Emergency Market Mapping & Analysis (EMMA) Report Ceramic Water Filter (Rabbit) market in Kampong Thom Province, Cambodia

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Table of Contents

	Contents	Page
1.	Executive summary or brief	1
2.	Emergency context	2
3.	EMMA methodology	2
4.	The target population	4
5.	Critical market systems	6
6.	Market-system maps	7
7.	Key findings – results of the gap and market analyses	10
8.	Main recommendations and conclusions	14

Section 1. Executive summary or brief

The group was comprised of development staff coming from different nations (Cambodia, Laos, Myanmar, Italy and Indonesia). The assigned task was drafting a project proposal for supporting the recovery of the Kampong Thon flooded area focusing on the provision of clean water. The amount of clean water required by the beneficiaries was calculated based on the Sphere Guidelines (8 liters / person / day). The method chosen for providing water was via ceramic water filters. The reason for this choice was that they are produced in Cambodia and that OXFAM and other organizations have carried out successful interventions by using them. Few of the group components were familiar with the project area, yet the use of the EMMA tools following the manual methodology enabled the drafting and refinement of a good enough proposal thus demonstrating that the method can be used also by outsiders to the disaster area. The EMMA method foresees that any intervention takes in consideration the existing market for the item or services that are provided. In practical terms, when the group adopted this principle, the following results were pursued: (i) no disruption of the existing market, (2) use of the existing market channels for delivering water filters, (3) strengthening the market for water filters so that it will continue to fully work also after the project end. This last point ensures sustainability and leaves a certain level of "emergency preparedness" in the field.

The method used followed the preliminary drawing of the market map based on available information. This is done by laying out the main points in a wall paper. The group started to think and this was just the beginning of an iterative process which entailed several revisions and updates. Once the first lay-out achieved a sufficient level of details the additional information were sought by means of the available communication means (internet, telephone calls, and interviews to any informed person) and by means of a survey carried out in the emergency site. The survey was prepared and a check list prepared. After the survey a brainstorming enabled to go further and identify the gaps for to be addressed.

The study recommends that to address the needs of the people and at the meantime maintain the local market, Oxfam should support to both the wholesalers and the local retailers as indirect support but to maintain the functionality of the value chain of the Water Filter Rabbit brand. As some families has more members and in respected to the Sphere minimum standard of 15 liters of clean water for drinking and cooking, water filter alone may not sufficient to produce water. Therefore the study recommend that, Oxfam may consider to add one 60 liter container to store water before put into the filter and other 20 liter container to keep water after filtered. This may provide enough water for the household of more than 5 people members.

For direct support, we recommend Oxfam should provide 25% of voucher to those people affected by the flood and stay close to the market can access to the retailers and 75% distribute to those who affected by the flood and stay far from the market and some cases the road was destroyed by the flood.

For indirect support, Oxfam considers of giving financial assistance to retailer and wholesaler through bank transaction so that they are able to buy more water filters in stock so that they are able to sell or distribute to the affected people when need arrives. Supporting to producer of the water filter is also a consider option to make it available on the market.

Section 2. Emergency context

The flood in 2011 was worse than 2000 as Mekong River water began to rise in May to the fact that the rain started in mid February. In the second week of August, it was raining throughout the country, so the level of water creeks, streams and rivers increased accordingly. Starting from early September 2011, rain water flooded a number of districts in the provinces of the northwest (Preah Vihear and Siem Reap, Bantheay Meanchey, Battambang and Pailin) and the middle of the country, Kompong Thom province was also affecting severe flooding. The rain water started to recede in the third week of the same month.

In Kompong Thom province, there are eight districts, 63 communes out of 73 communes and 396 villages of 739 villages are affected by flood. Prasath Sambo, Sandan, Kampong Svay and Krong Stean Sen districts are the most affected districts which Prasath Sambo is the most seriously among the four districts. The affected households are 26, 894 households which 2,997 households evacuated in 109 safe areas and 18,273 households are facing with food shortage and clean water for drinking and cooking.

