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A Guidance Note for Woreda Officials

Assessing seasonal water access and implications for livelihoods

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Introduction

This Guidance Note is aimed primarily at woreda officials. It discusses the importance of understanding seasonal access to water at household level and the implications of changes in seasonal access to water for broader livelihoods. It also suggests ways to assess seasonal access to water in order that interventions can be designed to both mitigate disaster risk and respond to water stress in an effective and timely manner.

The Guidance Note focuses on basic elements of the Water Economy for Livelihoods (WELS) approach as a means to assess seasonal access to water. The approach has been rolled out across numerous woredas in SNNPR, Oromiya, and Somali regions in Ethiopia. It was designed to be integrated into Ethiopia's current disaster risk management system within the Early Warning Department's Disaster Risk Management and Food Security Sector (DRMFSS). The DRMFSS uses the Household Economy Approach (HEA) to identify food and livelihoods needs of populations affected by hazards and shocks in Ethiopia (see FEG, SCUK, RHVP 2008 for more detail). WELS uses a similar analytical framework to account for and assess water and livelihoods needs for different socio-economic groups within populations.

This Guidance Note is not an exhaustive description of the WELS approach – such an account is provided in Coulter et al. 2010. Rather, it seeks to highlight some lessons from findings and discuss broad concepts that may be of use to woreda officials whether a WELS assessment has been conducted in the woreda or not.

Further reading

Coulter, L., Kebede, S. and Zeleke, B., (2010) 'Water Economy Baseline Report: Water and livelihoods in a highland to lowland transect in Eastern Ethiopia', RiPPLE Working Paper 16. Ethiopia. www.rippleethiopia.org

FEG, SCUK, RHVP. 2008. 'The Practitioner's Guide to the Household Economy Approach'. FEG Consulting, Save the Children-UK and Regional Hunger and Vulnerability Programme: www.feg-consulting.com/resource/practitioners-guide-to-hea

Why is understanding seasonal access to water important?

Access to safe water in drought – one of the most common hazards in Ethiopia – is consistently a major problem, and water-related disease resulting from restricted water availability and access often causes more fatalities than does starvation in times of famine. Drought periods are often manifested by an intensification of normal seasonality trends – trends relating to disease, labour allocation, and water, food and income deficits.

Until recently, livelihoods analysis has under-appreciated how crucially water contributes to production, and to the ability of households to secure the resources they need to survive. In reality, access to food, income and water are linked in important ways, particularly during drought. This Guidance Note aims to strengthen our understanding of livelihoods and our responses to threats to livelihoods.

How can we assess seasonal access to water?

Step 1. Geography matters: Identify livelihood zones

Geography matters. It determines what physical (e.g. roads, clinics, schools, markets) and natural resources (e.g. forests, grazing land, rivers, groundwater, soils, etc) are available to households and frames the range of livelihood strategies people have open to them. The first step to understanding seasonal access is to identify areas that share similar water access patterns and livelihoods so that access to food, income, and water can be assessed properly within those areas.

Fortunately, all woredas in Ethiopia have already been delineated into 'livelihood zones'[1] by the early warning department and the DRMFSS. These zones form the unit of analysis used for determining woreda food and non-food needs each year. Woreda officials can consult their livelihoods profiles to consider each livelihood zone (if there are more than one) within the woreda.

Either through a WELS assessment, which provides responses to the following questions, or informal survey methods, woreda officials should take stock of the following broad areas of question:

- How does the geography of the area influence what types of water sources are available to people? What sources are used in the dry seasons, and what sources are used in the wet seasons?
- What livelihoods activities are water-dependent? Do changes in access to water seasonally affect the ability of households to secure income or food for that period of the year?
- What are the human and animal populations that exert pressure on the water resource base?
- Is the water resource base sufficient to meet the needs of these populations? Is the water resource base large or safe enough to meet additional needs? If not, why not (e.g. is it an infrastructure issue, or is it an absolute scarcity issue)?

Identifying the water availability, access and use patterns within livelihood zones will help woreda officials to identify areas to monitor and target for interventions.

1 Livelihood zones are areas that share similar agro-ecology, access to markets, and livelihoods strategies pursued by the population.

Step 2. Wealth matters: Understand differences in wealth

Wealth matters. It frames what assets (e.g. physical, natural, social, human, and financial) households have available to them to secure access to food, income, and water. Households wealthy enough to afford donkeys, for instance, are able to transport more water to the home for use later, and are likely to be able to afford larger and more numerous jerry cans for transport and storage at home.

