'an educational and environmental approach*. Second edition. May field Publishing Company. pp. 74-176.
15. Greenough III, B. W. (1995). Oral Rehydration Therapy. *The Lancet*. Vol. 345, June 17, 1995. pp. 1568-1569.
16. Gutierrez, G., Conyer, T. R., Guiscafre, H., Reyes, H., Martinez, H., and Kumate, J. (1996). Impact of oral rehydration therapy and selected public health interventions on reduction of mortality from childhood diarrhoeal diseases in Mexico. *WHO Bulletin OMS*, Vol. 74. pp. 139-197.
17. National Control of Diarrhoeal Diseases Program. *Health Facility Survey (1994)*. HMG, Ministry of Health, Department of Health Services, WHO UNICEF, JSI (USAID). pp. 1-41.
18. Israel, R. C., Foote, D., and Tognitti, J. (1987). *Operational Guidelines for Social Marketing Projects in Public Health and Nutrition*. UNESCO. Paris. pp. 1-68.
19. Kaplan, M. R., Sallis, J. F., and Patterson, T.C. (1993). Community Interventions. *Health and Human Behavior*. MC Graw Hill, Inc. pp. 438-457.
20. Karki, B. B., and Daulaire, N., M. (1987). *Report of Findings of National Diarrhoeal Diseases Survey (1985) on Morbidity, Mortality and Treatment Pattern in Diarrhoea in Nepal*. Integrated Community Health Service Development Project, Diarrhoeal Disease Section, Kathmandu, Nepal pp. 1-16.
21. Khadka, B. B. (1997). Health Education Officer. *National Health Education. Information Communication Center (NHEICC)*. Department of Health Services. HMG/ Nepal.
22. K.C., Kishor (1994). Availability of IEC materials and their use. Assessment of 200 sub health posts established during 1991/92 for his majesty's government, Ministry of Health, Nepal. pp.27-28.
23. Kotler, P., Roberto, L. E. (1989) *Social Marketing ;Strategies for Changing Public Health Behavior*. The Free Press, London. pp. 8-44.
24. Lamichhane, K., and Dawson, P. (1994). *Result of Interviews Conducted with FCHVs on Diarrhoeal Diseases and use and availability of JJ (ORS) in Kaski district*. HMG, Ministry of Health, National Control of Diarrhoeal Disease Program, JSI/Nepal. pp. 4-7.

25. Lefebvre, R. C., Rochlin, L. (1997). Social Marketing. *Health Behavior and Health Education ;Theory, Research and Practice*. Jossey. Bass Publishers. pp 384-401.
26. *Lancet* (1978). London. Issue II, P. 300.
27. Manoff, R. K. (1985). *Social Marketing New Imperative for Public Health*. Praeger Publisher, New York. pp. 223-238.
28. Martines J., Philips, M., and Feachem, R.G. (1993). Diarrhoeal Diseases. *Disease Control Priorities in Developing countries*. Oxford Medical Publications, New York. pp. 91-111.
29. *Master Plan of Operations (1992-1996)*. HMG Nepal and UNICEF. p. 31.
30. National Control of Diarrhoeal Diseases Program (1994/95). *Annual Report of Department of Health Services*. HMG, Ministry of Health, Nepal. pp. 1-35.
31. National Control of Diarrhoeal Diseases Program (2052). *A Manual for th. treatment of Diarrhoea for use by the Physicians and Senior Health Workers (Nepali version)*. HMG, Nepal, Ministry of Health, USAID, UNICEF. p. 5.
32. National Control of Diarrhoeal Diseases Program (1993). *A Manual for the Control of Diarrhoeal Diseases (CDD) for Physicians and Senior Health Workers*. HMG Nepal, Department of Health Services, Public Health Division, USAID, UNICEF. pp. 1-5.
33. National Control of Diarrhoeal Diseases Program (1996). *A Manual for the treatment of Diarrhea for use by the Physicians and Senior Health Workers*. HMG, Nepal, Department of Health Services, Child Health Division, USAID, UNICEF, WHO. p.1.
34. *National Health Policy (1991)*. Policy, Planning, Monitoring and Supervision Division. HMG Nepal, Ministry of Health. p.8.
35. *Nepal Family Health Survey (NFH Survey), 1996*. Family Health Division, Department of Health Services, MOH; New Era, Kathmandu, Nepal, Demographic and Health Survey, Macro International Inc., Claverton, Maryland, USA. pp. 130-136.
36. *Nepal Medical Indicator Surveillance (1996)*. Health and Nutrition Cycle 1. HMG, The National Planning Commission Secretariat, UNICEF, Nepal. pp. 46-47.
37. Paudel, B., and Marahatta, M. (1997). *Female Community Health Volunteers. Lamatar Village Development Committee, ward no.2 and 8. Lalitpur district, Nepal*.

38. Pickering, K. L., Richard, L.G ., and Thomas, G.C. (1995). Micro Organisms Responsible for Neonatal Diarrhea. *Infectious Diseases of the Fetus new born infant*. Fourth edition. WB Saunders Company. pp. 1142-1195.
39. Smitasiri, S., Attig, G. A., Valyasevi, A., Dhanamitta, S., and Tentigsirin, K. (1993). *Social Marketing Vitamin Rich Foods in Thailand*. The Institute of Nutrition, Mahidol University (INMU) Salaya, Thailand. pp. 9-64.
40. Tulloch, J., and Richards, L. (1993). *Childhood Diarrhoeal and Acute Respiratory Infections in developing countries*. The Medical Journal of Australia, Vol. 159. pp. 46-51.
41. UNICEF (1996). *The state of the World's Children*. New York. p. 33.
42. UNICEF (1994). *The state of the World's Children*. New York. p. 1.
43. Vesikari, T., and Torun, B. (1994). Diarrhoeal Diseases. *Health and Disease in developing countries*. The Macmillan Press Ltd. pp. 135-145.
44. Ware, J. A., (1996). *Results of interviews conducted with FCHVs on Knowledge of Diarrhoeal Diseases and use and availability of JJ (ORS) in Kaski District*. HMG, Ministry of Health, National Control of Diarrhoeal Diseases Program, JSI/Nepal. p. 6.
45. WHO (1988). *Lectures for Training Courses on the Clinical Management of Acute Diarrhea*. p. 33.
46. WHO (1985). *The management of Diarrhea and use of Oral Rehydration Therapy*. A joint WHO/UNICEF statement. Second edition. pp. 6-24.
47. Yoon ,W. P., Black, R. E., Moulton, L. H., and Becker, S. (1996). Effect of not breast feeding on the risk of Diarrhoeal and Respiratory Mortality in Children under 2 years of age in Metro Cebu, The Philippines. *American Journal of Epidemiology*, Vol 143, No. 11. pp. 1142-1146.