Based on the report by Oxfam, 635 houses are completely flooded while only 15 houses have been damaged. 197 schools and 12 health centers 43 pagodas have been flooded in Kampong Thom province.

The report also mentioned the coordination meeting of NGOs such as Caritas and World Vision International Cambodia (WVI) with PCDM to discuss on the flood impacts. After the meeting, WVI and Caritas conducted joint assessment. Based on the results of the assessment, Caritas and WVI conducted another meeting to discuss on relief distribution plan.

By 03 Oct 2011, 6,453 households have received the emergency kits from Cambodia Red Cross (CRC), Samdech Techo Prime Minister Hun Sen, Caritas, Department of Health and WVI. To assist the most vulnerable people who are in the most needs, Oxfam has distributed 165 WF, Caritas 200 and 325 by WVI. Therefore the total 690 water filters has been distributed in the affected districts.

Section 3. EMMA methodology

To study in depth the demand and the supply of the water filter, the EMMA training course has assigned a team of 8 people composed of Cambodia staff of Oxfam based in Kompong Thom and other province, participants from Myanmar, Lao and participants from other NGOs. Before conducting interview, the team made plan and divided the task to be taken of each sub-team. The task of each sub-team is to prepare questionnaire according to the interviewing group to be made in the following day. With guidance from the course facilitators, The team prepared questionnaire to interview beneficiary, commune council members, water filters sellers, NGOs who distributing water filter during the flood, Cambodian Red Cross who plays the role as the wholesaler and producer with its based in Prey Veng province and IDE, the social enterprise who is also producing and whole selling of Rabbit ceramic water filter. Some interviews were made by phone as those who has no office in Kompong Thom province.

During the field visit, the water filter team split into two sub-groups. One sub-group of 4 people met with commune council member of Trapang Russey commune. The other sub-group consists of 4 people with one interpreter met with the beneficiary of water filter in Lvea Choam village. Each of the meeting, the team organized as the focus group discussion methodology in order to understand the demand and the use of Rabbit water filters and local supply chain. In the afternoon, the team met and interview with retailers of water filters in

Kompong Thom market to understand the value chain of the water filter and the 60 litre of water container. The next day, the team split into three small groups to interview with Caritas, CRC and the IDE. These organizations are also involve with distribution and production of water filters.

Section 4. The target population

Target population and beneficiaries

Oxfam decided to deliver ER on two districts only (Prasat Sambo and Kampong Svay District). According to OGB records, the target is 10,656 HHs. This figure is accounted taking into consideration the P1 + P2. 90% of these (9,590 HHs) lack clean water according to the OGB emergency report. This estimation is based on secondary data. We might need to refined better the number of the target HHs.

Some WF (690) have already been delivered to the target group by Oxfam, Caritas and WV. Therefore the WF needed to provide to the people is **8,900** families.

• Target of affected people in the areas

Target	Numbers	Locations	Areas of focus
 Poor one and poor II in two district of Prasat Sambour with the number of 10,656 hhs People live in safety hills and flooded areas "Rural Poor mainly Agricultural labor with litter land" 	90% of hh shortfall of drinking water cooking. So the number of hh is 9,590	Kampong Svay district, Kompong Thom Province	People stay temporary in safety hills, IDP I and IDP II

The current sources of water are being used by the flood affected people include rain water and unsafe water (flood water, hand-digging and open-well). The flood affected people who are living in safety hills have less water containers and use water from wells and flood water while flood affected people who are living in flooded areas use flood water directly due to the fact that around 95% of wells in flood affected areas get flooded.

The quantity of water is enough but there is a big concern of water quality. The assessment showed that approximately 85-90 % of flood affected people, who are evacuated to the safety hills and lived in flooded areas, could not access to clean water with acceptable quality as they drink and use flood water and water from the wells directly. Only 10-15% of flood affected people can access to clean water with acceptable quality as they have water filers and boil water for drinking. Basically, the available water filters have been distributed by World Vision International around 20 water filters in one crowded safety hill of Prasath Sambo district but it is for group based only.