Poorer households are not likely to be able to afford more than one or two jerry cans and are likely not to have access to other resources (land, seed, agricultural or livestock inputs, capital) to 'capitalize' on access to water to create livelihoods activities that use water to generate wealth – such as livestock rearing, brewing, irrigation of vegetables for sale, etc. Poorer households almost always have fewer household members at home who are able to be released to collect water, and also often send at least one adult out to perform casual or migratory labour, which further impedes their ability to release labour to collect adequate amounts of water on a daily basis.

Just as for livelihood zone delineation (see above), wealth groups and their asset-related characteristics have already been identified for socio-economic groups in all woredas and livelihood zones in Ethiopia through the DRMFSS's livelihoods baselines. Woreda officials can use these wealth group breakdowns – found in the livelihood profiles for each livelihood zone and woreda – as a guide to help assess different asset bases affecting access to water for each wealth group.

Woreda officials can then take stock of such constraints faced by different wealth groups in order to identify what makes certain socio-economic groups more vulnerable to hazards that affect access to water – such as drought. Some relevant questions to consider include:

- How does wealth affect access to water in the dry seasons? In the wet seasons?
- Can the poor obtain the volumes of water necessary to survive and build/ protect livelihoods (e.g. do they have enough storage and transport containers or mechanisms such as donkeys)? How does this affect access?
- Are the poor rationing access from higher quality sources due to time required to access water sources in the dry / wet seasons (e.g. protected/ developed springs that are farther away)? Or due to barriers to payment

(e.g. boreholes or shallow wells with fees)? How does this affect access to water at higher quality sources?

- Are poorer wealth groups more prone to collecting water at sources that are often associated with water-based disease (e.g. unprotected springs, rivers)?
- Does hygiene and sanitation awareness vary across wealth groups? Is there a link between this behaviour pattern and incidence of water-based disease incidence seasonally?

Step 3. Identify seasonal conflicts over labour allocation and water access

Water collection requires the release of labour from other household activities. For poorer wealth groups in particular, conflicts over scarce time and labour resources at household level serve as an impediment to access to water of adequate quality and quantity. Along with constraints related to education (sensitisation) and income (purchase of soap) that serve as barriers to uptake of good hygiene and sanitation practices, these constraints amplify their risk of contracting water-related disease.

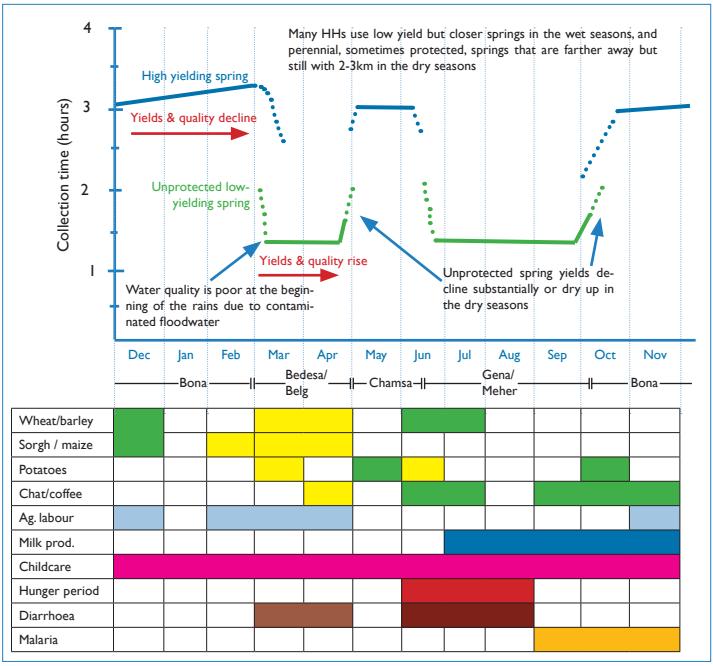
A simple tool that woreda officials can use to help summarize such conflicts over labour and time throughout the year is a seasonal calendar of water access and livelihoods. Water collection time at the main sources of water used by the population can be plotted for each month. Seasonal activities requiring household labour and/or time can also be noted for each month below the graphic. Identifying months where both water collection times and other labour requirements are high enables woreda officials to identify periods of vulnerability, where households may have trouble obtaining enough safe water for survival or livelihoods protection.

Periods of disease should also be noted, and if possible, water-based disease periods linked with the appropriate water source. Sources which are linked with disease should be targeted for protection or other measures to minimize risk of populations facing water-based disease risk. A sample seasonal calendar of water access and livelihoods is featured in Box 1.

