

Management of Micronutrients and Safe Motherhood Pharmaceuticals in Cambodia, March 2010 to June 2011: Consultancy Summary Report

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ACRONYMS

CMS	Central Medical Store
CPM	Center for Pharmaceutical Management
DOS	Days out of Stock
EDB	Essential Drug Bureau
HC	Health Center
IT	Information Technology
ICC	Inventory Control Card
MN	Micronutrients
MSH	Management Sciences for Health
MCHC	Maternal and Child Health Center
MCH	Maternal and Child Health
MOH	Ministry of Health
MIS	Management Information Systems
MS	Microsoft
NNP	National Nutrition Program
OG	Operating Guidelines
OD	Operational District
OJT	On-the-job Training
STG	Standard Treatment Guidelines
SOW	Scope of Work
SM	Safe Motherhood
STG	Standard Treatment Guidelines
SOP	Standard Operating Procedure
STTA	Short Term Technical Assistance
TA	Technical Assistance
USAID	U.S. Agency for International Development

INTRODUCTION

Management Sciences for Health (MSH) completed two surveys in Kandal and Kompong Speu provinces to study the management of Micronutrients (MN) and Safe Motherhood (SM) drugs in 2008 and 2009 respectively. Based on the results of these surveys, the National Nutrition Program (NNP) and thereafter the Maternal and Child Health Center (MCHC) expressed interest in improving drug management by through use of a set of tools especially developed to manage MN and SM drugs at Operational District (OD) and health facility levels. It was felt that specialized programs such as NNP and MCH could profit significantly, if special tools and management information systems could be developed to meet the specific needs of their respective programs, over and above what was currently provided through the existing Ministry of Health (MOH) systems. It was believed that use of efficient management systems would help achieve higher coverage rates for MNs among target populations and thereby also help reduce morbidity and mortality rates among children.

In response, an agreement was established between the Reproductive and Child Health Alliance (RACHA) and MSH for providing consultant services for improving the management of MN and SM drugs. These services were to be in the form of short term technical assistance (STTA) to the National Nutrition Program (NNP) and the Maternal and Child Health Centre (MCHC) of the Ministry of Health (MOH), for strengthening the management of MN and SM drugs. This agreement for undertaking 5 STTA visits by a MSH Consultant over a period of 1 year was signed in March 2010. See Annex 1 for a copy of the agreement established between RACHA and MSH and for the no cost extension granted by RACHA for continuing the project until end of August 2011. Funds required for undertaking this assignment were provided by USAID under a bilateral agreement between USAID/Cambodia and RACHA.

Central to the overall task of strengthening drug management was the development of Operating Guidelines (OG) that describe how to perform key drug management functions. The OGs were piloted in 14 facilities in 2 ODs. Following the pilot experience, the next important step was to scale up the use of OGs in 12 new ODs and subsequently nationwide.

This summary report records the scope of work (SOW) of the consultancy, the key activities that were completed, the problems and constraints experienced, including activities that the consultant was unable to complete, lessons learned and recommendations for improving the management of MN and SM drugs at Operational District (OD), Health Center (HC) and Referral Hospital (RH) levels.

This report provides only a summary of activities undertaken throughout the consultancy project and more details regarding work completed under each visit can be found in 5 separate trip reports submitted to RACHA. Basic information regarding the 5 visits made to Cambodia, in terms of timing, level of effort and key activities completed under each of the 5 visits is listed below.

Visit Number	Timing	Work Days in Cambodia	Major Activities Completed During Visit
1	March 8-19,2010	10	-Conducted a 3-day training program for a group of 15 master trainers in use of operating guidelines -Prepared training materials for master training. -Visited pilot facilities and provided on-the-job training -Debriefed USAID and other stakeholders
2	May 24-June 4, 2010	10	-Met with master trainers to discuss progress and problems experienced in implementing guidelines. -Finalized baseline indicators for Q4-09 & Q1-10. -Visited pilot facilities for gathering missing data for producing baseline indicators. -Conducted one-day workshop on implementation of guidelines
3	October 11-22,2010	10	-Met with master trainers and discussed progress and problems experienced in implementing guidelines. -Reviewed Q3-10 indicators -Assisted master trainers in developing tools needed for assessing implementation of guidelines at pilot facilities. -Debriefed USAID and other key stakeholders.
4	January 10-14, 2011	5	-Met with master trainers and discussed progress and problems experienced. -Review Q4-10 indicators. -Introduce use of guidelines to CMS and EDB staff. -Discussed with RACHA IT staff how to modify ODDID computer system to include key drug management tools included in guidelines.
5	May 23-27, 2011	4	-Met with master trainers and discussed progress and problems experienced.

			<ul style="list-style-type: none">-Reviewed Q1-11 indicators.-Made a presentation at the workshop held to review progress made in implementing OG and discussed next steps.- Debriefed USAID and other key stakeholders.
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Five trip reports, drug management tools and training materials have been produced as part of this consultancy. These have been handed over to RACHA, RHAC, master trainers and other stakeholders concerned with MN and SM drug management. A list of such materials is provided below.

- Five trip reports covering the 5 visits to Cambodia to provide STTA.
- Curricular used for providing training to master trainers.
- An Operating Guideline Manuals in English and Khmer, together with a set of 3 Micro Soft (MS) Excel spreadsheet tools for; quantifying drug needs, inventory management, drug management information and producing indicators.
- Assessment report on use of OGs.
- A set of Baseline indicators.
- A set of OG indicators for 3 consecutive quarters starting from Q3-10 to Q1-11, for all 14 pilot facilities.
- Final Project Report.

BACKGROUND

Malnutrition, anemia and other micronutrient deficiencies remain a serious public health problem in Cambodia, and contribute to both child and maternal mortality and morbidity. To address these problems, the National Nutrition Program (NNP) is working in collaboration with partners to strengthen implementation of anemia prevention / control and vitamin A supplementation activities, including improving stock management of essential micronutrient supplies at district and health center level. During the last few years, there have been widespread management problems including slow procurement processes, frequent stock-outs and weak inventory management practices at all levels of the health system.

The Cambodia maternal mortality ratio is one of the highest in the region with 472 deaths per 100,000 live births. Two of the main causes of maternal death are post partum hemorrhage and eclampsia. Similar to micronutrient supply management, stock outs and other supply problems for essential safe motherhood drugs such as oxytocin and magnesium sulfate are common.

During late 2008 and early 2009 MSH consultant, Mr Vimal Dias, in collaboration with the NNP, RACHA, the A2Z project and the ACCESS project conducted three consultancies in Cambodia. The first preliminary consultancy was to assess the stock management situation for micronutrient supplies and deworming medicines in two operational districts of Kandal province. The assessment found weak inventory management practices at all levels, and identified several areas that could be strengthened. Based the recommendations from the initial assessment, a second consultancy was conducted to provide National Nutrition Program, RACHA and A2Z staff with basic training on good inventory management practices. Following recommendations from the consultant, the National Nutrition Program appointed a NNP staff member as a focal point person for micronutrient stock management. During this period, the MSH consultant also drafted a standard operating procedures manual for strengthening micronutrient stock management and developed and presented a set of Excel tools and key indicators for improving micronutrient stock management at the district and health center levels. Finally, in collaboration with the ACCESS project, the consultant was asked to assess the stock management situation of essential safe motherhood drugs. Similar poor stock management practices were identified for the management of oxytocin and magnesium sulphate.

