Republic of the Sudan
Federal Ministry of Health
Directorate General of Preventive Medicine & Primary Health Care
Maternal and Child Health Directorate
National Reproductive Health Programme

ROAD MAP FOR REDUCING MATERNAL AND NEWBORN MORTALITY IN SUDAN (2010– 2015)

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Khartoum
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Abbreviations

AHS	Academy of health Sciences
AIDS	Auto Immune Deficiency syndrome
ANC	Ante Natal Care
AYRH	Adolescent and Youth Reproductive Health
BEmONC	Basic Emergency Obstetric and Neonatal Care
CBI	Community Based Initiatives
CBMNH	Community Based Maternal and Newborn Health
CHW	Community Health Workers
EMR	East Mediterranean Region
FGM/C	Female Genital Mutilation/Cutting
FMOH	Federal Ministry of Health
FP	Family Planning
HCP	Health Care Provider
HIV	Human Immuno-deficiency Virus
HMIS	Health Management Information System
HTP	Harmful Traditional Practice
HV	Health Visitor
IEC/BCC	Information, Education, Communication/Behavioral Change Communication
IMNCI	Integrated Management of Neonatal and Childhood Illness
IUD	Intrauterine Contraceptive Device
KAP	Knowledge, Attitude and Practice
MDG	Millennium Development Goal
MDR	Maternal Death Review
MMR	Maternal Mortality Ratio
MNCH	Maternal, Newborn and Child Health
MNH	Maternal and Newborn Health
MNMR	Maternal and Newborn Mortality Reduction
MVA	Manual vacuum Aspiration
NGO	Non Governmental Organization

NMR	Neonatal Mortality Rate
PHC	Primary Health care
PMTCT	Prevention of Mother to Child Transmission
PNC	Post natal Care
PPH	Post Partum Hemorrhage
RH	Reproductive Health
RM	Road Map
SBA	Skilled Birth Attendance
SDP	Service Delivery Point
SHHS	Sudan House Hold Health Survey
SMA	Sudan Midwifery Association
SMI	Safe Motherhood Initiative
SMOH	State Ministry of Health
SOP	Standard Operation Procedures
STI	Sexually Transmitted Infections
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
VDRL	Venereal Disease Research Laboratory
VLBW	Very Low Birth Weight
VMW	Village Midwife
VCT	Voluntary Counseling and Testing
WHO	World Health Organization

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Executive Summary

Ever since the launching of the Safe Motherhood Initiative (SMI), in Kenya-Nairobi, 1987, the maternal and perinatal mortality levels have sadly continued to rise instead of declining. The maternal mortality ratio for North Sudan is estimated at 638 per 100.000 live births (national average of 1107/100,000lbs) and represents one of the highest in WHO-EMR. The infant mortality rate is estimate at 81 per 1000 live births and about half of these are neonatal deaths- 41/1000 live birth- occurring during the first month of life.

Alarmed with the silent tragedy of high maternal and newborn deaths and disabilities, the Millennium Summit in 2000 developed the Millennium Development Goals (MDGs) and agreed to increase efforts to improve maternal health and reduce child mortality. In 2000, Sudan was among the 189 Member States at the Millennium Summit that adopted The Millennium Declaration; with 8 interlinked goals and a number of associated targets to improve people's lives by the year 2015. These include targets to reduce the maternal mortality ratio by three quarters and to reduce by two thirds the under-five mortality rate between 1990 and 2015.

Implementation of maternal and newborn health programmes in the Sudan is confronted by many challenges, such as: (i) Unclear policies concerning practice regulation and inadequate financial resources, (ii) imperfect health systems, with weak referral systems, especially during obstetric and neonatal emergencies, (iv) unreliable logistics system for management of drugs, family planning commodities and equipment, and (v) lack of co-ordination amongst partners.

In order to move towards the attainment of the MDGs, Sudan has developed this Road Map for accelerated maternal and newborn mortality reduction. This will build on the Making Pregnancy Safer initiative in Sudan, as spotlight country with in the East Mediterranean Region(EMR).

This road map is timely, with FMOH finalizing the national RH policy and strategies; therefore, it will guide the implementation of MNCH/FP program in a manner that will ensure the needed impact.

The objectives of the road map are: a) To improve the policy environment for provision and utilization of quality and, equitable MNH services, b) To provide access (geographical, quality, cultural accessibility and financial) to skilled attendance during pregnancy, childbirth, and the postnatal period, at all levels of the health care delivery system with special emphasis at the rural level and semi urban area; c) To strengthen the capacity of health systems for the planning and management, monitoring and evaluation of MNH programmes; d) To increase the availability and utilization of youth friendly RH/FP & HIV prevention services; and e) To strengthen the capacity of individuals, families, and communities to promote, own and practice the minimum package of evidence-based family/community level MNCH care.

The priority intervention areas identified are the following: a) skilled delivery care at community and facility level; b) Focused Antenatal Care; c) Post-natal care; d) Newborn care; and e) Adolescent and Youth reproductive health services providing counseling on 4

pillars of family planning (responsible partner-hood, informed choice, birth spacing and respect for life), as well as counseling for HIV/AIDS and counseling in nutrition and sanitation.

The MNH Road Map provides a strategic framework for addressing maternal and neonatal health challenges currently facing the Sudan. The Road Map is an over-arching strategy for scaling up the national response to reduce the current levels of maternal and neonatal mortality and morbidity in line with the MDG health related targets.

Additionally, by building on the concept of the "three ones", this document is intended to brings together all national stakeholders to support one national MNH programme, one national MNH coordination mechanism, and one national MNH Planning, Monitoring and Evaluation Framework with appropriate indicators.

The MNH Road Map will be implemented in two clearly defined phases and a number of specific activities have been identified for both phases: 1) Initial phase 2009-2011: This phase will focus on the supply issues of the interventions to make services available first, before fully focusing on a further creation of demand; and 2) Consolidation phase 2012 to 2015: Second phase will build on the developmental foundation established earlier, and set the pace for more targeted scaling up of priority interventions.

Progress towards the achievement of MDGs 4 and 5 should be tracked by registration of deliveries and maternal deaths backed by systematic verbal autopsies and surveys. The implementation of maternal newborn and child health programmes should also be backed with health system research and standard operation procedures and protocols to improve the quality of care and comparability.

Smooth implementation of the national MNMR road map will entirely depend on the existence of effective leadership and coordination capacity of the FMOH. Likewise, concerted efforts by the development partners including; donors, the academia, civil society organizations and the communities at large, is of paramount importance.

The FMOH commends the RH community for their professional and financial inputs in developing the road map. In cognizance of the road map as national over-arching strategy document, MOH looks forward that the National Partnership will ensure the most collaborative, transparent and effective utilization of the available resources to support the National Reproductive Health/Maternal and Neonatal Health Program.

1. Introduction:

1.1 Global context

Ever since the launching of the Safe Motherhood Initiative (SMI), in Kenya-Nairobi, 1987, the maternal and perinatal mortality levels have sadly continued to rise instead of declining. Deeply concerned by the persistently high maternal, newborn and child morbidity and mortality, the Millennium Summit in 2000 developed the Millennium Development Goals (MDGs) and agreed to increase efforts to improve maternal health and reduce child mortality. In order to move towards the attainment of the MDGs, countries possessing high maternal and newborn deaths are developing and implementing a Road Map for accelerated maternal and newborn mortality reduction. This will build on the MPS initiative in Sudan, as spotlight country within the EMR.

Maternal mortality is defined as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes". Under-five mortality rate is the probability of dying between birth and exactly five years of age. Infant mortality rate is the probability of dying between birth and exactly one year of age per 1000 live births. Neonatal mortality rate (NMR) is the probability of dying during the first 28 completed days of life, per 1000 live births.

Maternal and child health is a main priority for development. This prioritization stems from the fact that a mother's death impacts on the family and the whole community, and this fact was the main reason behind considering maternal mortality a global indicator of woman's health status. In addition, under-five mortality presents a challenge; globally 12 million children die every year, of whom 4 million are newborns.

Promoting mother and child health are targeted by the 4th and 5th goals of the MDGs. Each of these goals is directly linked to the first goal, reducing poverty, as well as significant linkages with most other goals (i.e. education, gender).

