Water Trucking Market System in Harshin

7th - 15th February 2012

Ethiopia

EMMA Final Report Sections

Section 1. Executive summary

Background

The Somali region of Ethiopia is an arid area which suffers from a water shortage every year. However, the degree of severity can differ quite markedly from year to year and the existence of microclimates within the region itself means that needs are never uniform (see Seasonal Calendar, Page 8). In 2011, the region experienced two consecutive rain failures resulting in one of the driest years since 1950/51. Harshin has now been identified by FEWSNET as a hot-spot for drought-related activities in 2012 as well.

During 2011, in addition to other activities, Oxfam took on a significant water trucking operation for three months in Harshin woreda to deliver water to some of the most vulnerable and isolated communities. The programme involved hiring trucks and paying drivers to transport water from existing sources to communities we had identified. Oxfam covered the costs of delays and vehicle breakdowns and bore all the risks of the operation with a heavy responsibility for ensuring each link in the market chain functioned effectively. The water did not always reach the targeted beneficiaries and the price paid for water was higher than the market average. This may have distorted the existing market while setting up a parallel system, which was not necessarily completely efficient or cost-effective.

Rationale and Methodology for EMMA[1]

The rationale for organising the EMMA in the Jijiga area of Somali region was as follows:

a) To improve the design of drought responses in the Somali region by defining the most appropriate modality for water provision;
b) To build the capacity of WASH practitioners in using the EMMA tool. This is the first opportunity for a WASH team to carry out an EMMA on a critical market such as commercial water trucking;
c) To identify potential alternatives to water trucking in Arid and Semi Arid Lands.

The following key analytical questions were set, which form the overall objective of the EMMA, and serve as a reference point during the field work, analysis, and formulation of recommendations:

- How was the availability of water – and people's access to it – affected in comparison to a 'normal' year? (NB: defined in this report as 2009)

- Does the commercial water trucking market have sufficient capacity and access to adequate water supplies to meet human water needs during times of even the most critical shortages?

- What constraints do water truckers face?

- What modality of water provision is preferred by stakeholders (including in what form, by whom, using what payment mechanisms)?

[1] The EMMA toolkit has been developed by Oxfam and IRC since 2007 and published in 2010, with the aim of supporting non- market specialists in analyzing market systems in emergencies. Since its launch 17 market assessments have been carried out around the world in rapid and slow onset. Reports can be found on the EMMA website: www.emma-toolkit.org.

The EMMA focused on three years: a normal year (2009), a bad year (2011), and this year (2012). Seasonal differences were gathered but the analysis focused on the end of February/early March as the peak of the dry season and as the moment when the market system is the most affected (see Seasonal Calendar on page 8).

In parallel, Oxfam's Emergency Food Security and Livelihoods Assessments in Harshin for 2011 – 12 have identified a three month gap in meeting survival needs for water, and a five month gap in meeting livelihoods needs among both pastoralist and agro-pastoralist communities. This corroborates the findings of the EMMA, and the EFSL vulnerability assessment will help with the identification of target individuals and communities for the water trucking activities proposed for 2012.

Main findings

Water Sources

Harshin woreda has no groundwater sources of its own, and relies on surface water retained in ponds, Haffir dams, and birkads (private and communal). In dry seasons and when rains fail, these dry up. However, even during the worst period of the drought last year there was sufficient ground water to cover the needs of Harshin (and other areas that depend on the same hydro-geological catchment area) from groundwater sources in adjacent woredas. During the drought in 2011, a number of available boreholes were not maximising their capacity to pump water, even at the peak of demand.

Communities

During a 'normal' year (such as 2009), communities initially access water from the communal birkads or ponds, and thereafter from the numerous private birkads. Water is free, until the private birkad owner feels that the water should be rationed and paid for. The price of water increases during the dry period, possibly doubling towards the end. During 2011, communities had to access water via trucking operations for four months. The cost of this in some places was up to 10 times more than at its most expensive in 2009.

Over the years, when water trucking has been carried out either by the Government or humanitarian agencies, the communities have voiced their concerns about the unfair distribution of water. The water is usually delivered to a central point, which means that access to it is on a first-come-first-served basis. This undermines any attempt to target the most vulnerable households, amounting to a situation of 'survival of the fittest'.

Water Truckers

The private water transportation market plays a major role in Harshin, and overall, there are sufficient trucks available, both in quantity and volume per truck (litres). As demand rises, the number of trucks can be expanded in two ways: additional vehicles can either be brought in from neighbouring regions (e.g. Jijiga, Addis Ababa, Dire Dawa, and even Somaliland if the border is open), or local trucks can convert to carrying water instead of the goods they normally carry. However, with inadequate linkages between the truck owners and the Harshin population, as well as the owners' position of relative market power, the trucks actually represent a bottleneck in the system. The truckers can choose between types of transportation and preferred destinations (based on road conditions, distance e.t.c.), whereas the more isolated and poor communities have limited negotiation power.

Detailed market maps that illustrate the diversity of actors, linkages, and bottlenecks both in the baseline and emergency years are available on pages 18 and 20, respectively.

Photo 1: A typical birkad dry in Harshin Woreda (February 2012)

Response Recommendations

Key recommendations for ensuring an optimal response in meeting communities' immediate needs for water in the impending drought aim to ensure that the most vulnerable people receive their entitlement to water through using the market effectively. They include:

1

a) Running a pilot project through 'community level trading entities' – co-operatives or local birkad owners who will be supported to manage contracts with the water transporters while ensuring that the water needs of target beneficiaries are met.
b) Contracting water transporters to organise the delivery of water at an agreed price to identified beneficiaries who will present them with vouchers to be redeemed for cash payment from Oxfam. Vouchers are recommended rather than cash to ensure that women in particular would have the wherewithal to buy adequate water for all the family needs
c) Designing a rigorous MEAL process to evaluate the risks, efficiency and cost of the water delivery system including regular feedback from beneficiaries to monitor the equity and transparency of this system.

2 Implementing public health promotion interventions appropriate for extreme water scarcity

3 Providing support for the operation and maintenance of boreholes

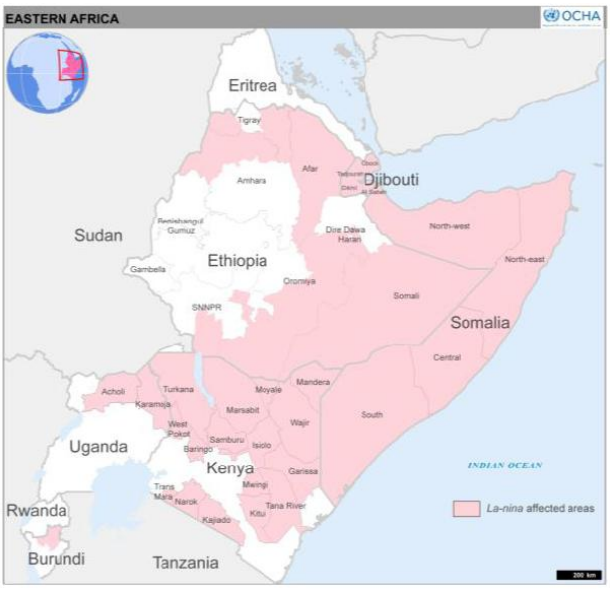
4 Continuing with advocacy for the lifting of border restrictions to enable water to be transported from Somaliland.

For quick reference, a summary of the market analysis findings and their implications for the WASH element of the drought response are included with a more detailed list of response recommendations in sections 6 and 7.

Section 2. Emergency context / situation analysis

The drought crisis in 2011 and a long humanitarian response history in the region and Ethiopia

During 2011, the eastern Horn of Africa experienced two consecutive poor rainy seasons, resulting in one of the driest years since 1950/51 in many pastoral zones. Crops failed, substantial livestock mortality occurred, and local cereal prices rose sharply. Emergency levels of acute malnutrition were widespread and it is estimated that more than 13 million people in the sub-region have been in need of immediate humanitarian assistance. Oxfam has been responding by addressing food security, WASH and protection needs in Kenya, Somalia, and Ethiopia. This major response is part of a longer humanitarian intervention history in the region.



Oxfam has managed scores of emergency responses in Ethiopia where it has been operating through four affiliates (OGB, OA, OC, and Intermon Oxfam)[2]. **Oxfam Great Britain (GB)** has been working with local NGOs and Ethiopian civil society since 1973, building the capacity of local organizations in the effective planning and management of both development and humanitarian programs. Oxfam GB's program in Ethiopia currently focuses on civil society capacity building, sustainable livelihoods, disaster risk management, and emergency response (WASH & EFSL). Oxfam GB has an existing presence in Jijiga, working closely with the pastoral community. In spite of integrating a focus on disaster risk reduction in ongoing activities, the scale and intensity of the 2011 and present droughts have exceeded the coping capacity of the community.

