Appropriate Intervention For
The Reduction Of Maternal
Morbidity And Mortality
In Svay Rieng Province, Cambodia

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LIST OF ABBREVIATIONS

AIDS: Acquired immunodeficiency Syndrome
ANC: Antenatal Care
APH: Ante Partum Haemorrhage
CP: Chi Pou Operational District
CPA: Comprehensive Package of Activity
CSW: Commercial Sex Worker
EOC: Essential Obstetric Care
EPI: Extended Programme on Immunisation
EDMS: Essential Drug Management System
FP: Family Planning
GNP: Gross National Product
GDP: Gross Domestic Product
HRD: Human Resource Development
HC: Health Centre
HIV: Human Immunodeficiency Virus
HMIS: Health Management Information System
HNI: HealthNet International
IEC: Information Education and Communication
KAP Survey: Survey on Knowledge, Attitude and Practice
MCH: Maternal and Child Health
MMR: Maternal Mortality Rate
MPA: Minimum Package Activity
MoE: Ministry of Education
MoH: Ministry of Health
MoP: Ministry of Planning
MD: Medical Doctor
MA: Medical Assistant
MSF: Medicins Sans Frontieres
NGO: Non-Governmental Organisation
NMCHC: National Maternal and Child Health Centre
OD: Operational District
OB/GYN: Obstetric and Gynaecological
PH: Provincial Hospital
PHD: Provincial Health Department
PPH: Post Partum Haemorrhage
RH: Reproductive Health
RH: Romeas Heak Operational District
PROCOCOM: Provincial Co-ordination Committee
STD: Sexual Transmitted Disease
SR: Svay Rieng Province, Operational District
SUBCOCOM: Sub-Co-ordination Committee
TBA: Traditional Birth Attendants
UNFPA: United Nations Fund for Population
UNTAC: United Nations Transition Authority for Cambodia
UNICEF: United Nations Children's Emergency Fund
WHO: World Health Organisation
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INTRODUCTION

Cambodia is a country which has often been described by foreign writers as the "Killing Fields". The genocide under Khmer Rouge ruined the country and the people. During their 3 years, 8 months and 20 days of reign, 1.5 million people died of starvation or were killed, with the professional classes especially being targeted. By 1979, there were only 45 doctors out of 500 remaining. However, today, Cambodian people wish to join the rest of the world in marching towards peace, progress and prosperity. More than 400 international and national Non-Governmental Organisation (NGOs) are working together with the government to build our country and fight a new war against disease, drought, and debt.

I can not deny the fact that I do belong to a generation which has witnessed political upheavals, genocide, civil war, drought and poverty. When thousands abandoned their home and fled the country, I was one of them. My early days were spent in the Thai-Cambodian refugee camps along with my grandmother, parents, brothers and sisters. Actually, it was in the refugee camp that I developed a keen interest to work for the upliftment of women and children, watching the dedicated foreigners engaged in the humanitarian task of looking after thousands of sick and dying refugees.

When I realised that Cambodia has one of the highest maternal mortality ratios in the world, I made up my mind, to become a midwife. My initial training was in the camp where I graduated and worked shoulder to shoulder with doctors, nurses and midwives from different countries in a health emergency project. Our common goal was to help the thousands of Cambodian refugees to survive. I can never forget that experience!

When normalcy was restored in our country, I worked with a few international NGOs before joining HealthNet International (HNI), (a Dutch organisation) as the Maternal and Child Health (MCH) advisor for the project of SR Province. HNI focused on assisting the government in implementing the so-called "National Health Coverage Plan" at Provincial Health Department of SR Province and developing the first level of care, e.g. construction and rehabilitation of health centres, training Ministry of Health (MoH) staff to deliver a minimum package of activities (MPA). SR Province was one of the first in the country to open a health centre (HC) according to the new MoH standards. HNI also paid attention to supporting system such as health management information system (HMIS) and essential drugs management system (EDMS) and implemented activities in tuberculosis (TB) control and AIDS/STD prevention and treatment. The main objectives of the three year project outlined late 1996, to follow up the first phase of the project are: to improve maternal and child health by strengthening an integrated health services delivery, to strengthen planning and management capacity of health centres and to reinforce community involvement in the health sector.

Due to many years working in the fields of maternal health, I have observed that many women die of causes related to the complications of pregnancy, despite several efforts to help the mothers in various health sectors. The deaths of these women are normally not reported to the health system. A large percentage of such deaths can be prevented through appropriate training of health workers, maintaining good communication between traditional birth attendants (TBAs) and stimulating community participation, and by providing adequate and easily accessible health care to the women of reproductive age.
CHAPTER 1

Background information

1.1 Country profile

The Kingdom of Cambodia situated in South East Asia, has a land area of 181,035 square kilometres, topographically dominated by the Mekong river and the Tonle Sap lake. The country is divided administratively into 24 provinces and Phnom Penh is the capital city. During the past 25 years of conflict, and particularly during the Khmer Rouge rule from 1975 to 1979, the number of males lost was much greater than the number of females, resulting in a sex ratio of 93.1 males per 100 females, the lowest in South East Asia (MoP, 1998), and a high percentage of female headed households 26 percent (MoP, 1996).

Language and Religion

The official language is Khmer, or Cambodian, spoken by an estimated 95 per cent of the population. French was formerly an important second language, but its use has been discouraged.

Cambodia has a very homogeneous population composed of more than 90 percent Khmer with several minority groups such as the Chams, Chinese, Vietnamese and small mountain tribes. Buddhism is the dominant religion, adhered to by about 90 percent of the population. Other religions include Roman Catholicism, Islam, and Mahayana Buddhism; the mountain tribes are animists.

Economy and agriculture

Of the total economically active population, 76 percent is employed in the agricultural sector. The average monthly expenditure per household is USD 104, average household size is 5.3 (MoP, 1996). Large disparities exist between household expenditure in urban and rural areas.

Agriculture accounts for 48 percent of the total national GDP, and will likely retain this dominant position in the near future (World Bank, 1994). Rice, the most important agricultural crop, accounts for 15 percent of the national GNP. The main traditional products are rice, palm sugar and fish. Main exports are timber and precious stones. Tobacco is a major crop and local factories manufacture cigarettes. Agriculture land use in the early 1990s has largely regained pre-war level, but several provinces continue to experience food deficits, and Cambodia's overall food balance remains vulnerable to the effect of adverse weather. According to the Human Development Index, Cambodia is one of the least developed countries in the world, rated as 153° of the total of 175 countries (UNDP, 1997).
"Crossing the river" is the Khmer expression for labour and delivery. For Cambodian women, as for the women in all the world, this important event in their lives is seen as a natural process, not an illness. They prefer to deliver in the secure place of their own homes, with their families and traditional midwives. The traditional midwives are well respected and trusted as members of community. The majority of deliveries are still done at home. Therefore, I would like to understand more the factors that influence maternal health and the methods that the others have managed in the various countries.

The aim of this thesis, is to design appropriate strategies which may help to reduce step by step the number of "difficult crossing the river" which normally lead to maternal death. Even when these woman survive, they often suffer long-life disabilities and risk of complicated future pregnancy. Without the accessibility of family planning, a good system of antenatal care and detection of high risk pregnancy, clean labour and delivery and essential obstetric emergency care, all strategies will be useless. These principles must be integrated into the district health system. They must rest on a foundation of greater equity for women.

In all the area of public health, we work as one team to provide a safe bridge across the river for saving the life of mothers and children. By building up such bridges of cooperation, people in Cambodia, now listed as the least developed, would be able to join the rest of the world in marching towards the World Health Organisation (WHO) goal "Health for All Beyond 2000".

Chapter 1, will present the background information on Cambodia and SR Province.

Chapter 2, contains the problem statement and objectives of this thesis. A description and analysis is given of the contextual contributing factors that influence maternal health in Cambodia. These factors are classified into types: political situation, socio-economic and environment, cultural and health sectors. This chapter will also describe the maternal health status and maternal health care in SR Province at the present.

Chapter 3, gives the global picture: a literature review. The purpose of this chapter is to provide the background of the importance of maternal health, the main reasons of maternal death, and the key means by which maternal health can be in general improved.

Chapter 4, the analysis of the results of the study in SR Province, maternal mortality and annual activities of MCH services, is presented and discussed.

Chapter 5, conclusion and recommendation are shown, based on findings reported from other countries, the result of the study in SR Province, and the current MCH policies and plans in Cambodia.
ABSTRACT

This thesis discusses the main factors that influence maternal health in Cambodia, the main causes of maternal mortality, the reasons for under reporting, and how the key components of maternal health services have been introduced to improve maternal morbidity and to reduce maternal mortality.

From the global picture it is clear that the gap in pregnancy related deaths between developing countries and developed counties showed the greatest disparity. The women in developing countries face a higher risk of deaths due to socioeconomic, culture and political disadvantages. Most women in developing countries lack regular access to modern methods of contraceptives and do not receive adequate care during prenatal, labour and delivery and postpartum period.

The key strategies of effective programmes to improve maternal health, to prevent and to reduce maternal deaths will need to include many services at the family and community, health centres with EOC available, and at referral level the COC, all of which must be coordinated to ensure their effective functioning. The greatest improvements will be seen where comprehensive and integrated care are provided. Services of SM must be provided in both public and private health facilities though community- based distribution networks with good collaboration. Good counselling to both women and men must be offered by the trained and skilled providers. By making women aware of the hazards of pregnancy and changing the behaviour, IEC can have an important influence. The political support is also very important. The programmes need to be measured and evaluated using appropriate tools in order to take the appropriate planning and implementing measures.

A retrospective cross sectional study was carried out in 1998, of maternal deaths during 1997, in the catchment areas of all Operational Districts (ODs) of Svay Rieng (SR) Province, aimed to assess the causes of maternal mortality and the reason for under reporting, using a verbal autopsy questionnaire. The analysis identified 58 maternal deaths, which is 6 times higher than the official number of 8 reported by the Health Management Information System but compared to the estimated maternal mortality ratio, this study only identified 57.4% of the expected maternal deaths for SR Province. Besides the problems of under-reporting of maternal deaths, there were other problems that we learnt from this study. Some of these important findings are: inaccessibility of health services and untrained providers; the majority of deaths were at home due to financial reasons which lead to the three delays. Although, the annual indicators of Maternal and Child Health (MCH) services in SR seems to be improved, still they clearly showed the serious unmet need for emergency obstetric care and the low coverage of delivery services. Until these indicators improve, maternal mortality will not be reduced.

The recommendations concentrate on the current strategies and activities in SR Province. compared to the national ones. It can be seen that most of the strategies in the national plan are addressed by the current and future activities in SR Province. Additional activities are recommended based on the analysis of the study of maternal deaths in SR province and the results of MCH activity in 1997 in SR province together with the lessons learnt from the global picture. These strategies focus on each level of the health care delivery system in SR province.
Education

Large disparities exist between the literacy levels of females and males. While 80 percent of males can read and write simple messages, only 56 percent of women can do so (MoP, 1997). The overall attainment of children is very low and significant disparities exist between the net enrolment of girls and boys in secondary school and higher education (MoE, 1998).

Table 1. Cambodia country profile.

<table>
<thead>
<tr>
<th>Total population (in million)</th>
<th>11.4</th>
<th>1998(l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density (person per km)</td>
<td>59.1</td>
<td>1998(l)</td>
</tr>
<tr>
<td>Rural population (in %)</td>
<td>85.6</td>
<td>1998(l)</td>
</tr>
<tr>
<td>Estimated number of households</td>
<td>2,011,000</td>
<td>1996(4)</td>
</tr>
<tr>
<td>Average household size</td>
<td>5.3</td>
<td>1996(4)</td>
</tr>
<tr>
<td>Population growth rate per annum (in %)</td>
<td>2.4</td>
<td>1998(l)</td>
</tr>
<tr>
<td>Crude death rate (per 1000)</td>
<td>12</td>
<td>1998(3)</td>
</tr>
<tr>
<td>Crude birth rate (per 1000)</td>
<td>38</td>
<td>1998(3)</td>
</tr>
<tr>
<td>Total fertility rate</td>
<td>5.2</td>
<td>1998(3)</td>
</tr>
</tbody>
</table>

Health

| Maternal mortality rate (per 100,000 lives births) | 473 | 1996(5) |
| Under five mortality rate (per 1000)              | 181 | 1998(3) |
| Infant mortality rate (per 1000)                  | 115 | 1998(3) |
| Life expectancy at birth Male                     | 50  | 1998(3) |
| Life expectancy at birth Female                   | 59  | 1998(3) |

Education

| Percentage of adult literacy                      | 67.8 | 1997(2) |
| Adult literacy rate Female                        | 57.7 | 1997(2) |
| Adult literacy rate Male                          | 80.0 | 1997(2) |
| Net enrolment in primary school                   | 67.0 | 1997(2) |
| Net enrolment in secondary school                 | 14.1 | 1997(2) |

Economic

| Government budget devoted to health (USD per capita) | 1.89 | 1998(3) |
| Gross national product per capita (USD)             | 300  | 1998(3) |
| Average monthly expenditure per household (in USD)  | 104  | 1997(2) |
| Average monthly expenditure per households in Phnom Penh in USD | 263 | 1997(2) |
| Average monthly expenditure per households in rural areas (in USD) | 80  | 1997(2) |
| Monthly expenditure of the poorest 10%              | 48   | 1997(2) |
| Monthly expenditure of the richest 10%              | 335  | 1997(2) |

Sources:  
(3) Ministry of Health 1998  
1.2 Health sector

The Cambodian health system up to 1994 was managed as individual administrative units independent of each other at all levels: the provincial, district and commune level. Each commune had one infirmary (commune clinic) which provided the first level of care in the health system. The district hospital contributed the second level of care.

In 1994-1996 the Ministry of Health (MoH) started a general restructuring of the public health services, which was aimed at an equitable and efficient distribution of effective basic health services. The so called "Health Coverage Plan" foresees a major change in the organisation of the health services, dividing each province into operational districts (OD) with two levels of health care. The health centre is to deliver a minimum package of activities (MPA) and a referral hospital is to deliver a comprehensive package of activities (CPA). A district management team will be responsible for management, supervision and training at these two levels of health care. In 1997 the MoH employed 652 Medical Doctors (MDs), 1083 Medical Assistants (MAs), 154 pharmacists, 188 pharmacy assistants, 1413 secondary midwives, 1738 primary midwives, and 2611 secondary nurses (MoH, 1997). The 224 TBAs in the country were working in maternal health (MoH, 1994).

The private health care sector plays an important role in maternal health. Since 1980, private health care services have functioned, mainly in Phnom Penh and the large provincial towns, without any supervision from the MoH and with variable standards of care. From 1987, private services including, dentist clinics, private clinics, pharmacies, traditional medicine and medical analysis laboratories, have received official authorisation. Most private health workers also have a job in government service. For supervision of the private sector the MoH has appointed a committee which works in consultation with the Municipal Health Administration (MoH, 1994-1996).

1.3 Maternal and Child Health in Cambodia

The Cambodia health policy is primarily top-down, but with some participation from district and provincial health services. The maternal and child health policy, including a Safe Motherhood (SM) policy, is formulated by a group comprising the Director and Vice-directors of NMCHC, several people from the MoH, and technical advisors from the MoH and the NMCHC.

The Maternal and Child Health (MCH) services in the provinces were given priority because the maternal mortality rate (MMR) was one of the highest in the world. The life expectancy in general for females in Cambodia is 58.62 years. The total fertility rate per woman is 5.2 (MoH, 1997). In 1990, WHO quoted a high MMR of 900 maternal deaths per 100,000 live births, whereas a national maternal mortality survey based on the sisterhood method found an estimated 473 deaths per 100,000 live births for the period 1984-1986. UNFPA has estimated the current maternal mortality rate at about 500 deaths per 100,000, with about 2,000 Cambodian women dying each year of childbirth-related causes. In comparison, the estimated maternal mortality is 200 per 100,000 in Thailand (IJNFPA, 1996), and 120 per 100,000 in Vietnam (WHO, 1998).
WHO estimates that for every maternal death, 100 additional births typically undergo obstetrical complications resulting in morbidity and lifelong disability. The number of Cambodian women whose health is adversely affected resulting from pregnancy and delivery related complications is likely to be 200,000 each year (MoH, 1997). Even in 1997, in SR Province, it was observed that there was a discrepancy in the MMR between the provincial hospital (PH) reports and figures obtained during the MCH monthly meetings. In 1997 only 86 maternal deaths were reported for the whole country, far from the expected two thousand.