The assessments mentioned above provided information on how pharmaceuticals in general were managed at all levels of the supply system and also identified certain weaknesses in the pharmaceutical supply system. One of the key observations was the absence of effective systems and procedures for drug management, especially with respect to quantification of drug needs, inventory management, use of management information systems and indicators for assessing performance. In order to address these deficiencies, operating guidelines (OG) were drafted for managing MN at all 3 levels of the supply system. In February 2010, these OGs were further amended to include the management of pharmaceuticals used for treating postpartum hemorrhage and eclampsia.

In March 2010, an agreement was signed between RACHA and CPM/MSH for the provision of technical assistance to RACHA throughout 2010, involving 5 short term visits to Cambodia for

strengthening the management of MN and SM pharmaceuticals based on the OGs. This package of technical assistance consisted of providing training to a group of master trainers in using OGs, assisting in implementing new drug management tools at pilot facilities, establishing a set of baseline indicators, and assistance in scaling up the use of OGs in 12 new districts and monitoring performance of drug supply systems operating at pilot facilities.

In March 2010, fifteen master trainers were trained on the use of OGs. Thereafter, technical assistance was provided in implementing drug management practices at 4 pilot facilities based on the OGs in 2 Operational Districts (OD). These pilot facilities consisted of OD Drug Stores and health centers in two districts, namely, Kampong Trabek and Kong Pisey. In April and May 2010, master trainers extended the implementation of OG to 10 more pilot facilities consisting of HC and Referral Hospitals (RH), making it a total of 14 pilot facilities.

In June 2010, progress on OG implementation was reviewed and problems encountered were identified. Thereafter OGs were modified to overcome these operational problems and further improve drug management practices at pilot facilities. Accordingly, master trainers were provided additional training in the use of modified OGs and assistance in implementing OGs at pilot facilities.

In October 2010, technical assistance was provided to master trainers to conduct a formal assessment on the use of OGs at all 14 pilot facilities since their introduction in 2010 and their usefulness in managing MN and SM drugs. Such an assessment was deemed necessary in order for Essential Drug Bureau (EDB)/MOH to take an informed decision regarding the scaling up of OGs in 12 new operational districts.

During the January 2011 visit, the primary focus was to introduce the use of the OGs to RACHA IT and EDB staff, to discuss how best to finalize the set of OGs and modify the Operational District Drug Inventory Database used by RACHA to absorb key drug management systems described in OGs.

In May 2011, the fifth and the final trip to Cambodia was made to assess progress made in implementing the OGs to date, problems experienced and finally wrap up the consultancy. During this visit, a final set of recommendations were made and discussed among all stakeholders: RACHA, RHAC, USAID, CMS, EDB among others at a workshop held in Phnom Penh on May 26, 2011 to define the way forward.

Project Objectives

The key objectives of this assignment were to improve management of MN and SM pharmaceuticals at OD drug stores, HC and at RHs through use of OGs, through the following interventions:

- a. Development and use of tools for quantifying needs of MN and SM drugs to improve availability at treatment sites, during campaigns, and for school programs;

- b. Provide specialized drug management and related information useful to the NNP and MCHC on a regular basis by improving existing drug management information systems;
- c. Achieve a reduction in cost and waste through better inventory management practices;
- d. Build capacity of staff attached to OD and HC / RH levels through training (workshops and on-the-job) in inventory management.

Scope of Work

The scope of work (SOW) for the consultant, who was based in Sri Lanka, was as follows:

Activities to be conducted in Sri Lanka:

- Develop key indicators and excel tools for Safe Motherhood Drugs and add Safe Motherhood drugs to OG Manual.
- Prepare / modify 'Training of Trainers' (TOT) Curriculum.
- Prepare schedules for 'Training of Trainers' and 'Master Trainers'.
- Develop a monitoring and evaluation framework and tools for data collection.
- Finalize the final project report in Sri Lanka following completion of pilot interventions.

Activities to be conducted in Cambodia:

1. Conduct a two day 'Master Trainers' training for NNP/ NRHP/ RACHA and RHAC staff using the TOT curriculum.
2. Work with NNP/MCHC / RACHA and RHAC to plan and conduct a Training of Trainers for approximately 12 district and provincial trainers from Kong Pisey and Sambos Meas districts.
3. Monitor the training activities conducted by district staff for health center staff and provide feedback.
4. Provide ongoing technical assistance (TA) and field support for monitoring and on the job training during 12 months of the pilot phase.
5. Provide TA to NNP/ MCHC / RACHA and RHAC for data analysis and reporting of results to field level and other stakeholders.
6. In collaboration with NNP and MCHC, draft the final report for the pilot intervention, and finalize.

Most activities mentioned in the above SOW were completed satisfactorily at the end of the assignment in June 2011. A description of activities that could not be completed and the reasons for this situation are discussed in the following sections.

STRATEGIES FOR STRENGTHENING THE MANAGEMENT OF MN AND SM DRUGS

Since the time and resources available for completing the work outlined in the SOW were relatively limited and technical assistance was in the form of 5 short-term visits, it was very important to formulate an effective strategy for improving drug management functions. After considering many options, a strategy consisting of the following key elements was employed for this purpose. Each of these is discussed below.

Development of Operating Guidelines

It is important to make a distinction here between operating guidelines and the more complete standard operating procedure (SOP) manual that is a must for effective pharmaceutical management systems. Operating guidelines are not meant to be a stand-alone document. Rather, it is a concise manual that describes newly developed tools designed specifically for managing MN and SM supplies. The time available for this consultancy did not permit the production of a more detailed SOP manual that would integrate information on the newly developed tools with the already existing processes and procedures in the Cambodian pharmaceutical management system. These OGs include a set of additional tools and procedures especially developed for strengthening the management of MN & SM pharmaceuticals at health centers (HC), referral hospitals (RH) and operational district (OD) drug stores. These additional drug management tool and processes included in the OGs are meant to supplement and should be used together with existing drug management systems described in MOH / EDB guidelines /SOPs. The OGs explain in detail how tools developed for managing MN and SM pharmaceuticals should be piloted at a few HC, RH and OD drug stores.

Implementation of Operating Guidelines in Select Pilot Facilities

In order to finalize the operating guidelines, pilot implementation in a sample of the intended users of these guidelines was essential. These pilot facilities needed to be chosen carefully to ensure that enough information could be collected during implementation to inform revision of the operating guidelines. Careful consideration was given to the number of pilot sites, as selection of too many pilot facilities would increase the costs and effort needed for providing supervision and on-the-job training. Also, location was important to take into account as the facilities needed to be located in ODs where RACHA and RHAC were actively supporting the improvement of health services. In the end, 14 pilot facilities in Kg Tabek supported by RACHA and Kong Pisey supported by RHAC were selected for the introduction of OGs in early 2010. These included 1 OD drug Store, 5 HCs and a RH in each OD. (See Annex 2 for a list of the 14 pilot facilities.)

Training of Master Trainers

Training of a group of master trainers was considered an important corner stone in formulating and implementing the consultancy. Their function was to continue providing training and undertake regular monitoring and supervision missions to the pilot facilities. This was especially

important as the MSH consultant did not reside in Cambodia for the duration of the consultancy. The master trainers were critical for keeping in touch with progress made in drug management activities at field level and reporting back to the MSH consultant based in Sri Lanka.