Approximately 50% of flood affected people have their own water filters as they got it from Oxfam and other NGOs during the Ketsana response in 2009. However, siphon filters provided by Oxfam have not been used by almost 100% of villagers because they do not likely to use it while the community people have only turbid water which make siphon filter process water very slowly. In addition, approximately 90% of water containers which need to use together with siphon filter already broken. Furthermore, based on group discussion with commune leader and Villager chief" it was noted that the whole village stop using filter

anymore due to some rumour, which mentioned that using the ceramic filter will cause them cancer.

Section 5: Critical market systems

EMMA defines critical market systems as those that played, play or could play a major role in ensuring survival and/or protecting livelihoods of the target population in an emergency

context. Oxfam and partners EMMA team drew up a list of possible critical markets related to Water, Sanitation and Hygiene; from bottled water plus chlorine tablets, clay pot water filter (Rabbit), soaps, mobile latrines, etc. After further discussions and ranking based on criteria such as community urgent needs, agency mandate. feasibility, etc, the EMMA team selected to analyze market system of Water Filter (Rabbit type) ,together with 2 types of water containers, which are to be used for storing water before and after filtering at individual household.

The EMMA team selected Water Filter (Rabbit) and containers to be analyzed, as drinking water plays a vital role in



ensuring survival of the affected populations, in regards to the floods affected condition, in terms of health aspect. Also, the Rabbit water filters are comparatively cheap cost with high efficiency at filtering water, particularly for drinking, handy for cleaning and maintain and also able to find in the provincial markets, easily.

Based on flood assessment report by Oxfam in KT province on 4th October'2011 and available secondary data, EMMA team drew a baseline critical market system which revealed two dominant producers or major suppliers of Rabbit water filters, namely IDE and CRC. Also NGOs like Caritas and UNICEF also playing an important role at distributing Rabbit Water filters to the target communities especially at normal baseline condition. However, the role of marketers who are wholesalers and retailers are not significant in the main market chain at baseline and also after emergency, especially in terms of amount flowing through them to the community. They also do not make much profit from this supply market They got net profit amount 0.5\$ to 1\$ per unit and the sale volume is too small such as 1-3 unit per month or even less.

There are 3 main components for Rabbit water filter, i.e, plastic water tanks, clay pots and water taps. Among these 3 components, clay pots play a significant role at supply chain.

Looking into clay pot supply to the major actor IDE, it has own factory to produce clay pots at Kampong Chhnang. It can produce huge amount up to 3000-5000 unit per month. The plastic tanks were supplied by a manufactory at Chaom Chao near Phnom Penh and taps are imported from Vietnam. In Kampong Thom province, IDE is selling about 100 units per month from one agent through 97 retailers to the users .End users price range from 11.5\$ to 17 \$ per unit, depending to distance and transportation costs. Regarding CRC, it has own factory to produce clay pots and also the final products (Rabbits) in Prey Veng province. The plastic tanks and taps are imported from Vietnam and, are easily available all year round.CRC factory can produce 250 to 300 sets per day and they have enough storage capacity for much larger amount. Currently, both of IDE and CRC have in stock around

40,000 units, however during emergency time if it less in stock they need to know at least 1-2 month in advance about the amount of demanding more their producing capacity.

In the market chain, it is found out that Caritas Cambodia has normal program of delivering 200 units every year starting from 2010 to remote villages located along the side of Steoung Sen River, under a 5 years Health program. Hence, Caritas has already distributed 200 sets of Rabbit water filters to poorest community in Prasath Sambo during 2011 September. Also, UNICEF is distributing water filters to remote schools, through the concern government department, which is about 380 unit, but it is not under emergency response program.



For the rural people, they normally don't buy water filters by own cash, especially those from poor strata. Also components or spare parts such as clay pots and plastic water taps are not easily available in the community markets, or even in the central market of KT province.