Of the estimated 529,000 maternal and 4.6 million under five (AU Child Survival strategic framework doc) deaths that occur globally every year, 48% and 40% respectively are in the African region, a region that constitutes only 12% of the world's population and 17% of all births in the world.

Nearly 40% of all childhood deaths occur in the neonatal period (40% of all childhood deaths in only about 28 days). A substantial proportion of these deaths happen in the first week with the highest risk of death on the first day of life.

Pregnancy related deaths are known to be a leading cause of mortality for both married and unmarried girls between the ages of 15 and 19, particularly among the youngest of this cohort. Approximately 13% of all maternal deaths occur among adolescents mainly as a result of complications of unsafe abortion. Compared with women in their twenties, adolescents are twice more likely to die during childbirth, and those that are 14 years and younger are five times more likely to die. The newborns of adolescents also have a higher incidence of low birth weight and neonatal mortality. In spite of this, little attention is focused on married or pregnant adolescents. The majority of the disabilities, especially obstetric fistulas are also most prevalent in the adolescent age group.

1.2 Causes of Maternal and Newborn/Child Mortality and Morbidity:

1.2.1 Maternal Health

Commonest causes for maternal death, globally as well as in Sudan, are; hemorrhages, infections, and pregnancy induced hypertension; prolonged/obstructed labour and unsafe abortion also contribute significantly. Malaria, Anemia and Hepatitis are commonest causes for indirect maternal deaths. Reviewing experiences of other countries have shown that all these deaths are preventable using simple interventions. Success stories have been documented in countries like Egypt and Sri Lanka where significant reduction in maternal mortality (in Egypt by 52% and in Sri Lanka by 65%) has been achieved.

Maternal mortality statistics are indicative of the overall state of maternal health for a particular population. But they are only the tip of the iceberg. For every woman who dies, some twenty others face serious or long-lasting consequences. These may include obstetric fistula, anemia, and infertility, damaged pelvic structure, chronic infection, depression and impaired productivity. Obstetric Fistula is one of the commonest crippling obstetric disabilities affecting those mothers who survive prolonged and obstructed labor. With timely access to skilled assisted delivery and emergency obstetric care, these injuries are avoidable.

1.2.2 Newborn/Child Health

Most of the child mortalities are due to simple preventable diseases such as Diarrhea, Malaria, Acute Respiratory Infections, and Malnutrition. Neonatal deaths are attributed to asphyxia, preterm birth and sepsis. Generally, the risk of death is greatest in the first day of life, when half of neonatal deaths occur, and some three-quarters of all neonatal deaths occur within the first week of life, the early neonatal period.

The difficulty in curbing neonatal mortality is that most neonatal deaths are unseen and undocumented because most of the deliveries take place at home (63% in Developing Countries and 80.3% in Sudan). This means that there is very little attention from health services towards neonates at this period of highest risk. Significant reduction impact in reducing Newborn/child mortality can be achieved by implementing comprehensive health services interventions namely “Newborn/child health package”, through implementation of the IMNCI strategy. Specific interventions include:

- Ensuring comprehensive postnatal care package: SBA capable of providing quality emergency postnatal care and PMTCT; Proper Breast feeding and complementary feeding; Micronutrients like Vitamin A; and Immunization of mother and child.
- Impregnated Bed Nets
- Safe water and sanitation, FP, mother’s education and empowerment and PMTCT.

Lesson learned globally showed that continuum of care is a successful intervention in reducing maternal, neonatal/child mortality. It represents a multisectorial comprehensive approach targeting community based problems.

The main determinants of maternal and Newborn/child mortalities and morbidities are:

- Weakness of the PHC system.

- Lack of community awareness and/or weak involvement in maternal, newborn and child health programmes
- Lack of active political commitment towards maternal and child health, translated into channeling of resources towards much needed interventions
- Inadequate response from related sectors (e.g. general & higher education, media, industry, private sector, etc)

2. Maternal and Newborn Health Situation in Sudan

2.1 Political and Socio-economic context

The country has a total population of about 39.1 (2008 Census). Out of this, 47% are below 17 years of age. Annual population growth is 2.6% and the total fertility rate is 5.1. Rural population constitutes about 68% of the total population (SHHS 2006).

Sudan is a vast country with wide population dispersion, relatively limited telecommunication coverage (despite the progress made in the sector) and high women illiteracy. Political instability civil war and natural disasters created one of the worse scenarios of displacement globally. These circumstances paved the way to the deterioration of health system, evident in the destruction of infrastructure, brain drainage of health cadres, and lack of equipments and supplies. Likewise the MNH programmes are confronted with serious challenges related to limited government allocation of resources and dwindling donor resources.

Although the exact share allocated to health/RH is not known, it is evident that health in general and RH/MNH services in particular are under financed. Promising initiatives in this regard include: exemption of user fee for PHC service packages at public facilities, exemption of user fee for PHC service packages at public facilities, free caesarean section policy, and the Presidential initiative for expediting training of Village midwives. Cost sharing mechanisms such as introduction of pre-paid scheme as part of the health financing reform in the form of the National Health Insurance Fund[1]; and growing private sector health service delivery and out of pocket expenditures contributed positively in improving access to health services. External resources channeled through the FMoH contribute to the overall health budget. The government and development partners must full fill their commitment by ensuring the availability of adequate financial resource for health.

2.2 Health Service delivery: according to FMOH health facility description and renaming policy, the minimum acceptable facility level for health services provision is now the Basic Health Unit which is structured and staffed to deliver the essential package of PHC. The health centre (supposed to be headed by a medical officer) is the first referral level for the lower-level facilities. Rural Hospitals are considered part of the PHC level and serve as secondary referral level health institutions. Tertiary hospitals -include teaching, specialized, and general hospitals- are located in State capitals and operated by the SMOHs. In addition, the FMOH operates 21 tertiary-level hospitals and specialized centers.

[1] National Health Insurance Fund annual report, 2002.

With national service coverage of 45-60%, the health service delivery is characterized by significant urban-rural and regional disparities in the availability of health resources and services.

The health system is markedly skewed towards hospital and tertiary care services, resulting to a very low availability of delivery service in primary health care levels. Most qualified health personnel including trained Village Midwives (VMW) are concentrated in urban settings such as Khartoum. RH services such as IUD insertion, post abortion care and VDRL tests were not readily available in primary and secondary level facilities (national EmOC survey 2006).

2.2.1 Human resource: Provision of MCH services by senior specialists, medical officers, mid level health cadres (Medical Assistants, Sister Midwives, Nurse Midwives, Health Visitors, Assistant Health Visitors), and Village Midwives is limited in rural areas.

- **Specialized doctors (Obstetricians and pediatricians) and GPs trained in CEmONC:** Despite the ongoing production of senior and midlevel HCPs, health systems in most developing countries continued to suffer from shortage and lack of adequate deployment of human resource for health. The situation is even worse when it comes to MNH services. The Sudan national EmOC assessment 2006 indicated that out of the 145 hospitals assessed only 25% had Obstetricians and pediatricians (shortage & inequitable distribution). Majority are in Khartoum and a few of the big towns). Medical officers with no senior support were responsible for 67% of the hospitals. This indicates the need for expansion of training of doctors in obstetrics and/or providing, pre-service training in special courses on essential surgery including comprehensive EmONC as well as in-service training in EmONC.

- **Midwives*:*** Not only are they in short supply, but also their skills are not enough to address pregnancy-childbirth complications to reducing maternal and newborn deaths in such high maternal mortality country. The National Midwifery Strategy showed that, besides the so called Sister Nurse-Midwives (the last one being graduated in 1992), Sudan has no midwifery cadre that qualifies as a skilled birth attendant [2] especially in the setting where this is needed the most, in the community. Facility based nurse-midwives are concentrated in Khartoum State and the capacity for training is severely limited due to closure of 2 of the 3 existing midwifery schools. The 2005 National EmOC survey revealed that only 12 out of 145 facilities had Sister-Midwives while Nurse Midwives were available in 105 hospitals and 50 hospitals were staffed by VMWs.