1.4 National Safe Motherhood Policy in Cambodia.

Maternal health services are the key component of the health system in Cambodia. Maternal health plans and policies were produced in order to improve maternal status by enhancing health promotion, and by prevention and treatment of diseases. Maternal health policy is incorporated within the National Maternal and Child Health Policy and Planning Manual, 1995, of NHCH of MoH.

After endorsing the Conference of Safe Motherhood in Nairobi, Kenya 1997, and the Action Plan of the International Conference on Population and Development Cairo, Egypt 1994, the Government of Cambodia has given high priority to the SM.

The national policy provides a broad guideline on safe motherhood which should be implemented by all the sectors of Ministry of Health and other related ministries, involving close co-operation and co-ordination with particular the Ministry of Women's Affairs (MoWA) and Ministry of Rural Development (MoRD), international organisations (IOs), bilateral agencies and NGOs. This is to ensure that SM does not become a vertical programme.

Box 1. Strategies of Safe Motherhood in Cambodia

The main focus of the policy is to improve the maternity care services, including family planning (FP) and nutrition, at all levels of the health care delivery system starting from the family and the community. It will also aim at behavioural and societal changes at community and service delivery levels in order to improve community participation. The complete detailed plan of action and strategies (1997-2001) for the Cambodia SM Programme is contained in Appendix 1. The strategies have been formulated according to identified gaps in present MCH and the CPA and recommendations from the Situation Analysis for SM. In the process of identifying these gaps, consistency has been attempted between the MPA and CPA relative to the elements of essential care as identified by WHO:
1. The MPA is the activity that take place at the health center level which should include the basic essential obstetric care (EOC) for obstetric first aid;
2. The CPA is the activities that takes place at referral hospital level which should include comprehensive essential obstetric care for management of obstetric emergencies and complications during childbearing. The detailed component of the MPA and CPA are listed in Appendix 2.

1.5 Policy on contraception

Due to the heavy losses of population that took place during the 1970s, a pro-natalist policy was followed through the 1980s. The government, aware of the harmful effect of uncontrolled fertility on the health of women and children, in 1991 agreed in principle to a policy of providing birth spacing services. During those years a few pilot projects and small scale projects with support from NGOs were set up. In December 1994 the MoH annual congress recommended that spacing of birth should be encouraged as a means to improve the health and well being of women and the nutrition and health of their children. In January 1995 a FP policy was prepared in the MoH. The aim was to promote maternal and child health through greater intervals. The document started that the achievement of this aim may help to balance population growth with the social and economic growth of the country. The 1995 Survey on Fertility and Contraception provided evidence that the demand for limiting family size was larger than the demand for spacing births, showing that women were in need of permanent contraceptive methods. Therefore in 1997 the MoH agreed to pilot the provision of sterilization services in a few hospitals (MoH, 1998).

1.6 Abortion policy

In August 1997, the Cambodia parliament approved a new abortion law. Abortion is offered without the need to provide the reason and without restriction in the first trimester. In the second and third trimester, abortion is only allowed if the diagnosis shows that the pregnancy is abnormal, creates a risk of women's life, if after birth the child will have a serious incurable disease, or if a woman has been raped. Although the new abortion law states that providers who do not have authorisation from MoH and who perform abortion should be punished (from one month up to ten years of jail for non medical providers), it has not yet been enforced and unsafe abortion services are widespread and easily available. While restrictions on providers are intended to improve the safety and quality of abortion care, the vast majority of current abortion providers do not meet eligibility criteria (MoH, 1998).

1.7 AIDS/STDs policy

Today Cambodia has the most serious HIV/AIDS epidemic in Asia and according to the MoH, may become one of the worst affected countries in the world. The national policy, drafted in 1995, officially declared AIDS/STDs a matter of national priority. In order to highlight the importance of HIV/AIDS control and prevention programme, the chairman of National AIDS Committee was appointed by the Prime Minister. For the HIV testing, policy states that the surveillance of the epidemic can only be done by the National AIDS Committee. Testing is anonymous and should only be done with the informed consent of
clients. The policy also states that the people living with HIV/AIDS have equal right to work and to health care (MoH, 1998). Regarding STDs, it has been proposed to routinely test women who seek antenatal care services at public health facilities for syphilis. Only about 3 percent of antenatal care clients are tested for this disease and it is estimated that about 11,000 pregnant women per year in Cambodia will remain undiagnosed and untreated for syphilis prior to delivery, increasing the risk of abortion, stillbirth, premature delivery and perinatal death (MoH, 1997).

Relative to the above mentioned policies, many problems need to be addressed, affecting reproductive health of women. Effective strategies need to be implemented.
CHAPTER 2

Problem Statement and objectives

As shown in the problem tree figure 2 the factors that influence maternal mortality can be summarised and classified into four types: Political, economic, cultural, and health service related.

2.1 Political

The political situation has meant a large number of men were encouraged to join the military and become soldiers. During the many years of conflict, the number of men lost was much greater than the number of women, creating an imbalance in the female to male ratio in the population. Many of the soldiers who are away from home drink large quantities of alcohol and frequently visit to prostitutes which lead to many family conflicts, and ultimately towards family break ups. This is a major problem in Khmer communities. Since the women are dependant upon men for their livelihood, family break-ups put women in a difficult situation. They very often lack sufficient food or funds to buy basic necessities causing malnutrition which ultimately contributes to the country's high morbidity and mortality rate. Additionally a major factor affecting the well-being of women and children is physical disabilities resulting from land-mine related accidents. An estimated 4.2/1000 persons are amputees from a land-mine explosion and in the under 15 age group, 21% of disabilities are due to land-mine accidents (WHO, 1998)

Continuous conflict and lack of security in many parts of the country prevent women from seeking health services at the time of sickness. There is also little commitment by the government for improving health services. The total allocation of national health budget constitutes only 5% of the total government budget and 0.5% of GDP, constraining the ability to provide quality health service to the population (World Bank, 1998), whereas the allocation for security and defence was 40%.

2.2 Socio-economic

Cambodia's economy was completely destroyed during the Khmer Rouge era. Though there has been some recent economic development, it still remains weak and Cambodia remains one of the world's poorest countries. The per-capita, income in 1991 was about $200, among the lowest in the world. Poverty is endemic in Cambodia, with the most recent estimate of poverty indicating that 36 per cent of the population lives below the poverty line (MoP, 1998').

The MoH does not have sufficient resources to use mass media for health promotion to counteract the effects of commercial advertising, which hampers public health programs. Recently the MoH started a health education programme using TV, radio and newspaper, but

The poverty line is defined as an expenditure of Riels 1819 per capita per day in Phnom Penh. Riels 1407 in other urban areas, and Riels 1210 in rural areas. Riels 3000 = $ US 1
this is not yet helping people in rural areas, who cannot afford to own a radio or TV, and newspapers are not readily available in rural areas.

Nearly 75 percent of Cambodians are engaged in agriculture. Agricultural production is dependent on rainfall, which is uncertain from year to year. Sometimes, there is drought and at other times there is flooding. In both cases, the farmers can not produce sufficient food.

Forest coverage has declined from 73% in 1969 to 58% in 1996 (according to Global Witness only 35% remains!) If the dry season harvesting rate continues, commercially valuable trees could be logged out in five more years. The level of Tonle Sap lake is the lowest it has been for 35 years. This means a decline in the number of fish for the 3 million Cambodians in the six provinces surrounding the lake, who depend on fish for their livelihood. In a good year five times more fish were caught than now. Fishermen are having to find extra income to support their families, often becoming cyclo-drivers or construction labourers or a soldiers. Since these occupations require the men to live away from the family, they tend to frequent prostitutes more often increasing their risk of contracting STDs/HIV and spreading the infection to their wives.

Prostitution and trafficking are social problems relating to women that have become very serious in Cambodia. The number of commercial sex workers (CSWs) has increased dramatically in the last 8 years. According to NGOs working with CSWs, there were only 1,500 working in Phnom Penh before 1990 (UNICEF, 1996), but a recent government report estimated that over 14,000 women now work in brothels throughout the country (National Assembly, 1997).

STDs pose another reproductive health risk affecting Cambodian women. The incidence of STDs has been growing in Cambodia. The rate of HIV positive blood donors increased from 0.1% in 1991 to 3% in 1997. Results from the latest round (July 1997-March 1998) of the HIV Sentinel Surveillance indicated 6.2% of the police personnel and 42.6% of direct CSWs were infected with HIV. In Phnom Penh, more than 60% of direct CSWs were infected with HIV (MoH, 1998).

Nationally, 2.4% of married women, selected at random are infected with the virus indicating that the epidemic has now spread to the general population. Furthermore, not only women who live in the cities are infected. In some provinces the rate of HIV infection among rural married women is greater than those urban women. This is because men who became infected in the urban areas return home to their village, and pass on their infection to their wives, who in turn pass the infection onto their yet-to-be-born children.

Generally the woman in the family, especially in rural areas, do not have the same opportunity to go to school as their male counterparts have. The adult literacy rate is higher for men 79% than for women 55% (MoP, 1998). The gender difference in adult literacy is smaller in urban areas than in rural areas, reflecting more equality of schooling opportunities in urban centres.

2.3 Cultural

Cambodia has various cultural ethnic groups, each group having its own practices and beliefs for taking care of sickness. For example, the ethnic Khmer majority have very strong spiritual
beliefs on health practises to cure any sickness, which in most cases have no effect. The Chinese who live in the cities or towns prefer to use modern medical care and therefore benefit from the available modern health facilities. The Vietnamese who live in house boats, have more difficulty in accessing health care services. The Khmer woman in rural areas use traditional birth attendants and traditional healers, both of which are widely available and supported. The Cham (Muslim) use their own traditional practises for their health care. Though modern health care is available it is not yet easily accessible to most of the people.

Female literacy is not entirely related to poverty but has an important cultural dimension as well. A important factor contributing to girls not attending secondary school is accessibility. Few villages have secondary schools, which means travelling long distances or staying away from home. While boys traditionally had the option of staying in the pagoda to pursue their education away from home, no such avenues were open to girls. Parents are reluctant to send their daughters for secondary schooling away from home for fear of their safety. This fear was heightened in recent years with many cases of abduction of girls for trafficking and prostitution. Girls are therefore confined to the home to help their parents take care of younger siblings and have housekeeping duties. The girls are married at an early age. There is a belief in Khmer culture that an early pregnancy is a very good sign for the future. They do not want to use any FP methods; they think that the contraceptive pill will give a lot of side-effects. They also believe that contraceptives donated by developed countries are just for experiments because they do not want their own people to suffer. Because of this belief, many Khmer believe that the contraceptive pill is not good for their health.

2.4 Health sector

It will not come as a surprise that Cambodia has one of the poorest records world-wide with regard to the distribution of qualified health personnel. One of the contributing factors to maternal deaths was lack of qualified staff. Only 104 out of 527 staff working in the health sector were medically qualified (defined as a secondary nurse, midwife, pharmacist, medical assistant or doctor). On average there were 19.7% staff medically qualified. The ratio of qualified staff per number of inhabitants was 1/4,489 for the province. This ratio is worse at the district level with 1/13,673 inhabitants (MoH/PHD, 1995).

At present infirmaries are non existent in most communes (MoH, 1995). An obstetrical emergency can only be treated in the capital city. At the provincial level there are a limited number of skilled service providers and even more limited at the district level. Due to increasing economical and political difficulties, the building of the infirmaries made of wood or mud could not be maintained. Most of the staff used their own homes as an infirmary. Meanwhile, the number of staff was reduced from 5 to 1, with very often the midwife being the first to leave. In addition there was a lack of support and supervision from the MoH at the district level as well as a chronic lack of drugs and medical materials (except for the Extended Programme on Immunisation (EPI) programme). Poorly qualified staff (primary staff) with only 9 months of training were assigned to each commune, which provided little curative care; that was done mainly at home on a private basis. There is also little or no antenatal care for pregnant women except EPI, no health education, HMIS and no postnatal care. Women's health is especially at risk because of multiple pregnancies in close succession to each other, further complicated by factors such as malnutrition leading to anaemia and bad hygiene practices leading to infection. Malaria and tuberculosis, both common illness in Cambodia.
can further increase the risks of maternal death. One study showed that women were 4 times more likely to die from malaria infection than men because their general health and nutrition status are poorer and they are less likely to have access to health care (UNICEF, 1996).

Poor access to maternal health services is another reason for the high rate of maternal mortality. A recent survey on the demand for health care in 14 provinces of Cambodia revealed that the vast majority of deliveries occur at home 89.9%. These are equally likely to be attended by TBAs 44.6% as by midwives 45.3 % (MoH, 1998). Distance is a major issue for many patients requiring medical attention. There is a serious lack of transportation in the province. Travelling at night is both difficult and risky because of poor road conditions and banditry (MoH, 1998).

The same study found that the percentage of monthly health expenditure compared to the total monthly expenditures within the household average 22.1%, or 36,157 riels (US $ 13.90). The average cost of hospitalization is 168,945 riels, (US $ 64.98) which is four times higher than the estimated monthly income of the largest group of respondents in the survey.

Data from the National Health Statistics Report, indicate that only 841 caesarean sections were performed in the country in 1998, which translates into a caesarean section rate of 0.2%. World-wide about 5 per cent of all deliveries typically involve a caesarean section (MoH, 1997). These data provide evidence of grossly inadequate access to maternal health services in the country. Often women fail to recognise the need to seek professional medical advice until it is too late.

2.4.1 Contraception

Among non pregnant women, the KAP Survey by the MOH, 1995, revealed that the total demand for contraception was 91% of women in reproductive age. Women with met and unmet needs constitute the total demand for contraception which was very high.

The survey showed that of the total demand for contraception, only 15 % was covered, leaving 85% of demand still to be met. Differentials according to residence showed that in Phnom Penh, 37% of the demand was covered, while in rural areas it was only 13%. A similar pattern was observed according to the education: 22% of the demand for contraception was covered among woman with secondary or higher education, while only 11% of the demand was met for women with no schooling (MoH, 1995). However, WHO reported only 7% actually use contraceptive methods in Cambodia, due to limited access to affordable birth control services (WHO, 1998). The shortage of contraceptives forces many Cambodian women to use traditional and dangerous methods to terminate an unplanned pregnancy. Induced abortions by such methods are major cause of maternal mortality in Cambodia.
2.5 Objectives

This thesis has the following objectives:

2.5.1 General objective

1. To develop locally appropriate interventions for the reduction of maternal morbidity and mortality in SR Province, Cambodia.

2.5.2 Specific objectives:

1. To identify the factors and causes that influence high maternal mortality and morbidity.

2. To identify the reasons for under-reporting of maternal mortality.

3. To identify appropriate strategies to improve the effectiveness of MCH service in SR Province by incorporating selectively strategies from the National SM Policies, and make these appropriate to the local situation.

4. To make practical recommendations to improve the reporting system for maternal health care services including maternal mortality and obstetric complications, in all the levels in SR province.

2.6 Research Questions

1. What are the main causes (direct and indirect) of maternal deaths in SR Province of Cambodia?
2. What are the reasons for under-reporting and not reporting of maternal deaths in SR Province, Cambodia?
3. What are the major related factors that may have contributed to maternal ill health?
4. Which of these factors can be addressed through the health sector structure?
5. What are the recommendations for improving maternal health in order to reduce the maternal mortality in SR Province, Cambodia?