Looking into the supply chain of plastic water tanks, there is no significant or dominant supplier, as various plastic tanks both local and imported are easily available in the market, all times with quite stable price.

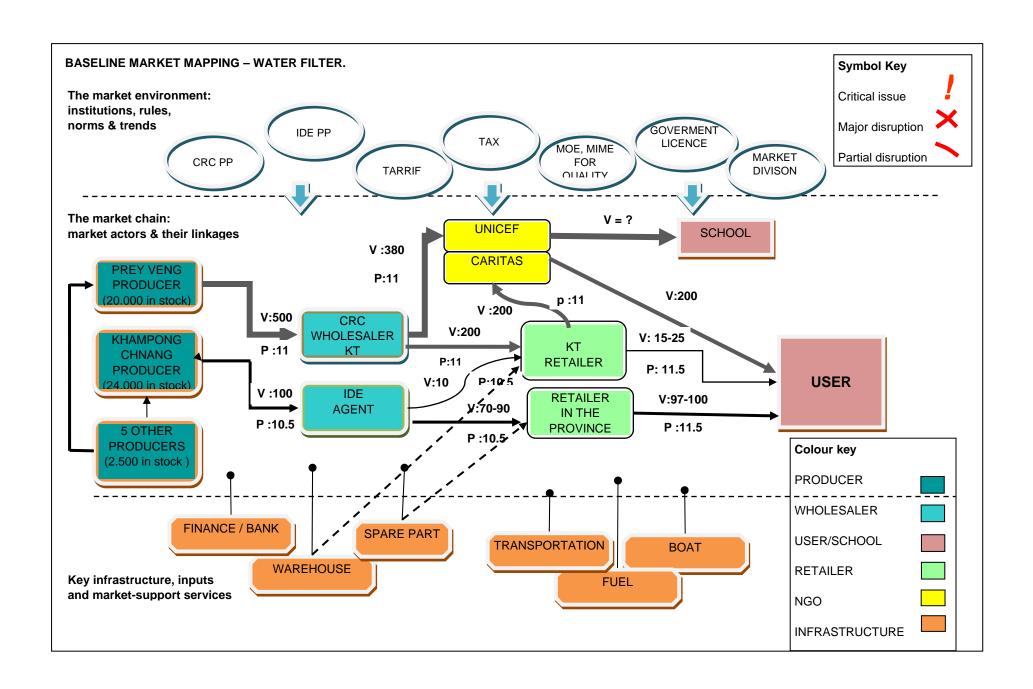
Community people who had received filters at early distributions

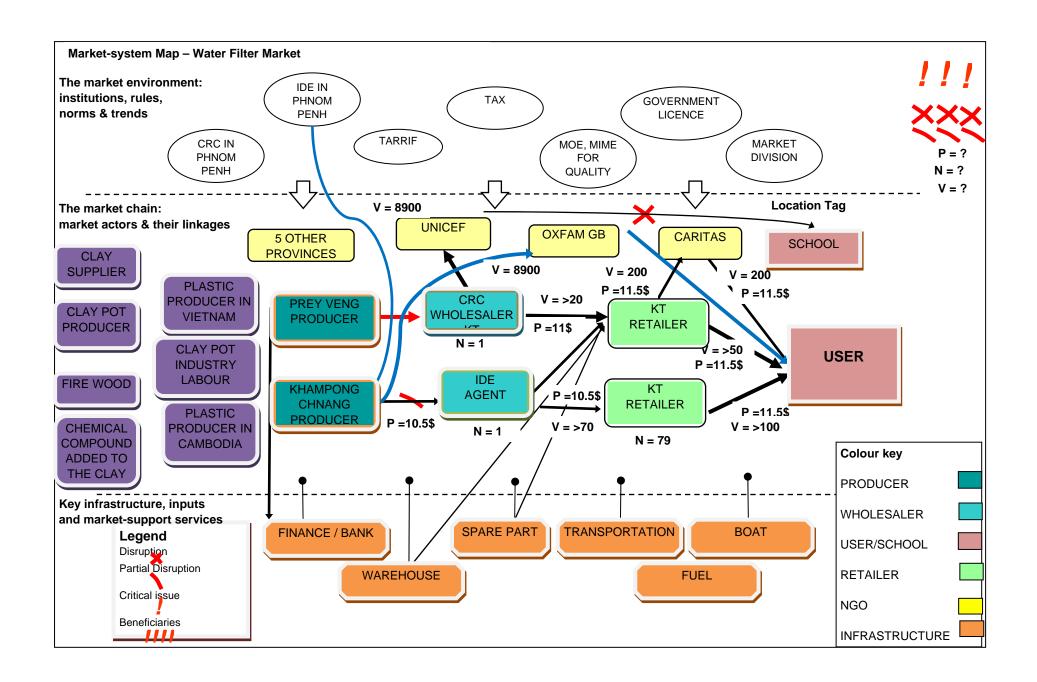
after the floods reported their satisfaction of using Rabbit water filters, as they find it much beneficial to them. It is reported that all the household receiving the water filters are using filtered water only for drinking and they know that they have much improved health conditions than before, especially for children. They don't have much expense for health treatments compare to past times.