A group of 15 master trainers were initially trained in the basics of drug management and thereafter on the use of OGs specially developed for the management of MN and SM drugs. Thereafter, master trainers received on-the-job training from the MSH consultant on use of OGs during numerous field visits undertaken for implementing OGs. This training of pilot facility drug managers as well as master trainers continued under the supervision of the MSH consultant, until such time as master trainers were sufficiently competent and experienced to operate on their own.

Monitoring and Evaluation

Regular monitoring and evaluation of the progress achieved in managing drugs based on the OGs was essential. For this purpose, the following interventions were employed.

- The OGs recommend the use of 10 drug management indicators for MN and SM drugs to be developed quarterly. These indicators have been developed for each of the 14 pilot facilities in respect of 3 consecutive quarters, mainly with the assistance of master trainers.
- A set of baseline indicators have been developed in order to measure the progress made in improving drug management after the introduction of OGs. However, due to lack of reliable data prior to the implementation of OGs, not all baseline indicators could be developed.
- A monitoring tool in the form of a questionnaire was used in addition to indicators included in OGs to assess performance of using OGs at all 14 pilot facilities, after using OGs for about 6 months. This activity was conducted by master trainers under the guidance of the MSH consultant. This activity was not included in the SOW, but was completed on the request of the Essential Drug Bureau (EDB), before making a decision for scaling up the use of OGs in 12 new ODs.
 - a. A monitoring and evaluation framework and tools for data collection were introduced to master trainers, but couldn't be followed up due to problems that arose in using OG after about 6 months of their use.

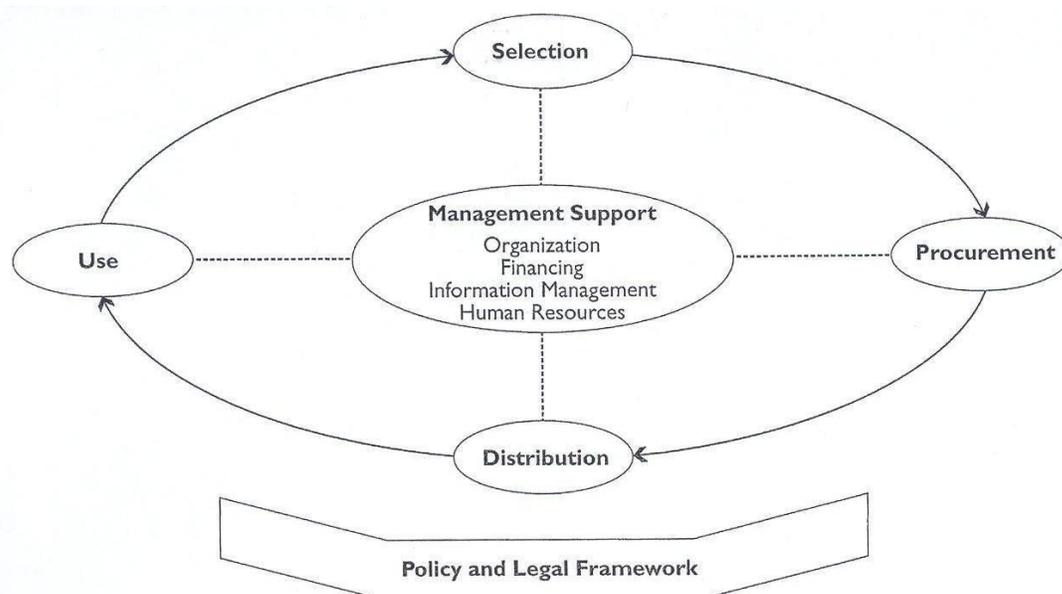
COMPLETED ACTIVITIES

An account of key activities completed during the life of the project is provided below.

Operating Guidelines for Drug Management

There are four functions required for managing a pharmaceutical supply system. These functions are; selection, procurement, distribution and use. The relationship between these 4 elements is depicted in Figure 1, illustrating the Pharmaceutical Management Cycle. These key management functions apply to the management of micronutrients (MN) and SM pharmaceuticals as well.

Figure 1. Pharmaceutical Management Cycle



Maintaining an efficient pharmaceutical supply system is crucial for delivery of quality health services. Management principles employed for operating pharmaceutical supply systems for all major health programs are basically similar. However, it is also necessary to note that each of these health programs could benefit from developing and using a specialized set of tools required for operating their respective pharmaceutical management programs. Management of micronutrients (MN) and SM pharmaceuticals is no exception and these operating guidelines (OG) have been prepared to meet this need.

As mentioned before, this document is not a standalone standard operating procedure (SOP) manual for describing the management of MN and SM pharmaceuticals in Cambodia. It is only a short manual which describes operating guidelines for certain newly developed tools for managing MN and SM pharmaceuticals. MN and RPH pharmaceuticals are not managed as vertical programs, but together with all other essential medicines. See Annex 3 for a list of all MN and SM pharmaceuticals used by the National Nutrition Program (NNP) and Maternal and Child Health (MCHC) Department of the Ministry of Health (MOH) and covered by the OG.

New systems and procedures described in these OGs explain how tools developed for the management of MN and SM pharmaceuticals should be piloted at a few health facilities and OD drug stores.

Based on recommendations made after completing the rapid assessment of micronutrients in Kandal Province in September 2008, these OG were first produced in March 2009, focusing especially on the quantification of micronutrient needs, inventory management, maintenance of management information systems (MIS) and use of indicators for pharmaceutical management. A preliminary assessment similar to the one undertaken for the management of MNs in September 2008 was completed in respect of pharmaceuticals used in reproductive health in March 2009. Thereafter, it was decided to include SM pharmaceuticals into the OGs. Accordingly, the original OG was modified in February 2010 to include the management of SM pharmaceuticals. These OGs should be used in conjunction with other existing general guidelines / SOP manuals, made available through the Central Medical Store (CMS)/ Essential Drug Bureau (EDB). It is important to do so as OG described in this manual do not cover all pharmaceutical management functions required at all levels of the supply system to maintain an efficient pharmaceutical supply system, but only certain management functions which needed strengthening. These OG cover, drug management activities at; central, operational district (OD), health center (HC) and referral hospital levels. Figure 2 provides a diagram showing the general flow of MN and SM drugs from the central to health center level as well as to the community level.

Tools for Managing Micronutrients and Safe Motherhood Drugs

These OG are accompanied by a set of MS Excel-based tools and documents, especially developed for quantifying needs using the morbidity-based and consumption-based methods, inventory management, MIS and developing indicators. Most spreadsheets are user-friendly, but additional instructions on their use have been provided at the bottom of each spreadsheet where deemed necessary.