2.7 Methods

1. Literature review provides a framework for analysis.
2. a. Information from MoH, NGOs is taking from published and unpublished report.
   b. Information from the small study done in SR Province is analysed.
3. Using the framework developed from literature (1), try to answer the questions using information from (2), and identify gaps in knowledge information that need to be filled in order to develop a good MCH services.
CHAPTER 3
The global picture

3.1 Introduction

The global Safe Motherhood Initiative was launched at an international conference held in Nairobi, Kenya in 1987. Its aim was to draw attention to the dimensions and consequences of poor maternal health in developing countries, and to mobilize action to address the high rate of death and disability caused by the complications of pregnancy and child birth. The goal set out by the initiative, and later adopted at several United Nation conferences, was to reduce maternal mortality by half by the year 2000. They captured the world's imagination and many countries have also accepted it as a national goal (SM, 1997).

The 1994 International Conference on Population and Development (ICPD) which was held in Cairo and right after that the Fourth World Conference on Women in Beijing gave substantial attention to maternal mortality as a visible and reprehensible sign of historical neglect of women's health and women's needs, and called for efforts to "achieve a rapid and substantial reduction in maternal mortality and morbidity". The Cairo conference defined safe motherhood as one of the components of reproductive health.

The central role of safe motherhood interventions in reproductive health programmes is supported by various programmes of action of the 1994 ICPD. The definition of reproductive health is a "state of complete physical, mental and social well-being in all aspects related to reproductive system and to its function and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life. Implicit in the last condition are the rights of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice". "The right of access to appropriate health care services will enable women to go safely through pregnancy and child birth" (SM, 1997).

A conceptual framework developed for safe motherhood has been used as a reference (Appendix 3).

3.2 Dimension of the problem

Today's rate of maternal mortality shows a far greater disparity between countries than even the infant mortality rate, which is most often taken as the measure of comparative disadvantage. Every time the women in the world's poorest communities become pregnant, they run a risk of dying as the result of pregnancy and child birth up to 200 times higher than the risk run by women in Western Europe. And not only do they run a greater risk, they also undergo that risk more often (WHO, 1991).
No one knows precisely how many women die as a result of pregnancy and child birth each year. Only 29 governments of developing countries were able to provide the United Nations with estimates of their national mortality of the year 1988 (WHO, 1991; Maine, 1985). Studies in countries as diverse as Bangladesh, Egypt, Jamaica, Papua New Guinea and USA have shown that less than half the maternal deaths which occur are actually reported (WHO, 1991; Maine et al. 1987).

On the basis of available data it is, however, possible to estimate that at least half a million women die from causes related to pregnancy and child birth each year; 99% of these deaths occur in developing countries, which account for 88% of the world's births. These data are based on regional estimates as calculated by WHO and do not imply that all countries within each region have similar rates. The highest number of maternal deaths about - a third a of million annually - occur in Asia, with the countries of Southern Asia being worst affected. Three countries - India, Pakistan and Bangladesh - between them account for 28% of the world's births and 46% of its maternal deaths (WHO 1991; Kwast et al. 1985).

Everywhere the rate tends to be lower in urban areas than in rural, which reflect the easier access to adequate medical health services. In Andhra Pradesh, India, the urban rate is 545 compared to a rural rate of 874 (Bhatia, 1986). Similarly a survey of 30 provinces of China revealed average rates of 115 in the countryside and 50 in the towns (Zhang et al. 1991).

Asia is the continent with the greatest disparity in maternal mortality rates between countries. At one extreme are Hong Kong, Singapore and Japan whose national maternal mortality rates of 3.1, 4.1 and 7.2 per 100,000 live births, respectively, are comparable with the lowest in Europe (WHO, 1998). At the other extreme are countries like Yemen, where the rate is 1000, and Bali, Indonesia, where one study found a rate of 719 per 100,000 live births (Fortney et al. 1986)

3.3 A historical view of maternal mortality

A look back in history reveals that pregnancy and childbirth were once as hazardous for women in Europe as they are for many women in the developing world today. In the eighteenth century rural France, the maternal mortality rate was well over 1000. Before the discovery of antibiotics and the perfection of such techniques as caesarean delivery and blood transfusion, rich and poor were equally affected: a study of the ruling families of Europe showed a rate of about 2000 per 100,000 birth between the years 1500 and 1850 (WHO, 1991/Gutierrez, 1983)

In fact, the rarity of a maternal death in the developed word is a relatively new phenomenon. In 1920, the United States had a maternal mortality rate of 800 per 100,000 live births (Maine, 1985). Until 1935 the registered rate of England and Wales remained constant at about 400 per 100,000 live births. The rates started to decline dramatically thereafter, coincident with the development of obstetric techniques and improvement in the general health status of women (Macfarlane, 1984).
3.4 The road to maternal health

The complexity of maternal mortality is aggravated by the low status of women and poverty, which are at the root of their poor health, high fertility, and lack of access to essential health care. Addressing the Safe Motherhood Conference in Nairobi in 1987, Dr M. Fathalla used the metaphor of the "Road to Death" to illustrate the various levels of causes. For example, a woman does not die because she has a postpartum haemorrhage. She dies because she does not receive adequate or timely medical treatment for haemorrhage. To go further back, haemorrhage may have been caused by having had too many children. In turn, she may have wished to stop childbearing but either may not have known about modern contraceptives or had no access to family planning services. Finally, her lack of knowledge about or access to family planning and formal health facilities may have been due to the fact that she was illiterate and lived in a poor area with few roads (Kwast, 1991; WHO, 1986).

3.4.1 The delay model

Maine, 1990 has developed a framework for analyzing the factors that contribute to maternal death, called the "three delays". The first two "delays" relate directly to the issue of access to care, encompassing factors in the family and community:

**Figure 3. Factors Affecting Utilisation and Outcome**

1. **Delay in deciding to seek care:**
   Key issues include the ability of family members and care providers in the community to recognize complications, and how and when the decision is made to take a woman with complications to an appropriate health facility.

2. **Delay in reaching appropriate care:** This encompasses the range of logistical factors that determine the need and availability of transportation to take a woman to a health facility.

3. **Delay in receiving adequate care at health facilities:** Once a woman reaches the facility, the promptness with which she receives appropriate treatment is determined by the capacity and quality of services available (SM, 1997).
A recent study in Nepal about the leading causes of maternal deaths and the "three delays" at the hospital level showed that 90% of maternal deaths took place in rural settings, and the majority occurred after delivery (62.1%). Less than one-third, 28.8% had antenatal care. Most women, 67.4 % died at home and an additional 11.4% died on the way to health facility. Direct causes were responsible for 70.5% of maternal deaths, of which 46.3% were due to postpartum haemorrhage.

The study also showed that 13% of maternal mortality was due to the two delays at the family level, delay in deciding to seek care and in reaching for the appropriate care, while 78.6% showed delay in receiving adequate care at health facilities. These included delays either in diagnosis and/or in treatment. Nearly 1 in 5 women (19%) received inappropriate treatment. Many of the delay factors related to delay in treatment were associated with obtaining blood transfusion, which indicated a lack of co-ordination of services (Pathak, et al. 1998).

3.5 The medical causes of maternal death

The causes of maternal mortality are classified under three headings: direct, indirect and coincidental. Direct cause refers to those diseases or complications which occur only during pregnancy and includes abortion, ectopic pregnancy, hypertensive disease of pregnancy, antepartum and postpartum haemorrhage, obstructed labour and puerperal sepsis. Indirect causes are those diseases which may be present even before pregnancy but are aggravated by pregnancy; examples include heart disease, anaemia, essential hypertension, diabetes mellitus and haemoglobinopathies. Coincidental causes are fortuitous in nature; and death from road traffic accidents is a typical example.

Figure 4. Medical causes of direct obstetric death in developing countries

Globally, more than 70% of all maternal deaths are due to the serious five major complications of pregnancy and childbirth. The five causes are haemorrhage, obstructed labour, sepsis, hypertension and complication of unsafe abortion account for the majority. 60% take place in the post partum period, and more than half occur within a day of delivery. However, we know that for every woman who dies of complication of pregnancy and childbirth, there are many more who suffer serious and sometimes life-long illness (Population Report, 1997).
3.5.1 High risk pregnancy

The risk of pregnancy is not spread evenly between pregnancies. The age of the woman and the number of her previous pregnancies have a bearing on the outcome. The safest age of child bearing is from 20 to 24 years. Women become fertile several years before their bodies are really able to cope with pregnancy and childbirth. At menarche they have approximately 4% more height and 12 to 18% more pelvic growth ahead of them (WHO, 1991). Thus, women who become pregnant during their teens are at greater risk of maternal and perinatal mortality and morbidity due to anaemia, obstructed labour, and pre-eclampsia because their own physical growth and maturity is not complete. They may have an added risk if the pregnancy is unplanned and unwanted and results in their being ostracized by their family or community (WHO, 1994). A study in Matlab, Bangladesh showed that the girls aged between 10-14 years had a maternal mortality rate five times that of women aged 20-24 years. And for teenagers of 14 -19 years, the rate was still twice that of the 20-24 year olds (WHO, 1991; Chen et al. 1974).

Older woman who become pregnant also face an increased risk of death compared with woman in the prime childbearing years. Research shows that the risk begins to rise from about the age of 30. A study in Jamaica showed that women over 40 were five times more likely to die during pregnancy than women aged 20-24 (World Bank, 1993; Royston 1989).

Grand multiparous women which is defined as parity >5, are at risk of maternal and perinatal mortality and morbidity due to antepartum haemorrhage, postpartum haemorrhage and obstructed labour associated with abnormal position and presentation of the foetus (WHO, 1994). Lack of adequate spacing between pregnancies also increases the risk to the mother because she does not have time to recover from the extra physical demands made upon her by pregnancy. Women with birth intervals of less than one year faced twice the risk of death compared with those with longer birth intervals (WHO, 1991).

Beside age, parity and the spacing of pregnancies, the mother's stature is also of significance in childbearing. There is a correlation between height and pelvic size, and women of small stature are particularly susceptible to obstructed labour. Although short stature may be associated with small pelvis, maternal height is not generally a good predictor of prolonged/obstructed labour (WHO, 1994). A study in Nigeria showed that among a sample of women having their first babies who received prenatal care, 40% of those under 1.45 metres required operative delivery because of small pelvis, whereas the proportion was 14% for women 1.50 metres and less than 1% for women who were 1.60 metres and taller (WHO, 1991/ Harrison, 1985). While it may seem to be a good predictor in this study, this was a hospital based study and therefore not representative of the general population. Other research has shown the low sensitivity of this indicator in a population based study (Maine, 1991).

Women's stature, their growth during adolescence, and their ability to recover from the physical demands of pregnancy and breastfeeding are all related to their general health and nutrition status, both of which are determined by health care and food intake since early childhood and through adolescence. In societies where, by tradition, women eat last, their bodies may be ill-equipped to cope with their reproductive roles.
3.5.2 Abortion

According to the estimate made by WHO, about one quarter to one third of maternal deaths are due to complications of illegal induced abortions. In countries where abortion is legal, death is usually below 1 per 100,000 procedures (Planned Parenthood, 1993). Whether the abortion is spontaneous or induced, the complications are more or less similar (Population Report, 1997). Complications of abortions, including haemorrhage, septicemia, pelvic abscess, perforation of the uterus, tetanus and secondary sterility, have become common conditions presented at emergency wards in urban hospitals all over Africa (International Planning Perspective, 1989). Furthermore, even when these women survive, they often suffer from life-long disability or face an elevated risk of complication in future pregnancy (Population Report, 1997).

3.5.3. Women health and nutrition

Nearly 12 million children die each year in developing countries mainly from preventable causes. The deaths of over 6 million or 55% are either direct or indirect attributable to malnutrition (UNICEF, 1998). One consequence of an inadequate level and quality of food intake is that Cambodia has very high rate of child malnutrition. In 1996, 49.3% of children age 0-56 months were moderately or severely underweight, while as many as 56.1% were moderately or severely stunted (UNDP, 1997).

Low birth weight (LBW), caused by inadequate breast-feeding and complementary feeding, parasitical infection and poor care, are some of the main contributing factors to child malnutrition in Cambodia (MoP, 1998). The incidence of LBW babies is 18.4% in Cambodia (WHO, 1998). Discrimination and violence against women are also major causes of malnutrition. Women are the principal providers of nourishment during the most crucial periods of children's development (UNICEF, 1998). Anaemia has been identified as a contributing factor, if not a principle cause, in 20-23% of all postpartum maternal mortality in Africa and Asia (UNICEF, 1998). The World Bank estimated that in 1994, 450 million adult women in developing countries are stunted as the result of childhood protein energy food malnutrition, which places them at increased risk of obstructed labour and thus at greater risk of dying while giving birth. The causes of malnutrition include inadequate food supply, inequitable distribution within the household, improper food storage and preparation, food taboos, and lack of knowledge about nutrition. Malnutrition hampers woman's productivity, and increases susceptibility to infections, and contributes to numerous debilitating and fatal conditions.

3.6 Programme interventions to reduce maternal mortality

If a developing nation allots scarce resources appropriately, a relatively low maternal mortality rate can be achieved. Appropriate services need to be available to all pregnant women, or pregnant women must be able to move closer to them when necessary (WHO, 1997). Different approaches can be used, often in combination, to achieve the goal.
3.6.1 Screening of high risk pregnancies

Concentrating medical attention only on women identified as at risk has not proved to be effective. This is because the criteria for risk are often broadly defined and are not closely linked with adverse outcome. Study have found that most of the women who are identified as having "risk factors" do not actually develop life threatening complications, but the majority of pregnancy-related deaths result from unpredicted complications, that is among women not identified as "at risk". Thus, high risk detection is useful only when based on demonstrated complication and combined with monitoring, referral and prompt treatment to deal with complications as they develop, whether predicted or not (World Bank, 1993). In a community based study in the United States, about one of thirteen "low risk" women who had on average eleven prenatal visits developed a serious complication (World Bank, 1993; Rooks et al. 1989). But in Ethiopia and Nigeria, maternal mortality was reduced through prenatal screening of demonstrated risk factors and identification of danger signs diagnosed by certified nurses-midwives working with TBAs at the health centres or community level. The screening process identified women with poor obstetric histories and primigravida who were very young or very short, discerned existing medical problems or complications, and referred women before onset of labour (Poovan et al. 1990).

3.6.2 Improving, family Manning, and antenatal care

In a rural subdistrict of Bangladesh, maternal mortality has declined substantially in the past ten years because of a new approach to family planning and maternity care. An effective community-based family planning project raised contraceptive prevalence to above 50% in the study area - compared with 23% in the control area, and reduced the maternal mortality rate by about one-third. Family planning succeeded in decreasing the total pregnancies and thus the number of pregnancy-related deaths, but did not change the risk of death faced by women, once pregnancy occurred. The combination of basic family planning and maternal care cut the maternal mortality rate by more than one-half. The maternity care project posted trained midwives in the community to assist women, with births in their homes, if requested. The midwives provided prenatal care and carried supplies to stabilise or treat women with complications, and had access to transport and referral services for cases that they could not manage at the site (Fauveau, 1991). Another experience in Bangladesh in TBAs training since 1978 in spite of the success of their training, it was not in the hand of TBAs to prevent case fatality. Their greatest and most important role was to urge that high risk mother can be sent to higher level of care and to promote FP (Nessa et al. 1995).

In St Petersburg Russia, in 1991, the leading cause of maternal mortality was abortion more than haemorrhage, infection and hypertension. To change this situation, the authorities decided to use local funds to increase the contraceptive supply, to train health workers, to educate people about FP and to improve reproductive care for women. Although some people feared that FP would lower the birth rate, this did not happen. On the contrary women's and FP programmes not only prevented maternal mortality but also prevented infertility, LBW and infant mortality. By 1995 the maternal mortality ratio had fallen to 31 deaths per 100,000 live births compared to 70 in 1991. Maternal mortality related to abortion was reduced to a third of what it had been previously (SM, 1998). A study published in 1996 by the Bucarest, office of United Nation Population Fund, showed that the number of maternal deaths in Romania had dropped steeply since 1989 when abortion became legal. At that time the maternal mortality
ratio was 170 per 100,000 live births. Most of reduction in deaths was due to a drop in the number of deaths because of unsafe abortion. In 1996 the maternal mortality ratio was 41 per 100,000 live births (SM, 1998).