Box 1: Seasonal calendar of water access and livelihoods in WBP livelihood zone

Periods of vulnerability for poor households in Wheat, Barley, and Potato Livelihood Zone in parts of East and West Hararghe, Oromiya Region:

- November – February, peak agricultural labour season coincides with long lines and collection times of the long dry bona season (3-5 hours in a normal year). Such overlapping labour requirements restrict the ability of poorer households to secure enough good quality water – both because it limits the frequency of water collection, and the incentive for poorer households to travel farther to reach higher quality or protected water sources.
- March – April, the beginning of the Belg/Bedessa rainy season. Diarrhoea incidence peaks at the beginning of the rains, when water quality is extremely poor at springs due to contaminated floodwater runoff that accumulates in springs. This is problematic because disease coincides with the peak agricultural labour season, decreasing productivity of households during this time, which stifles income generation.
- July – August, the beginning of the Meher/Gena rainy season. Diarrhoea again peaks due to contaminated floodwaters. This coincides with the hunger season from June – August, when cash reserves are lowest before the harvest, and households' own crop reserves have run out. Medical treatment is likely to be foregone in favour of food purchase during this time.



Step 4. Quantify seasonal water access and seasonal water deficits

Understanding seasonal access to water in normal years is mandatory for understanding periods of resilience and vulnerability within the yearly production cycle. When during the year are households not able to secure enough water to protect livelihoods (e.g. livestock rearing, irrigation), or for survival (e.g. drinking and cooking, hygiene and sanitation)?

Woreda officials can obtain a quantification of seasonal water access and water access deficits across wealth groups through a WELS assessment. Survival needs are defined as 5 litres per person in a household per day for drinking and cooking needs, plus 6 litres per person per day for hygiene and sanitation needs.[2] Livelihoods protection needs are defined as 4 litres per person per day for laundry, plus the minimum amount of water required to sustain livelihoods: e.g. to water livestock in each season (see Table 1) and fulfil other livelihoods needs such as irrigation. If households fail to meet the above water requirements for survival or livelihoods protection needs, such shortfalls in access represent water access 'deficits'.

Table 1: Daily water requirements for livestock across seasons (voluntary intake)

Daily Water Requirements – Livestock (Lpcd)	Wet seasons (23–27°C)	Cool dry seasons (15–21°C)	Hot dry seasons (27°C)
Camels	13	25	28
Lactating camels	17	30	33
Cattle	9	20	22
Lactating cows	13	26	29
Goats	2	4	4
Sheep	2	4	4
Horses & donkeys	5	16	18

Voluntary intake is the daily amount of water drunk by an animal assuming that feed contains 70-75% moisture during the wet season and 10-20% moisture during the dry season.

In the absence of a WELS assessment, woreda officials can make a start by identifying seasons or months of the year when households cannot obtain enough water to meet survival or livelihoods protection needs.

Understanding seasonal water access in normal years can help us to uncover important lessons for: (a) resilience building measures; (b) timing of monitoring during all years; and (c) hazard/drought year response and response targeting.

2 Minimum requirements are based on SPHERE standards, which are the same as those used by the Ministry of Water Resources.

a) Risk Mitigation: Resilience Building

Identification of seasonal water access deficits enables woreda officials to identify vulnerabilities to drought, and the corresponding resilience building measures aimed at reducing such vulnerabilities and deficits in a normal year. Interventions can fall into two categories: (i) interventions to address constraints to access; and (ii) interventions to address absolute water shortages.

i) If the primary reasons behind seasonal water access deficits are constraints to access, interventions might include:
   - provision of storage and/or transport containers (e.g. extra jerry cans);
   - jerry can sanitization training and/or supplies;
   - protection of sources and/or separation of livestock from human use access points on the source;
   - conflict mitigation and/or setup or improved enforcement of use allocation rules to enable improved access by certain wealth groups or certain user groups.

ii) If the primary reasons behind seasonal water access deficits related to absolute water shortages, interventions might include:
   - Repair of groundwater source infrastructure to ensure water available under the ground is able to be accessed
   - Development of groundwater based sources – e.g. borehole drilling in areas where groundwater is available; spring/shallow well improvement and/or development; soil and water conservation measures around existing sources to improve yields; construction of sub-surface dams; building of artificial recharge enhancement structures to increase the water retention in the zone and reduce the seasonal decline in yield of groundwater sources, etc.
   - Identification of sites where groundwater is available and that could provide water should drought occur
   - Development of 'emergency boreholes' that can be uncapped during drought periods

b) Disaster Response

i) Identify and monitor target groups and areas. What makes certain groups vulnerable to the hazard underway, why, and when?

Who, and why? Wealth groups facing seasonal deficits already in a normal year are likely to be among the most vulnerable. Consulting the livelihoods profiles and HEA information tools available at woreda level can also help in identifying what groups are affected most by the shock(s) underway.