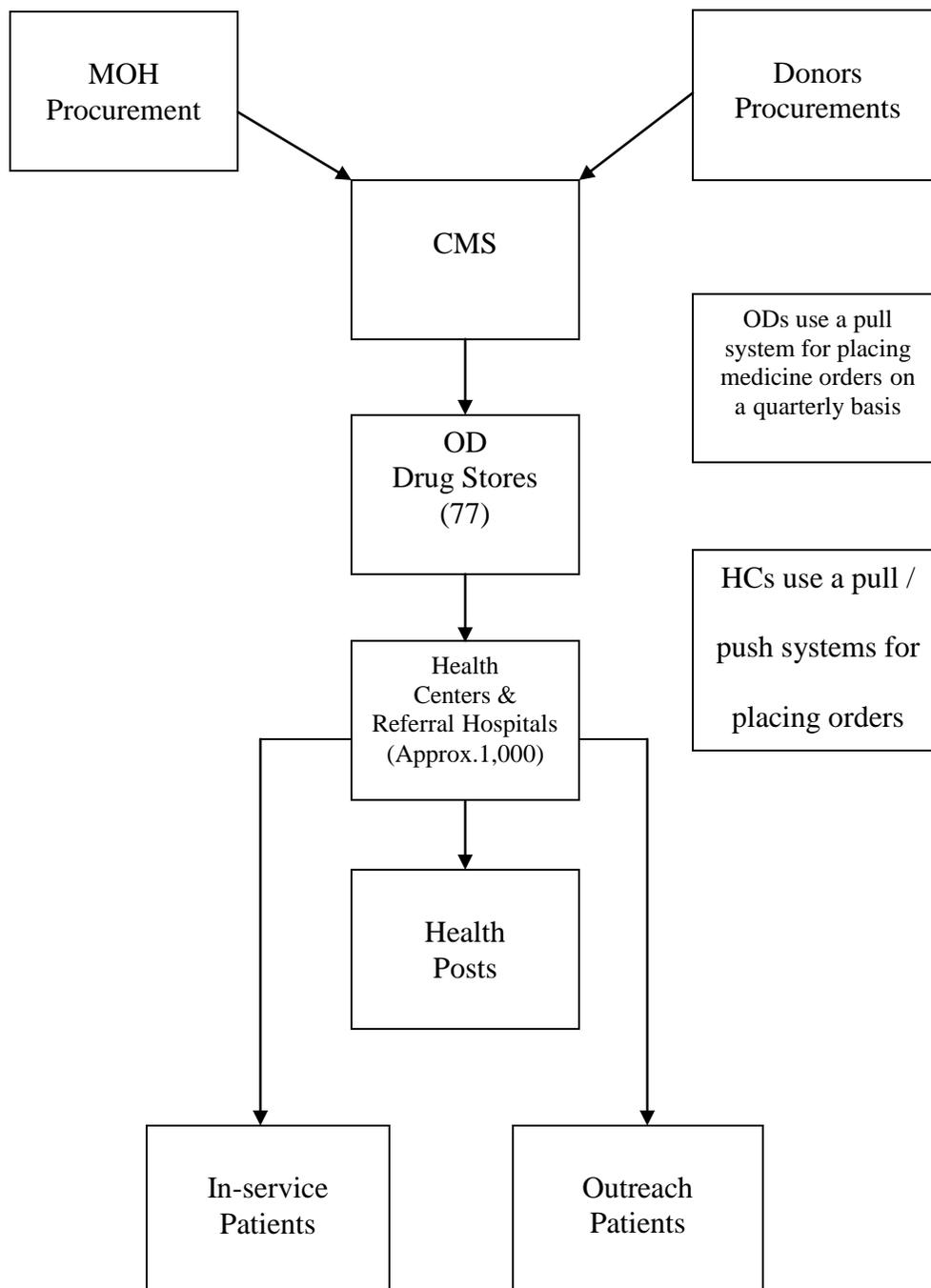
The following list of tools was developed for strengthening the management of MN and SM pharmaceuticals. These tools have been included under three Excel files describing three key pharmaceutical management functions, namely, Quantifying Needs (*Qntify.xls*), Inventory Management (*IC.xls*) and Management Information Systems and Indicators (*MIS.xls*). These pharmaceutical management functions and excel spreadsheets included under each function are briefly described below.

A. Quantifying Micronutrient Needs

File name: Qntify.xls

- i. **Morbidity-Based Quantification Tool** for determining needs of Vitamin A (Table 1)
- ii. **Morbidity-Based Quantification Tool** for determining needs of IFA, Mebendazole and RPH Pharmaceuticals (Table 2)
- iii. **Annual Needs Reporting Form** for reporting needs of HC & ODs to higher levels (Table 3)

Figure 2. MN and SM Pharmaceutical Supply System



- iv. **Needs Aggregation Sheet** for use at Central/OD levels for aggregating micronutrient needs (Table 4)
- v. **Procurement Data Sheet** for working out the annual MN and SM pharmaceutical procurement order at CMS (Table 5)

B. Inventory Management

File name: IC.xls

- i. **Inventory Control Spreadsheet** for use at HCs & ODs for placing monthly/quarterly medicine orders (Table 1)
- ii. **Inventory Control Card (ICC)** for IFA, Mebendazole and all pharmaceuticals used for SM. (Table 2)
- iii. **Inventory Control Card (ICC)** for Vitamin A 100,000 IU & 200,000 IU (Table 3)
- iv. **Requisition Issue Form (RIF)** for placing new orders (Table 4)
- v. **Field Issue Form** for controlling pharmaceuticals distributed to the field/outreach programs (Table 5)

C. Management Information Systems & Indicators

File Name: MIS.xls

- i. **Micronutrient Pharmaceutical Information and Indicator** spreadsheet for developing pharmaceutical MIS and indicators (Table 1)
- ii. **Indicator Reporting Form for MN.** For use by HCs (Table 2.A)
- iii. **Indicator Reporting Form for SM pharmaceuticals.** For use by HCs (Table 2.B)
- iv. **Indicator Reporting Form for MN.** For use by ODs (Table 3.A)
- v. **Indicator Reporting Form for SM pharmaceuticals.** For use by ODs (Table 3.B)
- vi. **Indicator Aggregation Form** for MN. For use at OD level (Table 4.A)
- vii. **Indicator Aggregation Form** for SM pharmaceuticals. For use at OD level (Table 4.B)

The OGs were prepared in a user-friendly manner describing how each drug management activity falling under the three major functions of; quantifying drug needs, inventory management and maintaining the drug management information systems should be undertaken. The following format was followed throughout the OG in presenting each drug management function.

- **Key Function:** Briefly describes the key drug management function to be performed.
- **Function description:** Describes in detail how the key drug management function should be performed.
- **Information Source:** Shows from where (source documents) to collect the information needed to undertake the drug management function.

- **Responsibility:** Identifies who should be primarily responsible for undertaking the drug management function.
- **Timing:** When to perform the drug management function.

The OGs have been constantly modified to reflect needs and conditions prevailing in the field, based on the feedback received while implementing OGs at pilot facilities. After going through many modifications, the final version of the OG manual and accompanying set of MS Excel spreadsheet tools were prepared in English. This manual was subsequently translated to Khmer and distributed among master trainers, pilot facility staff and others concerned with improving MN and SM drug management in Cambodia.

Training of Master Trainers

Providing proper training to a group of 12 master trainers on how to use the newly developed OGs for managing MN and SM drugs at different levels of the drug supply system was considered crucial for the success of improving drug management.

The primary objective of conducting master training was to train a small group of master trainers on how to use the newly developed OGs for managing MN & SM drugs. It was assumed that the knowledge gained during this training program would be adequate for master trainers to train drug management staff attached to pilot facilities on their own. Pilot facilities consisted of 14 facilities consisting of OD drug stores, HC and RHs, where new drug management tools were first implemented and maintained according to OG.