2.2.2 **Quality of the basic training of Midwifery and other HCPs:** following termination of Sister Midwives programme in1992, training institutions were producing VMWs for the last two decades. Assessment of the WHO curriculum using the WHO toolkit revealed that it was poor regarding knowledge and skills. VMWs had serious gaps in providing skilled care during pregnancy and childbirth including

[2] **Skilled attendance** refers to the process by which a pregnant woman and her infant are provided with adequate care at labour, birth, and the postnatal period, whether the place of delivery is the home, health centre, or hospital. In order for this process to take place, the attendant must have the necessary skills and must be supported by an enabling environment at various levels of the health care system, including a supportive policy and regulatory framework; adequate supplies, equipment, and infrastructure; and an efficient system of communication and referral/transport.

neonatal care. Training suffered from lack of adequate number of qualified tutors (standard is one tutor per 10 students) and erratic way of school enrolment. More over, there were poor infrastructure (premises, furniture etc.), lack of training tools and equipment and shortage of logistic and financial support to the schools to meet the students' needs.

In spite of the fact that TBAs are now obsolete according to the national policy, however; at field level they are still attending deliveries even in Khartoum state and this in turn exposes women to pregnancy complications and deaths.

2.2.3 Lack of equipment and supplies including consumables: Reducing maternal mortality does not call for sophisticated equipment or technologies. It requires a regular and adequate supply of safe, inexpensive drugs; basic equipment such as supplies for maintaining universal precautions against infections (HIV/AIDS and other blood-borne diseases). According to the national EmOC assessment 2005, a good number of hospitals and health centers were lacking basic equipments and supplies such as blood pressure cuff, mucus extractor, urinary catheter and umbilical cord-ties.

2.2.4 Weak monitoring and supervision system at all levels: Supervision is a critical component for continuously improving the quality of services and safeguarding high standards of care. Recent national surveys indicated that both health facility and community based maternal and newborn cares lack effective supportive supervision aimed at helping staff improve their practice.

2.2.5 Weak Health Information System; which relies mainly on irregular hospital based reports that lack information about community level Maternal and child Mortality, where the majority of the events take place. Village Midwives are further incapacitated by being illiterate and unable to fill the reporting formats without support from a fellow care provider or family member. Valid & reliable information is also lacking in higher levels such as teaching hospitals were HIS is defective.

In conclusion, the reasons for failure to significantly reduce maternal and neonatal mortality in the Sudan can be summarized as follows:

Policy level:

- Lack of translation of political commitment to financial support particularly for MNCH/FP.
- Unclear policies concerning practice regulation.

Health Systems:

- Inadequate capacity of planning, management, implementation and M&E of MNCH/FP program due to: lack of operationalization of national human resource development and management plan (due to inadequate management capacity), issues related to organizational structure, inefficient referral systems, weak HMIS and supply management system, poor infrastructure and inadequate supervision.

Community level:

- Socio-economic and cultural factors; Harmful beliefs and practices which lead to the first delay in the referral system; and poverty particularly among women coupled with low status and poor decision-making power.

The following table shows very poor MCH indicators which can be attributable to the above mentioned factors:

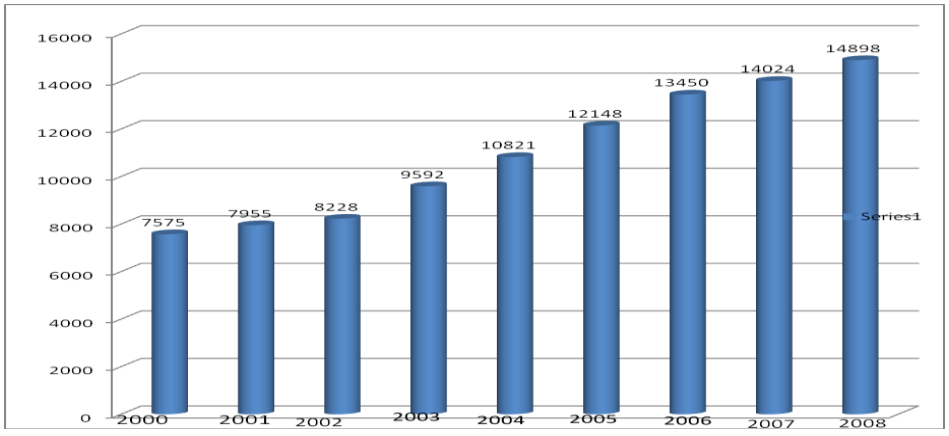
Table1. Health Indicators:

No	Indicator	Rate/ Ratio	Sources
1.	Total coverage of villages by VMW	56.7%	RH annual report, 2009
2.	Percent of villages with PHCU that is run by Medical Assistants or health Visitors & provides ANC and FP services	37.5%	RH annual report 2008
3.	Hospitals equipped to provide EmONC	79%	RH annual report 2009
4.	Women accessing ANC regardless to its quality	71%	SHHS 2006
5.	Percentage of Deliveries conducted by SBAs	49%	SHHS 2006
6.	% of institutional deliveries	19.7	SHHS 2006
7.	Cesarean-section rate	4.5%	SHHS 2006
8.	Women who had PNC	18%	SHHS 2006
9.	Maternal Mortality Ratio	1,107/100.000 lb	SHHS 2006
10.	Child Mortality Rate	112/1000	SHHS 2006
11.	Infant Mortality Rate	81/1000	SHHS 2006
12.	Neonatal Mortality rate	41/1000 lb	SHHS 2006
13.	CPR	7.7%	SHHS 2006
14.	Unmet needs for FP	5.7%	SHHS 2006

3. Current Interventions for improving maternal and Neonatal health in Sudan:

3.1 Increase of VMW production:

Sudan is one of the countries that signed the global initiative of Safe Motherhood in 1987 and "Making Pregnancy Safer" in 2001. In August 2001, the States Ministers of Health in the presence of the Federal Minister, signed the Sudan Declaration of Safe Motherhood that aimed at providing a VMW for each village in Sudan. After this declaration schools were reopened, new schools established, and the number of VMWs produced every year increased fourfold as depicted in **table 2** below.



Source: midwifery coverage mapping (Village midwives)

3.2 Improvement of the Quality of VMW training:

In order to improve the quality of basic training of the VMW, a thorough revision of the curricula of the basic training was conducted to assess the gaps and to propose methodology for upgrading and in-service training for the practicing VMWs. Currently, a new methodology and curriculum have been developed for future training of midwifery cadres at both community and health facility levels. A two-year midwifery technician has been initiated and will be gradually expanded in the midwifery schools spread across the country, aiming an improving quality of service provision at community level until the midwifery diploma cadres (3 year training) depicted in the national midwifery strategy start graduating. In addition, a four year BSc midwifery programme has been initiated at the national level.

3.3 Increasing the MCH service coverage

To enhance the coverage with basic health units and health centers, an integrated PHC training package for Medical assistants was developed and tested such that they can provide MCH services- ANC & FP- to fill the gap in facilities where there are no health visitors or assistant health visitors. Outreach services are planned to be introduced and guidelines for establishment of mobile clinic services were developed and shared with the states to cover the inaccessible areas. Also efforts are made to enhance the coverage with immunization, Vitamin A and IMNCI services. At the hospital level, 67% of the doctors at rural hospitals were trained on EmONC despite the problems related to high turnover among these cadres, this necessitate continuous refresher training for doctors.

3.4 Improve MCH services

Standards and protocols in MCH were developed to ensure quality services and to enhance supportive supervision at all level. Also SOPs were developed and used for training. - An EmONC map was developed based on the WHO standard of availing 5 EmONC facilities, at least one of them comprehensive, per 500.000 persons, but taking into account problems related to geographical accessibility. Moreover, awareness rising, fundraising and advocacy campaigns are being planned and conducted in different states.

3.5 Establishment of National Maternal Death Review (MDR)

Maternal Death Review system was established with general objective of contributing to improvement of maternal and newborn health through implementation of the MDR tool in referral facilities and communities. The national tool developed is expected to improve the recording of admission, delivery and death registration of mothers (which is deficient in most facilities. It will also be useful in mobilising professionals, including district and facility managers, in changing practices, re-organizing the services and looking for innovative solutions at district and facility levels to reduce maternal mortality and morbidity MDR will be operationalized through establishment of a two prongs strategy namely:

- Facility-based maternal deaths reviews, which will investigate causes and circumstances of deaths and covers facility and community factors leading to maternal deaths, and

- Community-based maternal death reviews (verbal autopsies) to analyze maternal deaths occurring in the community with the objective to better understand the

determinants for maternal mortality. The information will be used for the development of evidence based cultural sensitive IEC/BCC materials to increase community awareness on maternal and newborn health and to mobilize communities for a positive behavioral change in support of pregnant women and/or newborns to access essential services when they need them.