In Indonesia, training TBAs in the absence of skilled backup support did not decrease women's risk of dying once pregnant (Alisjahbana, 1991). In the Gambia, a similar approach helped reduce excessively high maternal mortality ratios, but only to a still relatively high level. These trained TBAs provided monthly prenatal care visits to pregnant women. Each woman was also examined by a physician and treated for any illness identified. While this care resulted in a reduction of the maternal mortality ratio from 2,230 to 1,052 deaths per 100,000 live births, it still remained excessively high because women who developed complications during late pregnancy or delivery could not obtain the care they needed in time because of lack of access to emergency obstetric care (World Bank, 1993; Greenwood, 1991).

3.6.3 Services delivery improvement

Maternal mortality and morbidity can be reduced to a certain extent through improved access to family planning, simple hygienic practices by trained birth attendants and appropriate strategies to deal with unsafe abortion. However, obstetric problems can only be effectively managed by continuous, active medical interventions. The health services must be able to use effective drugs (oxytocin and antibiotics), provide blood transfusions, perform obstetric surgery and handle life-threatening obstetric complications. Moreover, because life-threatening obstetric complications are often unpredictable, maternal health services must be widely and rapidly accessible. The ordered development and rational management of an appropriate health infrastructure, along with the behavioural changes and informed choice among potential consumers, help make motherhood safe (WHO, 1997).

Tanjungsi, Indonesia has been successful in decreasing MM from 508/100,000 to 225/100,000 live births between 1989 and 1993, by established birthing huts where women could receive pre-natal care, screening, referral and normal delivery services and which had access to emergency care via two-way radios and ambulances (JSI volume 4, No. 2). In three isolated Gambian villages, the single most important factor contributing to mortality declines was apparently the on-the-spot, 24 hour availability a physician or qualified of midwife at the clinic, with free transportation to and from the clinic (Thaddeus et al. 1990).

In Ethiopia, maternity waiting homes near a rural referral hospital or health center were successfully used by women who lived far away. The community constructed and maintained the homes. Men contributed financing and labour and were thus more likely to allow their wives to use the facilities (Poovan et al. 1990). Improved health behaviour may also result in decreased perinatal mortality and improved newborn health (Koblinsky et al. 1995). Tetanus toxoid immunisation is highly effective in reducing neonatal deaths from tetanus as well as the 30,000 estimated maternal tetanus deaths yearly (World Bank, 1993; Fauveau et al. 1992).

Wilkinson (1995) showed a reduction in avoidable perinatal deaths through improved perinatal care in a rural district in South Africa. Standing orders and guidelines for perinatal management and referral were introduced and reinforced through regular in-service training sessions. The avoidable perinatal mortality rate declined close to zero over a two-year period (Wilkinson, 1995).
A study of near-miss death events conducted in Benin showed that the early diagnosis and management of hypovolaemic shock, cardiac failure and septic shock were areas where significant maternal mortality reduction could be achieved in women with hypertensive diseases, obstetric haemorrhage, sepsis and ectopic pregnancy (Filipp et al 1997).

Midwife training in life-saving skills (LSS) could be linked to improved clinical outcomes in Northern Nigeria. With the presence of only one non-obstetric trained doctor, midwives carried most of the burden of obstetric services, except for caesarean sections. Postpartum haemorrhage, prolonged labour, sepsis, maternal and perinatal mortality were all reduced markedly. There were other inputs, such as equipment and drugs, but training was the major factor for improvement of services (Kwast et al. 1995).

Sustainability is an important issue in all health services improvement efforts. It is clear from experiences around the world that political commitment as well as political instability are decisive determinants (Kwast, 1998). Improvement in quality of services needs a strong political commitment and allocation of finances, not so much for new buildings but for maintenance of existing ones, equipment and vehicles, and for regular supply for medications. The evaluation of LSS in Uganda, has shown that LSS performance can be hampered if drugs and equipment are in short supply, and that evaluation itself can be jeopardised if records are not available owing to shortage of supplies or inefficient filing systems (Kwast, 1998).

From these studies it is clear showed that strategies of effective programmes to prevent and to reduce maternal deaths will include many services at the community, health centres with EOC available and referral level with COC, all of which must be coordinated to ensure their effective functioning. Preventing the main causes of maternal death will require a broad range of services including ANC, labour and delivery care, FP, treatment for complication of unsafe abortion, with provision of safe abortion where possible. The greatest improvements will be seen where comprehensive and integrated care are provided. The effect of FP programme will depend on many factors, such as there must be available and access to services. Services must be provided in both public and private health facilities though community- based distribution networks with good collaboration. Good counselling to both women and men must be offered by the trained providers. Political support is very important.

### 3.7 Measuring progress

Monitoring the progress toward the reduction of maternal mortality requires reliable, timely and internationally comparable data. Such data are also needed to form a basis for policy and programme development, implementation, monitoring and evaluation. However, significant gaps remain in the available information, and data need to be strengthened in most countries. Moreover, there needs to be more interaction between the people who provide information and those who use it (UNCEF,WHO, UNFPA, 1997). Progress in reduction of maternal mortality can be measured both by monitoring the activities aimed at reducing maternal mortality and by collection of data from the health services. When interventions are implemented to reduce maternal mortality, then it is necessary to be able to measure whether they are successful and which strategies have how much success. There are two main approaches to monitoring intervention. One is to measure the process, to see whether the implementation is carried out as planned. The other is to measure the impact of the interventions, looking for changes in the basic indicators, such as morbidity.
3.7.1 Process indicators

The process indicators have several advantages over health impact indicators like maternal mortality and morbidity and have been used by many organisations as a tool to monitor and evaluate all levels of SM programmes. They can be used for initial situation analysis and provide information on what actions need to be taken to improve the situation and existing programmes. They are less expensive to measure and can therefore be used to measure more frequently to monitor the progress (UNICEF, WHO, UNFPA, 1997). The limitation, however, is that even when the process is going on the outcome may not be satisfactory.

3.7.2 Outcome indicators

Outcome indicators reveal whether the activities undertaken to reduce MM are having any effect. Indicators are chosen to compare the situation over time in one location or between locations with and without intervention. The data for these indicators, however, may be more difficult to collect than for process indicators. In SR Province, the study described in the next chapter show some of the difficulties in obtaining such data.

Table 2 list process and outcome indicators commonly used to monitor and evaluate SM programmes. With the information provide by the process and outcome indicators, the improvement made when intervention are carried out can be evaluated. When we prepare a plan, we will also have to plan for data collection in order to monitor the progress.
Table 2. Indicators for Safe Motherhood Programmes

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Definition: Numerator / Denominator</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of pregnancy related deaths</td>
<td>Deaths of women during pregnancy or within 42 days of termination of pregnancy</td>
<td>x</td>
</tr>
<tr>
<td>Maternal mortality ratio</td>
<td>Number of maternal deaths x 100,000</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Estimated number of live births</td>
<td></td>
</tr>
<tr>
<td>% of woman attended at least once during pregnancy by trained personnel</td>
<td>Woman attended at least one during pregnancy</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Estimated number of live births</td>
<td></td>
</tr>
<tr>
<td>% births attended by trained health personnel</td>
<td>Births attended by trained health personnel</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Estimated number of live births</td>
<td></td>
</tr>
<tr>
<td>% of population living within 1 hour travel time of health centre/hospital offering EOC</td>
<td>population living with 1h travel time to health facility</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Total population</td>
<td></td>
</tr>
<tr>
<td>Nº of EOC facilities:</td>
<td>For every 500,000 population:</td>
<td>x</td>
</tr>
<tr>
<td>• Basic</td>
<td>At least 4 basic EOC facilities</td>
<td></td>
</tr>
<tr>
<td>• Comprehensive</td>
<td>At least 1 comprehensive EOC facility</td>
<td></td>
</tr>
<tr>
<td>% of birth in EOC facilities</td>
<td>At least 15% of all birth in the population take place in EOC facilities</td>
<td>x</td>
</tr>
<tr>
<td>Met need for EOC:</td>
<td>At least 100% of women with obstetric complications treated in EOC facilities</td>
<td>x</td>
</tr>
<tr>
<td>% of women with complication treated in EOC facilities (15% of all expected births)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caesarean section rate</td>
<td>Not less than 5% and not more than 15% as the proportion of all births in the population</td>
<td>x</td>
</tr>
<tr>
<td>Case fertility rate</td>
<td>The case fertility rate among women with obstetric complication is less than 1%</td>
<td>x</td>
</tr>
<tr>
<td>Neonatal mortality rate</td>
<td>Number of neonatal deaths</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Estimated number of live births</td>
<td></td>
</tr>
<tr>
<td>Stillbirth rate</td>
<td>Number of stillbirths</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Estimated number of total births</td>
<td></td>
</tr>
<tr>
<td>Perinatal mortality rate</td>
<td>Number of perinatal deaths</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Estimated number of live births</td>
<td></td>
</tr>
<tr>
<td>Low birth weight rate</td>
<td>Number of live born infants weight less than 2500g</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Estimated number of live births</td>
<td></td>
</tr>
<tr>
<td>Neonatal tetanus death rate</td>
<td>Number of neonatal tetanus deaths</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Estimated number of live births</td>
<td></td>
</tr>
</tbody>
</table>


▲ P: Process indicator . I: Impact indicator
CHAPTER 4

Study results of maternal mortality and MCH services in SR

4.1 Introduction

Svay Rieng Province is located in the south-east of Cambodia, bordering Vietnam. This a small but quite densely populated province (152 inhabitants/lan') accommodates an estimated 470,000 inhabitants. The UNTAC, 1992 census is the basis of this calculation taking into account an annual population growth of 2.8%. It is also one of the poorest province. However, efforts by international NGOs like Medicins Sans Frontieres (MSF) and HNI in collaboration with the Provincial Health Department (PHD) and UNICEF have improved the health-care delivery system in comparison to other provinces.

Figure 5. Flow of the HMIS in Cambodia

The HMIS was adopted at the national level and was implemented in SR province since 1995. The MCH report was included in the HMIS.

The flow of the information is: the ODs summary HCs and referral hospital reports for the summaries are sent to PHD. The PHD collates the ODs reports and makes a summaries for MoH, Planning Department and Health Information, who computerize and analyzes the information for feedback reports to PHD and national programmes. In reality, however, feedback is not yet a functioning part of the process in all the level of health care delivery, specially at the first level (MoH, 1997)

In the beginning of 1998, HNI initiated a retrospective cross sectional study in order to assess the causes of maternal mortality and the reason for unreported maternal deaths during 1997 in some of the catchment areas of the existing HCs by using a verbal autopsy questionnaire which had been processed after peer review. The study was carried out from March 1998 to May 1998 (3 months) in all the catchment areas of the HCs, in the three ODs of SR with the assistance of the Provincial MCH. Supervisors, midwives and TBAs, village and commune chiefs also helped in the survey.

It was possible to ascertain many of the reasons for unreported maternal deaths, ranging from deep-rooted cultural and religious beliefs and taboos to modern socio-economic problems faced by very poor people in inaccessible rural areas. On the basis of this study, it was found...
that there was a high percentage (86%) of unreported maternal deaths in SR Province. Only 14% of maternal deaths were reported by the HMIS for 1997 (HMIS, PHD, SR, 1998). A recent study carried out in India showed that 70% of maternal deaths were not reported or were misclassified (WHO, 1997).

Many factors have been found to be responsible for under-reporting of maternal deaths by HMIS. It is hoped that by strengthening the communication system in the monthly MCH meetings, an alternative strategy can be established for assessing the maternal mortality in the province thereby reducing the discrepancy inherent in the present HMIS. It is very important for the health authority to realise that the usefulness of the HMIS lies in its credibility.

4.2 Objectives

4.2.1 General objective of the study of maternal mortality in SR

To study the causes of maternal deaths and to investigate the reasons for under-reported and unreported maternal death in SR Province of Cambodia.

4.2.2 Specific Objectives of the study in SR

1. To identify the factors and causes that influence high maternal mortality.

2. To draw lessons from the analysis of the maternal health programme to make locally appropriate strategies for saving of maternal lives in SR Province, Cambodia.

3. To improve the study design for further investigations of factors related to maternal health.

4. To find appropriate intervention for improving the HMIS as well as maternal health services at all level in the province.

4.3 Methodology of the study

4.3.1 Type of study

A retrospective cross sectional study on maternal deaths was conducted in the three ODs of SR Province.

4.3.2 Study population

All the cases of maternal deaths which were recorded at the hospital and health centers together with the figures that were collected during the monthly MCH meetings the study population. The list of deceased women has been established and was cross-checked. Maternal mortality is defined as the death of women during pregnancy or within 42 days after pregnancy, irrespective of the duration or site of pregnancy, from any causes that are related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (WHO, 97).
a. Criteria for inclusion

2. Maternal deaths that took place in the three ODs of SR Province.

b. Criteria for exclusion

1. Maternal deaths that occurred outside SR Province.
2. Deaths which could not be confirmed by the relative as being related to pregnancy, labour or delivery and more than 48 days postpartum or post abortion.

4.3.3 Data collection methods

Facts and figures collected during the monthly MCH meetings were verified by field visits to interview the close relatives of the deceased women who had been classified as maternal deaths. The questionnaire was formulated and was pre-tested with the family of maternal deaths in 1998 at OD SR. Verbal autopsy of all reported maternal deaths were conducted by the author with persons (3 to 4) close to the deceased women. In order to reduce any bias, all the interviews were conducted by the author. More than one close relative was interviewed to avoid recall bias. Since the time period was short (between the time of death and the survey) and moreover, as death is a major event in the family, most of the relatives were able to give a graphic description of the problems faced by the deceased women during pregnancy, labour and delivery. To trace the maternal deaths, the midwives, nurses, TBAs, commune and village leaders were consulted. The local branch of the MoWA, and other local NGOs based in the villages and communes were also approached. The data were processed manually using master sheets.

Limitation of the study

The study was conducted in the catchment areas of 8 functioning HCs. Thus many areas were not covered by the reporting system due to sparsely distributed health facilities according to the new health coverage plan. In due course, 37 HCs will be established in SR province.

4.4 Results and discussion

There were 58 maternal deaths as seen in Table 3.

Table 3. Distribution of maternal deaths according to age and the catchment area

<table>
<thead>
<tr>
<th>OD / Age</th>
<th>15-19</th>
<th>20-24</th>
<th>25-29</th>
<th>30-34</th>
<th>35-39</th>
<th>40-44</th>
<th>&gt;45</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td>3</td>
<td>7</td>
<td>7</td>
<td>11</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>39/67%</td>
</tr>
<tr>
<td>RH</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>8/14%</td>
</tr>
<tr>
<td>Chiphou</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td>2</td>
<td>11/19%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>9</td>
<td>12</td>
<td>16</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td>58</td>
</tr>
</tbody>
</table>

There were 37 (64%) women between age 20-34. Although there were more HCs in SR OD, which should actually improve the HMIS, unfortunately, there was more under-reporting as discovered by the questionnaire.
Figure 6. Distribution of maternal deaths according to gravidity

The other “high risk” group were the grand multigravida, (>5 pregnancies) with 20 deaths (35%). Primigravida women constituted one third of maternal deaths (34%), while 31% were gravida 1-4, which is usually considered as low risk group.

Antenatal care

Of the deceased women, 60% had antenatal care and 40% of the deceased women did not have any check-up during their pregnancy. Although it appears that a high percentage of pregnant women had antenatal care by midwives either in the HC or at home, it was subsequently found that the midwives (particularly, the primary midwives) were not sufficiently trained. Pregnant women in high risk group were not informed, the husband or accompanying relative was also not informed and the midwives lacked skills in counselling.