A three day training program was conducted at RACHA office in Phnom Penh from 10th to 12th March 2010. This training program was organized in collaboration with NNP, MCHC, RACHA and RHAC. The following set of training materials was developed by CMP/MSH and provided to each participant during master training. The training program was facilitated by Vimal Dias, Senior Program Associate from MSH.

- Participant Guides for trainees
- Trainer's Guides in the form of power point presentations
- The Course Schedule
- A set of activities
- A copy of the OG
- Copies of MS Excel files containing drug management tools for; quantifying drug needs, managing inventory, maintaining the drug management information system and developing indicators.

Annex 4 contains a description of the 3 day training schedule employed for conducting training. Information on; names of participants, organizations represented and designations of participants is included in Annex 5. About 15 participants from RACHA, RHAC, CMS, NNP and MCHC were trained.

This training proved to be very useful, as trainees were able to appreciate the usefulness of new drug management tools discussed during training for strengthening drug management at the three levels of the supply system.

This was a training program meant for training master trainers and not one for providing general training in drug management. Partners were keen to have their staff members included in the training so the number of participants was slightly higher than intended, and there were varying levels of previous experience with pharmaceutical management in the group. Because of the relatively large group of trainees and also due to the varying levels of knowledge among participants on various subjects discussed during training, timing was short. Further, the need for providing translations in Khmer, reduced the time available for providing training. However, many of the problems encountered by trainees in understanding the proper use of drug management tools described in the OGs was corrected to a very great extent when piloting new drug management tools at pilot facilities and receiving on-the-job training.

Overall, sessions were fairly well received by participants as reflected in the individual session evaluations provided by participants at the conclusion of training.

OG Indicators

In order to assess the performance of the drug supply system for managing MN and SM drugs using OGs, a set of 10 drug management indicators were selected for inclusion in the OG and these were to be produced quarterly. These indicators were expected to be shared with the NNP and MCHC program managers for assessing the effectiveness of drug management functions taking place at a given OD or at a health facility.

The set of 10 OG indicators used are described below.

- K-1 = Percentage days out of stock shows whether the drug has been always available at a given facility. = $(DOS * 100) / \# \text{ of days in quarter}$.
- K-2 = Percentage lost due to expiry and waste, shows how good inventory and stock management has been. = $(\text{Quantity lost due to expiry/damages/ other losses}) * 100 / \text{Quantity Issued during quarter}$
- K-3 = Minimum Non Zero Stock Balance during quarter, shows how close a drug has been to a stock out situation in terms of Average Monthly Consumption (AMC) = $\text{Minimum stock balance during the quarter} * 100 / \text{AMC}$.
- K-4 = Maximum Stock Balance during quarter, shows whether a drug has been over stocked in terms of AMC. = $\text{Maximum Stock Balance during quarter} * 100 / \text{AMC}$
- K-5 = Shows the degree of rationing or oversupplying drugs in percentage terms, from a higher level store to a given facility, compared to the drug quantity requested by a facility as part of placing normal orders. = $(\text{Quantity Ordered} - \text{Quantity Received}) * 100 / \text{Quantity Ordered}$.
- K-6 = Measures the extent of resorting to local purchases to avoid stock outs. = $\text{Local Purchases} * 100 / \text{quarterly usage}$.
- K-7 = Measures in percentage terms the drug quantity used in comparison to target usage amount. = $(\text{Usage target} - \text{Actual Usage during quarter}) * 100 / \text{Target Usage}$.

- K-8 = Measures the extent of Oxytocin usage per delivery in relation to what is specified in the Standard Treatment Guidelines. (STG) = Units of oxytocin usage per delivery.
- K-9 = Value of lead time in days between OD and CMS for last order placed. This is applicable only for OD Drug Store.
- K-10 = Average value of lead time in days between OD and all HCs for last 3 ordering cycles. Applicable to RH and HCs.

OG indicators have been produced for all 14 pilot facilities covering three consecutive quarters, namely, Q3-10, Q4-10 and Q1-11, in respect of both pilot ODs. These indicators show that drug availability has been generally good in most OD stores, HC and RHs during periods under review. However, in the case of oxytocin, there have been frequent stock outs at many HC or large quantities have been procured locally to supplement limited supplies provided by CMS. The problem of midwives not recording local purchases of oxytocin has resulted in understating its true demand for long periods of time. With the introduction of OG, the practice of recording local purchases employing OG tools introduced for this purpose has vastly improved in many pilot facilities. This is a significant achievement as a result of following OGs.

It is also important to note that it was not possible to develop values for all indicators due to lack of reliable data. This is because of the fact that not all tools included in the OG manual were used by pilot facility staff. For example, it is rather difficult to interpret indicators K-3 & K-4 developed for measuring the maximum and minimum stock levels in terms of AMC, due to the fact that stocks of MNs intended for use during campaigns and non campaigns were mixed up.

Factors such as the availability of only a small sample of indicator values, poor and incomplete data, didn't permit an in depth analysis of indicator values to depict an improving or a deteriorating trend in drug management functions at pilot facilities after the introduction of OGs. However, the production of indicators even in its current form has certainly provided the following valuable information and benefits.

- Indicators have clearly shown that use of oxytocin at HCs has been generally higher than what is recommended in the Standard Treatment Guidelines (STG).
- Indicators have shown that the extent of stock outs of oxytocin has been quite high at many HCs.
- It has shown that the level of local purchases of oxytocin has been high as a result of CMS providing only a limited quantity of this life saving drug.
- Midwives have realized the importance of recording any local purchases of Oxytocin and the impact it has on producing accurate AMC values, after the introduction of OG.
- The importance of keeping track of the number of days a drug has been out of stock (DOS) during any given month using an Inventory Control Card (ICC) as described in OG, to measure drug availability.
- The lead time between OD drug stores and CMS has been around 1.5 months for quarterly deliveries and there appears to be some room for a further reduction of this lead time.
- The lead time between OD drug stores and individual HC/RH has been around 1 week for monthly drug deliveries. This shows that there are no long delays in HCs receiving drugs once they place monthly orders with the OD store.

While development of some OG indicators have shown a positive impact as described above, at the same time it is important to stress that further work is necessary to develop some of the other OG indicators which have not been developed or found to be unreliable. These issues are discussed below.

- Sometimes the use of a single indicator will not show the true situation and a second indicator will be needed to act as a check on the first indicator, in describing a given drug management function. For example, it is possible to improve availability by having K-1 the percentage time out of stock as zero by simply holding a high stock level. It is for this purpose that indicators K-3 and K-4 for measuring minimum and maximum stock levels have been introduced. Unfortunately the resistance shown by pilot facility staff for keeping separate records for campaign and non campaign stocks of MN has created a practical problem in developing reliable values of K-3 & K-4. This has made it rather difficult to verify whether inventory management practices followed conform to OGs.
- Maintaining a high level availability of MNs at OD stores, RH and HC level is important. Further, it is also important to ensure that a large percentage of the target population receives MN in correct quantities and in good quality when conducting campaigns and cluster school programs. There are indicators recommended in OG for estimating coverage rates for MNs, but unfortunately, these valuable indicators couldn't be developed on a regular basis due to lack of reliable data. This situation needs to be soon rectified, as lack of information on accurate coverage rates achieved is a serious shortcoming.