3.6 Establishment of National Registry for Maternal Mortality

The government of Sudan established a national registry for maternal mortality and the appointed a committee and coordinator in every state as well as making reporting maternal death mandatory through a ministerial decree in 2009. A national technical committee and national registrar have also been appointed to oversee its overall implementation.

4. PROPOSED RESPONSE: The Maternal and Newborn Mortality Reduction Road Map

Given the current status in Sudan, there are problems regarding health service coverage, the quality of services and the fragmented modality of care delivery; all these will hinder the fulfillment of the country's commitment, in particular to MDG4 and 5. This situation caused the Federal Ministry of Health (FMOH) to seek for evidence based, high impact, and low cost innovative interventions, in order to accelerate the progress to meet the previously mentioned international commitments.

The proposed Road Map (RM) builds on all the international and regional evidence based experiences which lead to tangible and sustainable impact in neonatal and maternal mortality reduction. The RM builds on strengthening the current successful country programs like EPI and Malaria; however it also recommends the avoidance of verticality in implementing health programs. The RM is recommending the internationally called for approaches as the continuum of care of health delivery. Moreover, RM aims to provide support for the programs that are functioning with lower capacities to increase their efficiency and productivity. While the RM is recommending international evidence based approaches, it is considering the country's situation and context so as to tailor the recommended interventions to the available capacities. It deserves mentioning that RM built many of its strategies on regional and international experiences and documents such as Child Survival Initiative for the African Union and Making pregnancy Safer Strategy.

The road map development process is based on the widely accepted concept: the four pillars of safe motherhood; 1) Family planning, 2) Focused Antenatal Care, 3) Skilled birth attendance (skilled health professional – midwife – and commodities, drugs and equipment, and 4) Emergency Obstetric Care and neonatal care. Emergency obstetric and newborn care (EmONC) includes essential interventions to prevent maternal death and disability including prevention of obstetric fistula. The Four Pillars of Safe Motherhood stand for the inseparability and interdependence of the mother and newborn and greatly influence the holistic approach.

A critical but most often neglected strategy is linking community level maternal and newborn health services with health facility based services, continuum of care.

Family Planning: The vulnerability of women to morbidity and mortality is greatly increased when women who want to limit or space future pregnancies are unable to do so because family planning services are unavailable, inaccessible, unaffordable, of poor quality, or because the contraception method choice is limited.

Antenatal Care: It is almost impossible to predict during an ANC visit, which individual woman will develop a life-threatening complication. Some women are more likely to develop complications than others, but all pregnancies should be considered at risk. Focused Antenatal Care, including birth preparedness and emergency readiness and provider initiated PMTCT should become part of routine ANC services.

Clean and Safe Delivery for the Mother and the Newborn (or skilled birth attendance): There is a direct correlation between the percentage of births assisted by a skilled attendant and maternal & neonatal survival. Since most complications and deaths occur during delivery (25%), or immediately thereafter (60%), it is absolutely critical to have skilled and equipped attendants present at the time of birth to attend to both the mother and the baby.

Emergency Obstetric and Neonatal Care:
In order to avert maternal deaths and disabilities, the focus must be placed on ensuring that women have access to quality EmONC. This entails upgrading peripheral facilities to provide basic and comprehensive emergency obstetric and neonatal care, i.e., renovating and maintaining health facilities as well as supplying and equipping these appropriately; staffing facilities with SBA (midwives) and providing them with support through supervision, continuous education to manage obstetric complications as well as the complications of the newborn; training staff to efficiently manage the health facilities; ensuring that a functioning referral system is in place which links peripheral facilities to district health facilities or referral centers that can provide EmONC. (Annex EmONC signal functions).

Continuum of care: Linking community and health facility-based MNH services: women face challenges with reproductive health issues in general, and particularly with recognizing danger signs at a time when their own well being is seriously threatened, and consequently with making a decision to seek care (1st Delay), in reaching a health facility (2nd Delay), and in receiving appropriate care at a health facility (3rd Delay) including referral from first level (basic EmONC) to referral level (comprehensive EmONC). The delays are directly related to and dependent on cultural norms, education and current socio-economic conditions but also to quality of care provided at community (education, counselling on ANC and birth preparedness, danger signs, family planning) and facility levels. Appropriate interventions at community and PHC to improve safe transfer of pregnant mother and newborn to functional higher service delivery points ensure timely access to prompt care.

4.1 Vision

The vision of the Road Map is that: ***All Sudanese mothers and newborns will survive, grow and develop to their full potentials and enjoy state of health that enables them to contribute to the economic and social development of the country***.

4.2 Goal

Sudan is one of the countries that committed to achieving MDGs including reducing maternal and neonatal mortality. The government is obliged by a moral commitment which is stronger than the international commitment.

The Goal of this Road Map is: ***To strengthen and consolidate country efforts to reduce maternal and neonatal mortality in line with the Millennium Development Goals through achieving a high coverage of a defined set of effective evidence-based interventions focusing on the continuum of care for mothers and newborns***.

4.3 Objective

The objectives of the MNH programme are:

- To improve the policy environment for provision and utilization of quality and equitable MNH services.
- To provide access (geographical, quality, cultural accessibility and financial) to skilled attendance during pregnancy, childbirth, and the postnatal period, at all levels of the health care delivery system with special emphasis at the rural level and semi urban area.
- To strengthen the capacity of health systems for the planning and management, monitoring and evaluation of MNH programmes
- To increase the availability and utilization of youth friendly RH/FP & HIV prevention services
- To strengthen the capacity of individuals, families, and communities to promote, own and practice the minimum package of evidence-based family/community level MNCH care. Also to strengthen the community in creating or coming with interventions to assist in resolving MNCH problems

4.4 Guiding principles

As mentioned above, the Road Map is founded on so many initiatives namely; Making Pregnancy Safer and Child Survival, etc guided by the following principles:

***Transparency and accountability*:** Promoting a sense of stewardship, accountability and transparency on the part of the government as well as other stakeholders for enhanced sustainability.

***Result oriented and evidence based*:** Emphasis should be given to bottom up planning (state microplanning) with clear priorities, objectives, aims, performance-based targets (indicators) and outcomes have to be set out.

***Continuum of care approach*:** The Road Map should provide care that involves mothers and newborns from the household, community to the facility level.

Equity: Emphasis will be on ensuring equal access to the selected interventions for all target groups i.e. mothers and children. with special consideration to financial, technical and administrative sustainability.

Integration:All efforts will be made to implement the proposed priority interventions at various levels of the health system in a coherent and effective manner that is responsive to the needs of both mothers and children.

***Multi-sectoral collaboration*:** Considering that health issues are development issues, achieving health outcomes requires contributions from other sectors e.g. water and sanitation, roads, education, social welfare, media and communication.

Partnerships: Emphasis will be put on developing new partnerships and strengthening existing ones to ensure that the selected set of interventions are fully integrated in national, states and district health systems in a more sustainable way. This partnership has to be institutionalized with its full tools for implementation and monitoring. Each partner should

have its well identified role according to its expertise. Four areas have been identified as a matrix for partners to fit in, namely; advocacy, technical expertise, resource mobilization and information and networking. Commitment to the Road Map has to be clearly stated and translated into materialized actions that foster implementation.

***Comprehensive concept of health*:** Emphasis on health promotion, continuous quality improvement and client satisfaction, accessibility, affordability, appropriateness, efficiency, effectiveness, community participation, innovation, work values and ethics, gender equity and teamwork.

4.5 Strategic approaches

Based on the analysis of the current situation, the strategic approaches that are recommended in order to achieve MDG 4 and MDG 5 and contribute to achieving MDGs 3, 6 and 8 are to increase efforts to strengthen health system in Sudan and to implement and scale up integrated packages of high-impact and low-cost interventions. The strategies include:

Advocacy for harmonization of efforts towards continuum of care; In order to promote, implement, scale up, and allocate resources to achieve the internationally agreed goals and targets.