Table 4. Causes and period of maternal deaths

<table>
<thead>
<tr>
<th>Causes</th>
<th>During pregnant</th>
<th>During labour undelivered</th>
<th>Post delivery up to 42 days</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eclampsia</td>
<td>4</td>
<td>14 (78%)</td>
<td>18 (31%)</td>
<td>34</td>
</tr>
<tr>
<td>APH</td>
<td>2</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Puerperal sepsis</td>
<td>6</td>
<td>6 (10%)</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Septic Abortion</td>
<td>6</td>
<td>6 (10%)</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Obstructed labour</td>
<td>3</td>
<td>3 (5%)</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Ruptured uterus</td>
<td>5</td>
<td>1</td>
<td>6 (10%)</td>
<td>11</td>
</tr>
<tr>
<td>Concomitant illness</td>
<td>3</td>
<td>1</td>
<td>4 (7%)</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>9 (16%)</td>
<td>15 (25%)</td>
<td>34 (59%)</td>
<td>58</td>
</tr>
</tbody>
</table>

Figure 7. The causes of maternal deaths

In many developing countries, haemorrhage is the leading cause of maternal deaths (WHO, 1997). In SR Province it was observed that eclampsia was responsible for the deaths of 18 pregnant women (31%) while haemorrhage accounted for a (26%). 78% of the deaths due to eclampsia occurred during the postpartum period contrary to the reports that more deaths from eclampsia in most references occurred during the intrapartum period.
A recent study done in Nepal showed that eclampsia was the main cause of maternal deaths in the hospital (32%) whereas PPH accounted for only 13%. But this is in contrast to the community study where PPH was the leading cause of maternal deaths (34%) and eclampsia contributed only 10% (Pathak et al. 1998). Another retrospective analysis of the causes of maternal mortality in two hospitals of Dhaka City Bangladesh showed the most common causes of maternal deaths as eclampsia while at national level was PPH and in the two hospitals it was eclampsia. The higher proportion of deaths due to eclampsia in the hospital was because most of patients arrive with that complication long after the onset of first convulsion (Bhuiyan et al. 1995).

A probable causes of eclampsia in Cambodia may be due to: 1) traditional belief in a diet with very high salt content for new mothers especially post delivery. The poorer the women the higher salt content they use in the food in order to save money on more food and they also drink more traditional medicine, 2) drinking of rice wine (alcohol) mixed with Khmer traditional herbs before each meals from 7 months of pregnancy until delivery and even more in the post-delivery period. Lack of health awareness and negligence and belief in evil spirits lead to delay in seeking proper treatment at health facilities (White, 1995).

Pre-eclampsia/eclampsia is a major cause of not only maternal deaths but also perinatal deaths. Normally pre-eclampsia cannot be prevented but with good care this problem can be prevented from becoming worse and can prevent eclampsia. Antenatal care plays a vital role in early recognition and management. Increased awareness within the community of the danger signs and need for referral for pre-eclampsia/eclampsia will also contribute to a reduction in mortality due to this condition (WHO, 1994). Further field surveys would be recommended to find out about this problem. It would also serve the purpose of the training of provincial MCH supervisors, HCs midwives. Another potential benefit is to increase the population awareness of this serious problem.

Haemorrhage (26%) is also linked to the traditional belief that more bleeding after delivery will cleanse the mother of all the "bad blood". There is mismanagement during labour by untrained TBAs who use unnecessary force to remove the placenta before the appropriate time because of their fear that any delay might result in the cord "running back". Rupture of the uterus (10%) is probably due to traumatic rupture by using oxytocin and by breech extraction or pushing at the top of the uterus. Traditional childbirth practices do have implications for both the treatment and the occurrence of postpartum haemorrhage. In many countries both in Asia and Africa TBAs as well as family look upon bleeding after delivery as normal and some would also encourage the blood flow of "bad blood" in the postnatal period (Kwast; Nbevi & Njoki, 1982; Kargbo, 1984; Lartso, 1987). All these practices are similar to the SR study. Moreover, it is interesting to note that in Cambodian culture, there is a strong belief that labour and delivery are most difficult events, like "crossing the river" (Chhlong Tonle). Hence, there is a tendency to neglect the postpartum period. Interestingly in this study there were 34 deaths in the post partum period (59%), while during labour and delivery there were only 15 deaths (25%). This could be misleading as deaths from PPH are classified under postpartum deaths. Excessive bleeding is usually recognised and traditional medicines are administered with often detrimental delay in referral (Kargbo, 1984; Bhatia, 1981).
In order to prevent mortality from haemorrhage, mainly prompt treatment of its cause to prevent further bleeding and replacement of blood loss to maintain the circulation are needed. These in turn depend on the access to medical, surgical, intravenous fluid replacement and blood transfusion services, as outlined in Essential Elements of Obstetric Care at first referral level (WHO, 1992). PPH can also be prevented by active management of the third stage of labour, including the prophylactic use of oxytocics (WHO, 1992).

It was very difficult to know about the incidence of induced abortion in Cambodia, because it is very likely that abortion was under-reported. The 1995 KAP Survey showed that 5% of non-pregnant women reported having had one or more abortions in their lifetime. In Phnom Penh, 14% of married women of reproductive age reported having experienced an abortion, (MoH, 1995). The traditional methods for performing abortion, including abdominal massage, oral herbal medication or gun powder with rice wine and insertion of plants stems into the vagina or the cervix. These procedures are generally carried out by TBAs or traditional healers. Induced abortion is a major part of the work for many midwives and other medical staff who provide gynaecology and obstetrical services both in public and private facilities. These practitioners commonly use instrumental curettage. There were 10% of deaths due to septic incomplete abortions in the SR study.

Among the concomitant illnesses during pregnancy indicated by the relatives as the likely causes of death, three were pregnant women with tuberculosis. Two were treated privately and one was taking treatment from the TB centre. One maternal death was due to heart attack during labour.

**Table 5. The attendants at delivery**

<table>
<thead>
<tr>
<th>Attendants</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trained TBAs</td>
<td>14 (15%)</td>
</tr>
<tr>
<td>Untrained TBAs</td>
<td>30 (33%)</td>
</tr>
<tr>
<td>Traditional healer</td>
<td>9 (10%)</td>
</tr>
<tr>
<td>Quacks</td>
<td>23 (25%)</td>
</tr>
<tr>
<td>Nurse / midwife</td>
<td>12 (13%)</td>
</tr>
<tr>
<td>Doctors</td>
<td>4 (4%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>92</strong></td>
</tr>
</tbody>
</table>

Since doctors are only working in the big towns, a very small number of the deliveries (4%) were conducted by them. Moreover, TBAs are popular even in urban areas. The TBAs by virtue of their position in Cambodian society, are well respected and trusted. Hence, most of the rural and urban women seek help from them during pregnancy, labour and in the post partum period. The traditional healers occupy a higher status and are often called when the TBAs finds difficulties.
Table 6. Distribution of maternal deaths by place of death

The majority of maternal deaths took place at home (67%) or on the way to health facility. However, it was observed that the authorities in the HCs & Referral Hospitals tried to actually cover up the number of maternal deaths by under-reporting. The HMIS at the PHD reported only 14% of all maternal deaths during 1997 in the province. Usually patients including pregnant women living in the border areas adjacent to Vietnam, are often referred to health facilities there for the following reasons: proximity to hospital, less expenditure, and better treatment.

<table>
<thead>
<tr>
<th>Place of death</th>
<th>results</th>
</tr>
</thead>
<tbody>
<tr>
<td>At home</td>
<td>28 (48%)</td>
</tr>
<tr>
<td>during transfer</td>
<td>11 (19%)</td>
</tr>
<tr>
<td>At HCs</td>
<td>5 (9%)</td>
</tr>
<tr>
<td>At referral hospital</td>
<td>12 (21%)</td>
</tr>
<tr>
<td>Outside the province</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
</tr>
</tbody>
</table>

Table 7. The reasons that the family did not take women to the health facilities

Table 7 showed that the major reasons for not taking the women to the health facilities are embedded in the concept of "delay 1 & 2" which is in seeking and reaching care. The explanations given by the relatives of the deceased women for such delay were: to lack of finance (36%), no means of transport (18%), living far from HC (14%), advised by incompetent person or TBAs "no need to go to HC" (11%).

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too expensive</td>
<td>10 (36%)</td>
</tr>
<tr>
<td>No means of transportation</td>
<td>5 (18%)</td>
</tr>
<tr>
<td>Too far</td>
<td>4 (14%)</td>
</tr>
<tr>
<td>Advise not to go</td>
<td>3 (11%)</td>
</tr>
<tr>
<td>Wait for an experiences person</td>
<td>3 (11%)</td>
</tr>
<tr>
<td>Delay in preparation</td>
<td>2 (7%)</td>
</tr>
<tr>
<td>Natural calamities</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

Table 8. Distance from health facilities to the houses of deceased patients

Factors affecting the high rate of maternal mortality in SR Province are: poverty, distance from health services, costs of travel, cultural belief preference for traditional healers and birth attendants. Specifically the problem is compounded further due to lack of roads and communication services.

From the table, it appears that the distance from the health facility is directly proportional to the number of maternal deaths. This showed clearly that 76% of maternal deaths had poor access to health facility for EOC.

<table>
<thead>
<tr>
<th>Distance from HCs</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 Km</td>
<td>14 (24%)</td>
</tr>
<tr>
<td>More than 5 Km</td>
<td>20 (35%)</td>
</tr>
<tr>
<td>More than 10 Km</td>
<td>24 (41%)</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
</tr>
</tbody>
</table>
Reporting of Maternal Death

Most births and deaths are reported to the Village or Commune Chief who is responsible for sending his report to the district then provincial authorities. However, there is a lack of communication at various levels of administration which leads to under-reporting. Of the 58 maternal deaths only 23 (40%) were reported to the authority: 51% to commune chief and 49% to the commune midwife, while 35 (60%) deaths were not reported. Many of the relatives mentioned that they did not feel it is important to inform the Village or Commune Chief because everybody in the village knows when somebodies died and is cremated, there was no apparent benefit for the authorities from giving this information. Others said that because of the grief, they forgot to report.

Although there is a national HMIS, data collection is problematic. Often, registers in institutions, hospitals or commune health centres are incomplete. Sometimes the diagnosis is adjusted to cover up bad practices. For example, Perforation of the uterus due to instrumental curettage is often listed as an appendicitis. Ruptured uterus is changed to post partum haemorrhage due to inertia of the uterus. Sometimes if the patient has arrived and died within two or three hours at the hospital they are not registered. Instead, the family is asked to take the body back home. This is because health providers fear a negative reputation if they record maternal mortalities. In addition, other considerations include inefficiency in the Ministry of Health's HMIS whereby the program was implemented without appropriate supervision. There is no community participation in designing and implementing health programme, there is an inability to communicate or provide feedback between the different levels in the health system, and a lack of co-ordination and consultation with various health providers in the province.

Table 9. Condition of the baby

<table>
<thead>
<tr>
<th>Condition of Baby</th>
<th>Week 1 (Early neonatal)</th>
<th>Weeks 2-4 (Neonatal)</th>
<th>Months 2-12 (Infant Mortality)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dead 23 (64%) (2 sets of twins)</td>
<td>11 (48%)</td>
<td>4 (17%)</td>
<td>8 (35%)</td>
</tr>
<tr>
<td>Alive 13 (36%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In this study it was found that 48% of the babies died during the first week of life after their mother's death and 23 died altogether in the first year (64%). Probable causes were congenital abnormalities, asphyxia, birth trauma, and immaturity which actually are related to maternal health during pregnancy and delivery.

Most of the babies which were alive were taken care by their grandparents. These babies looked not healthy at all, and most of them got skin infections. Most of the grandparents said the bad health of these babies was because they did not practice the traditional way, such as putting the salt on the placenta and bury it in the place where a lot of people walk, as this should help the baby to have clear skin. Only a few of the babies were under the care of the father, while others were taken up for adoption. Most of the other older children were also being taken care of by the grandparents.
During this survey, one particular incident remains in my memory which I would like to share with others. In one of the villages, in a mud hut, I saw three children aged 12, 5, and 4 years living by themselves. They lost their mother in childbirth during 1997 and their father had deserted them. They had no relations to take care of them. However, a neighbour agreed to feed them if they worked in his paddy field and carried out odd jobs for his family. I wonder what will be the future for these children? I am sure there are hundreds of abandoned children all over the world forcibly exploited by others because they just have to survive.

4.5 Discussion

According to the extrapolation from the national estimated maternal mortality ratio of 473/100000, the estimated number of maternal deaths in SR Province would be 101 out 21431 expected pregnancies. This study identified only 58 maternal deaths, which is 6 times higher than the official number of 8 which was reported by HMIS. Compared to the estimated maternal mortality ratio, this study identified 57.4% of the expected maternal deaths for SR Province. Two reasons could explain this discrepancy: either the national maternal mortality rate is higher than the maternal mortality rate in SR or indeed the number of deaths in this study is under-reported by 42.6%.

This finding corroborates with the literature review which is clearly shows the difficulty regarding complete reporting of the maternal deaths, especially in a country like Cambodia where most of maternal deaths occurred at home and the registration in health centers or hospital is not systematic. Moreover the available records were unreliable and incomplete throughout the country. In 1997 only 86 maternal deaths were reported to national HMIS for the whole country which is about 4% of expected deaths (MoH, 1998). Establishing a reliable baseline level of maternal mortality requires a very large sample size and is costly, except in places where the vast majority of deaths occur in the hospital or vital registration is very good (Campbell et al 1997). The emphasis should be given to improve the reporting system so as to evaluate the impact of maternal health services in SR Province. Beside the problems of under-reporting of maternal deaths, there were other problems that we learnt from this study. Some of these important findings are: inaccessibility and untrained providers; the majority of death are at home.

4.6 MCH in SR Province

Although there are some constraints in the maternal and child health in SR Province, there are also some achievements made as compared to the other provinces of Cambodia in certain activities as shown in the national report 1997. But still these achievements did not reach the expected need for all the women in childbearing age and pregnancy. In order to address the constraints the following suggestions and recommendations for the strategies that can be made for the implementation in the province.