When? Generation of quantified seasonal water access trend data is important for monitoring and response in drought periods. Periods during the year known to be deficit periods should also be periods during which woreda officials are monitoring water (and food) access so that if deficits drop below normal year levels, appropriate responses can be identified before assets are depleted or lives are placed at risk.

Drought years are often manifested by an extension of the dry season into months normally characterised by rainfall and water source recharge. If certain wealth groups face deficits in dry seasons of normal years, a drought would entail an extension and intensification of such deficit levels beyond the dry season and into months that are normally wet season months. A timely response would need to account for deficits already in progress by the time a drought technically begins so that adequate resources are mobilized for the relevant wealth groups.

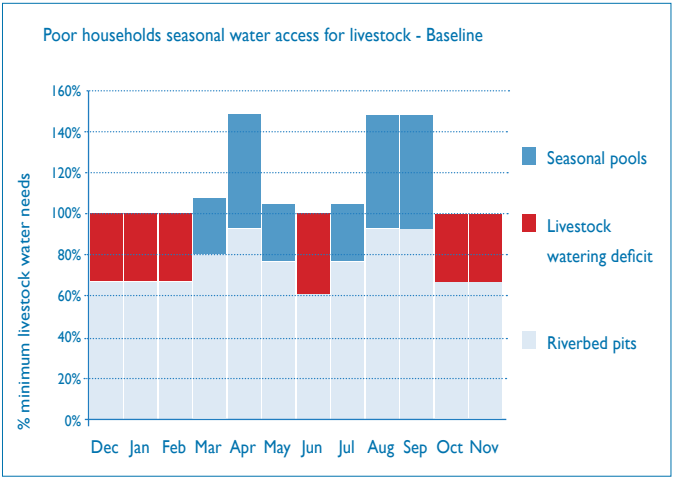
Box 2: Access to water and wealth in Shinile Agro-Pastoral Livelihood Zone

Looking at constraints to accessing water for livelihoods in Shinile woreda can give us some insights into identifying vulnerabilities of populations – which helps us to identify resilience building measures to address those vulnerabilities. It also helps us to identify appropriate timing of monitoring and response measures when disaster does hit.

Looking at vulnerabilities to identify risk mitigation measures:

Poorer wealth groups in agro-pastoral areas of Shinile woreda who fail to secure enough water for their livestock in the dry seasons has important implications for their ability to maintain assets and generate wealth. Such low seasonal access levels significantly undermines livestock condition and increases susceptibility to disease, which is further compounded by lower expenditure on veterinary care.

Significant implications for livestock condition and prices fetched for animals sold on the market result from this constrained access: poor households receive an average of approximately 20% less for their cattle than do middle and better off households. Milk yields are also much lower for the poor, by nearly 50%. This has important implications for nutrition, particularly for children, in these households, where diets are already less varied and complete.



Such vulnerabilities point to resilience building measures aimed at improving nutrition, possible improvement of veterinary facilities, implementation of fodder improvement programs for the poor, and/or improvement of marketing and market chains to increase animal health and condition in order to improve viability of livestock in the market.

Looking at timing of seasonal deficits to improve disaster management and response:
Generation of quantified seasonal access trend data (e.g. through WELS) is important for monitoring and response in drought periods. In this case, the poor cannot secure 40% of minimum water needs for livestock in the Jilaal dry season, which is 5½ months long (Oct-Feb), in normal years. Such high seasonal deficits in normal years suggest that livestock of poorer households will need targeting earlier in the emergency cycle. Understanding seasonal deficits in the baseline year enables responses to reach the most vulnerable herds before their condition deteriorates past the point when interventions can still protect livestock assets.

ii) Identify response measures. If adequate risk mitigation planning has been undertaken (see above), identification of response measures should already be underway – such as identification of areas where boreholes can be repaired or drilled, or where sources can be protected. Water tankering can also be considered for cases where groundwater is not available and where assets are being depleted (especially in livestock dependent areas) due to water shortages.

Wealth-based interventions might include, for instance, vouchers for fees provided to ensure that cash shortages – which often accompany drought due to lack of labour, harvest, or livestock income – do not become barriers to the poor accessing safe water. Provision of jerry cans or sanitization materials to minimize contamination might also be considered.

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Research-inspired Policy and Practice Learning in Ethiopia and the Nile region (RiPPLE) is a DFID-funded Research Programme Consortium led by the Overseas Development Institute (ODI) in partnership with IRC, Addis Ababa University, WaterAid Ethiopia and Harerghe Catholic Secretariat

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Toolkit