Even though OG indicators have been produced for 3 consecutive quarters, it is important to stress that this has been possible mainly due to the assistance of master trainers. Pilot facility drug managers are still incapable of producing accurate indicators on their own, let alone interpret indicators, assess performance and take corrective action where necessary to improve drug management. This is in spite of providing a great deal of on the job training at facility level by master trainers over a long period of time. Lack of interest on using indicators is not only confined to pilot facility staff, but is also prevalent among higher level MOH staff as well. Hopefully, there would be more interest shown in using indicators in time to come, after making more progress in improving drug management practices.

PROBLEMS ENCOUNTERED

Good progress was being made in implementing OG up till around the 3rd visit to Cambodia in October 2010. Thereafter, the use of OGs at pilot facilities slowly started to decline. According to latest feedback provided by master trainers in May 2011, it appears that most pilot facilities are currently not using many of the important tools included in OGs for drug management. The extent to which OG tools are used varies from one facility to another, but it appears that there is clearly not much interest in maintaining OGs any further.

The main reasons for the sudden lack of interest and abandoning the use of OG after a short period of about 6 months appear to be as follows.

- i. Pilot facility drug managers feel that use of OG create additional work for them and therefore is a big burden. This is mainly due to the fact that drug managers at pilot facilities continue to use MoH systems in addition to OGs, as there was no clear official instructions from the MoH provided for piloting OGs.
- ii. Most drug managers at pilot facilities are still not very familiar with use of OG in spite of the fact that master trainers have made over 6 trips to all 14 pilot facilities for providing on the job training. It appears that drug managers are either incapable, or uninterested or is a combination of both. Hence, continuing with OJT by master trainers in this manner will not be at all sustainable.
- iii. During the October 2010 visit, EDB wanted a formal assessment done for gauging the extent to which OGs have been implemented and the resulting benefits, prior to their scale up in 12 other new ODs. Based on this assessment, an assessment report was prepared by the consultant. However, there has not been any official response to this report.
- iv. After the January 2011 visit, a decision was made to form a committee to review the OG manual and identify changes needed. It appears that such a committee has been formed as of May 2011, but the type of changes to be made to the OG manual has still not been identified.

With no real official recognition and backing for using OGs, it has not sent a clear signal to pilot staff for its continuous use. The fact that use of OGs require additional work on the part of drug managers and the fact that some of them are still not very comfortable in using OGs, have certainly accelerated the process of abandoning the use of OGs at pilot facilities.

MAJOR ACHIEVEMENTS

Many benefits from the use of the OGs were gained during a relatively short period of time despite the problems encountered. The fact that this consultancy project involved many partners concerned with drug management, it was not always easy to please everyone concerned and yet maintain a rapid pace of change to improve drug management. In other words the working environment was not always conducive to making rapid changes to existing methods used for managing drugs in Cambodia. Like in many other developing countries, changes are hard to make and sustain in Cambodia. This makes it necessary on the part of any change agent to be patient and take great care in making any changes in the field and ensure that they are sustainable in the long run without the need for any external assistance.

After looking back on progress made over the relatively short life of this project, the following are some of the major accomplishments.

- Drug management capacity among the few master trainers who participated actively in developing and implementing OG has been significantly improved. This is perhaps the most valuable contribution.
- Drug managers at pilot facilities were using most of the key drug management functions described in OG for only about 6 months, even though they are now implemented to varying degrees at pilot facilities.
- Drug management indicators have been developed on a quarterly basis for three consecutive quarters for all pilot facilities since mid 2010 and they are useful in describing how well drugs are managed.
- Based on initial plans presented by the working group for modifying OGs, it appears that many drug management functions described in OG will be retained in the new version of the MOH drug management systems. These changes would also be included in the modified version of the ODDID computerized system. This was revealed by the RACHA IT staff dealing with the modification of ODDID system at the workshop held on 05.26.11 for discussing progress achieved in using OGs and next steps. This is very positive and shows that development of OGs has not been a waste of time, money and effort. This is because many parts of the OG would be utilized as inputs for improving drug management efforts in future.
- Developing OGs have gone a long way in creating awareness among all concerned with the management of MN and SM drugs on certain important drug management functions that didn't exist prior to the introduction of OGs, but which were yet badly needed. Some of these include the following.
 - The need for taking into account the days of out of stock in estimating the AMC.

- The use of special MS Excel based tools for quantifying MN and SM drug needs, based on the morbidity method, in addition to the use of the consumption based method.
- The need for recording local purchases of life saving drugs such as Oxytocin to reflect the true demand for this drug and helping to minimize stock outs and reduce the high level of local purchases.
- The importance of keeping separate stock records of MNs intended for use during campaigns and non campaigns.
- The need for using drug management tools for developing indicators.

Last but not least, the realization among those concerned with drug management about the urgent need for improving current methods used for managing MN and SM drugs and the need for building capacity among drug managers, irrespective of methods used for achieving this end.

LESSONS LEARNED

Through the iterative process of implementation of the pilot experience partners learned many valuable lessons that should be considered as the work on pharmaceutical management procedures and systems continues in Cambodia.

- It took a long time for master trainers to be comfortable in using OG tools before they could attempt to guide pilot facility drug managers. This is because some master trainers lacked basic knowledge and experience in drug management to start with. Hence a great deal of basic training was needed to bring them up to speed, before they could become master trainers and act independently in the absence of the MSH consultant. Limited time available for training and language problems also contributed to this situation.
- In the case of pilot facility staff, the situation was even worse. It took even a longer time for pilot facility staff to absorb new drug management systems in spite of the fact that a great deal of OJT was provided very frequently by master trainers. Certainly the capacity to absorb new drug management tools was over estimated. This definitely retarded the progress achieved in implementing OGs. These problems could have been overcome to a great extent if training materials could have been made simpler, with a greater focus on doing activities during training.
- There were no clear official instructions provided to pilot facility staff for using OGs and as a result many were simultaneously using a combination of both OGs and MOH systems. Perhaps this problem could have been overcome if OGs were introduced in an entire OD, instead in about 20% of facilities within an OD. If so, the entire OD could have become a pilot OD, to fully practice drug management systems described in the OG and avoid the use of any MOH systems. On the other hand, such an option would have also placed additional strain on master trainers in providing OJT to a much larger population of pilot facilities.
- There were many questions that emerged regarding the ownership of the OGs. Perhaps one of the biggest mistakes made was the fact that agencies such as the EDB under the MOH didn't fully participate in developing OGs at the initial stages and only did so after a great deal of work had already been completed. The fact that there were 3 agencies within the MOH (EDB, NNP & MCHC) and 3 NGOs (MSH, RACHA & RHAC), were all involved in developing OG, it was rather difficult to keep everyone fully involved and satisfied at all times. The lesson to learn here is that it is very difficult to achieve any meaningful results, unless there is a strong sense of commitment, leadership and will shown by government agencies towards bringing about any meaningful changes to the way drugs are being managed. NGOs could only help in providing technical assistance to bring about change and provide direction, but are unable to bring about any changes by themselves without the blessings of certain key agencies within the MOH.