Wholesalers and retailers reported on decreased demand of water filters from them due to direct support of water filters to the communities by the NGOs, during and after the floods.

The following market map and description of key features provides a snapshot of market flows of the two critical market components in early September 2011. It is intended to inform that role of wholesalers and retails are critical in this market chain and other actors of Water Filter market has no significant impact by the disaster.

Section 6: Market-system maps





Section 7: Key findings – results of the gap and market analyses

Target population and beneficiaries

As stated in section 4 above, the water filter team discussed and decided to deliver ER on two Districts only (Prasat Sambo and Kampong Svay District). According to OGB records, the target is 10,656 HHs. This figure is accounted taking into consideration the P1 + P2. 90% of these (9,590 HHs) lack clean water according to the OGB emergency report. This estimation is based on secondary data. We might need to refined better the number of the target HHs. Some WF (690) has already been delivered to the target group by Oxfam, Caritas and WV. The



number of beneficiaries thus remains 8.900 households.

Evaluation of GAP.

According to national statistics the average number of family members is 7. The team made a survey in a convenient commune (Trapang Russei) and discovered that the average size is 5 members.

The team decided to consider that the family size is in the affected area is of 5 people. This figure was consolidated after discussion with the OGB KT team that has experience of the affected area.

Based on the Sphere standards, one person needs 8 L of clean water /day as a minimum. 1 HH needs on average 40 L of clean water / day.

The filters usually provided by OXFAM (Rabbit brand) can produce 2-3 L /Hr when they are in good condition.

One filter can thus be considered sufficient for one family. For good water purification, the water taken from the environment must rest for at least 24 hr in a tank before being poured into the clay filter. This tank must be capable of storing 80 L. The purified water can be taken from the filter and stored in a 20 L tank.

So the project needs to supply a kit composed of:

- 1 80 L water container
- 1 rabbit filter
- 1 20L water container.

In total, the team suggest to deliver the items outlined in the following table which also includes spare parts for the 10% of the provided filters

Table 1: Estimation of items needed to fill the gap

Item	N. of items
80 L container	8,900
Rabbit filter	8,900
20 L container	8,900
Spare parts (clay pot)	890
Spare parts (tap)	890
Spare parts (plastic container)	890

Considerations about the GAP

It is considered that the target population will lack clean water from the time of the onset of the flooding until when wells will be cleaned. We estimate that the flooded area will be reclaimed after 2-3 months. After this time wells need to be cleaned, mud removed and chlorine added in some of them. This operation takes around one month more or more. The team estimates a 5 month time for returning to normality for clean water availability.

According to the duration of filters, the team estimates that they can properly work up to 12 months. We foresee that during this time some filters can break down and spare parts will be necessary for reparation.

So the ER covers the 5 months gaps but also pursues sustainability for 12 months.

Discussion of results from the baseline market analysis

The team observed that there is a small number of Rabbit filters delivered to the target population during the non emergency time (see baseline EMMA map). As of September 2011, the figure is the following:

325 WFs are delivered by Caritas (200) + retailers (125). Unicef delivered 380 WFs to schools only.

It is important to underline that a little market chain exists already, although negligible and that the market of WFs is dominated by NGOs.

If we analyze the market we can observe that:

- A little demand for filters exists,
- The market offer is very limited,
- Non market actor supply filters in kind suffocating the development of the market.
- WFs **producers** are located in Kampong Chhnang and Prey Veng Provinces. They can produce each up to 3000-5000 filters per months.
- CRC needs to receive the order one month in advance
- IDE needs to receive the order two months in advance
- CRC and IDE supply WFs also to other provinces in the country and might run out of filters in case other emergencies occur in other Provinces
- CRC and IDE need to receive the capital in advance to start up the production

- Two main actors are located at the KT Province level: CRC (wholesaler) and IDE (agent).
- CRC in KT acts as a wholesaler because buys filters and delivers them according to needs and funding.
- IDE acts as an agent because sells only IDE produced WFs.
- CRC normally **stock** 4-500 WFs but can increase up to larger quantiy
- IDE normally **stock** 100 WFs but can increase up to larger quantity
- Water containers are available at the KT Town market level. Retailers can easily
 provide up to 10.000 items in a two week time because they have direct connections
 with exporters from Vietnam. They say that the can store the items in proper
 warehouses.

Evaluation of the potential market ER

The response from the retailers at the town and countryside level is very limited. It is evaluated that the market cannot provide any further response in current conditions

The reasons for this are:

- beneficiaries have no information that there are WsF on sale at the retailing level
- there is little / no demand to retailers
- retailers do little / no offer to customers
- Retailers do not invest on WFs and they don't stock them because they know that
 people will not buy them or that they will receive them from NGOs and other
 organizations. It would be a bad investment for them
- The price at the retailing level (11.5 -17 USD) in higher than the price at the wholesaler /agent / producer level. Some people would prefer to go straight to these actors rather than spending more money at the retailing level.

The market sector as part of the ER

The team evaluated that there are two priorities:

- 1. Quickly deliver WF to those who need them during the emergency
- 2. To develop the market system capacity to better respond to the emergency

In order to do so, OXFAM ER response will be double.

- Distribution <u>in kind</u> will be done to the HH most in need (this estimation should be refined. We know estimates that it ranges between 50% to 75% of the total beneficiaries).
- Distribution of commodity vouchers will cover the remaining share.

Distribution in kind will address:

- the HH farther from the market.
- those evacuated far from their houses
- those living in places without functioning retailing system
- disables
- women headed HHs
- most disadvantaged

The team suggests experimenting the voucher system in not more than the 25% of the total because the system has not been tested before and the staff is not well trained and

prepared. For this reason we suggest to reduce the risk of failure and we keep the voucher system limited to 25% only.

The voucher system is combined with indirect support to the IDE agent which will receive a conditioned grant for (i) buying 2.250 WF (ii) delivering them at the retailing level.

- 50% received the filters from, proper clean regularly, people like the quality of water, they prefer the Rabbit, people use water for drinking, reduce diseases, children go to school. People cannot get spare part as it sells in town only. 3-4 houses share one open well.
- Talk to the commune council in Trapang Russey, 25-30% people drink water directly from the flood water. Water filter was provided by Oxfam 165 households
- Kompong Thom market retailers are also order from the wholesaler but their capacity is limited (only 5 units in stock)
- Private company also sells water filler in the area with the price of US\$ 17 per unit (not Rabbit brand). Spare part is not available in the village. When filter damages they stop using it.
- Spare part is not available in the local areas
- Suppliers of 20 (cost US\$1.72) and 80 liters (cost US\$4.25) of the water container be able to supply more if purchase order make one week earlier. These produce imported from VN.
- CRC plays a big role as the wholesaler of water filters and retail it to the retailers in the market (5%)
- 95% of the water filters sell to NGOs and UN agency working in Kompong Thom.
 CRC has factory in Prey Veng
- CRC did not distribute water filter in 2011 as many NGOs already did.
- A matrix that quantifies the priority needs for each target group, and shows the total gap estimated for the target population (see box 7.3 and section 7.3)
- Information about the likely duration of gaps, the access constraints and the preferences expressed by different target groups about the form of assistance that they need (section 7.4)

The market analysis results will probably take the form of...

- How it was before: a summary of the market-system's baseline capacity and performance (section 8.3)
- What has happened: findings about the impact of the emergency on the marketsystem; and in particular an analysis of supply and demand constraints in the emergency-affected situation (section 8.4)
- How it is likely to perform in future: an appraisal of the system's capacity and potential to contribute to the emergency response defined by the gap analysis. (section 8.5)

This 'prediction' will be based on the emergency impact on the market system; how well market actors are coping, and thus performing compared to baseline situation and the scale of the challenge that the 'system' faces in now responding to affected populations' needs

NOTE: an important element of this section is to highlight the gaps in our knowledge e.g. due to limited information / time / team analytic skills. What we don't know, but probably need to know, may be as important as what we do now understand.

Section 8: Main recommendations and conclusions

The water filter team would like to recommend that:

- Support to the local water filter retailer so that they are able to buy filters and sell to the users as they are difficult to buy the spare part when broken. Indirect support.
- Hygiene awareness campaign of how to use the water properly and regular cleaning the spare parts.
- Information about the available of the spare part on sale with the retailers.
- Establish or support to local retailers to open up the shop for selling the spare part of water filter to the users in the villages.

Response –commendation framework

Response activities and recommendation	Key risks and Assumption	Timing issue	Likely effect on market system and target group	Indicators
50% in voucher and 50% in kind sensitizations training and advocacy	Retailer are accessible and filter are in place Retailers are not affected by the flood Risks: delay due to the time needed to select those who get in kind WF and those who get vouchers Retailer may not be able to handle all 50 % filters (where is the storage done? safe?) delay due to the time needed to select those who get in kind WF and those who get vouchers	Time is relate to make training to retailer and information to users It is estimated 3 weeks has one set of the emergency	 Retailer will improve the capacity Improved linkage between retailer and communities Most voucher able people will receive filter in kind (Short controlling) 	 Number of water filter distributed Number of voucher collected by retailer Number of water filter delivered by vouchers
-25% voucher and 75 % in kind	 Assumptions: Retailer are accessible and filter are in place Retailers are not affected by the flood Risks: Retailer may not be able to handle 25 % of filters and offer them to customers (storage etc) Accessibility of retailers Filters are in place of Retailer are not effect by flooded 	 Quick thus option 50/ 50 because 75% are distributed in kind Reduce delay 75% in two weeks and 25% in three weed 	 Retailer are strengthening Linkage between retailers and user is establish Most voucher able people are together with in kind (short controlling) 	

Indirect Support

Activity	Risk and assumption	Time issue	Likely effected on market system and target group	Indicator
Conditional cash grant through the bank to support to retailer + community voucher to target beneficiary	 Wholesaler are able to supply to retailer easily Difficult to reliable retailers 		 Improve capacity of retailer Improve linkage between wholesaler and retailer and users 	as above
Conditional cash grant through the bank to support to retailer + community voucher to target beneficiary + community and sensitization	Retailer can access from wholesalerEasier logistic	Able to manage in short time	 Strength market linkages from wholesaler to user Better form long term 	as above # of retailer in market chain

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Group picture on EMMA training in Kompong Thom From 6 to 11 2012