The results of the MCH activities in the operational district SR and Romeas Hek (RH) which were supported by HNI in the past are shown in the Table 10. The HNI support was reduced in the beginning of 1997, in order to increase the self reliance of the local staff. In Chi Pou (CP) district the results have been lower due to limited support from HNI, but also because MoH staff have not been re-trained in the MPA.
<table>
<thead>
<tr>
<th>Indicators</th>
<th>Provincial Hospital</th>
<th>OD SR</th>
<th>OD RH</th>
<th>OD CP</th>
<th>Total SR province</th>
<th>National level</th>
</tr>
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<tbody>
<tr>
<td>Total Population</td>
<td>272030</td>
<td>120515</td>
<td>83721</td>
<td>476266</td>
<td>11.4 M</td>
<td></td>
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<tr>
<td>Expected Pregnancy 4.5%</td>
<td>21431</td>
<td>12241</td>
<td>5423</td>
<td>3767</td>
<td>21431</td>
<td>406,613</td>
</tr>
<tr>
<td>Target women for F/P 12%</td>
<td>32644</td>
<td>14462</td>
<td>10047</td>
<td>57152</td>
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<td></td>
</tr>
<tr>
<td>First ANC visit</td>
<td>6710</td>
<td>2842</td>
<td>866</td>
<td>10418</td>
<td>126,837</td>
<td></td>
</tr>
<tr>
<td>Total ANC</td>
<td>11661</td>
<td>5629</td>
<td>1698</td>
<td>18988</td>
<td>238,003</td>
<td></td>
</tr>
<tr>
<td>Return Index (ANC)</td>
<td>1.7</td>
<td>1.9</td>
<td>1.9</td>
<td>1.8</td>
<td></td>
<td>1.8</td>
</tr>
<tr>
<td>Coverage first ANC</td>
<td>55%</td>
<td>52%</td>
<td>23%</td>
<td>49%</td>
<td></td>
<td>31</td>
</tr>
<tr>
<td>High Risk Pregnancies detected (% of ANC 1st visit)</td>
<td>16%</td>
<td>14%</td>
<td>14%</td>
<td>15.27%</td>
<td>8.58%</td>
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<td>Coverage TT2</td>
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<td>1804</td>
<td>1253</td>
<td>7957</td>
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<tr>
<td>Total deliveries (by hospital, Hcs &amp; home)</td>
<td>3486</td>
<td>1907</td>
<td>803</td>
<td>6538</td>
<td>30.51%</td>
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<tr>
<td>% of deliveries by TBAs</td>
<td>3387</td>
<td>1843</td>
<td>799</td>
<td>6029</td>
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<tr>
<td>% of delivery in hospital, HCs (EOC, 15%)</td>
<td>342</td>
<td>99</td>
<td>64</td>
<td>4</td>
<td>509 (hospitals)</td>
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<tr>
<td>Dystocia (6% of expected pregnancy). Met need</td>
<td>121</td>
<td>21</td>
<td>28</td>
<td>0</td>
<td>170</td>
<td>2.37%</td>
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<tr>
<td>Caesarean section</td>
<td>38</td>
<td>38</td>
<td>841</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Met need Caesarean section (5%)</td>
<td>38/1072</td>
<td>38/1072</td>
<td>841</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>New acceptors of FP</td>
<td>3108</td>
<td>2384</td>
<td>715</td>
<td>6207</td>
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<td></td>
</tr>
<tr>
<td>Woman involved in FP programme</td>
<td>4502</td>
<td>5058</td>
<td>876</td>
<td>10436</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>Coverage of FP</td>
<td>14%</td>
<td>35%</td>
<td>9%</td>
<td>18%</td>
<td></td>
<td>7% (WHO'97)</td>
</tr>
</tbody>
</table>

Source: Provincial Health Department SR Province, 1997.
*na: not available
4.6.1 Service delivery

a. Coverage of ANC

Figure 8. Antenatal care activities in SR compared to national level

The Planning Unit of the MoH, 1996 ascertained that with 42% of antenatal coverage rate, SR has become a leader of Cambodia. But in 1997, antenatal coverage rate of SR has increased to 52.66% while it is only 31% at the national level. This is due to the activities of MCH supervisors and HC midwives together with the training of TBAs in the catchment area of each HC. The training is also the beginning of a more regular relationship between the HC midwives and TBAs. Once monthly they meet to discuss the activities and to provide continuous training. Sources: MoH, 1997 and MCH, SR Province, 1997

The coverage of antenatal consultations was 55% for SR, 52% for RH and only 23% for CP. On average as seen in table 10, the province reached a coverage rate of 49% which is above the national coverage (32.5%), and the return index was the same, 1.8 time on average. Comparing this figure of SR ANC coverage to the regional estimate for South-east Asia of 79%, demonstrates that Cambodia lags behind considerably in ANC (WHO 1996).

b. Coverage of delivery

Coverage of delivery by both trained and untrained staff in health facilities and at home was on average 31%. This figure is approximately the same as the estimated delivery coverage for SE Asia of 33% (WHO 1996). However, delivery coverage by trained attendants in health facilities is only 2.4% compared with the regional estimate of 53%. According to the indicators recommended by UNICEF/WHO/UNFPA (1997) for measuring progress the coverage of obstetric services, the minimum acceptable level of deliveries which should take place in EOC facilities should be 15%. If the figure of 2.4% is further analyzed, it appears that only 1.6% of deliveries took place at the COC facilities. This finding will be addressed in the activity plan for SR in the next chapter.

C. Coverage of caesarean section

According to the UNICEF/WHO/UNFPA guidelines the minimum acceptable level for C/S is 5%. For SR province the expected numbers of C/S would be 1072 (5% of 21431). However, only 38 C/S were performed which constitutes a net need of only 3.5%. Therefore the unmet need for C/S is 96.5%.
d. Coverage of complications

There are no data available at the present for the total of women treated in EOC facilities for life threatening complications except for dystocia. Assuming that 6% of all expected births develop prolonged or obstructed labour (dystocia) 1286 women should have been treated for this condition in hospital. But only 13% of women estimated to have dystocia were treated. This means an unmet need for treatment of dystocia of 87%.

E. Coverage of family planning

The coverage of FP in SR Province was among the best of Cambodia in 1996. From 1996 to 1997 the coverage was slightly increased from 12% to 18% (MCH, SR, 1998). Where as the national coverage was only 7% in 1997 (MoH 1997) coverage of the MoH national objective for the year 2000 is 20%. Although the average of the total province is 18% of the target women, the average coverage of family planning of the 5 functioning HCs with MPA is 23%, slightly above the current target of the whole SR Province.

The analysis of these process indicators clearly show the serious unmet need for emergency obstetric care and low coverage of delivery services. Until these indicators improve, maternal mortality will not be reduced. As the maternal mortality ratio remains an estimate and is anyway under-reported, more maternal mortality surveys are inappropriate until coverage of women with obstetric complications improves.
CHAPTER 5

Conclusion and recommendations for SR Province

An analysis was made of the current strategies and activities in SR Province, compared to the national ones. A matrix summarising the analysis is presented in Appendix 4. It can be seen that most of the strategies in the national plan are addressed by the current and future activities in SR Province.

Additional activities are recommended based on the analysis of the study of maternal deaths in SR province and the results of MCH activity in 1997 in SR province together with the lessons learnt from the global picture. These strategies focus on each level of the health care delivery system in SR Province and need to be implemented with the collaboration of the national level. Certain issues or activities will be addressed within the ongoing MCH programme's interventions. Most of the actions planned in SM strategies have been covered by the technical support from HNI and UNICEF and some activities have to be improved or will start implementation in 1999 or 2000. Therefore, HNI and UNICEF will take the lead by providing the technical support and other necessary infrastructure and collaborate with other national and international NGOs working in the field of SM. The following recommended strategies will also be the priority for SR Province.

5.1 Increasing the use of appropriate services delivery toward the three delays

1. Family and community and HC level

a. Consider feasible solutions to the most immediate problems for example, provide incentives for professionals to work in rural areas. Most important is the decision on posting the midwives to new planned HCs which need to give special attention to on-the-job and theoretical training of SM components such as ANC, FP and the syndromic approach of STDs. The training must cover good counselling skill, HMIS with a minimum package of process, output and impact indicators of MCH services, and LSS training at least 2 months before the formal training of MPA takes place.

b. Training of TBAs will be carried out only in the catchment area of HCs. The role of TBAs, community based distribution (CBD) workers, village health volunteers should be clearly defined inside the health services framework. Moreover, they should be responsible to promote pamphlets for IEC on recognition of danger signs during pregnancy, childbirth and the postnatal period. They must also be able to recognise obstetric complications and immediately act upon any danger signs to call for urgent assistance from the nearest trained service providers and/or mobilise appropriate emergency transport.

c. IEC campaigns are very important to improve health behaviour of women families and the community. IEC campaigns should be launched to sensitize the population to the importance of blood donation to save women's lives. All these activities will be the
responsibility of the MCH supervisor, PHD and collaboration with others supervisors, and will be supported by HNI and UNICEF.

d. Patient referral is still very weak because the province has not achieved the HCs with providing MPA according to MoH new health coverage plan, so lack of transport is problematic, there is no radio communication and no well structured referral system between referral hospital and HCs. For transport, alternative recommendations such as providing radio communication between referral hospital and HCs with centrally located ambulances and a motoambulances should be provided to more remote HC. HNI, UNICEF and other NGOs will be responsible to provide them.

e. The emergency obstetric kit has already been introduced at functioning HCs in SR by HNI since 1995, which now became a regularly supply through EDMS. The kit contained IV fluids and IV catheters, oxytocins vials, diazepam vials of 10mg, gloves, torch, stethoscope, sphygmomanometer, syringes, needles, suture and delivery sets and urinary catheters. The antibiotic like ampicillin vials would be recommended to add in the kit. Although, magnesium sulfate was recommended in MM study in Nepal (Pathak et al 1998), at the present in SR, this would not be recommended at HC level due to the lack of skill of the providers but for sure at the referral hospital it is very important to obtain it.

f. Links with villages: community co-management, co-financing and feedback committee are set up in a number of functioned HCs already in order to increase community participation in the first level of health facilities and to improve the exchange of information between communities and HCs staff. The system of co-financing had only been functional for a few months at the end of 1997 while the other committees have existed already since 1995 in functioned HC. Co-financing was introduced in order to increase their income for running costs and to be used as a salary supplement for HCs staff. SM IEC has not really been addressed in these committees yet. The committee’s members should be made gender sensitive. Their role should be better defined inside health facility framework and make sure that the SM IEC components are included. The members of community co-management, co-financing committees can decide what to do for poor patients who can not afford to pay for health care and the health facility should have an exemption scheme for those who could not afford. They can also help in improving the maternal deaths reporting system to health facilities. The activities should be scheduled for the routine meetings by MCH supervisors and HCs midwives. HNI and PHD organised and cooperated with all the traditional healers and quacks already for TB promotion, so this can be a good entry point for promoting SM IEC with reporting system of maternal mortality as well.

2. Referral hospital level

a. At present SR referral hospital is the only place where the COC facility can be provided. Unless this level works well maternal morbidity will not be improved and maternal mortality will be not reduced for SR Province, even with a good referral system in HCs and trained TBAs. With the support of UNICEF, HNI took the encouraging step to introduce a training programme on basic obstetric emergencies. It was a crucial step as it was expected that this
training for MoH staff in managing the obstetric emergencies will improve their clinical capacity, improve the quality of obstetric care, improve the supervisory team's obstetric skills, motivate the doctors to do more coaching (eg. on-the-job-training) for (i) Hospital midwives, (ii) HC midwives, & (iii) TBAs who accompany the referred patients. The training may also help them to motivate the midwives to accept more responsibilities for the welfare of the patient, to improve the communication between the TBAs, HCs midwives and other midwives from the Referral Hospital, to improve the referral system and feedback system and to evaluate the performance of the obstetric ward midwives.

A curriculum was developed by HNI and three 10 day sessions of theoretical training were implemented at the end of 1997. The trainees were all the MDs, MAs and midwives from the three ODs of SR with a total of 60. The recommendations will be to follow up by on the job clinical support with training, especially on obstetric emergency situations, case by case. It would as well create a discussion on each case with Analysis-leading finally to the auditing system (in case of mortality). Eventually, this should be reflected positively in the referral system and communication between different levels. For starting on the job training, this hospital create a training ground for other MCH staff in the province. Recently NMCHC with other IOs and NGOs have developed the obstetric emergency management guidelines on ANC, labour and delivery, postnatal care for both mothers, and newborn. This would be recommended for workshops according to the level of care to implement as a standard tool in SR Province.

5.2 Improving managerial and administrative capabilities

1. Health Management Information System

The standard HMIS from MoH has been implemented since 1995, in SR Province and monitoring has been a continuous process up to the present. It is a part of each supervisor's visit, with the support by HNI during the supervision. Some process indicators with graph or bar charts and checklists related to MCH service have also been introduced, according to the level of health care delivery, which include the supervisor's role. The midwives from all the HCs and hospitals collected monthly data and reported to a health staff who are in charge of HMIS in each area but they also reported during monthly MCH meeting to MCH supervisors.

The data was analysed by the provincial MCH supervisors with the support from HNI and UNICEF, once per half year and at the end of the year with the provincial congress for all the programmes within a province. But the problem is, the data from HMIS supervisors and MCH are always different, due to lack of coordination and communication, lack of feedback especially at the HCs level, and inaccurate reporting in the registers at all levels. The midwives or MDs who work at the public hospital usually have their own private clinics especially in the municipality, and they never report their activities to the HMIS. Moreover there is lack of reporting of certain activities from other local as well as international NGOs who are involved in SM components such as FP. These NGOs sometimes report their activities directly to the national level without going through PHD and sometimes they just report within their
The recommendation is to strengthen the HMIS for all the levels of health services in collaboration with all the related sectors as well as the maternal death reporting system with all the levels of authority (provincial, districts, communes and villages leaders) in SR Province by:

a. The HCs midwives make sure of the routine collection all the monthly reports from the TBAs activities and also from the community participation in their catchment area of CHs.

b. Review MCH monthly reports as a regular of their meeting, including a comparison with the previous month's report in order to identify any important problems that need to be addressed.

c. The supervisors have to identify the problem of incorrect reporting and also missing reports that need to be followed up for the next meeting or supervision.

d. Contact all NGOs that works within the SM components and invite them for the monthly MCH meeting. The feedback should also be given to all the participants during the monthly meeting as well as during the supervision.

e. Introduce the registers for referral hospitals of SR Province in order to record the MCH activities done at home by health staff. These activities will be included to a routine HMIS as home based activities.

f. Improve the HMIS skills by on the job training including the analysis and interpretation of the results to MCH supervisors; improve the collaborations and communication between the HMIS supervisors and MCH supervisors at all the level.

g. Continue to conduct a mid-year review of MCH meetings in order to monitor the progress of the HCs and the referral hospital and conduct an end-year review of the results and analyses in order to set the appropriate targets for the following year.

h. To convince the authorities to improve the register on all maternal deaths and newborn in all levels of SR Province.

2. Regular, updated training in managerial and administrative skills, for example through a District Health Management workshop, which will be the responsibility of provincial training coordinators. Follow up the national activities or new plans and implementation in the province accordingly.

3. Develop standards of care, norms of practice, specific protocols and train supervisors according to their field to support their implementation.

4. Evaluate interventions through these strategies, whether any were effective in reducing the delay; evaluate once a year and act accordingly.

5. Formulate feasible but strict regulations together with PHD. For example, set up the working time that allow staff to do some private work, make sure about there is a 24 hour service.
5.3 Strengthen communication and co-ordination

1. Organise regular meetings and workshops between co-management, co-financing, feedback committee, **TBAs**, midwives, doctors, all health workers at all levels for exchange information and constructive criticism, can be based on the results of indicators.

2. **Maximise** the use of inputs from external agencies, including co-ordinating within the health sector in the province, for example PHD should have initiative to get from donors that they include budget for furniture and equipment, see training of staff when they commit themselves to fund an construction of HCs and be prepared for sustainability.

**Overall,** in order to improve the maternal morbidity and to reduce mortality all the level of health care delivery in the province have to be working according to the national SM policy and strategies with the involvement from family, community, health staff and policy makers.
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John Snow, Inc. Mother Care Matters. Tanjungsari, Indonesia: *Community-Based Birthing Huts*. Volum 4, No. 2 - Special Edition. USAID.