RECOMMENDATIONS

The operating guidelines were developed with the objective of, providing specialized drug management information to NNP and Maternal and Child Health Center (MCHC) and also gaining better control over the management of MN & SM drugs. In order to meet these objectives, a comprehensive drug management system in the form of a set of Operating Guidelines was developed for performing key drug management functions. These OGs were based on the experience gathered during the implementation of OGs at 14 pilot facilities. Since OGs are still in their formative stage, drug management tools included in OGs were developed using MS Excel spreadsheets. However, once OGs were accepted in principle to be beneficial and fit for scaling up nationwide, the next step should be to replace MS Excel spreadsheet tools with a suitable menu driven database system or to modify the existing ODDID system used by RACHA for drug management. However, before these activities could be fully completed, pilot facilities started to abandon the use of OGs around the October 2010. Currently, pilot facilities are using a mix of some drug management functions included in OGs and MOH systems used previously.

At the workshop held at Sunway Hotel on 05.26.11, a decision was taken to abandon the use of OG in its present form and to modify them to make them simpler and user friendly. A decision was also made to modify the ODDID computerized database system to accommodate some parts of the drug management systems described in OGs. The key reasons mentioned for abandoning the use of OGs in its present form were as follows.

- OGs are too complicated for continued use, especially at HC level where drug management staff is not very competent in managing drugs and without access to use of computers.
- To avoid duplication of effort in the simultaneous use of OGs and MOH systems.
- Drug managers are still not very comfortable in using all the tools included in OGs, despite a lot of training provided by master trainers.
- OG has given rise to additional work and is a burden on some drug managers.

Since a decision has been made to give up the use of OGs in favor of the incorporation of the processes they describe in other systems, it is very important to quickly modify the current version of the OG to a form that is acceptable to all concerned with the management of MN and SM drugs and yet be able to accomplish the objectives of strengthening drug management. It is important to note that the collection of drug management tools included in OGs have been developed with a systems approach in mind for improving drug management. In other words, they are a set of related drug management tools when properly and collectively used, should produce a strong drug management system that would meet the desired objectives. These objectives are; improving drug availability, ensuring good drug quality, minimizing operating costs and providing NNP and MCHC with key drug management information needed to better manage their respective health programs. Hence, when modifying the current version of OGs, it would be very important to decide what drug management functions should be deleted and or added. It would also be necessary to finally assess what the impact of such changes would have on drug management activities as a whole. Failure to accomplish these tasks in a satisfactory

manner could weaken drug management and not help in achieving the type of objectives mentioned above.

The drug management capability among the group of master trainers who participated actively in developing and implementing OGs have improved vastly as a result of using OGs. This is very positive and perhaps the greatest output resulting from the work undertaken under this project. Hence, these master trainers should be fully involved in the process of modifying and implementing any new version of OGs to be developed in future.

All systems and procedures are as good as those who operate them. Hence, providing proper training to drug managers on the use of any new drug management tools to be developed would be crucial. In order to meet this challenge, the type of training materials to be developed in future should be made very simple and accompanied by a suitable set of activities based on the use of OGs. This will ensure all drug managers fully understand how these tools are to be used at the completion of formal training. Formal training on use of OGs carried out effectively would go a long way in reducing the extent of on the job training to be provided at facility level at the stage of introducing new systems. This would be particularly so when attempting to scale up the use of OGs in new ODs and finally nationwide.

Since the number of health facilities in which any new drug management system is to be introduced would be large, it would be useful to appoint a focal point person in each OD to coordinate the introduction of new systems. This will be important because it would not be practical for master trainers to provide sufficient OJT to drug management staff at a large number of facilities located within a given OD and in all ODs where new drug management systems are to be introduced.

Even though it has not been possible to complete all activities mentioned in the SOW within the life of this project, development of OG has not been a waste of time, money and effort. There are already signs that the new committee appointed to modify the current version of the OG and ODDID systems are going to retain many important tools found in the OG. Further, there is also the possibility of some more tools being included in future, once proposed new drug management systems have been in use for a while and starts to produce dividends.

ANNEX 1. RACHA AGREEMENT



Office # 160, Street 71, Tonle Bassac
P.O.Box 2471
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Phone: (855) 23 213 724
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E-mail: office@racha.org.kh
Resource Center: <http://rc.racha.org.kh>

Ref: 034 -10/F&O

January 29, 2010

Yen Lim
Senior Contracts Officer
Center for Pharmaceutical Management
Management Sciences for Health
4301 N. Fairfax Dr., Suite 400
Arlington, VA 22203 USA
Tel: 703-248-1605 (direct)
Fax: 703-524-7898

Re: Consultant Agreement: **CA#FY2-AID-442-001-10**

Dear Yen Lim,

RACHA, with its principal office located in Phnom Penh, Cambodia would like to enter into agreement with Management Sciences for Health, Inc., with its principal office located at 4301 N. Fairfax Dr., Suite 400, Arlington, VA 22203 USA (hereinafter referred to as "MSH") to engage consulting services in both the United States and Cambodia. MSH's services are being procured to assist RACHA to implement the Pilot Project on 'Strengthening Supplies Management for Micronutrients and Safe Motherhood Drugs. This assignment will be conducted by Mr. Vimal Senarath Dias, on behalf of MSH.

Specific responsibilities include: (please refer to SOW)

Mr. Vimal Senarath Dias will work with the RACHA team to carry out the SOW. Mr. Vimal Senarath Dias's supervisor at RACHA will be Executive Director, Ms. Chan Theary.

This contract establishes an arrangement for use of MSH services as an independent contractor. It does not create an agreement of employment between MSH and the RACHA NGO.

Period of Assignment

This assignment will take place starting approximately -February 5, 2010 to February 5, 2011.

Total Fixed Price

The firm fixed price for complete and satisfactory performance of this contract is One hundred and forty-three thousand one hundred and seventeen US dollars (USD\$ 143,117).

Payment for this contract shall be based on the following schedule:

No.	Description	Amount
1	Upon contract signing	USD\$ 35,779.25
2	Upon completion of indicators, Excel tools, and training of trainers curriculum	USD\$ 35,779.25
3	Upon development of M&E framework and SOP manual	USD\$ 35,779.25
4	Final report with results of pilot intervention and recommendations	USD\$ 35,779.25
Total		USD\$143,117.00

Vacation/Sick Leaves and Holidays

During the assignment period, MSH personnel will not be entitled to vacation leave, sick leave or the RACHA listing of Cambodian holidays.

Payment Instructions

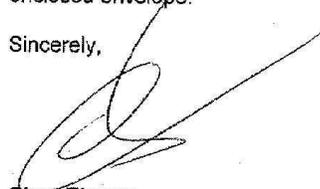
Fee payment will be made upon receipt of an invoice from MSH and satisfactory completion of the deliverables specified in the payment schedule. MSH shall be paid in US Dollars, upon provision of an original invoice for the above mentioned costs. The invoice will be submitted to Ms. Chan Theary supervisor, Office #160, Street 71, Tonle Bassac P.O. Box 2471, Phnom Penh, Cambodia. To expedite payment, please be certain that travel documentation is complete. In addition, please refer to the consultant assignment number referenced above when directing any correspondence to us regarding this consultancy.

Cancellation

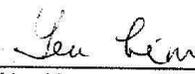
Due to circumstances unknown at the time of issuance, either party may cancel this contract. This will be done in writing as far in advance as possible. If the cancellation or postponement is issued by RACHA, RACHA will be responsible for the payment of work done up to the point of cancellation.