Strengthening of the health system, by building capacities at all levels of the health sector and reducing the bottlenecks for access, availability, continued utilization, and quality service delivery, to achieve high population coverage of the selected evidence based interventions in an integrated manner. The focus should be on development of human resources for health targeting quantity and quality production and equitable distribution.

Intra-sectoral coordination & collaboration: Joint planning with other PHC programmes and other Directorates is vitally important and should be emphasized.

Empowering families and communities, especially the poor and the marginalized, to improve awareness on SRH issues including MNH and HIV, FP, early marriage and FGM, to improve key community and family practices and to make the treatment of common diseases and injuries available within the community. Promoting education, in particular girls' education, community-based interventions (condom, FP distribution, and education), and media campaigns.

Organizing operational partnerships, to take promising interventions to scale with government in the lead, and donors, NGOs, the private sector and other stakeholders engaged in joint programming, co-funding of activities and technical reviews.

Mobilization of resources, at international, national and sub-national levels for implementation of the RM. To scale up the selected evidence based interventions, resource mobilization and allocation will rely on states' capacity to plan, implement, and use monitoring results as a strong advocacy support for leveraging resources.

4.6 Priority intervention areas

Priority areas have been identified on the basis of two essential criteria: (i) the contribution to reducing the overall burden of maternal, neonatal and child deaths and disabilities, i.e.

effective, evidence- based and (ii) the existence of "do-able" interventions that are low cost. Based on these criteria, the following areas can be identified as priorities for the country:

Child Birth: a) Maternal care at first level**:** Skilled birth attendant, Enabling environment (to reduce delays), and b) Maternal care at Health Facility level: Basic and Comprehensive EmONC, Labour and delivery management including Partogram and Active management of the third stage of labour; prevention and management of obstetric fistula, Universal emergency neonatal care (resuscitation and aftercare interventions, management of neonatal infections and management of VLBW infants); Immediate initiation of Breast feeding; and Prevention and management of sepsis.

Pregnancy (Antenatal Care): Pregnancy test, Blood typing with documentation, Blood smear for malaria, STI test, HIV/AIDS testing and counselling (VTC), Syphilis testing, Routine urine analysis, Awareness and classification according to danger signs (Risk approach), Birth plan, , Intermittent preventive treatment of malaria (IPT), Counseling for FP, and Comprehensive post abortion care.

Post-partum: Counseling (Nutrition, self hygiene and Breast feeding), Vitamin A and iron supplementation, follow up visits and FP counseling and services, PMTC and Prevention and management of obstetric fistula.

Newborn care: Birth registration, PMTCT and Newborn screening for HIV; Hygienic cord and skin care; Timely and appropriate care-seeking for infections and care of low-birth-weight infants; Micronutrient supplementation (particularly vitamin A, iron and iodine), and Immunization.

Pre-pregnancy: Adolescent and Youth friendly sexual and reproductive health services providing counseling on 4 pillars of family planning (responsible partner-hood, informed choice, birth spacing and respect for life), counseling for HIV/AIDS and counseling in nutrition and sanitation,

Table3. Logical frame work: Road Map to attaining MDGs related to maternal and newborn health

Outcome: The national skilled birth attendance has been increased to 90% **Indicators:** % ANC attendance , % deliveries attended by SBA, % PNC attendance , National midwifery coverage, EmONC coverage					
Out put	**Intervention**	**Time frame**	**Partner**	**Budget**	**Assumption/ Risk**
Output 1.1 Increased availability of skilled attendants at all levels of the health care system ***Indicators:*** -Proportion of training institutions rehabilitated -% of training institutions staffed with professional tutors -% of training institutions equipped - Increased annual enrollment per training institution - Incremental growth of graduates Legislations to	1.1.1 Undertake a structured review of staffing norms by service delivery point -(VMW, HV, nurse/midwife, HVs, doctors and specialists)	2010-2011	FMOH/SMOH		Government commitment Availability of resources HCPs remain motivated Availability of interested human resource
	1.1.2 Rehabilitate and expand training institutions	2010-2011	FMOH/SMOH, DPs, AHS		
	1.1.3 Increase the number of competent tutors and lecturers for both the basic and in-service training	2010-11	FMOH/SMOH, DPs, AHS		
	1.1.4 Provide equipment and supplies to strengthen training institutions based on needs assessment reports	2010-2011	FMOH/SMOH, DPs, AHS		
	1.1.5 Provide teaching aids and models based on needs assessment reports	2010-2011	FMOH/SMOH, DPs, AHS		
	1.1.6 Procure and distribute FP, and MNH life saving drugs, supplies and equipment to affiliated health facilities in line with the national standards of care	2010-2014	FMOH, DPs		
	1.1.7 Procure and distribute vehicles to facilitate on-job training and supervision of field practices	2010-2014	FMOH/SMOH, DPs		
	1.1.8 Collaborate with professional councils and formulate national committee to monitor quality of	2010-	FMOH, Professional associations, academia,		

institutionalize MWs endorsed Standard of practice reviewed and endorsed midwifery coverage by level of care	training		AHS		
	1.1.9 Update the curricula for basic and in-service training to ensure the inclusion of life saving obstetric, neonatal and evidence based RH care	2010-2011	FMOH/SMOH, Universities, Training institutions		
	1.1.10 Train health care providers both basic and in-service to maintain critical mass of health professionals needed		FMOH, SMOH and training institutions (AHS, CPD)		
	1.1. 11 Support basic training of nurses and other mid-level health professionals close to the community (rural hospital based training)	2010-2015	FMOH/.SMOH, training institutions, DPs, AHS		
	1.1.12 Ensure fair deployment and special incentives package for retention of graduates with special focus on rural areas	2011-2015	FMOH/SMOH		
Output 1.2 Improved access to quality MNH and Family Planning services ***Indicators:*** % 1st ANC visit at first trimester % at least 4 ANC visits % SBA	1.2.1 Rehabilitate and expand infrastructures for the provision of maternal and neonatal care services(with special focus on the necessary equipment for neonatal emergencies) based on a review of the existing and on a scaling-up plan coordinated with a HR plan	2010-2014	FMOH/SMOH, DPs		Availability of resources Government commitment
	1.2.2 Collaborate with professional councils to develop/revise standards of practice(SOP), guidelines, norms and protocols for national MNH and FP service including mobile clinic based RH services	2010-11	FMOH/SMOH, professional councils and academia		
	1.2.3 Ensure dissemination of revised SOP, service guidelines and protocols to all health care providers for their adoption and use	2010-2014	FMOH/SMOH, FMOE/SOME		

% of facility deliveries EmONC coverage % PNC attendance % PMTCT up take % CPR % unmet need for FP % of facilities managing OF cases No. community insurance scheme in support of MNH	1.2.4 Support VMW to distribute various contraceptives in accordance to regulations and under regular supervision	2010-2011	FMOH, SMOH and development partners		Availability of motivated professionals
	1.2.5 Implement MNH and FP minimum services package at all levels of care as per the standard	2010-2015	FMOH/SMOH		
	1.2.6 Apply performance & quality improvement approaches to planning, supervision, monitoring & evaluation of maternal, neonatal health services	2010-2014	FMOH/SMOH		
	1.2.7 Ensure deployment of the required number of professional mix for maternal and newborn health services	2010-2015	FMOH/SMOH,DPs		
	1.2.8 Decentralize essential obstetric services i.e. SBA and BEmONC functions to the periphery	2010-2015	FMOH/SMOH		
	1.2.9 Support health facilities with training of fistula surgeons, equipment and supplies to manage OF	2010-2011	FMOH/SMOH, DPs		
	1.2.10 Collaborate with fistula treatment centers to establish OF section in selected facilities for rehabilitation and life skills training of operated cases	2010-2010	FMOH/SMOH, Fistula treatment centers and DPs		
	1.2.11 Update curricula of in-service training to include evidence based best practices	2010-2014	FMOH/SMOH, DPs		
	1.2.12 Support in-service training for health professionals on updates in RH/MNH	2010-2015	FMOH/SMOH, DPs, CPD		
	1.2.13 Procure and distribute essential MNH commodities and supplies and lab reagents (for ANC, SBAs/EmONC, Obstetric fistula, PAC, and PNC	2010-2014	FMOH/SMOH, DPs		

	including PMTCT).				
	1.2.14 Procure and distribute essential family planning commodities	2010-2014	FMOH/SMOH, DPs		
	1.2.15 Improve access to EmOC facilities through establishing Maternity homes and securing running cost to ensure sustainability.	2010-2013	FMOH/SMOH, DPs		
	1.2.16 Establish and expand mobile clinic based RH services	2010-2011	FMOH/SMOH		
	1.2.17 Introduce options to strengthen health care financing mechanisms e.g. health insurance to support the continuum of care required for maternal and neonatal care	2010-2015	FMOH/SMOH, DPs		
	1.2.18 Support the expansion of social medical insurance mechanisms targeting the vulnerable to ensure equity of access of health services	2010-2014	FMOH/SMOH, other sectors, DPs		
Output 1.3 Improved referral system ***Indicators:*** % of facilities using referral protocols % of facilities with functional referral system	1.3.1 Establish/strengthen referral protocols at all levels of care	2010-2015	FMOH/SMOH, DPs		Availability of funds
	1.3.2 Identify and procure communication equipment and supplies needed for referral system between community and all levels of care	2010-2015	FMOH/SMOH, DPs		
	1.3.3 Improve transportation for the referral system at selected rural sites	2010-2015	FMOH/SMOH, DPs		
	1.3.4 Establish/support existing community emergency committees and provide them with the necessary facilities for referral (communication and transport)	2010-2015	FMOH/SMOH, localities, DPs		

# of community emergency committees equipped and supporting MNH % of mothers and newborns of all patients accessing ambulance services for referral	homes and support the initiative of community based referral means for emergencies				
	1.3.5 Develop and disseminate IEC materials related to the roles of communities and health facilities in supporting referral system	2010-2014	FMOH/SMOH, DPs		
	1.3.6 Train support staff on the importance of pre-referral and referral care for maternal and newborn survival	2010-2015	FMOH/SMOH, DPs		
Output 1.4 Operational Maternal and newborn death review committee present at all levels ***Indicators:*** Policy for notification of maternal deaths in place # of states with functional MNDR % facilities with functional MNDR % of localities institutionalized registration system	1.4. 1 Harmonize existing mechanisms of capturing and reporting both institutional and home deliveries including the death of mothers and newborns	2010-2011	FMOH/SMOH, DPs, localities		FMOH and states commitment No community resistance to new initiatives
	1.4.2 Harmonize existing mechanisms of capturing and reporting both institutional and home deliveries including the death of newborns	2011-2015	FMOH/SMOH, DPs, localities		
	1.4.3 Health providers, local authorities and communities trained on and obliged to register all births and deaths as stipulated in the law	2010-2011	FMOH/SMOH, DPs		
	1.4.4 Support regular practice of maternal and newborn death reviews in every referral obstetric services	2011-2015	FMOH/SMOH, DPs		
	1.4.5 Scale up the national maternal death and near-miss case review system to all states and localities	2011-2015	FMOH/SMOH, DPs		
	1.4.6 Facilitate experience sharing between community and locality maternal death review committees	2011-2015	SMOH and DPs		

Outcome 2: Enhanced Health systems planning and management capacity to improve MNH ***Indicators:*** **% of health managers with relevant qualification appropriate to the post, Trend of HCPs attrition rate, national RH commodity stock out report, % of states and localities using up to date HIS for decision making.**					
Output 2.1 Improved RH/MNH programme management at all levels **Indicators:** % of institutions with trained managers # of experience sharing events organized # of meetings organized	2.1.1 Provide federal RH core staff and state RH coordinators with basic and in-service training in results based management, leadership, planning, implementation, monitoring, and evaluation of RH/MNH programmes	2010-11	**FMOH/SMOH and DPs**		Donor commitment
	2.1.2 Support supportive supervision at all levels	2010-15	FMOH/SMOH, DPs, localities		
	2.1.3 Promote experience sharing using available means of communication e.g. workshops, sharing documents, website etc	2011-2014	FMOH/SMOH, DPs		
	2.1.4 Improve communication facilities such as use of internet, radio, mobile phone and vehicles	2011-2014	FMOH/SMOH, DPs		
	2.1.5 Train managers in policy dialogue and resource mobilization for MNH	2011-2014	FMOH/SMOH, DPs		
Output 2.2 Improved quality of information for MNH services ***Indicators:***	2.2.1 Strengthen/review the national Health Management Information System while ensuring that MNH performance is fully reflected	2009-2010	FMOH/SMOH, , DPs		Availability of resources
	2.2.2 Develop and disseminate guidelines and protocols on data collection and communication	2009-2010	FMOH/SMOH, localities, DPs		Government support

MNH indicators captured in HMIS Completeness and timeliness of routine data Data on MN death/near miss reviews	2.2.3 Document and disseminate lessons learned during SRH programme implementation	2011-2014	FMOH/SMOH, localities, DPs		
	2.2.4 Coordinate maternal and neonatal death reviews	2010-2015	FMOH/SMOH, localities, DPs		
	2.2.5 Plan and conduct supervision, monitoring and evaluation of SRH programmes	2010-2015	SMOH, localities, DPs		
Output 2.3 Improved availability of human resources for MNH ***Indicators:*** Vacancy rates for key posts Training output	2.3.1 Revise human resource development strategy, which includes production of sufficient nursing/midwifery personnel to fill vacant posts/villages	2010	FMOH/SMOH		Existence of supportive policies and legislatives
	2.3.2 Undertake a structured review of staffing norms by institutional level, based on an analysis of actual and potential MNH workload	2012	FMOH/SMOH,		
	2.3.3 Promote regular updating of job descriptions in order to accommodate research based best practices (expanding use of MVAs, expanding use of misoprostol for prevention of PPH etc, to allied health cadres).	2010-2014	FMOH/SMOH,		
	2.3.4 Develop remuneration packages/specific incentives designed to retain health workers specially in rural and hardship localities	2010	FMOH/SMOH, localities		
Output 2.4 Increased availability of RH commodities ***Indicators:***	2.4.1 Expand the concept of Reproductive Health Commodity Security to include a careful selection of MNH life saving drugs, supplies and equipment	2010	FMOH		Existence of supportive policies and resources
	2.4.2 Ensure functional storage and distribution systems for family planning commodities-establish/rehabilitate and equip the central, state and locality warehouses	2010-2015	FMOH/SMOH, localities, DPs		

Stock out reports for selected EmONC commodities % of ware houses using logistic soft wares e.g CHANNEL % of facilities using LMIS formats % of facilities lack essential MNH supplies	according to the standard criteria.				
	2.4.3 Establish, monitor and evaluate resource tracking systems (from central to district level and below).	2010-2011	FMOH/SMOH, DPs		
	2.4.5 Organize on-the-job training and mentoring for commodity security	2010-2015	FMOH/SMOH, DPs		
	2.4.6 Strengthen institutional capacity for forecasting and procurement of health/RH commodities	2010-2012	FMOH/SMOH, DPs		
	2.4.7 Procure and distribute essential family planning commodities according to the actual needs.	2010-2015	FMOH/SMOH, DPs		
	2.4.8 Procure essential emergency obstetric and neonatal care commodities and midwifery commodities according to the actual needs.	2010-2015	FMOH/SMOH, DPs		
Outcome 3: AYRH services improved to enhance service utilization ***Indicators:*** %Unmet need for family planning, % of teenage birth, proportion of unsafe abortion admissions, VCT uptake, HIV prevalence among youth (15-24years).					
3.1 Improved coverage of quality AYRH services ***Indicators:*** -% of health care facilities providing AYRH based on service package % of facilities received	3.1.1 Develop/revise and disseminate AYRH minimum service package service guideline at all levels of care	2010	FMOH/SMOH, DPs		Government commitment No Resources constraint HCPs remained Motivated Other barriers removed
	3.1.2 Support training of federal and states level trainers on AYRH service provision	2010-2011	FMOH/SMOH, DPs		
	3.1.3 Ensure training (on AYRH services) and deployment of HCPs to all facilities providing AYRH	2010-2014	FMOH/SMOH, DPs		

guideline on AYRH Minimum service package	3.1.4 Support health facilities to provide the minimum service package	2010-2014	FMOH/SMOH		
3.2 Improved awareness of Adolescents and Youth on AYRH information and services ***Indicators:*** -% of youth centers providing AYRH information and services -commodity stock out reports	3.2.1 Develop, print and disseminate IEC materials	2010-2014	FMOH/SMOH, DPs		AYRH remains national priority No community resistance to AYRH programmes
	3.2.2 Train AYRH peer educators	2010-2014	FMOH/SMOH		
	3.2.3 Establish, youth section in health facilities	2010-2011	FMOH/SMOH, DPs		
	3.2.4 Integrate AYRH services with multi-purpose youth recreation centers	2010-2011	FMOH/SMOH, DPs		
	3.2.5.Ensure Continuous supply of commodities	2010-2014	FMOH/SMOH, DPs		
	3.2.6 Establish referral link with other health facilities for AYRH services	2010-2014	FMOH/SMOH, DPs		
Outcome 4: Improved awareness and practice of Individuals, families and Community to promote MNH ***Indicators:*** **% of community practicing CBMNH interventions, %VMWs attended deliveries, % PNC, proportion of ANC attendees referred for PMTCT**					
Output 4.1 **Communities better informed about MNH** ***Indicators:*** - % of women knowing at least three danger	4.1.1 Develop/revise minimum package of evidence-based CBMNH service package (care of pregnant woman, prevention of harmful practices, nutrition, newborn care including breast feeding etc)	2010-2011	FMOH/SMOH, DPs		Community commitment
	4.1.2 TOTs for VMWs and other CHWs on the CBMNH service package and abolition of HTPs	2010-2014	FMOH/SMOH, DPs		
	4.1.3 Encourage communities to practice the home	2010-2015	SMOH, localities, DPs		

signals of pregnancy related complications - % of women knowing at least three danger signals of delivery related complications -% of VMWs supervised -# of community MNH micro financing scheme established	based MNH interventions				
	4.1.4 Enhance community engagement in community committee (using existing CB structures of CBI programme, to support MNH e.g. micro financing, death review etc.	2010-2015	SMOH, localities, DPs		
	4.1.5 Develop print and disseminate culture and gender sensitive IEC/BCC materials (preventing early marriage, FGM/C, sexual violence etc)	2010-2015	FMOH/SMOH, localities, DPs		
	4.1.6 Maximize use of multiple media outlets to broadcast messages on maternal and newborn home based care, SBA, FP, HIV prevention	2010-2015	FMOH/SMOH, DPs		
Output 4.2 **Enhanced demand for FP/MNH services** ***Indicators:*** - % ANC - % SBA - % of states with adequate number of VMWs - # of NGOs and CBOs supported to provide FP/MNH information and services	4.2.1 Conduct KAP study about FP in the targeted localities (reasons for low CPR and utilization of family services & patterns of use).	2010	FMOH/SMOH and DPs		VMWs motivated
	4.2.2 Build the capacity of VMWs to provide FP counseling and services	2011-2014	FMOH/SMOH, DPs		
	4.2.3 Support out reach activities by trained attendants to supervise VMWs and provide additional services	2010-2014	FMOH/SMOH, localities,DPs		
	4.2.4 Build capacity of NGOs, CBOs and religious leaders and community peer educators to increase knowledge on FP/MNH services	2010-2014	FMOH/SMOH, localities, DPs		
	4.2.5 Ensure continuous supply of FP kits to VMWs	2010-2014	FMOH/SMOH, DPs		
	4.2.6 Ensure availability of quality FP method mix, as appropriate to the level of care	2010-2014	FMOH/SMOH, DPs		

- % of PMTCT referral among ANC attendees	4.2.7 Ensure quality of counseling for VCT and PMTCT	2010-2014	FMOH/SMOH, DPs		
Outcome 5: Supportive policies and sufficient resources ensured to access to quality MNH services at all level ***Indicators:* # policy gaps addressed, % of planned resources that have been mobilized, existence of Government/state budget line for MNH**					
Output 5.1 Improved evidence base for MNH policy advocacy ***Indicators:*** #of research questions addressed # of documents produced	5.1.1 Develop a national MNH research agenda by identifying priority research areas for MNH	2010-2013	FMOH/SMOH, DPs		Government commitment No Resources constraint
	5.1.2 Provide technical and financial support for MNH related researches with particular emphasis on barriers for ANC, SBA, PNC, FP etc	2012	FMOH/SMOH, DPs		
	5.1.3 Document evidence based best practices related to MNH	2011-2014	FMOH/SMOH, DPs		
Output 5.2 Policies, strategies and legislations in support of MNH programme ***Indicators:*** Legislations to institutionalize MWs in place # of best practices used for advocacy # Rh policy documents	5.2.1 Develop/finalize and endorse MNMR road map and Costed operational plans	2010 and end of 2011	FMOH/SMOH, DPs		MNH remains top government agendum
	5.2.2 Advocate for the integration of STI/RTI/HIV/Malaria, Nutrition and EPI in MNH activities.	2010-2015	FMOH/RHD and RH community		
	5.2.3 Develop/endorse and disseminate RH policy and strategies	Q1 2010	FMOH		
	5.2.4 Review national RH/MNH policies, norms & standard operation procedures using international evidence based MNCH standards to inform decision makers for their endorsement	2010-2014	FMOH/SMOH, Medical council, professional associations & DPs		

endorsed # of policy gaps addressed	5.2.5 Endorse policies facilitating implementation of RH protocols (use of misoprostol, use of magnesium sulphate, FP services etc)	2010-2011	FMOH and professional associations		
	5.2.6 Advocate for Legislations to institutionalize Midwifery	2010	FMOH/SMOH, DPs, midwife association		
	5.2.7 Establish National Sudan Midwifery Association (SMA)	2010	FMOH, professionals, DPs		
	5.2.8 Advocate for the implementation of the national human resource development plan	2010-2011	FMOH/SMOH, DPs, professional associations		
	5.2.9 Introduce regulation to allow VMW to distribute various contraceptives in accordance to preliminary prescription available from authorized medical personnel	2010-2011	FMOH, SMOH and partners		
	5.2.10 Establish Multi sectoral/inter-agency national/state level- partnership forum to advocate for increased policy, technical and financial support and better coordination for MNH services	2010-2011	FMOH/SMOH, DPs		
	5.2.11 Organize a national/state summit on maternal and newborn mortality reduction	2010	FMOH/SMOH, DPs		
	5.2.12 Organize fora for the dissemination of evidence based best practices	2011-2014	FMOH/SMOH, DPs		
Output 5.3.3 Resources mobilized to operationalize	5.3.1 Develop and operationalize national MNH resource mobilization strategy	2010	FMOH and DPs		Commitment of government and DPs
	5.3.2 Develop memorandum of understanding between Government(federal and state levels) and key	2010	FMOH/SMOH, DPs		

MNMR road map Indictors: -resource mobilizatoipn plan endorsed - amount of resources mobilized # of high level advocacies organized # of DPs meetings held	stakeholders for roadmap implementation				
	5.3.3 Organize annual donor round table sessions for MNH during which progress and constraints are reviewed and technical and financial resource gaps are identified.	2010-2014	FMOH/SMOH, DPs		
	5.3.4 Organize advocacy workshops at national and state level for Members of Parliament to solicit their support for MNH within the context of the national budget	2010-2014	FMOH/SMOH, DPs		
	5.3.5 Advocate for developing indigenous community communication and transport schemes	2010-2014	FMOH/SMOH, DPs		

5. Implementation of the Road Map

5.1 Phased implementation: The MNH Road Map will be planned and implemented in two clearly defined phases and a number of specific activities have been identified for both phases:

5.1.1 Initial phase 2010-2011: Based on the situation analysis presented earlier, a number of specific and immediate steps are identified to address each of the proposed interventions to ensure a healthy mother and a healthy newborn. This phase generally prioritizes the supply issues of the interventions to make services available first, before fully focusing on a further creation of demand in the second phase.

5.1.2 Consolidation phase 2012 to 2015: During the final year of the first phase, an evaluation will be conducted to determine results from interventions implemented during the first phase. The findings and recommendations of this evaluation will form the basis for the formulation of interventions for the second phase. This second phase will thus consolidate the activities of the initial phase, build on the developmental foundation established earlier, and set the pace for more targeted scaling up of priority interventions.

5.2 Annual Planning Process: On an annual basis, by end of November, an integrated national MNH work plan will be developed, outlining key strategies, activities, targets, responsible partners and budget requirements. These work plans will be based upon experience and evidence-gained during the preceding year of monitoring, research and evaluation activities as well as recommendations made during annual mid-term review of implementation.. A costing exercise will be utilized to assist with identification of financial gaps and informing development partners.

5.3. Monitoring and Evaluation of the Road map Implementation

5.3.1 Routine Supervision and Monitoring

Based upon the agreed annual work plan, all stakeholders will establish and support routine monitoring mechanisms that will utilize the indicators and targets set out in the Road Map. Wherever possible joint monitoring exercises will be carried out to ensure lessons learned are shared between stakeholders.

5.3.2 Annual Review

Annual review of the road map and RH/MNH related programme reviews and reports such as HMIS, equity and access monitoring etc, will help identify critical gaps in technical and financial resources. In addition, other fora such as RH co-ordination meeting etc will bring to light MNH issues requiring analysis and documentation.

5.3.3 Impact Monitoring and Evaluation

A robust M&E system will provide adequate information on which to base monitoring of the MDG targets. There will be comprehensive end of phase 1 evaluation in 2011 and another at the end of phase 2 in 2014. The 2014 evaluation will form the basis for the 2015 MDG reporting.

5.4 Roles and responsibilities of MNH partners /

5.4.1 Federal Government: To guarantee the implementation of this road map, decrees and policies that have been issued such as the statutory notification of maternal deaths must be strengthened. This also pertains to the role of the Higher council of reducing maternal and child mortality under presidency of Federal Minster of Health and the direct supervision of the President. It should include the ministers of all involved ministries, heads of relevant sectors, related bodies and governors of the states. The council will accomplish the following tasks:

- Supervises planning and implementation of all efforts done for reducing maternal and newborn mortality.
- Coordinates all the partnerships to secure the needed political, financial and moral support to accelerate the reduction of maternal and newborn mortality.
- Facilitate implementation modalities like national financial fund, higher technical committee etc.
- Develop national fund under supervision of the council to finance MCH services for free at facilities in all states.
- Securing funds for rehabilitating and running the midwifery schools.

5.4.2 Governors of the states should:

The role of the state governments is directed towards supporting resource mobilization and implementation in their respective states:

- Establish states' councils for reducing maternal and newborn mortality under presidency of state minister of health and supervision of the governor. These State Councils can play a very crucial role in advocacy-partnership- community mobilizations and awareness rising.
- Activation of maternal and newborn mortality reporting system at all health facilities and the community levels.
- Formulation of maternal audit committees to work at localities, hospitals and communities.
- Issuing a governor's decree to enroll midwives in the civil services system.
- Establishing state and localities' funds to support reducing maternal and child mortality.

5.4.3 Federal Government/State Governors and Development partners

The responsibilities of all essential stakeholders and players in the planning, implementation, monitoring and evaluation of MNH interventions will be agreed upon as a key result of annual MNH planning meetings. During these meetings, an Integrated MNH Annual Work Plan will be developed which clearly delineates roles and responsibilities according to objectives and related activities presented in the work plan.

6. Monitoring and Evaluation

Indicators have been developed to monitor the implementation of the road map. These indicators are divided into those that will monitor the implementation of the road map, those that monitor the process of improvement in services and ultimately the impact on maternal and neonatal mortality. Most of these indicators are included in the national HMIS and the Sudan Household Health Survey (SHHS).

6.1 **Community indicators:**

- % of communities that have set up functional emergency preparedness and referral Committees and plans for MNH and FP.
- % of pregnant women that have birth preparedness plans.
- Coverage of referrals to emergency service sites
- % of communities (neighborhood health committees) reporting maternal Newborn deaths.
- Knowledge of danger signs of obstetric and neonatal complications.
- Knowledge of family planning
- % of district/locality management task forces and committees with representation from communities.
- % exclusive breastfeeding (0 – 6 months)
- % continued breastfeeding (6-9 months)
- % timely complementary feeding rate
- % of community based care givers refreshed with skills to promote key CBMNH caring practices

6.2 **Neonatal indicators:**

- Neonatal mortality rates.
- % of births that are registered.
- % of district hospitals that have a functional newborn resuscitation place in the delivery room.
- % of early neonatal deaths (deaths within the first seven days of life).
- % of neonates who receive essential newborn care, including resuscitation
- % initiation of exclusive breastfeeding within 30 minutes after birth
- % of neonates receiving BCG at birth
- Postnatal care attendance rate.
- % of women receiving Vitamin A.

6.3 Family Planning indicators:

- Contraceptive prevalence rate by method, by sex, by age group, by socio-economic quintiles, urban and rural.
- Met need for FP by age group.
- Total fertility rate.

6.4 Maternal Health indicators:

- Maternal mortality ratio.
- % of births assisted by a skilled attendant.
- % of facilities offering Basic EmONC services.
- % of facilities offering Comprehensive EmONC services.
- % of deliveries taking place in a health facility.
- % of women timely referred for pregnancy related complications.

- Coverage of met-need for obstetric complications (coverage of women with Obstetric complications that have received EmNOC[3] out of all women with Obstetric complications)
- C-section rate
- Obstetric Case Fatality Rate.
- % of first level facilities (Health Center) with two or more skilled attendants.
- Number of trainees graduating from Pre-service training institutions with MNCH/FP skills.
- Coverage of VMWs by State

6.5 Increased political will and commitment indicators:

- Proportion of Government funds allocated and utilized for MNCH and FP services.
- % of increment in funds allocated to MNCH and FP services.
- Inclusion of MNCH and FP in the national development papers.
- Conducive policies for recruitment, training and retention of doctors and midwives.
- Approved policies for increased coverage for skilled care at birth.

6.6 Indicators for measuring progress of the Road Map

- Number of partners that have signed the Road Map.
- Presence of an inter agency task force to oversee the implementation, monitoring and evaluation of the roadmap.
- Total resources mobilized for the Roadmap.

7. Follow-up actions

The implementation of this roadmap will be in 2 phases namely:

Phase 1: 20010 – 2011,
Phase 2: 2012 – 2015, and
Reporting year: 2015

Annual reports will be shared among partners and sent to the Respective Regional offices

Mid-term review is planned in 2011,and final evaluation will be conducted mid 2015

8. Dissemination of the Road Map:

The MNMR road map will be officially endorsed by the Federal Ministry of Health with subsequent development of State specific road maps. Federal Ministry of Health and SMOH integrate the activities in their Action Plans. Stakeholders, both at national and state level, will use every available opportunity to disseminate the Road Map in order to increase advocacy for MNCH/ FP, and assist in mobilizing resources for its implementation.

9. Resource Mobilization:

The FMOH, with the technical assistance from development partners, will estimate the overall budget required for the implementation of the national road map. This will be followed by the

development of resource mobilization plan. The government and its partners will mobilize resources for the implementation of the Road Map towards the attainment of the MDGs related to MNCH.

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Annex 1 Signal functions of B and CEMONC

Basic Emergency Obstetric and Neonatal Care (BEmONC)

BEmONC refers to list of services that can save the lives of women and newborns with obstetric and neonatal complications. A health facility qualifies as a BEmONC facility if it has performed each of the following "signal functions" at least once over the preceding 3 months:

Signal Functions of BEmONC

Basic Emergency Obstetric Care

- Provision of parenteral antibiotics
- Provision of parenteral oxytocics
- Provision parenteral sedatives/anticonvulsants
- Manual removal of placenta
- Removal of retained products of conception (MVA or D&C)
- Assisted vaginal delivery (Vacuum/Breech Extraction)

Basic Emergency Neonatal Care

- Suctioning of newborns' airways
- Ventilating of newborns using Bag and mask
- Provision of thermal care
- Provision of parenteral antibiotics
- Provision of parenteral Vitamin K
- Provision of parenteral dextrose

Comprehensive Emergency Obstetric and Neonatal Care

To qualify as a Comprehensive Emergency Obstetric and Neonatal Care(CEmONC) facility, all of the above services must be offered, but in addition the following functions are performed:

Signal Functions of CEmONC

Comprehensive Emergency Obstetric Care

- Caesarean Section
- Blood Transfusion

Comprehensive Emergency Neonatal Care

- Intubation and ventilation
- Narcain
- Surgery