APPENDIX 1

Strategies for Safe Motherhood, MoH in Cambodia

1. Service Delivery

The maternal health care can be delivered at the community and health facilities to with the emphasis on the trained midwife as the linchpin in the community-based maternity services.

a. Family and community level:

Persuade the families through the community participation by the HCs staff together with trained TBAs to ensure that every pregnant woman and their babies in their group receives ANC, delivery and postnatal care. The collaboration with other national and international NGOs is very important, especially IEC activities, so health centres level who is linchpin in the maternity services between the community and referral hospital. Based on the policy, the role of TBAs need to be added that they should encourage every pregnant woman to attend ANC by the midwife at least twice and make sure women take with them the maternity record if they go to health facility. The TBAs also can give health education about the postnatal care, FP and care of newborn baby but they should identify the danger signs and refer on time, provide iron/folate tablets to the woman. Home delivery may be appropriate only for normal deliveries, provided by trained TBAs apprenticeship to other TBAs and contact with HCs midwives if needed and referral to a higher level of care.

b. Health Centre Level

The following EOC components in the MPA of health centre are included prevention, detection and treatment of anaemia and counselling on appropriate place of delivery according to complications identified by the midwife. Counselling and syndromic approach of sexual transmitted diseases and also of FP for all pregnant women, women in reproductive age and adolescents with their partners. Ensure that health centre are equipped and supplied the drugs and instruments to enable staff to perform basic EOC. At this level midwife is played an importance role for good communicating between TBAs and referral hospital midwives.

c. Referral Hospital Level

Improve the management of the five major causes of maternal mortality: haemorrhage, eclampsia, obstructed labour, puerperal sepsis and complications of abortion through improving physical infrastructure of referral hospitals, the quality and distribution of staff, development of clinical management protocols, and the present of necessary of equipment and medication. The obstetric services should be available on a 24 hours basis with accessible to blood supply, medical and surgical obstetric components.

d. Linkage

Utilise the team approach by capitalising on the resources and responsibility of the Provincial Co-ordination Committee (PROCOCOM), the Committee of Operational Health District.
health centers and community health workers, including the TBAs, to assist with the problem solving, training, supervision and ongoing advocacy. Collaboration with, and standardisation of NGOs efforts for integrated of Safe Motherhood components into existing MHC/FP related programmes are emphasised. Involve the health center midwife, as support to TBAs and other volunteers is involve in advocacy of Safe Motherhood at community level and ensures that health center midwives, the community including the TBAs to advocate the pregnant women for antenatal care at least 2 visits and referral of women and neonates with complications to health center and/or hospital with the system of emergency transport using community resources and possible moto ambulance at health center. The Safe Motherhood message is included in all the training that is followed by all these volunteers national and NGOs.

2. Human Resource Development

Improve the knowledge, practical, interpersonal communication and counselling skills technical capacity of health personnel (especially those posted in health centers and referral hospitals) in the management of prenatal and, intrapartum, postpartum care, newborn care, infection prevention, family planning, detection and management of STD, obstetric and newborn emergency care.

   a. Job Description
   The role and responsibilities of doctors, medical assistants and midwives are revised and expand in relative to Safe Motherhood activities in ANC, labour and delivery, post-partum care, newborn care, post-abortion care and family planning.

   b. Training intake and needs
   The Health Workforce Development Plan of 1996-2005, define the categorisation, both present and projected, of nursing and midwifery personnel at both the certificate and diploma level. This plan and categorisation should be assure that the workforce will include sufficient skilled practitioners who are competent in all aspects of midwifery and emergency obstetric care. The present and projected distribution of midwifery personnel at the community, health centre and referral levels, is reviewed in relation to the requirements of the health reform initiative and the implementation of the Safe Motherhood policy (HRD, MCH, and Planning unit).

   c. Pre-service training
   The curricula and lesson content are revised in relation to the component of Safe Motherhood (4 pillars) and also according to the Safe Motherhood policy by the ministry of health, MCH, and Human Resource Development (HRD) with representatives from the Medical Faculty and the nurse training schools, e.g. new curriculum for basis nursing, old curriculum (upgrade training) for primary and secondary nurses and midwives, training curriculum for medical doctors and medical assistants and also post-basic curriculum for midwives. All these curriculums should be standardised and competency based with an emphasis on development of measurable skills and knowledge for evaluation of clinical practice based on the collaborative agreement between MOH, hospital training sites, Faculty of medicine and nursing school.
d. In-service training

The MoH in collaboration with international and bilateral agencies, NGOs and resource persons has ensured the that the clinical guidelines for the MPA and the CPA includes emergency obstetric care which include active management of third stage of labour, postabortion care, sexual transmitted disease (STD) and anaemia management. In service training must be in line with the MPA, CPA and management of emergency obstetric guidelines/ protocol to ensure sustained quality of services delivery. The duration of in-service training shall be commensurate with the content and the level of skill needs as determined by standards and protocols. The training needs in data collection and Information, Education, and Communication (IEC).

3. Health Information System

The health information system has to be improved for monitoring and evaluation of maternity care, and birth spacing coverage, maternal, perinatal and neonatal mortality and morbidity related to selected WHO/UNICEF indicators for monitoring maternal health goals at all levels of the health system (see appendix for indicators).

4. Information Education and Communication (IEC)

The information, education and communication from national to community level has to be intensified on Safe Motherhood concepts to promote awareness about specific maternal and neonatal health issues. A multilateral effort has to be promoted in order to create a strong commitment to reach the public, policy-makers and care providers in all sectors for development of activities through TV and radio spots, poster and other mass media including traditional drama, special religious festival etc, which encourage official support and intersectoral coordination. Awareness should be increased of specific maternal health issues, such as nutrition, and family planning including prevention STDs, HIV/AIDS and saving women lives during pregnancy and child birth which emphasis on recognition of danger signs, the importance of blood donations and the organisation of transport to hospital in obstetric emergency and discouraging harmful traditional practices.

5. Co-ordination at central and provincial level

Integration of Safe Motherhood components within existing MCH and related programme (EPI, FP, STD/HIV/AIDS and nutrition), will be closely coordinated within MoH, other related Ministries, international organisation, bilateral agencies and NGOs. The NMCHC within MoH will act as a national focal point to plan, mange, co-ordinate and monitoring the implementation of Safe Motherhood components. The NMCHC and Reproductive Health Technical Working Group will continue to work at central level to co-ordination of activities and co-ordinate.
## APPENDIX 2

### The Minimum and Comprehensive Package of Activities

<table>
<thead>
<tr>
<th>Services delivery</th>
<th>MPA</th>
<th>CPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>?Primary curative consultation for treating most common health problems: malaria STDs and diarrhoeal diseases, etc</td>
<td>?Referred cases</td>
<td>?Medical and surgical emergencies:</td>
</tr>
<tr>
<td>?Emergency care and simple surgery</td>
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<td>•Amputation</td>
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<tr>
<td>?Chronic diseases: TB, leprosy</td>
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<td>•Strangulated hernia</td>
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<tr>
<td>?Consultation for healthy children age 0-4 years: Vaccinations Management of malnutrition Prevent of vitamin A deficiency</td>
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<td>•Appendicitis</td>
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<tr>
<td>?Care for pregnant women: ANC and postnatal care and prevent anaemia Anti-tetanus vaccination Deliveries and referral complications cases to second level</td>
<td></td>
<td>•Transfusion</td>
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<tr>
<td>?Family Planning</td>
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<td>•Cardiovascular resuscitation</td>
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<td>?Refer patients to the second level for diagnostic, or complex management reasons,</td>
<td></td>
<td>?Complicated deliveries:</td>
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<tr>
<td>?Outreach activities: ANC, EPI</td>
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<td>•Obstructed labour</td>
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<tr>
<td>?Health promotion should be integrate into all activities.</td>
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<td>•Haemorrhage &amp; Retained placenta</td>
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<table>
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<th>CPA</th>
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<tr>
<td>?Gathering information in catchment area</td>
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<td>?Simple surgery cases:</td>
</tr>
<tr>
<td>?Daily record of data and upgrading activity and inventory reports</td>
<td></td>
<td>•Hernia and Cataract</td>
</tr>
<tr>
<td>?Management of medical supplies and consumable items</td>
<td></td>
<td>?Complications of TB cases</td>
</tr>
<tr>
<td>?Support community health workers</td>
<td></td>
<td>?Hospital isation</td>
</tr>
<tr>
<td>?Meeting in the district</td>
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<td>?Laboratory diagnosis</td>
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<tr>
<td>?Maintaining of HCs infrastructure and equipment</td>
<td></td>
<td>?Radiological &amp; Ultrasound diagnosis</td>
</tr>
<tr>
<td>?Conduct and participate in management committee meeting</td>
<td></td>
<td>?Rehabilitation</td>
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<td></td>
<td></td>
<td>?24 hour ward duty staffed by skilled personnel</td>
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<td></td>
<td></td>
<td>?Health promotion should be integrate into all activities</td>
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<tr>
<td></td>
<td></td>
<td>?Supervision of hospital staff.</td>
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<tr>
<td></td>
<td></td>
<td>?Management of hospital HMIs.</td>
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<td></td>
<td></td>
<td>?Yearly planning &amp; evaluate of health activities in the hospital.</td>
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<tr>
<td></td>
<td></td>
<td>?Monthly participation meetings at provincial level.</td>
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<tr>
<td></td>
<td></td>
<td>?Management of medical supplies and consumable goods in hospital.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>?Maintain of hospital equipment and infrastructure.</td>
</tr>
<tr>
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<td>?Financing management.</td>
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<td></td>
<td></td>
<td>?Assist in training/ supervision of HCs.</td>
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<td>?Organise the referral system.</td>
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</tbody>
</table>

Conceptual Framework of Safe Motherhood

"Safe pregnancy" refers to improve pregnancy outcomes for a woman and her newborn, not just in terms of survival, but in terms of health as well. To provide a conceptual framework, programmes aimed at making pregnancy safe envision both a demand and supply side as shown in figure below. This summarises the way in which inputs of a programme are converted through processes (activities) and eventual changes at the population level (outcome). The "demand and supply" framework describes how maternal and perinatal health interventions are expected to have an impact on population behaviour. On the demand side, the framework suggests that social and individual factors influence the pregnancy status and the demand for services. Supply or programme level factors include the political and administrative system, organizational structure, service and operational elements. The cumulative effect of these factors are reflected in the availability of services offered at designated delivery sites.

Conceptual framework of safe pregnancy program demand and supply: Programme impact on maternal/perinatal morbidity and improved health status.

Prenatal Care, Essential Obstetric Care and Special Neonatal Care (NSC)
Comparative analysis of the National SM strategies and activities with the current SM activities and future activities in SR Province

1. Service Delivery

Objective: strengthen health care delivery at the community and HCs level to expand coverage, to prevent and treat maternal and neonatal complications, with emphasis on the trained midwife as the linch-pin in the community-based maternity services.

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</thead>
<tbody>
<tr>
<td>a. Family and community level</td>
<td>1.1</td>
<td>1.1 Activate village health community to improve coverage of antenatal and delivery care by qualified health personnel &amp; referral complications.</td>
<td>*HCs staff</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td></td>
<td>1.2 Revise TBAs Policy</td>
<td>1.2.1 NMCH &amp; MCH SUBCOMCOM revised and implemented policy</td>
<td>*HCs staff</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td></td>
<td>1.3 Expand TBAs role in include counselling on importance of 2 ANC visits, anaemia prevention and treatment, breastfeeding, FP, STDs/HIV/AIDS.</td>
<td>1.3 NGOs involve in TBAs training include counselling for SM activities: *Motivation for at least 2 ANC visits to midwife *Recognition of danger signs *Distribution of iron/folat tablets (90 to each pregnant woman) *Distribution of maternity care record</td>
<td>*HNI, UNICEF</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>*Provincial MCH supervisor</td>
<td>x</td>
<td>x</td>
<td>x</td>
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</tbody>
</table>

50
1. Strengthening labour and delivery management and postnatal care and increase referral for complications by TBAs through NGOs training and educational support by the midwife

<table>
<thead>
<tr>
<th>1.4</th>
<th>*HNI, UNICEF, Provincial MCH supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>All midwives use/perform:</td>
<td>* x x x x x x</td>
</tr>
<tr>
<td>*Partogrammes and safe labour and delivery for all home deliveries</td>
<td>* x x x x x x</td>
</tr>
<tr>
<td>*Prevention and emergency management of PPH at home before referral (include active management of third stage)</td>
<td>* x x x x x x</td>
</tr>
<tr>
<td>*Distribution of maternity care record</td>
<td>* x x x x x x</td>
</tr>
<tr>
<td>*Emergency resuscitation of newborn</td>
<td>* x x x x x x</td>
</tr>
<tr>
<td>*Monthly meeting between HCs midwives and TBAs</td>
<td>* x x x x x x</td>
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</table>

1.5 Expand ANC and improve diagnosis and treatment of ANC, delivery and postnatal/post abortion complications

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<thead>
<tr>
<th>1.5</th>
<th>*HNI, UNICEF, Provincial MCH &amp; OD supervisors</th>
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<tbody>
<tr>
<td>Revise clinical management guidelines for HCs</td>
<td>* x x x x x x</td>
</tr>
<tr>
<td>Revise drug and equipment list with Ess. Drugs programme</td>
<td>* x x x x x x</td>
</tr>
<tr>
<td>Supply addition drug and equipment in collaboration with Ess. Drugs programme</td>
<td>* x x x x x x</td>
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</tbody>
</table>

1.6 Expand the content of ANC in MPA to include:

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<tr>
<th>1.6</th>
<th>*HNI, UNICEF, Provincial MCH</th>
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</table>

1. Supply of 90 tablets iron/folate & OD to every pregnant woman

* Syndromic management of STDs
* Increase delivery coverage for Malaria and hook worm treatment

<table>
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<tr>
<th>2. Supply of 90 tablets iron/folate &amp; OD</th>
<th>* x x x x x x</th>
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</thead>
<tbody>
<tr>
<td>*Syndromic management of STDs tablets to every pregnant woman</td>
<td>* x x x x x x</td>
</tr>
<tr>
<td>*Increase delivery coverage for Malaria and hook worm treatment</td>
<td>* x x x x x x</td>
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</table>

women with complications

<table>
<thead>
<tr>
<th>4. Intramuscular antibiotic treatment for syphilis</th>
<th>* x x x x x x</th>
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<tbody>
<tr>
<td>5. Counselling of appropriate place of delivery according to complications</td>
<td>* x x x x x x</td>
</tr>
<tr>
<td>1.6</td>
<td>Expand labour/delivery and postnatal/post abortion care for prevention and treatment of complications (basis EOC)</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1.6</td>
<td>1. Perform and record basis EOC including active management of third stage of labour</td>
</tr>
</tbody>
</table>
|     | *HNI, UNICEF
|     | *Provincial MCH & OD supervisors
|     | *Training coordinators |
|     | x x x x x x x |

<table>
<thead>
<tr>
<th>1.7</th>
<th>Establish a reporting system of reproductive deaths at village level and conduct verbal autopsies for antecedent factors and causes of death, in designated districts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.7</td>
<td>1. Designate district by province</td>
</tr>
<tr>
<td></td>
<td>2. Train selected midwives and doctors in verbal autopsies</td>
</tr>
<tr>
<td></td>
<td>3. Conduct meeting at village level to choose responsible person for reporting reproductive deaths to HC.</td>
</tr>
<tr>
<td></td>
<td>4. Midwife conducting verbal autopsies within 2 months of occurrence.</td>
</tr>
</tbody>
</table>
|     | *HNI, UNICEF
|     | *Provincial MCH & OD supervisors
|     | *Training coordinators |
|     | x x x x |

<table>
<thead>
<tr>
<th>C. Referral Hospital</th>
<th>1.8 To improve physical structure of referral hospitals to provide 8 essential elements of care, initially 1/500,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8</td>
<td>1. In co-ordination with the MoH and other agencies, designate referral hospital in a phased manner for equipment and supplies (7/year)</td>
</tr>
<tr>
<td></td>
<td>2. Equip and supply &quot;x&quot; number of hospitals</td>
</tr>
<tr>
<td></td>
<td>*MoH, HNI, UNICEF, others</td>
</tr>
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<td></td>
<td>x x x x x x x</td>
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<table>
<thead>
<tr>
<th>1.9 Ensure 24 hour obstetric in designated referral hospitals</th>
</tr>
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<tbody>
<tr>
<td>1.9</td>
</tr>
<tr>
<td>1. MoH and PHD assess availability of staff.</td>
</tr>
<tr>
<td>2. MoH and PHD post staff</td>
</tr>
<tr>
<td>*PHD, HNI, UNICEF</td>
</tr>
<tr>
<td>x x x x x x x</td>
</tr>
</tbody>
</table>

| *HNI, UNICEF
| *Provincial MCH & OD supervisors
<table>
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<tr>
<th>*Training coordinators</th>
</tr>
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<tbody>
<tr>
<td>52</td>
</tr>
</tbody>
</table>

| *MoH, HNI, UNICEF, others |
| x x x x x x x |

| *PHD, HNI, UNICEF |
| x x x x x x x |
1.10 Augment the content of the CPA and available clinical management guidelines to cover all essential elements of obstetric care include Active Management of third stage of labour.