If the above is agreeable to you, please sign the copy of this letter and return it in the enclosed envelope.

Sincerely,


Chan Theary
Executive Director

Reviewed and accepted:


Yen Lim
MSH

Date: Feb 10, 2010



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Ref. 568-11/EO

May 31, 2011

Ms. Yen Lim
Senior Contracts Officer
Center for Pharmaceutical Management
Management Sciences for Health, Inc.
4301 N. Fairfax Dr. Suite 400
Arlington, VA 22203

**Subject: No cost extension of Consultant Agreement, CA#FY2-AID-422-001-10, between
RACHA and MSH**

Dear Ms. Lim:

As stated in my e-mail to Ms. Dusey Olya dated April 21, 2011, RACHA approves Management Sciences for Health, Inc. (MSH) request for a no cost extension to the subject consultant agreement. The extension was requested to accommodate the final trip to be performed by Mr. Vimal Dias and subsequent report which were not completed during the agreed timeframe. As such, the end date of the subject agreement is amended to August 31, 2011.

Should you require any further information, please feel free to contact me. ✓



Chan Theory
Executive Director
RACHA

Copy: Mr. Vim Dias
Ms. Dusey Olya
File

ANNEX 2. LIST OF PILOT FACILITIES SELECTED

The following 14 pilot facilities in 2 ODs were selected for implementing OGs.

Pilot Facility Name	Supported by RACHA / RHAC
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1. <i>Kg Trabek OD Store</i>	RACHA
2. Prey Chhor HC	RACHA
3. Kg Trabek HC	RACHA
4. Kg Trabek RH	RACHA
5. Prey Pon HC	RACHA
6. Thkov HC	RACHA
7. Kork Kchork HC	RACHA
8 <i>KorngPisey OD Store</i>	RHAC
9. Snamkrapeu HC	RHAC
10. Chung Ruk HC	RHAC
11. KorngPisey RH	RHAC
12. Barseth Pou HC	RHAC
13. Veal Ang Popel HC	RHAC
14. Pech Mony Toek L'ak HC	RHAC

ANNEX 3. LIST OF MICRONUTRIENT & SAFE MOTHERHOOD DRUGS

The table below lists key micronutrients and safe motherhood drugs with their specifications, used for treating Vitamin A deficiency, anemia, and worm infestations by NNP and Oxytocin used for treating postpartum hemorrhage.

Drug Name	Strength	Dosage Form
Vitamin A	100,000 IU	Capsule
Vitamin A	200,000 IU	Capsule
Iron Folic Acid (IFA)	200 + 0.40 mg	Tablet
Mebendazole	500 mg	Tablet
Oxytocin	10 IU / ml	Injection

ANNEX 4. TRAINING SCHEDULE OF MASTER TRAINERS

**Training of Trainer's
Operating Guidelines for Managing Micronutrients and Safe Motherhood
Pharmaceuticals
March 2010 - Cambodia**

Session No.	Topic	Time	Materials	Resource Person
Day 1 – 10.3.10				
1	Inauguration	9.00 – 9.15		Directors – NNP/ MCH / Racha
2	Introductions	9.15 – 9.30		Participants & Trainers
3	Introduction to the Training Program	9.30 – 10.00	Slides	Vimal Dias, Senior Program Associate, MSH, Washington.
4	Introduction to Operating Guidelines for Managing Micronutrients and Safe Motherhood Pharmaceuticals	10.00 10.30	Slides	Vim Dias
	Tea	10.30 – 10.45		
5	Introduction to Drug Management Cycle	10.45 – 11.30	Slides	Vim
6	Outline of key Central Level Pharmaceutical Management Operations	11.30 12.00	Slides	Vim
	Lunch	12.00 – 2.00		
7	How to Estimate Annual Pharmaceutical Needs and Prepare Orders at Central Level	2.00 – 3.00	Slides and Discussion	Vim
	Tea	3.00– 3.15		
8	How to Maintain the Pharmaceutical Management Information System and Produce Indicators at Central Level	3.15 – 4.30	Slides	Vim

Day 2 – 11.03.10				
1	Daily Evaluation	9.00 - 9.15		
2	How to Distribute Pharmaceuticals from CMS	9.15 – 9.45	Slides	Vim
3	Outline of key Pharmaceutical Management Operations to be Undertaken at OD Level	9.45-10.15	Slides	Vim
	Tea	10.15 – 10.30		
4	How to Estimate Annual Pharmaceutical Needs at OD level & Report to Central Level	10.30 - 11.00	Slides	Vim
5	Managing Inventory at OD Stores and How to Place Drug Orders with CMS	11.00 – 12.00	Slides	Vim
	Lunch	12.00 – 2.00		
6	How to Maintain the Pharmaceutical Management Information System and Produce Indicators at OD Level	2.00 – 2.30	Slides	Vim
7	Tea	2.30 – 2.45		
8	Outline of key Pharmaceutical Management Operations to be Undertaken at Health Centre Level	2.45 – 3.30		
9	How to Estimate Annual Pharmaceutical Needs and Report to OD Level	3.30 –4.30	Slides	Vim

Day 3 – 12.03.10				
1	Daily Evaluation	9.00 – 9.15		
2	Group Activity (1) for Estimating Pharmaceutical Needs at Health Facility Level & Reporting to OD level	9.15 – 10.15	A Group Activity	Participants
	Tea	10.15 – 10.30		
3	Managing Inventory at Health Centres and Placing Orders with OD Store	10.30 – 11.15	Slides	Vim
4	A Group Activity (2) for Managing Inventory and Preparing Drug Orders	11.15 – 12.00	A Group Activity	Participants
	Lunch	12.00 – 2.00		
5	How to Maintain the Pharmaceutical Management Information System and Produce Indicators for Health Centres	2.00 – 2.45	Slides	Vim
	Tea	2.45 – 3.00		
6	Group Activity (3) for maintaining the MIS & developing Indicators for Health Centre & Reporting to OD level	3.00 – 4.00	A Group Activity	Participants
7	Course Evaluation	4.00 – 4.30	Discussion	Participants
8	Next Steps	4.30 – 4.45	Discussion	Participants

End of Training

ANNEX 5. LIST OF MASTER TRAINERS

No	Name	Sex	Designation	Organization
1	Eam Mony	F	SM&BS Team Leader	RACHA
2	Huth Sokleang	F	SM&BS Assistant Team Leader	RACHA
3	Cheng Kimheang	M	IT	RACHA
4	Kov Buntor	M	LMIS Team Leader	RACHA
5	Unn Khlem Chan	F	LMIS Assistant Team Leader	RACHA
6	Sam Kompheak	M	SM&BS Coordinator	RACHA
7	Lao Sileap	M	Child Health /Nutrition Admin Assistant	RACHA
8	Sem Sophoan Leakhena	F	IT	CMS
9	Chhim Vichea	M	Nutrition (MPA Module 10)	NMCHC
10	Keo Ny	M	APC Coordinator NNP	NMCHC
11	Kong Vann Ly	F	APC staff of NNP	NMCHC
12	Oeurn Bonthet	F	NNP staff	NMCHC
13	Chhim Tharaly	F	M&E of NRHP	NMCHC
14	Yong Vutthicol	M	Project Officer	RHAC
15	Men Tith Thida	F	Program Assistant	RHAC