The present situation in the Somali region: need for humanitarian response

In 2011, the Somali region of Ethiopia faced extreme food insecurity due to the prolonged lack of rainfall caused by the La Niña effect and an extreme increase in food prices. Out of the 4.5 million people provided with food assistance, 1.2 million are found in the Somali Region[3]. Substantial food price hikes since the beginning of 2011 led many poor households to sell livestock assets including oxen, heifers, and small ruminants, to generate cash income for food purchase at high and rising prices. This is compounded by the national economic outlook, with national level general inflation increased by 40.6 percent and food inflation rates increased by 49.9 percent compared to the previous year[4]. As a result, the Somali Region now faces food insecurity combined with critical water shortages.

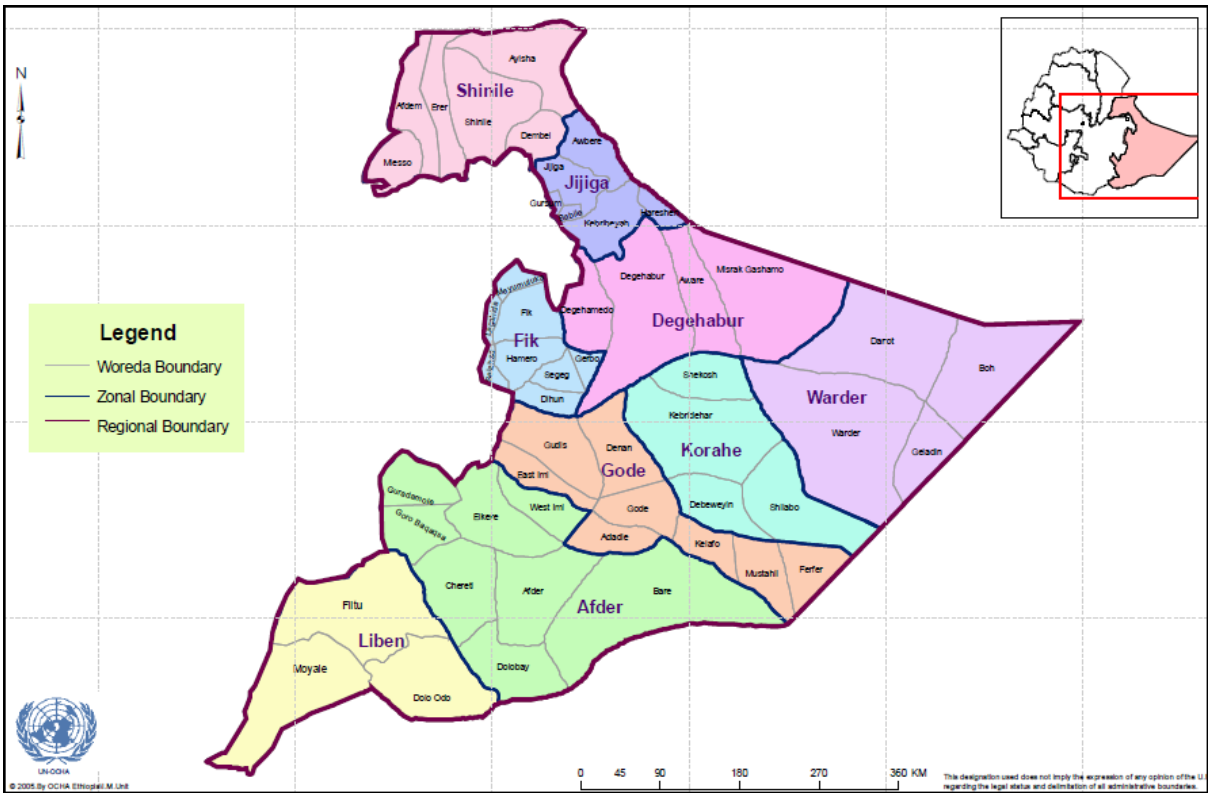
In 2011, Oxfam GB responded to the drought and food insecurity in the Somali region, through rehabilitation/reconstruction of water infrastructure, cash for work activities and significant water trucking. Now the Somali region (including Jijiga zone) has again been identified by the FEWSNET food insecurity analysis and by OCHA as a hot spot requiring focussed attention as part of 2012 drought response.

The Somali region is one of the largest of Ethiopia with nine administrative zones. The climate is mostly arid/semi-arid in lowland areas and cooler/wetter in the higher areas. Annual rainfall ranges from 150 ~ 600mm per year.

[2] Oxfam affiliates have been operating in three regions across the country as their normal operational areas that include Oromia, Somali, Tigray, and in three non-operational regions that include Amhara, Gambella, and SNNPR regions.

[3] Horn of Africa Crises, Situation report 17, 6th October 2011

[4] Humanitarian Bulletin, OCHA, 10th October, 2011



The region can be divided into two broad rainfall regimes based on the seasons of the year: **Shinile and Jijiga zones to the north**, and the remaining seven zones to the south. The rainfall pattern for both is bimodal but the timings differ slightly. The southern seven zones receive *Gu* rains from mid April to the end of June, and secondary rains known as *Deyr* from early October to late December.

The primary season for Jijiga and Shinile is 'Karan' – which usually falls between late July and September. Following the last *Karan/Deyr* rains, pasture/browse and water conditions improved in most parts of the region. In the north, **the Karan 2011 rains** (major rains for Shinile and Jijiga) **were poor to moderate compared to the long term average**.

In Jijiga zone, Karan rains were very poor in eastern part of Kebribeyah and south-eastern parts of Awbere woredas. Harshin woreda, which usually receives *Deyr* rains, remained completely dry during the current season.

The erratic and below average Karan (July to September 2011) and *Deyr* rains (December 2011) have prevented normal pasture growth and resulted in lower water storage (rain water harvesting and recharge of water reserves). This indicates that the dry season from now to the end of March 2012 would require an emergency response from February 2012.

Seasonal Calendar – WASH EMMA in Harshin Woreda, of Somali Region, Ethiopia

Key

Jilal	Longest dry
Gu	Longest rain
Haga	Shortest dry
Deyr	Shortest rain
Karan	Karan is linked with Haga (approx 40 rain days) in a normal year

Birkad Water Prices

Haga	15 birr - 30 birr / barrel
Jilal	15 birr - 50 birr / barrel
	Free water

Water Trucking Prices

Jilal	86 birr - 200 birr / barrel

The regional authorities have requested support from local and international organisations to support the affected population. Oxfam carried out a rapid assessment (WASH & EFSL) in January 2012 in order to identify needs and other actors' intentions, in order to design Oxfam's drought response in the Jijiga area. Oxfam GB has identified three woredas based in the Jijiga zone, Harshin, Awbere, and Kebribeyah, which are underserved and potentially in need of assistance. A DRR programme has been running for several years in the three woredas, highlighting the substantial programmatic investment made there.

WASH assessment results

The WASH assessment was carried out from the 10th to 16th of January 2012 in the three woredas identified above.

The assessment findings (Annex 1) confirmed that harvested rain water reserves will soon be exhausted. The assessment reported two to three weeks of water availability in Harshin woreda[5]. For the other two focus woredas, it recorded one month of water availability at surface level sources. Also, shallow and hand dug wells in these two woredas were not adequately recharged by the last *Karan*/*Deyr* rains and are not producing sufficient yields as the water table has dropped.

This is creating water shortages both for human and livestock consumption. Authorities have now estimated that some 124,700 persons located in rural areas of Harshin, Awbere, Jijiga, Kebribeyah, and Babili woredas and also in Harshin and Hartashekh towns will need continuous water delivery for an initial period of three months starting January/February 2012. However, the figure of the number of people facing chronic water shortages may increase in the first quarter of the year 2012 as it is the dry season (known locally as the "Jilal" period). It should also be noted that the problem of water shortages may deteriorate further if the next *Gu* rains – normally expected in mid-March 2012 – do not fall on time and to satisfactory levels.

Planned response design and information needs

To address humanitarian needs identified through the WASH and EFSL assessments[6], Oxfam GB intends to intervene, for a probable duration of three to six months from February 2012, in WASH and EFSL with the **overall aim** of: *"contributing to saving lives and minimising the negative consequences of the current drought on the livelihoods of affected communities in Somali Region, Ethiopia"*. The **outcome of the response** will be the provision of water, sanitation, public health promotion, food security and livelihoods support to 50,700 people affected by the drought in Harshin, Awbere, and Kebribeyah woredas in Jijiga Zone, Somali Region, Ethiopia.

WASH components of the response focus on two specific objectives:

1 Most vulnerable women, children, and men have improved access to safe potable drinking water by end of March 2012.

[5] Harshin woreda depends exclusively on rain water surface reserves (like birkads and ponds) as there is no permanent water source.

[6] The EFSL assessment took place from the 23rd January to 8th February. Response recommendations are detailed in the assessment report and this EMMA assessment has taken them into consideration in the response analysis process.

2 Most vulnerable women, children and men are enabled to practice safer sanitation and hygiene practices in a dignified and culturally appropriate manner by the end of June 2012.

The main WASH response options considered as a result of the initial rapid assessment and analysis are detailed in Annex 1. The design of the PHE activities, and most particularly the water access component, raised the question of the commercial water trucking market system's capacity to deliver the anticipated quantities of water to affected populations if cash transfers were delivered to them. The research of alternative modalities to direct, in-kind water distribution is also motivated by consecutive years of water trucking carried out in the area – and the rest of the Horn of Africa region – and the lessons learnt gathered to date. In particular, Oxfam aims to identify appropriate modalities that would be more efficient, cost-effective, and would reduce the risk of dependency on a parallel system created for chronic humanitarian responses. Evaluations of previous water trucking interventions in the Jijiga area have also shown two points of concern:

1 In 2011, Oxfam's water trucking intervention did not target the entire population, but only the vulnerable households in each kebele. However, monitoring showed that the intended vulnerable households did not always receive the water. Instead, the first people to arrive to the water tank were the ones who accessed the trucked water.

2 Focus group discussions showed anecdotal evidence that some better-off households, who still possessed adequate cash to privately purchase trucked water, were unable to do so due to a lack of water trucks in the area.

The findings of the initial WASH assessment (Annex 1) highlighted the need for an **in-depth understanding of the water and water transportation market systems**. To assist with the identification of appropriate response modalities, more information was needed on the following:

- Access to water and water sources and the main constraints people face in relation to access. Is the most limiting factor the availability of water, people's ability to access it and/or their purchasing power?
- The water sources on which the population depends during the dry season and the capacity of these to produce the quantity of water needed by the entire population;
- The water trucking market and its capacity to deliver quantities of water sufficient to meet the population's needs.

The EMMA

The EMMA (Emergency Market Mapping Analysis) methodology is based on the value chain development logic, and is adapted to the speed and information needs of humanitarian response design. It provides the analytical framework to determine if a market system can support in delivering the response, and therefore if cash transfer programming is feasible and appropriate in the specific context. It is based on the principles of Do No Harm and sustainability, as it looks to use and reinforce market systems, rather than building parallel systems that could create dependency. It thus identifies the relevance and feasibility of market support responses.

This methodology was considered appropriate to complement the situation analysis and inform decision making on response modalities so an EMMA was carried out to assist with the design of the OGB WASH component of the 2012 drought response in Jijiga. Since this was the first EMMA focused on WASH, its scope was broader than the drought response in

that it aimed to document the learning from applying the tool to analyse the WASH market and sought to recommend improvements to conventional water trucking in Arid and Semi-Arid Lands (ASALs).

This report presents the results and recommendations of the EMMA which was carried out in Jijiga from the 7th to the 15th of February 2012. Capacity building of the implementing team was an important element of the exercise (see ToRs in Annex 2).

The team comprised 15 members, with two team leaders and a trainer/facilitator; the majority of staff were based in Jijiga and had extensive experience of the area and its issues.

While the drought response will cover three woredas, Harshin, Kebribeyah, and Awbere, the EMMA focused on Harshin due to time constraints and the reliance of this woreda on surface water which has led to OGB's engagement in water trucking during periods of acute water scarcity.

Section 3. The target population and gap analysis

Ninety percent of Harshin's population is pastoralist and belongs to the livelihood zone Harshin Degahbur East Pastoral (HDP); the other 10% is agro-pastoralist and belongs to the livelihood zone Jijiga Agro-Pastoral (JAP).

While every household will be exposed to the drought, vulnerability to the impact of drought is expected to vary at least by wealth group and gender. The EFSL assessment, carried out in the three woredas from 23rd January to 8th February 2012, highlighted that the poor and very poor socio-economic categories, both for pastoralists and agro-pastoralists groups in Harshin, will face difficulties in meeting their basic survival needs[7], thus being the most vulnerable to the impact of the drought. The main factor for poor pastoralist households is the loss of income due to low milk/butter production, while for poor agro-pastoralists the loss of income and own production due to crop failure is the defining feature.

Expenditure on water for humans and animals made up nearly 10% of 2004/05 and 2005/06 income in pastoralist areas and 3-5% of income in agro-pastoralist zones. With the steeply rising price of water (at least double the price in a normal year), this is now expected to be at least 20% of income and will contribute to the inability of households to meet survival and livelihoods protection needs.

Since the survival needs cover food and water, the deficit in survival needs will be considered here as a proxy-indicator to define the deficit in access to water by poor groups.

It is understood that the EMMA cannot provide an in-depth analysis of people's access to water (which would most probably require a sociological and ethnologic analysis), but highlights the major constraints, and therefore the major vulnerabilities.

The **poor economic groups of Harshin** (poor and very poor) are considered as the target groups for the WASH response and therefore the EMMA. The total population of Harshin is estimated at approximately 105,000 people, i.e. approximately 20,000 households[8]. Poor and

[7] The survival Threshold and the livelihoods protection threshold: The **Livelihoods Protection Threshold** is the line below which an intervention is required in order to maintain existing livelihood assets and strategies (i.e. people are not able to protect their assets and livelihoods, as well as access to basic needs like health, education, etc…). **The Survival Threshold** is the line below which intervention is required to save lives (ie people are not able to cover their food and water needs).

[8] A number of discrepancies were identified in Harshin's population numbers between different information sources. Numbers used here are coherent with all figures available +/- 5%.

very poor socio-economic categories together represent 60% of the woreda's population. According to the EFSL assessment, 8,200 households are therefore expected to face difficulties in covering their basic need for food and water (for two to three months) and their livelihoods needs (for four to five months) in 2012.

Oxfam GB intends to provide water to the most vulnerable until the start of the *Gu* rains, i.e. for a minimum duration of 38 days (tentatively from the 22nd February to the end of March), and longer if the rains arrive late.

While the Household Economy Approach adopted for the food security assessment does not analyse the proportion of water needs that poor households will be unable to access, the Oxfam GB response aims to provide the minimum quantity of water for total basic needs as recommended in SPHERE, i.e. 7.5 litres per person per day. If this is not feasible a minimum of 5 litres per person per day will be delivered in accordance with the Somali Region DPPB guidelines.

Tables 1 and 2: The volumes of water needed by the non-migrating population of Harshin in February and March, 2012

1.

Population	No. Households (HH) and people	Migration rate at average	Population remaining in Harshin
Target: Very poor and poor economic groups	• 11,500 HH; average 6 persons per HH • Approx. 69,000 people • Around 60% of total population	• 30 to 40%	• Of target population: 41,400 ~ 48,300 (i.e. around 44,850 people) • Of total population: 63,000 to 73,500 (i.e. around 68,000 people)

2.

Needs analysis for most vulnerable groups					
Volumes/person/day	**Target Group**	**Individuals in need**	**Other aid**	**Duration of need**	**Total water need**
If 7.5 Litres per person per day	Very poor and poor economic groups	44,850	None according to interviews completed to date	38 days	336,375 litres per day 12,782,250 litres over 38 days
If 5 litres per person per day	Very poor and poor economic groups	44,850	see above	38 days	224,250 litres per day 8,521,500 litres over 38 days
Total needs - for all Harshin's non-migrating population					
If 7.5 Litres per person per day	All Harshin's population	68,000	see above	38 days	510,000 litres per day 19,380,000 litres over 38 days

The EMMA aimed to recommend the most appropriate options to provide water to the target group. In order to analyse the capacity of the market system to contribute to the response, the assessment evaluated its capacity to cover the needs of the entire population of Harshin.

Section 4. Critical market systems

Two critical markets were initially selected by the team: water (as a commodity) and water transportation/water trucking (as a service). While developing the initial analysis and mapping of the two critical market systems, it appeared that there was a significant overlap due to the crucial role of water trucking in Harshin's people's access to water during dry periods.

It was therefore decided to focus exclusively on the **water trucking market system,** which would also allow an analysis of people's conditions of access to water. It was agreed that rainwater sources would also be mapped to reflect the different water sources on which Harshin's population depends.

2009 was defined as the baseline year, since it was a "normal" year with respect to both *Gu* and *Deyr* rains. 2011 was considered as a bad year as both rains had failed.

The EMMA focused on three years: a normal year (identified as 2009), a bad year (2011) and this year (2012). Seasonal differences were identified but the analysis focused on the **end of February/ early March as the peak of the dry season** and as the moment when the market system is the most affected.

Key analytical questions were designed to guide the analysis, in line with the information needs identified at the end of the WASH assessment (refer to Annex 1).

Key analytical questions:

- How was the availability of water – and people's access to it – affected in comparison to a 'normal' year? (NB: defined in this report as 2009)
- Does the commercial water trucking market have sufficient capacity and access to adequate water supplies to meet human water needs during times of even the most critical shortages?
- What constraints do water truckers face?
- What modality of water provision is preferred by stakeholders (including in what form, by whom, using what payment mechanisms)?

Section 5. Water trucking market system

1. How the Market System Functions in a Baseline year - Normal Dry Season

a. End Users

The access to water for Harshin's population depends on the season as well as on the socio-economic category to which households belong. Dependence on the seasonality is explained by the absence of permanent water sources in Harshin woreda: harvested rain water is therefore the sole source of water available locally. When this becomes depleted it needs to be brought from neighbouring areas, which implies procurement and transportation. The socio-economic categorisation impacts directly on the quantities accessed. The wealthier households have storage facilities for rain water and can afford to buy trucked water when

this is depleted. While wealth ranking is mainly determined by livestock ownership, the possession of a private birkad is also a major factor.

Photo 2: Qolka Sub Kebele Focus Group Discussion, in Darbiga Kebele of Harshin Woreda. Proportional piling exercise when discussing wealth status in the community.

Through proportional piling, participants expressed the extent of the better-off, middle and poor socio-economic categories within their own community, which varied from 25-60% for the poor group, 20-50% for the medium group, and 14-25% for the better-off group, according to the community assessed. This is in line with the information provided by the DPPB: the better-off representing approximately 10% of the population; the middle income families approximately 30%; and the poor represented about 60% of the total number of households). Household size in the baseline year is an average of 6 people.

Table 3: Household socio-economic groups according to assets.

Wealth Group	No of Shoat	No of Camel	No of Cattle	No of Donkey	No of Birkad
Better Off	100-200	10-50	0-30	2-3	1 (large)
Middle	40-100	0-25	0-13	1	1 (small)
Poor	5-20	0-4	0	1	0

While communities did not distinguish between the poor and very poor amongst them, the proportions of people in each group is coherent with the HEA analysis. This suggests that the poor and very poor represent about 60% of the total population.

When it is available, people in Harshin use rain water harvested in local ponds, haffir dams, and private and communal birkads.

There are commonly between 5-50 private birkads per sub-kebele and 1-2 communal birkads and/or ponds. Haffir dams are not characteristic in all areas, rather spatially distributed based on grazing areas, migratory routes of the livestock and water runoff potential. The private birkads represent the main storage facility available in a community, especially when rains stop and household and opportunistic storage facilities become empty.

They are owned and managed by private individuals belonging mainly to better-off households and some households from the middle income group.

In a normal year, the rain water harvested in those storage facilities is generally sufficient in quantity to cover the community's need for the whole year. However, according to variations in geographical rainfall patterns, the rain water harvested during the rainy season in storage facilities (birkads, ponds, dams) may become depleted towards the end of the dry season in some sub-kebeles of Harshin. Then water is accessed from boreholes and surface dams in adjacent woredas.In this instance, better-off pastoralists hire trucks to buy water from birkads for delivery to their bas – hand dug reservoirs lined with plastic sheeting and used to store water for their livestock (see photo below).

Photo 3: A typical 'ba' – household plastic sheeting which serves as a reservoir of trucked water. The excavated depression is lined with plastic sheeting, filled with water and covered with another layer of plastic sheeting. The cost of 2 sheets of plastic sheeting is 400 ETB. (February 2012)

When water in the birkads is depleted, groups of households from the better-off and middle income households organise for water to be trucked and dispensed in to their private birkads. They usually contact the truck owners or drivers directly by phone or in person to request a delivery.

All socio-economic groups access water for free from the birkads and other storage facilities during the rainy seasons (during *Gu* – long rain, and *Deyr* – short rain). Poor and medium income groups harvest water in bas, and other opportunistic storage facilities including holes in the road. They may also have access to water from birkads belonging to their better-off relatives.

When the dry season starts, some water is sold by birkad owners and some is redistributed to members of their large family/clan. At this point, water is then rationed for everyone, and the poor may need to purchase small quantities from other private birkad owners.

The price of water increases as the dry season progresses. During the long, dry Jilal period of the normal dry season, the price of water is higher (0.125/l) compared to the short, dry Haga period (0.075/l). Shown in table four (below) and seasonal calendar (page 8).

There are some isolated cases where communities pay for water all year round, even in the wet period of the baseline year, but with lower price margins in the order of 0.075 ETB per litre (15 ETB per barrel).

The volume of water accessed depends on socio-economic status (see table four) related to the ownership of storage facilities and capacity to procure trucked water when harvested rain water becomes depleted.

Table 4: Volumes and prices of water accessed depending on wealth status during the dry period of the baseline year.

Parameter	Poor	Middle	Better-off
Volume (Litres per person per day)	5 – 9	7 – 11	No restrictions, as invariably the better off own a birkad
Price (ETB/litre)	0.075-0.125	0.075-0.125	No payment, free

The WASH committees are known to ration water from the communal birkads to four jerry cans per household per day, (80 litres). This allowance is the same for all households, regardless of size or socio-economic status. Communal birkads do not play a substantial role in people's access to water as they are limited in number and capacity.

The physical condition of birkads varies and some are no longer functional due to poor sitting (in terms of the catchment area) and/or structural damage. Most of the private birkads are not covered, which leads to a deterioration in water quality due the prevailing dust, growth of algae and evaporation.

b. Water Truckers

During the months between the rains, the better off pastoralists hire trucks to buy water from birkads for delivery to their bas, hand dug reservoirs lined with plastic sheeting used to store water for their livestock. According to the truck drivers who deliver the water for them, they have ongoing customer/client relationships based on reliability and trust; the truck driver has a list of 'registered' customers to whom he delivers on a regular basis (every three to eight weeks) and the transactions are organised through mobile phone calls or personal contacts. Prices charged per barrel of water (200 litres) at this time range from 20 to 25 ETB and trucks may travel up to 40kms to reach their customers.

In the 'normal' dry season from January to March, Harshin's population grows increasingly reliant on water trucked from Jijiga dam or from boreholes in neighbouring woredas. The two Aly bede boreholes to the north west of Harshin (one in Ethiopia and the other just over the border in Somaliland) are key suppliers of ground water. Jijiga Dam is also sometimes accessed, as certain communities prefer the taste and familiarity of the surface water over ground water from boreholes. Some truck owners will give credit to their regular customers, accepting a partial payment for a water delivery; the remaining balance is paid when more livestock are sold to obtain the remaining cash.

In Harshin, two small trucks of 4,000 litres each transport water to the town, and 5 others with an average capacity of 7,000 litres cover the rest of the woreda in normal dry months. An additional five trucks are equipped with off-loaded tanks which are utilised when demand for water is high.

Truck drivers take on extra customers during the dry period, usually in response to phone calls from birkad owners or after direct contact with new customers who come to the town to seek them out.

Due to cross-border restrictions, water trucks from nearby Somaliland are not allowed to work on the Ethiopian side of the border unless they possess a legal Ethiopian license and registration.

c. Water points and operators

As surface water points become depleted during the dry season (typically February – March), the primary water sources for Harshin are high-production boreholes in neighbouring woredas, and the Jijiga Dam. Table 5 shows these water sources, their production capacity and level of activity during the dry season.

Table 5. Permanent water points accessed by commercial water trucks and local populations in woredas neighbouring Harshin during the normal dry season. (All volumes in litres).

Water Point	Volume (Potential)[9]	Volume (Normal Dry Season)[10]	Volume (Local Access)[11]	Volume (Water Trucking)[12]	Water Truck Actors that Use the Water Point in Baseline Situation
Aly Bedy BH[13] (Ethiopia side)	200,000	100,000	60,000	40,000	Hartshek, Harshin
Aly Bedy BH (Somaliland Side)	500,000	200,000	unknown	unknown	Harshin, Hartshek
UNHCR treatment plant & pipeline	1,200,000	1,200,000	1,150,000	50,000	Kebribeyah, Hartshek
LPH1 BH	160,000	0	0	0	None
Kaho BHs (Gerbile + 2 more) - not accessible by trucks	360,000	120,000	120,000	0	None
Jijiga Dam	Unlimited	unknown	unknown	50,000	Kebribeyah
Awbere BHs (Mohammed Ali, Direto, Togo Chale, Gobiero)	950,000	450,000	350,000	40,000	Harshin, Hartshek, Awbere

As the dry season arrives and water scarcity in the area increases, the number of people, livestock, and water trucks fetching water from the boreholes increases. Local population and livestock are usually prioritized in the queue at water sources, though during normal dry periods, these sources are able to meet the needs of all clients in a timely manner.

[9] Maximum daily volume the water point is capable of producing (based upon observed pumping levels at times of peak demand)
[10] Daily volume of water produced by the water point during a "normal" dry season (defined as late February – mid March 2009)
[11] Volume of water collected by people, pack animals and livestock during a "normal" dry season
[12] Volume of water that water trucks collect from this point during a "normal" dry season
[13] BH = Borehole

Boreholes are managed by a WASH Co, a management structure set up by the Regional Water Bureau, responsible for the everyday operation of the borehole (distribution of water to customers, setting of running hours, collection of tariffs) and also for light maintenance and minor repairs. The WASH Co contacts the Regional Water Bureau in the event of breakdowns, and pays for the mechanic and spare parts required for the repairs, though this is sometimes subsidised by the Water Bureau.

A fee is charged for the collection of water from the water source – the price is paid per jerry can (20 litres), per barrel (200 litres), or per animal (different charges for camels, cows and shoats). When people are unable to pay for the water, they are extended credit or given the water free of charge. As the regular users are those who live in the vicinity of the borehole, people stated that it is "known" who is able and unable to pay.

The price of water at boreholes should be consistent across the woreda (the price is, in principle, fixed by the Regional Water Bureau) though interviews with water point operators and truck owners seemed to imply that price varies between water points, as shown in Table 6.

Table 6. Price (per 200 litre barrel) of water at permanent water sources in woredas neighbouring Harshin.

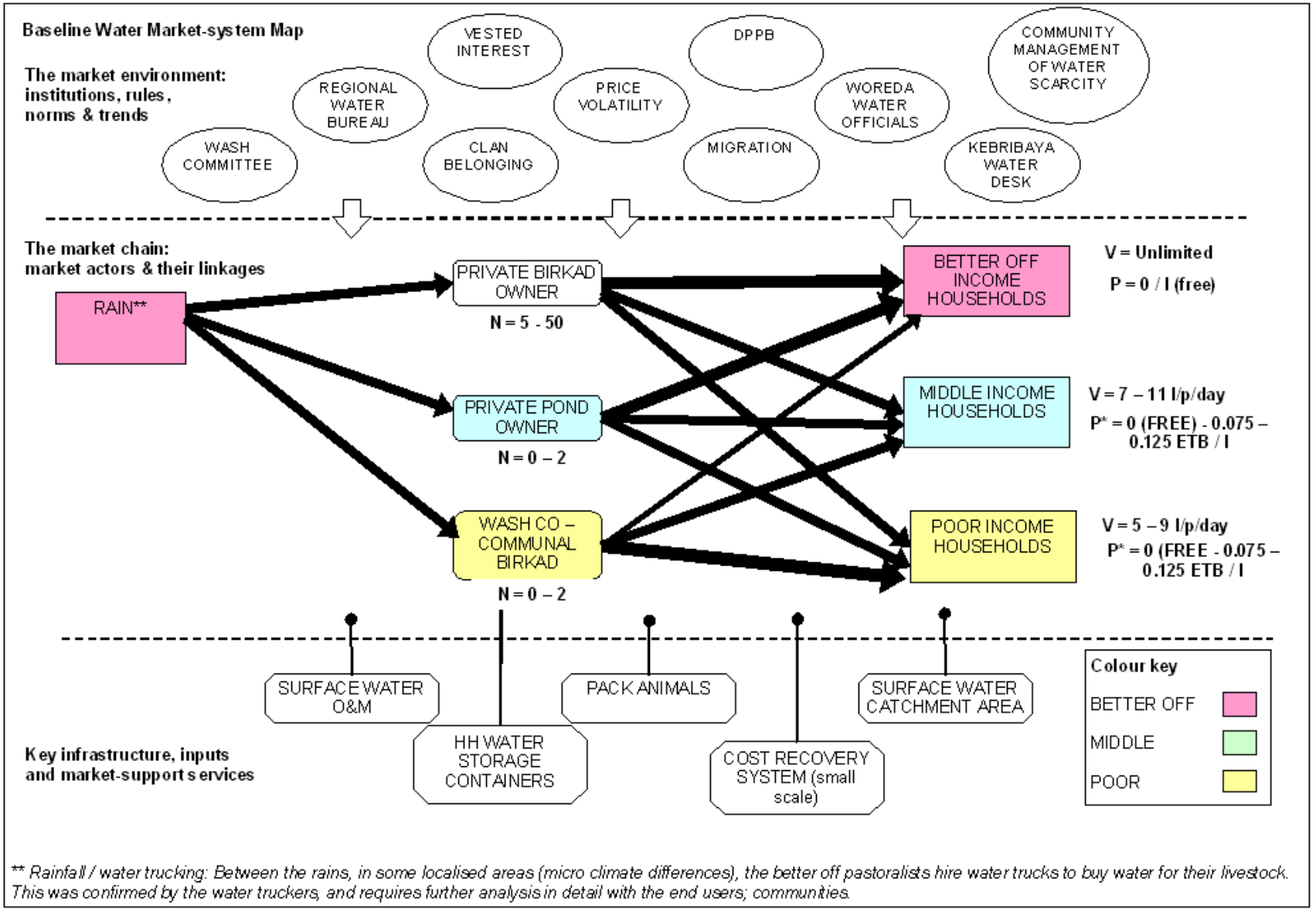
Water Point	Price per Barrel (ETH)
Aly Bedy BH	7
UNHCR treatment plant & pipeline	1
LBH1 BH	7
Kaho BHs (Gerbile + 2 more) - not accessible by trucks	2.5
Jijiga Dam	3
Awbere BHs (Mohammed Ali, Direto, Togo Chale, Gobiero)	5

An interesting observation during the EMMA was that the highest prices for water are found at those points which were heavily used by NGOs to purchase water for water trucking (Aly Bedy and LBH1 boreholes); the price is significantly higher than the other boreholes in the area. This suggests that NGO-financed water trucking could have been responsible for artificially inflating the price of water at these points[14].

These water points typically serve a catchment area that encompasses a radius of approximately 15-20 km around the water point. The clients of the water points include: people (who come with pack animals to fetch water for domestic use), livestock (camels, cows, shoats), commercial water trucks and donkey carts (which fetch water in barrels for sale in peri-urban areas).

The following page illustrates the **baseline** water market system map

[14] From Oxfam's experience this is due to the fact that NGOs pay not only the water trucking but the operation costs of the water pumps. Also NGOs source water from pumps that are diesel operated which makes the cost of the water higher than in the case of electrical operation.



** *Rainfall / water trucking: Between the rains, in some localised areas (micro climate differences), the better off pastoralists hire water trucks to buy water for their livestock. This was confirmed by the water truckers, and requires further analysis in detail with the end users; communities.*

2. How the Market System Functions During an Emergency year - Severe Dry season

a. End Users

During severe dry seasons such as 2011, water trucking from neighbouring woredas is the only means of access to water available to Harshin's population for about four months during the Jilal (February to April) and *Deyr* periods (December). In the baseline year, access to water is dependent on the socio-economic group to which each household belongs, strongly linked to storage capacity and purchasing power as the amount of stored water decreases.

Pastoralists and agro-pastoralists use migration as an annual livelihoods strategy when pasture and water are in short supply. While insufficient pasture is a direct trigger for migration, water shortage becomes a factor for increased migration when it becomes severe. Besides its critical role for livestock, migration allows a reduction in the quantities of water required per household and therefore reduced pressure on household resources for water access.

This year, 2012, there is a shortage of pasture, leading to a significant level of migration. According to information from the Harshin woreda authorities, about 30% of the overall population has migrated. However there are substantial geographical variations: some areas with very little pasture report migration rates of up to 90%. In 2011, there was more pasture available but extreme shortages in water which led to lower levels of migration and increased purchasing of water.

At the peak of the 2011 drought, some communities migrated to nearby areas close to water points (Kaho, Jijiga Dam) and paid a fee to the local community in order to remain there with their livestock until the rains arrived, at which point they would return to Harshin. While the better off households migrate with their animals for pasture, especially when pasture is insufficient, poor households migrate to closer areas for water when water shortage becomes critical.

For those who do not migrate:

- Communities pool their funds, either from selling their livestock or household assets, sharing remittances from relatives, or selling charcoal (50 birr per sack). The better-off invariably organise themselves or join up with households in a similar position, while three to four middle-income households and eight to twelve poor households will come together to share resources.
- Water purchased from trucks is delivered to private birkads and 'bas' for the better off or 'bas' for the less well-of. It is sold by the better off and middle income families who own birkads to other middle income and poor households. The better off also redistribute water for free to households that are part of their extended family.
- At the height of the drought many of the poorer families sell assets to pay for water and may pay for up to half of what they consume whilst receiving the remainder as donations from their better off family or neighbours.
- The household economy survey carried out in 2012 concluded that the poor and very poor groups will have a gap of three months in covering their survival needs (including water), meaning that they will not be able to cover their water needs without seriously eroding their asset base.

As for the baseline year, groups of households (high and middle income groups) contact the water truckers they know, so deliveries rely on their knowledge of truck drivers and owners, and on the relationships built with them. As households come together to order water, competition for water trucks increases and the lead times to receive water grow longer

Where the water trucking operator / driver is from the same clan as the customer households, clan credit is organised to deliver trucked water, and as soon as the rain comes, these households sell some of their livestock to repay their water trucking debt.

Community feedback suggests that the price of water is consistent for all socio –economic groups when accessing water via water trucking. However some groups or individuals may have more power to negotiate the unit cost of water. Communities access the water in trucks of either 30 or 70 barrels, (6,000 litres to 14,000 litres), at a price ranging from 3,800 to 7,000 respectively, and at the height of the crisis 14,000 ETB was a common price for a 70-barrel truck (1 ETB / litre).

Table 7: Volumes and prices of water accessed depending on wealth status during the dry period of the emergency year.

Parameter	Poor	Middle	Better Off
Volume (Litres per person per day)	2-9	7-11	7-23
Price (ETB / litre)	0.25 – 1	0.25 – 1	0.25 – 1

The main difference in the volume of water accessed, comparing the baseline and emergency situations, is seen among poor households, which access 2-9 litres per person per day (l/p/d), in comparison to 5-9 l/p/d during a normal dry season. The better-off access a restricted amount of water (7 to 23 l/p/d) compared to the unlimited quantity of water they access in a normal dry season. The middle income group access the same quantity (7-11 l/p/d) as in a dry season of a normal year.

Government and NGOs become major actors during the severe dry seasons. In 2011, Oxfam trucked water to kebeles in Harshin identified by the local authority as being in critical need.

Preferences for water provision: communities' views

During focus-group discussions concerning NGO and Government-led humanitarian water trucking interventions, the use of vouchers or cash in exchange for water was deemed acceptable to the participants. Cash was appreciated as it was thought to enable people to organise deliveries to suit their needs close to their homes, but people also mentioned that this would require them to go in person to meet the transporters to organise the water trucking, adding to the cost. For poorer households, even if provided with cash, they would not necessarily have connections with truck drivers to enable them to organise deliveries.

The majority of community members consulted expressed a preference for vouchers. This was particularly the case for women who suggested that vouchers had the advantage of enabling more equitable access to water. During the height of the drought last year, water was delivered to communal points in the kebele centres, where those who arrived first were served first. People living in more remote sub-kebeles, female headed households with small children, and the less able-bodied sometimes did not receive water at all. This happened in spite of attempts to target specific people through the intervention of a WASH committee. A number of community members, especially women, expressed their concern that cash might

be diverted to other pressing needs rather than water as needs are numerous in the dry season and sources of income limited for the poorest people.

b. Water Truckers

In 2011, as the drought worsened, the time spent waiting to fill trucks at the water sources increased; at the same time, trucks contracted by DPPB or Oxfam, as well as other trucks from outside the woreda, started supplying water to Harshin. The number of daily deliveries carried out by some of the regular truck drivers in Harshin decreased by about half – due to increased queuing times and the need to travel further to access more distant water points (increasing from 35 to 70km in some instances). This did not adversely affect their income though, as the price of water more than doubled for communities living in the more distant kebeles.

Prices ranged from 100-200 ETB per barrel (0.5-1 ETB / litre), depending on the distance, and condition of the roads, and the price of fuel. Lack of spare parts for vehicles in Harshin and the fact that trucks were increasingly restricted to collecting water from boreholes at night (due to the number of people and livestock migrating to water points) as the drought intensified, were among the constraints that the Harshin-based truck drivers faced.

Water trucks travel further to more distant water points to ensure timely deliveries. The most popular of these is Jijiga Dam, a large surface reservoir which is popular due to the smooth tarmac road which leads to it, and the fact that multiple trucks and users can fetch water from the dam simultaneously. These are followed in popularity by the UNHCR treatment plant, a contingency borehole managed by the Kebribeyah Water Desk (LBH1), which only operates at peak drought time and the Awbere boreholes, respectively. As the trucks must travel further to access these water points, the price of trucked water increases proportional to the distance travelled.

Table 8: Seasonal variations in the price of water (price per barrel) (1 barrel = 200 litres)

July to December	December to March (normal dry)	Severe drought
20 - 45 ETB	50 – 85 ETB	100 – 200 ETB

At the height of the drought, trucks delivering water to Harshin and other woredas from outside the area included about 25 trucks from Somaliland and trucks from Kebribeyah, Jijiga, Hartshek and Diredawa, many of them capable of carrying 10,000 litres or more, so a substantial part of the scale-up capacity in a severe dry season. Water delivered by Oxfam trucks was dispensed into covered plastic (roto) tanks to reduce the likelihood of contamination; birkads and *bas* were used by other transporters.

Water trucks delivering to the population of Harshin also transport it to the populations of nearby woredas (Kebribeyah and Awbere, for example), limiting the potential water that can be delivered to Harshin by existing local actors. During times of severe drought, the Ethiopian Government has lifted cross-border restrictions on unlicensed Somaliland water trucks and allowed them to operate freely in Somali Region, to increase capacity. In 2011, more than 170 trucks were allowed in to deliver water. They represent a very important scale-up capacity for Harshin, to which the local population is easily connected. This year – at the time of the assessment – Somaliland water trucks are not allowed to operate in Ethiopia.

As demand for water increases, and external actors begin hiring trucks for emergency water provision, a certain amount of market power is bestowed upon the water truck owners who can choose to work with those offering the highest rates, or to deliver water in areas that they prefer to access (due to proximity of water points, road conditions, etc.).

NGOs and the Government become the main customers for a large part of the fleet of external trucks (non-Somalian scale-up capacity). As a result, communities are less connected to the trucks and have less power to negotiate with them.

The DPPB has an Early Warning function, monitoring the level of water in the birkads and raising the alarm when it drops below 25% of the birkad's normal volume. Once the drought is triggered, they use government trucks to begin water trucking if they have funds, paying the per diem for the drivers and fuel for the vehicles, or request NGOs to deliver water if they don't possess these resources. Last year the Harshin DPPB contracted seven trucks to complete two deliveries a day (16,000 litres each) from the Harshin Haffir dam reaching 65,000 people (about 56% of the population in the woreda's 44 sub kebeles). This was reduced to one delivery when the local dam dried up and the trucks were forced to travel to Jijiga for water.

The DPPB, in conjunction with the woreda water officials and government administration, tries to establish the price of water according to security, road conditions, vehicle running costs and distances between the water source and the point of delivery. During severe droughts, they allocate geographical locations to trucks according to community needs, monitor price rises, and verify the delivery of water to target communities. They investigate complaints from beneficiaries and take legal action when price increases are deemed unreasonable or water has been delivered to non-intended target populations.

Expandability of the water trucking capacity and modality preferences

Woreda officials in Harshin and Kebribeyah stated that there are a sufficient number of trucks to deliver the water needed by drought affected communities, so long as the price paid to truckers is consistent. Harshin officials mentioned that many trucks which are currently used for construction can be converted easily to transport water, and in Hartshek truck owners said that 45 trucks in addition to the 25 already transporting water could be made available if required. Truck drivers in Harshin thought that up to 50 additional trucks could be hired from Jijiga, Dire Dawa and Hartshek given a lead time of approximately 15 days.

The DPPB in Harshin is open to the idea of using vouchers for water provision, and saw benefits for communities in relation to accountability and transparency. Kebribeyah DPPB has already decided to try to introduce vouchers this year though is not yet sure how they will manage it. The truck drivers interviewed were generally supportive of using vouchers, though said that collecting them from individuals would be impractical and time-consuming. Some also suggested that cash payments would ease cash flow for buying fuel.

c. Water Points and operators

During a severe drought, the water points accessed by water truckers are shown in Table 9.

Table 9: Permanent water points accessed by commercial water trucks and local populations in woredas neighbouring Harshin during the normal dry season. (All volumes in litres).

Water Point	Volume (Potential)[15]	Volume (2011)[16]	Volume (Local Access)[17]	Volume (Trucked 2011)[18]	Volume (Additional Scale-Up Capacity)[19]	Water Truck Actors that Use the Water Point
Aly Bedy BH (Ethiopia side)	200,000	200,000	130,000	70,000	0	Hartsheik, Kebribaya, Harshin, Somaliland
Aly Bedy BH (Somaliland Side)	500,000	500,000	100,000	400,000	0	Harshin, Hartsheik, Kebribaya, Ararso
UNHCR treatment plant & pipeline	1,200,000	1,200,000	950,000	250,000	0	Kebribaya, Hartsheik
LPH1 BH	160,000	96,000	26,000	70,000	47,000	Hartsheik, Kebribaya, Harshin
Kaho BHs (Gerbile + 2 more) - not accessible by trucks	360,000	162,000	162,000	---	100,000	none
Jijiga Dam	unlimited	unknown	unknown	1,200,000	---	Harshin, Hartsheik, Kebribaya, Jijiga
Awbere BHs (Mohammed Ali, Direto, Togo Chale, Gobiero)	950,000	450,000	350,000	100,000	111,000	Harshin, Hartsheik

These figures suggest that the need for water can be adequately addressed, based on the availability of water during the drought of 2011, which was said to have been the worst for many years. In fact, in 2011, some water points were not utilized to their maximum potential. LBH1 borehole could have supplied an additional 47,000 litres of water per day, and after the drought Oxfam GB installed a new borehole pumping system in Awbere with a production capacity of 500,000 litres per day. Hence there is enough water available to cover the needs of Harshin's population i.e. 375,000 to 510,000 litres per day, as identified in the needs analysis (table 2).

As water scarcity increases, the number of people, livestock and water trucks fetching water from the boreholes increases. Local population and livestock are usually prioritized in the queue at water points, forcing water trucks to wait longer to access water; as a result, water trucks begin travelling further for water and the prices they charge increase.

During the peak of the 2011 drought, the Aly Bedy boreholes were operating at a rate of 23 hours per day, and almost all the other boreholes were operating for a minimum of 12-16

[15] Maximum daily volume the water point is capable of producing (based upon observed pumping levels at times of peak demand).

[16] Daily volume of water produced by the water point at the peak of the 2011 drought.

[17] Volume of water collected by people, pack animals, and livestock at the peak of the 2011 drought.

[18] Volume of water that water trucks collected from this point during the peak of the 2011 drought.

[19] Estimated additional volume of water that the water point is capable of producing, over and above the volume produced during the peak of the 2011 drought period.

hours per day. Borehole operators and truck owners reported that during this time of excessive usage, the generators powering the boreholes broke down frequently, causing shut-downs for several days while spare parts and mechanics were located. While the Regional Water Bureau maintains a stock of spare parts, this is not always sufficient to cover the maintenance and repairs of all the generators and boreholes.

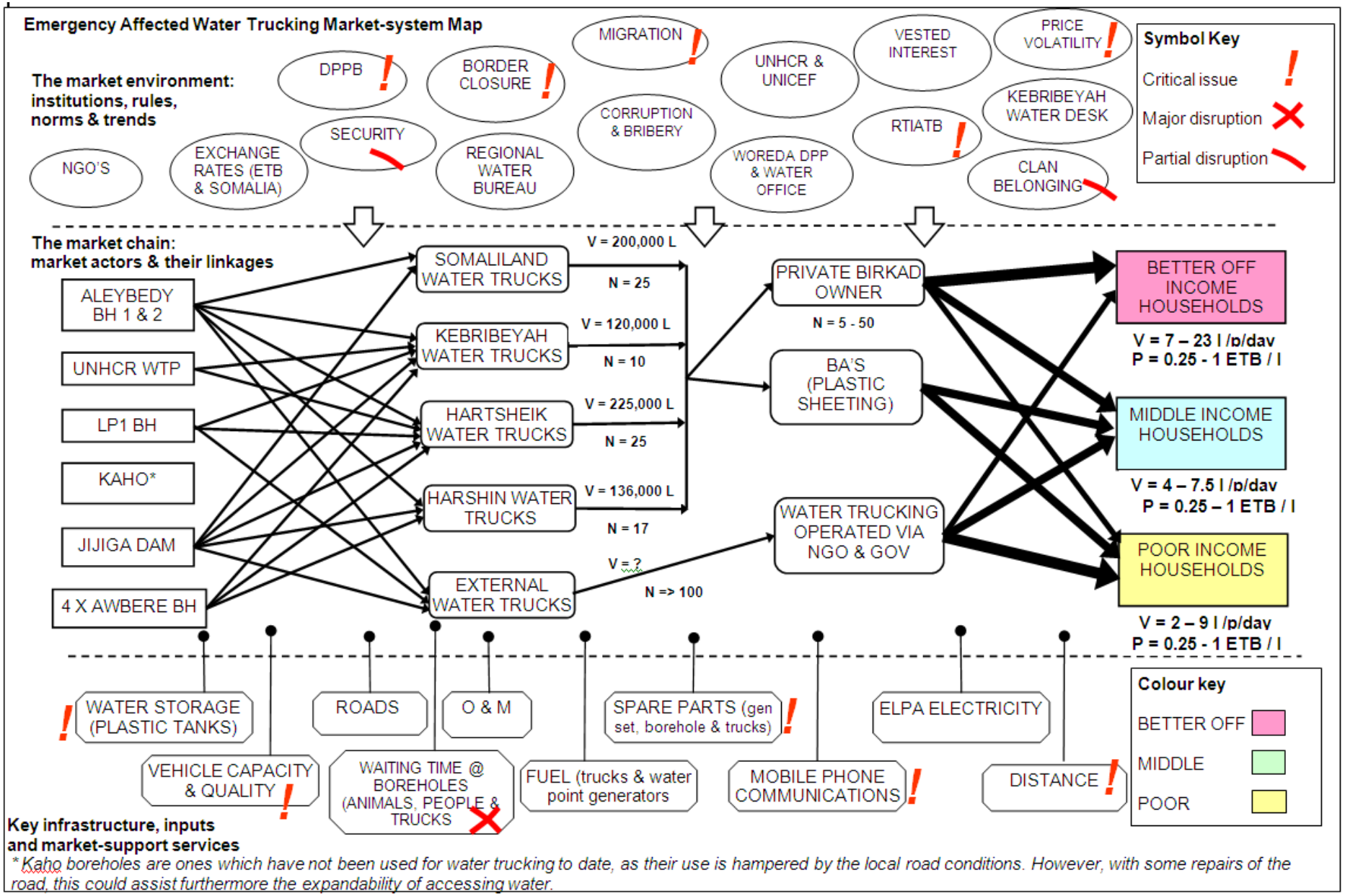
Table 10: Summary of market actors who influence the commercial water trucking market

Actor	Potential Influence
DPPB	Attempts to coordinate and control pricing of water trucking
	Intends to implement water trucking through a voucher system
	Released Guidelines for Emergency Water Trucking, with recommendations for water trucking methodologies and water quality
	Has an early warning system for water scarcity, which triggers them to make requests to NGOs to launch water trucking interventions
Regional Water Bureau	Responsible for major repairs and maintenance for WASH CO managed boreholes
Woreda Water Bureau	Responsible for light maintenance and repairs for WASH CO managed boreholes
Woreda Administration	Identifies kebeles experiencing critical water shortages for NGO interventions
UNHCR	Manage the treatment plant near Kebribaya, providing all running costs and inputs

Expandability of water production

As illustrated in table 8, even at the peak of operation, some of the water points (LBH1, the Awbere boreholes and the Jijiga Dam) retained a capacity to provide larger quantities of water, albeit at greater distances from the ultimate delivery point. The three Kaho boreholes are currently not utilized for water trucking as access is hampered by road conditions. But this could be remedied with some basic repairs. The WASH COs which manage them are willing to increase their operational capacity if access for more trucks is made possible.

The following page illustrates the b water market system map.



Kaho boreholes are ones which have not been used for water trucking to date, as their use is hampered by the local road conditions. However, with some repairs of the road, this could assist furthermore the expandability of accessing water.

Section 6. Comparing the gap in water needs with the market capacity

Table 11 presents a summary of the market analysis findings with the implications for the design of the WASH component of the drought response.

Table 11: Summary of EMMA findings and implications for the drought response programme

Key actors	Findings	Implications for Oxfam's response
People – Water needs and access to water	In Harshin, under normal dry or drought conditions rain water supplies are exhausted and water is procured from neighbouring woredas as Harshin does not have permanent ground water sources. Procurement and transportation of water is part of people's normal livelihoods strategies. 2012 is considered as a bad year due to relative failure of *Gu* rains as well as Deyr rains in 2011. Last year, 2011, is considered as the driest year in recent times.	Any response to deliver water to Harshin will have to include water transportation from water sources outside of Harshin.
	During the dry season, all socio-economic groups procure water and the better-off ensure its delivery to their private birkads or plastic sheeting pits (bas).The middle and poor wealth groups have water delivered to their sub-kebeles. This is facilitated by pooling their assets to purchase water. The poor and very poor in some instances pay for 50% of their water and receive the other 50% as a gift.	
	The Household Economy Approach concludes that the poor and very poor groups will have a gap for 3 months in covering their survival needs (food + water), meaning that they will not be able to procure all the water they need.	To cover their basic needs, the poor and very poor require support. Given their livelihoods strategies, this means support for **their purchasing power** in order to cover their water and other survival needs. The response should be integrated with EFSL to include basic needs beyond water. The water provision should target, at a minimum, the same beneficiaries as the EFSL intervention, i.e. the poor and very poor. Joint targeting should be considered.
	Communities highlighted the unfair distribution of	Support for access to water at

Key actors	Findings	Implications for Oxfam's response
	water (first come, first served) that takes place when NGO or Government water trucking interventions deliver water in communal storage facilities. This happens even in the presence of a WASH Committee, and the targeted households do not necessarily receive the aid intended for them.	community level should be designed to ensure that the water reaches those targeted to receive it. The use of vouchers could verify the delivery of water to the targeted population.
Water sources – Water availability	Within the hydrological catchment area on which Harshin depends, there is sufficient water to cover Harshin's water needs as well as the needs of the other areas depending on the same catchment area. The limitation on people meeting their water needs – once rain water is exhausted – is based on lack of access (essentially lack of purchasing power), rather than a lack of availability.	Water is available and can be procured and transported from the neighbouring areas.
Water transporters – private sector	A private water transportation market exists in the Somali Region of Ethiopia and its coverage area includes Harshin woreda. In terms of overall volume, water trucks available in the area have sufficient capacity to transport the water needed by Harshin's population from the water points of the catchment area. In addition to the regular trucks, there is a fleet of trucks from different origins (Jijiga, Dire Dawa, etc…) that enter the market during severe dry seasons: they represent substantial scale-up capacity in severe dry seasons. When trucks from Somaliland are allowed into the country, they represent an additional scale-up capacity.	The market actors – water transporters – do have the capacity to deliver the required quantities of water, and as a consequence the response can "use" the private sector. Cash transfer programming can therefore be considered alongside in-kind water distribution according to which is most appropriate.
	The NGOs and Government are the main customers for a substantial part the fleet of external trucks (non-Somalian scale-up capacity). Communities are not strongly connected to this water transportation capacity, and have less negotiation power. ⇨ Trucks represent the bottleneck in the market system, as they essentially control it: the level of demand and the diversity of transportation opportunities places them in a position of power where they can choose between types of transportation and destinations ⇨ Harshin communities have limited negotiation power within the scale-up due to their distance from the transporters and lower economies of scale.	Given Harshin's population has limited negotiation power, there is a need to bolster this with additional support.
	The better-off and middle income households who	Direct cash grants would not

Key actors	Findings	Implications for Oxfam's response
	are used to procuring water through water trucking, are connected to local water transporters (in Harshin, Kebribeyah, Hartshek) that typically operate throughout the year in the Harshin area. Water transporters do have a position of power within the market chain as they are the limiting factor in comparison with the demand. While there may be enough transporters in number, the demand is not sufficiently attractive or connected to them ⇨ Even if water trucking capacity is available, the Harshin population does not have full access to the entire capacity. ⇨ ***The bottleneck is the insufficient linkage between the water transporters and the population in Harshin, as well as the relative power of the trucks.***	translate fully into equivalent water access due to the weak link between transportation actors and the population (especially the poorest). For water to reach Harshin, there is need to support the linkage between water transporters and the population and / or to use community actors who have the connections to the water trucking capacity.
Learning from past seasons	From past experience, it is noted that by contracting external trucks and providing favourable contracting conditions, Government and NGOs have distorted the market, causing inflation in water transportation costs. This causes reduction in affordability for communities as water prices increase.	Future responses should use private sector capacity and avoid creating conditions that distort the market. This shall be done in coordination with all actors involved in emergency water provision, to avoid incoherence in contract conditions and transportation actors taking advantage.

Table 12: Response Analysis

RESPONSE ANALYSIS	
Requirements for the response	**Opportunities**
Support access to water for vulnerable populations	Coverage of water needs is not limited by water availability but by purchasing power and access to transporters, especially for the poorest. As a consequence, if the market functions, cash transfer programming can be considered as an alternative to in-kind distribution.
Transportation of water from water points in neighbouring woredas to Harshin woreda	The water transportation market system functions, market actors exist and have the capacity to transport the required amounts of water. The response can therefore use the market actors' capacity and does not require

RESPONSE ANALYSIS	
Requirements for the response	**Opportunities**
	the creation of a parallel system for water delivery. Instead we should facilitate links between water transporters and community members, as this is the point of weakness in the market system.
Ensure that the delivery modality chosen allows targeted beneficiaries to access the intended water amounts	Vouchers were suggested as a fair redistribution modality by a majority of community members interviewed.

Section 7. Main recommendations and conclusions

During the response analysis a wide range of options were considered (on the basis of WASH assessment results, EFSL assessment results and EMMA results). Advantages, disadvantages, feasibility, timing and risks for each option were analysed (see Annex 1) leading to the response recommendation described below.

At the time of the analysis no other organisation was intending to deliver water to Harshin's population as part of emergency response. Should this change, close coordination and collaboration will be required to ensure that another actor entering the market does not negatively impact on the contracting arrangements OGB will make with the water transporters.

Final response recommendations

1 Support to water access

- Targeted at least to poor and very poor categories (coherent with EFSL targeting). Given that limitations in water access are due to purchasing power rather than water availability, socio-economic targeting appears relevant. Wider targeting could release pressure on richer households but would need to be carefully analyzed to avoid creating pull factors for the groups that have migrated.
- Integration with the EFSL support to the very poor and poor households will be critical to allow them to meet all their survival needs (food + water) during the 3 months of deficit. This shall also be integrated with protection and regeneration interventions proposed by EFSL.
- Delivery of roto tanks to ensure hygiene chain, before redistribution to beneficiaries through vouchers
- Given the points above, beneficiaries' selection, verification and vouchers distribution could be done jointly with EFSL. This is highly recommended to increase response efficiency.

    a. Pilot: Contract community level trading entity

- Contract a community level entity that has trading capacity and experience (private *birkad* owners who usually trade water / Traders / women's groups). The project shall not aim to build the capacity of community actors (this could be the aim of a medium-term programme) but to use an existing community actor with the capacity and habit to trade, preferably in water.
- Through contract with Oxfam, the community level contractor will be in charge of water procurement, transportation, delivery in the roto tank and redistribution to beneficiaries, in return for vouchers.
- According to the actor's capacity, Oxfam can facilitate (and even guarantee?) the link with the water transporter, as this is the weakness identified in the market system. The community contractor (trader, private birkad owner, women group) will be supported in setting the contract where relevant and required (a tripartite contract could be considered to facilitate access to the scale-up truck capacity if needed).

- Water redistribution ensured by community trading entity upon receipt of vouchers from the beneficiaries

- Payment made by Oxfam to community trading entity upon receipt of beneficiaries vouchers

b. Contract transporters – delivery through vouchers

- Oxfam contracts water transporter

- Water transporter is in charge of water procurement, transportation, delivery to the roto tank and redistribution to beneficiaries against vouchers;

- Water transporter is paid by Oxfam for the whole service upon receipt of the vouchers.

c. Accountability system and MEAL

- A MEAL plan shall be developed, including a complaints mechanism for beneficiaries.

d. In case of delay in the rains, subsidizing fuel for boreholes

- Fuel subsidies for boreholes could be considered to stabilize water prices for all the population and to reduce pressure on assets and income sources, especially at the time when people who have migrated start to return.

2 Drought appropriate PH

- Integrating learning from HECA drought response

3 Support to Operation and maintenance of BH:

- Servicing of boreholes;
- Provision of spare part;

- Capacity building of borehole operators.

4 Advocacy and coordination with other actors

- With DPPB: support & influence their voucher system design, support the design of a DPPB guideline for water provision (and alternatives to water trucking).
- With other NGOs: avoid contradicting water transporters contracting conditions, avoid distorting the market, and use existing market actors.
- Take a lead in identifying and piloting alternatives to water trucking at national level.

5 Advocacy to lift border closure

- Contact advocacy advisor and check relevance / feasibility, with regards to advocacy strategy.

6 For next season (2013) and medium term

- Encourage community market actors to undertake water transportation and delivery as business (this will focus on strengthening the connection to the water trucking actors)
- Integrate with Pastoralist project, especially the "making markets work for the poor" component. Synergies and learning could also be found in the support to market actors by EFSL (e.g. to support food vendors at community level).

7 Definition of triggers for emergency water provision

- The analysis has clearly shown that absence of water in the birkads cannot be considered as the sole trigger for emergency water provision, as access to water is mainly determined by purchasing power. Additionally, livelihoods strategies and internal community redistribution systems make it difficult to identify when a household is no longer able to meet its water needs without eroding its asset base. A further analysis, looking at sociological and ethnological aspects, should feed into the definition of triggers for emergency water provision, in conjunction with other agencies.

Comparison of water trucking modalities

Two key changes in the water delivery modality used in 2011 are proposed for the programme in 2012. Vouchers will be used to enable a fairer redistribution of water to the most vulnerable in the target communities and OGB will use existing market mechanisms to facilitate water deliveries rather than creating a parallel structure. The differences are summarised in table 13 below.

Actor in charge of:	Procuring the water	Paying the WP operator	Contracting the water truck	Distributing the water to the beneficiaries	Monitoring	Impact on the market	Major risks carried by	Advantages	Disadvantages
In kind water distribution with vouchers – business as usual (2011 modality) but with vouchers	Oxfam	Oxfam	Oxfam	Oxfam	Oxfam	Oxfam is a water trucking actor and distorts the market by offering higher conditions than normal	Oxfam	We know how to do it. Strong control over the whole chain	Creation of a parallel system. Oxfam bears all risks, even when the truck breaks down. Substantial means and HR required.
Water provision through market actors and vouchers – contracting of trading entity (private birkad owner / trader / women group) in the community pilot	Water transporter	Water transporter	Community trading entity	Community trading entity	Oxfam	Use of market actors and market capacity	Water transporters and trading entity	Trading entity benefit from the business operation. Risk is shared along the market chain. Less resources spent by Oxfam for same output	Requires fine design of contract and support to community trading entity (but we have the skills at institution level)
Water provision through market actors and vouchers – water trucks	Water transporter	Water transporter	Water transporter	Water transporter	Oxfam	Use of market actors and market capacity	Water transporter	Risk is shared along the market chain. Oxfam does not distort the market	Requires fine design of contract to cover for all aspects and risks

Table 13: Comparison of strengths and weaknesses of water trucking modalities

Glossary of terms

DPPB	Disaster Prevention and Preparedness Bureau
DRR	Disaster Risk Reduction
EFSL	Emergency Food Security and Livelihoods
EMMA	Emergency Markets Mapping Assessment
ETB	Ethiopian Birr
FEWSNET	Famine Early Warning Systems Network
Intermon Oxfam	Oxfam in Spain
OA	Oxfam America
OC	Oxfam Canada
OCHA	Office for Coordination of Humanitarian Affairs
OGB	Oxfam GB
PHE	Public health engineer
WASH	Water, Sanitation and Hygiene