1.10 Revise the Guideline for Developing Operational Health Districts
2. Revise available clinical management guidelines
3. Disseminating and use revise obstetric clinical management guidelines

*National level
*PHD, MCH, HNI, UNICEF

1.11 Develop safe abortion management guidelines for training and clinical management based on the abortion low.

1.11 Constitute working group to develop Safe Abortion Guidelines
2. Train staff and disseminate guideline

*National level
*PHD, MCH, HNI, UNICEF

1.12 Develop capacity to diagnose and treatment STDs at referral hospital.

1.12 Provision of RPRs and other necessary tests
2. Train laboratory technicians
3. Training of staff
4. Develop treatment protocol in collaboration with STDS program

*National level
*PHD, MCH, HNI, UNICEF

D. Linkages
1.13 Team approach between PRO OC OCOM, Committee for OD, HC, an community health workers for integration of SM components into existing MCH/FP and related programmes, including NGOs services designated districts.

1.13 One day seminars at provincial level with district and NGO participation for orientation to SM components (21 provinces)
2. Team problem-solving workshops at district level for implementation of SM components at all of the health

*National level
*PHD, MCH, HNI, UNICEF
1.14 Increase awareness of SM through advocacy effects involving HCs midwives, TBAs, community agents, supported by MoWA and MoRD

1.14
1. Organize meeting for SM advocacy involving all relevant health works using IEC materials
2. Distribution of SM brochures and pamphlets

1.15 Ensure cooperation and supportive supervision between HCs midwives and community, including TBAs to increase ANC and delivery coverage and referral of women with complications

1.15
1. Monthly supportive supervisory visits by midwives to village
2. Monthly meeting with TBAs at HCs
3. Include TBAs, if possible to participate in ANC and FPclinic
4. Counsel on danger signs in ANC and FP

1.16 Develop with community participation a system for emergency transport

1.16
*Community for Operational Health District:
I. Organizes village level meeting to encourage establishment of local transport and revolving funds
2. Explores community resources for moto

*MoH, PHD, Provinicial MCH supervisors, OD and HC midwives, HNI, UNICEF

*MoH, PHD, Provinicial MCH supervisors, OD and HC midwives, HNI, UNICEF
2. HUMAN RESOURCE DEVELOPMENT

Objective: improve the knowledge, practical skill and technical capacity of health personnel (especially those posted in HCs and referral hospital) in the management of prenatal, intrapartum and postpartum care, new born care, infection prevention, FP, detection and management of STDs, obstetric and newborn emergency care.

<table>
<thead>
<tr>
<th>Strategies proposed in SM. Policy</th>
<th>Activities proposed in SM Policy</th>
<th>Activities in place in SR province</th>
<th>Future activities Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Job Descriptions needs 2.1 Revision of the job description to be based on the expanded MPA and CPA as delineated in the SM policy and strategy to include EOC</td>
<td>2.1 Disseminate job description throughout the country</td>
<td>1. Disseminate job description</td>
<td>*National level</td>
</tr>
<tr>
<td></td>
<td>2. HRD and NMCH compare present MPA and CPA with new policy and strategy</td>
<td>2. HRD and NMCH compare present MPA and CPA with new policy and strategy</td>
<td>*PHD, Provincll MCH supervisors, OD directors &amp; chief of HC and midwives, IINI, UNICEF</td>
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<td></td>
<td>3. tIRD and NMCH revise existing job descriptions for MDs, midwives and MAs</td>
<td>3. tIRD and NMCH revise existing job descriptions for MDs, midwives and MAs</td>
<td>x x x x x x x x</td>
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<tr>
<td>b. Training and intake needs 2.2 Clarification of categorisation and review of distribution and nursing and midwifery at all levels of the health service relative to the requirement of the health reform initiative and the implementation of the SM policy with resulting recommendations addressing point 2.4.1-2.4.6 in SM strategies.</td>
<td>2.2 Establish of plan: present projected categories of nursing/midwifery personnel Present projected distribution of midwifery personnel</td>
<td>2. Establish of plan: present projected categories of nursing/midwifery personnel Present projected distribution of midwifery personnel</td>
<td>*National level</td>
</tr>
</tbody>
</table>

55
c. Pre service training

2.3 Improve knowledge especially practical skills to meets the needs of SM at all levels of the health service and to manage complications

2.3
1. Review and revise:
   * New basis nursing curriculum
   * Old curriculum (upgrading training for primary and secondary nurses and midwives
   * Curriculum for MDs and MAs
2. Revise and expand the following clinical management guideline
   * Obstetric emergencies
   * CPA
   * HC manual
3. Contract an external OB-GYN consultant to finalize and standardize the 3 documents under "2"

2.4 Ensure quality services at hospital, HC and community level through incorporating adequate practical experience into pre-service training

2.4
1. Develop a plan for practical experience in the community, HC, and hospital during pre-service training
2. Prepare hospitals and HC as practical training sites
3. Review and review checklists for clinical practice
4. Incorporate a counselling and interpersonal skill component into pre-service training of MDs, MAs, nurses and midwives

*National level collaborate with UNICEF WHO, MSF JICA

*PHD, Provincial MCH supervisors, OD directors & chief of HC and midwives, HNI, UNICEF

*PHD Provincial MCH supervisors, OD directors & chief of HC and midwives, HNI, UNICEF
2.5 Develop faculty and clinical preceptors to ensure quality services and establish linked between training schools and clinical practice sites.

2.5
1. Training faculty in essential elements of obstetric care and education methodology.
2. Train clinical preceptors + "x" numbers.

2.6 In-service Training

Prepare medical doctors, medical assistants and midwives to improve and expanded in the MPA and CPA related to SM activities in designated training sites

2.6
1. Develop national level team with education skills to develop in-service curricula.

2. Organize meeting to establish consensus among NMCHC and all agencies on in-service training requirements.
3. Revise pilot in-service training curriculum.
5. Standardize in-service curriculum.
7. Include counselling, interpersonal communication skill (IPC), management and leadership skills in all in-service training.
8. Include content on traditional knowledge, practice and beliefs in all in-service training curricula.
9. Select and train a core of Master Trainers.
10. Select and prepare in-service training site in addition to the NMCHN (at least 10).
3. HEALTH MANAGEMENT INFORMATION SYSTEM

Objective: improve health information system for monitoring and evaluation of maternity care and FP coverage, maternal, perinatal, and neonatal mortality and morbidity related to sectioned WHO/UNICEF indicators for monitoring maternal health goals at all level of health system. (WHO documents: WHO/FHE/MSM/94.14 and WHO/FHE/94.11 (see indicators)

<table>
<thead>
<tr>
<th>Strategies proposed in SM</th>
<th>Activities proposed in SM</th>
<th>Activities in place in SR province</th>
<th>Future activities</th>
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<tbody>
<tr>
<td>3.1 Standardization of definition of indicators related to maternal and perinatal death by NMCH and MoH (HMIS unit) with technical support by international/bilateral agencies and NGOs for PHD, OD and HCs staff</td>
<td>1. Workshop of NMCHC and HMIS unit of MoH international/bilateral agencies</td>
<td>National level</td>
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<tr>
<td>3.2 Operationalization of data collection system at community, HCs and hospital level through establishing a community data collection system which in link to the HCs and improve of data collection at HC and hospital level</td>
<td>*# of pregnant woman given iron/folate *# of pregnant screened for syphilis *Main causes of MM (obstructed labour, ruptured uterus, haemorrhage, abortion, eclampsia, puerperal sepsis, anaemia)</td>
<td>*PHD, Provincail MCH supervisors &amp; *od directors &amp; chief of HMIS. &amp; chief of HC and midwives. *I-INI, UNICEF &amp; chief of HC and midwives.</td>
<td>x</td>
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</table>
4. Conduct monthly supervisory meetings between HCs and community representatives
5. Revise HC registers to include data for maternal health and newborn indicators
6. Revise hospital registers (ANC, OB/Gyn ward) to include information for maternal health and newborn indicators

### 3.3 Strengthening capacity

<table>
<thead>
<tr>
<th>Task</th>
<th>Responsible Officer</th>
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<tbody>
<tr>
<td>1. Designate responsible officer at NMCHC</td>
<td>*PhD, MCH supervisors</td>
</tr>
<tr>
<td>2. NMCHC training of a core of provincial trainers</td>
<td>*PHD, MCH</td>
</tr>
<tr>
<td>3. Training of provincial and district staff by core trainers</td>
<td>*OD directors &amp; chief of HMIS</td>
</tr>
<tr>
<td>4. Design and implement quality control checklists</td>
<td>*OD directors &amp; chief of HC &amp; midwives</td>
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<tr>
<td>5. Conduct 3 monthly meeting at district and HC level for feedback</td>
<td>*HNI, UNICEF</td>
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### 3.4 Establish a reporting system of reproductive deaths at village level and conduct verbal autopsies

<table>
<thead>
<tr>
<th>Task</th>
<th>Responsible Officer</th>
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<tbody>
<tr>
<td>1. Designate district by province</td>
<td>*HNI, UNICEF</td>
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<tr>
<td>2. Train selected midwives and doctors in verbal autopsies</td>
<td>Provincial MCH</td>
</tr>
<tr>
<td>3. Conduct meeting at village level to choose responsible person for reporting reproductive deaths to HC</td>
<td>*HNI, UNICEF</td>
</tr>
<tr>
<td>4. Midwives conduct verbal autopsy within 2 months of occurrence and discusses with district team in charge</td>
<td>MCH</td>
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<tr>
<td>5. Feedback to HC staff and discussion with village leaders and TBAs</td>
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</table>
3.5 Establish in district and provincial hospitals a confidential inquiry on maternal death within 48 hours of occurrence to reveal underlying condition and circumstance contributing to or aggravating the risk of dying and the medical causes of death.

4. INFORMATION EDUCATION AND COMMUNICATION

Objective: Intensify information, education and communication from national to community level on SM concepts to promote awareness about specific maternal and neonatal health issues.

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<tr>
<td>4.1 Promote a multilateral effort to create a strong commitment towards saving women's lives through conducting orientation meeting with government officials in all sectors for development of activities for SM at national, provincial and district level</td>
<td>4.1 NMCHC organizes orientation meeting between relevant ministries and agencies and at national level</td>
<td>*National level</td>
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<td></td>
<td>2. Develop plan for integration of SM activities into existing programme plans of relevant ministries</td>
<td>*HNI, UNICEF, Provincial MCH</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*HNI, UNICEF, Provincial MCH</td>
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<td>3. PHDs organize orientation meetings at provincial level</td>
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<td>4. ODs organize orientation</td>
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</table>
4.2 Make SM a household concept by launching a strong national campaign which is enforce through TV and radio spots, posters, other mass media including traditional dramas, special ceremonies and religious festivals based on solid information of peoples perception related to childbearing

1. Designate one department and/or agency/NGO to conduct a KAP study based on identified gaps and using rigorous scientific methodology and analysis

**IEC Materials Development**
2. Design IEC materials and message for TV, radio, posters etc.
3. Pre-test and revise materials "x 2"
4. Print materials

**IEC Training**
5. Train district directors at provincial level
6. Train health workers, volunteers TBAs at HCs level
7. Coordinate with NGOs and local authorities
8. Organize a distribution system for IEC materials

<table>
<thead>
<tr>
<th>14N 1, UNICEF, MCH</th>
<th>14N 1, UNICEF, MCH</th>
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<tbody>
<tr>
<td>x x x x x x x</td>
<td>x x x x x x x</td>
</tr>
<tr>
<td>*HNI, UNICEF, MCH</td>
<td>*HNI, UNICEF, MCH</td>
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<tr>
<td>x x x x x x x</td>
<td>x x x x x x x</td>
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4.3 Build community awareness and involve men and women in both rural and urban areas regarding the importance of improving women's health through nutrition and FP including prevention of STDs/IHV/AIDS and saving women's lives during pregnancy and childbirth placing emphasis on recognition of danger signs, the importance of blood donations and organisation of transport to hospital for obstetric emergency and health workers to reinforce beneficial and discourage harmful traditional practices

1. Monthly meeting by HCs midwives with community to: *discuss reproductive health issues, including harmful practices *discuss importance of blood donations (identify possible donors) *organize a village transport system for emergencies

<table>
<thead>
<tr>
<th>*HNI, UNICEF, MCH</th>
<th>*HNI, UNICEF, MCH</th>
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<tbody>
<tr>
<td>* x x x x x x</td>
<td>* x x x x x x</td>
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4.4 Educate teachers in collaboration with the Ministry of Education to address risk factors, nutrition, FP, STDs/HIV/AIDS with secondary school students through drama, song(karaoke) and comedies

4.4
1. NMCHC organizes meetings with MoE
2. Develop curriculum on RH for schools
3. Seminars for teachers on Reproductive Health(RH) issues
4. Organize drama, karaoke, etc. in schools

*National level

<table>
<thead>
<tr>
<th>Strategies proposed in SM. Policy</th>
<th>Activities proposed in SM Policy</th>
<th>Activities in place in SR province</th>
<th>Future activities</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 The NMCHC within MoH act as the national focal point to ensure integration of the SM components within existing MHC and related programmes (EPI, FP, STDs/HIV/AIDS and nutrition) organized by various international organizations, agencies and NGOs</td>
<td>1. NMCHC distribution draft policy, strategies and action plan to all relevant ministries and agencies</td>
<td>*Moll, PHD, Provincial MCH</td>
<td>x</td>
<td>1997 1998 1999 1999 2000 2001</td>
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<td>2. NMCHC calls review meeting for above mentioned documents</td>
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<td>3. NMCHC appoint SM/RH advisor in NMCHC</td>
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<td>4. The MCH SUBCOCOM makes inventory of SM inputs into various MCH programmes</td>
<td>x</td>
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<td>5. MCH +SM/RH advisor makes monitoring and evaluation plan for SM activities</td>
<td>x</td>
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<td>6. PROCOCOM's organize 3 monthly meetings with district management team to monitor progress of SM activities</td>
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<td>7. NMCHC publishes annual statistics relative to indicators of maternal health, FP, and newborn care</td>
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</tbody>
</table>

**Objective:** Ensure integration of SM components within existing MCH and related programmes between the MoH and others Ministries, International Organizations, bilateral agencies and NGOs.

**COORDINATION**

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APPENDIX 5

Questionnaire of verbal autopsy for maternal deaths in SR Province 1998

1. Name of the deceased patient: Age:
2. Operational District: Health Centre: Commune: Village:
3. Gravity: Parity: Number of abortions:
4. Children -Living: Dead

5. Distance from the house to the Health facility:
   ? <5km  ? >5km  ? >10km
6. Did she ever had any problem during pregnancy?
   ? No  ? If yes, what was the problem?

7. Did she ever have any ante-natal check up?
   ? No  ? If yes,
   ? At home  ? At health centre

8. Place of death
   ? At home
   ? During transfer
   ? At Health Centre, type I, type
   ? At Referral Hospital
   ? Out side the province

9. If she died at home, why didn't the family take her to the hospital?
   ? No money?
   ? No transport?
   ? Too far?
   ? Others
10. Was the maternal death reported?

*If No why? *If yes to whom
? Commune chief
? HC midwife
? Other

11. The cause of maternal death
? Eclampsia
? Ante partum haemorrhage
? Post partum haemorrhage
? Puerperal infection
? Septic abortion
? Prolonged labour/Obstructed labour
? Rupture of uterus
? Concomitant illness

12. Which period?
? During pregnancy
? During labour and delivery ? Post delivery

13. Whom has the family asked to attend the delivery or for help?

? Trained TBAs
? Untrained TBAs
? Traditional healers
? Doctor, midwife or nurse
? Quacks
? Others

14. Condition of baby?

*Interview with:

*Date: