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National Consultations on Water, Food Security and Nutrition

Final report of National Consultation on
Water, Food Security and Nutrition

Zimbabwe

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Highlights of the Zimbabwe report

Zimbabwe participates in regional (SADC) and continental (AU, COMESA), international (UNFCCC, WMO) initiatives. These initiatives have helped the country finance some of the identified strategies to ensure water and FSN security. Development of Water, Food Security and Nutrition security related strategies are expected to cost the country more than US\$200million in the next 5years

The country's water and food production sectors have not been spared from the impacts of Climate Change. The predicted increases and frequency in extreme events due to climate change and variability will negatively impact the agricultural sector on which food security and poverty reduction greatly depends and which, in turn, will affect livelihoods. The country has already experienced low yields in maize production in the last 27years resulting in a huge unsustainable food import bill annually

However the country has lots of potential to ameliorate the climate change impacts through its developed water resources with over 9,800 dams. More than 80% of the water in the dams is allocated to agriculture although actual usage has not been achieved because of the current economic challenges the country is faced with.

In addition the country has established high level institutions that are in charge of water, food security and nutrition issues. These institutions are well supported by an enabling environment which includes political willingness, Acts of Parliament, strategies and policies.

More than 30 participants were involved in the Water, Food Security and Nutrition consultations in Zimbabwe. These included academics, civil societies, government, parastatals, and the media. This ensured most of the issues were articulated from all levels.

About the overall initiative

2015 is a milestone with the new UN Sustainable Development Goals and the COP 21 on Climate Change in Paris. Building on the recent report on Water produced by the High Level Panel of Experts on Food Security and Nutrition, Global Water Partnership Africa (GWP) partners are joining forces to contribute to sustainable development in the face of climate change. This initiative, planned for five years, will, in an inclusive manner, identify challenges and implement relevant concrete activities at all levels.



Country Water Partnerships (CWPs) in Benin, Burkina Faso, Cameroon, Ethiopia, Mali, Nigeria, Sudan, Uganda, and Zimbabwe decided to seize the opportunity created by the Committee on World Food Security (CFS) to engage further with Food Security and Nutrition (FSN) to make a tangible contribution at country level.

As a first step, these CWPs took the May 2015 HLPE report, explained it to country water and FSN stakeholders and facilitated a national dialog on HLPE recommendations against country priorities. The second step was to convene national workshops with interested stakeholders for more than 200 concerned ministers, farmers organizations, CSOs, and development partners on urgent needs and priority actions to be taken to impact the functioning of the Water Energy Food Ecosystems nexus for better livelihoods.

Next steps: elaboration and implementation of the program

With its "SDGs preparedness facility", its Water and Climate Development Program, and with partners, GWP will coordinate the elaboration in 2016 and then the implementation of a 3 years program addressing technical and institutional country-identified priorities in the context of CFS resolutions and the COP 21 agenda for solutions.

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List of Acronyms

CAADP	Comprehensive Africa Agriculture Development Programme
CASS	UZ Centre for Applied Social Sciences
FAO	Food and Agriculture Organization
FSN	Food Security and Nutrition
GDP	Gross Domestic Product
HLPE	High Level Panel of Experts on Food Security and Nutrition
GWP	Global Water Partnership
IWRM	Integrated Water Resources Management
MAMID	Ministry of Agriculture, Mechanization and Irrigation Development
MDGs	Millennium Development Goals
MEWC	Ministry of Environment, Water and Climate
MFED	Ministry of Finance and Economic Development
SADC	Southern African Development Community
UNFCCC	United Nations Framework Convention on Climate Change
UZ	University of Zimbabwe
UMSCC	Upper Manyame Subcatchment Council
WACDEP	Water, Climate and Development Project
WASH	Water, Sanitation and Hygiene
CFS	World Food Security
ZAIP	Zimbabwe Agricultural Investment Plan
ZINWA	Zimbabwe National Water Authority
ZWP	Zimbabwe Water Partnership
ZIMASSET Programme	Zimbabwe Agenda for Sustainable Socio-Economic Transformation Programme

National Consultation on Water and Food Security and Nutrition in Zimbabwe

1 Introduction

Sub-Saharan Africa is one of the most food insecure regions in the world (IFPRI, 2014). Climate change and climate variability are expected to amplify the challenges faced by the agricultural sector towards biomass production in general. Specifically, food production will be compromised against a background of increased food demands due to rising populations. The predicted increases in extreme events (floods and droughts) will negatively impact the agricultural sector on which food security and poverty reduction greatly depends and which, in turn, affects livelihoods. Over the last couple of years, Zimbabwe has seen dry land cropping being negatively affected by climatic variability while irrigated land has also reduced. The production of maize, the country's staple food has reduced from a national average of 1.975 tonnes/hectare to a mere 0.85 tonnes/hectare while the cattle herd has declined by more than 200,000 over the last 27 years (MAMID, 2014). In severely dry years, the country has had to rely on food imports from neighbouring countries.

For several years the African Union has been inviting its member states to elaborate national policies for agriculture development, requesting them to develop country agricultural development plans. The Comprehensive Africa Agriculture Development Programme (CAADP) vision is for African countries to mobilize effectively and efficiently both own national resources and international support in order to boost agricultural productivity, hence, contribute towards the attainment of food security and poverty reduction. Zimbabwe is also part of the CAADP process.

At their meeting in April 2014 on the results framework for the CAADP programme, African Ministers notably underscored that climate change is going to be one of the biggest challenges in achieving this objective. One of the key priorities regarding food security and poverty alleviation identified at the meeting was that of the need to build resilience to climate change through strong integration of climate change adaptation in agricultural investment plans. The African Union, in its Malabo Declaration of June 2014, reaffirmed the commitment of African countries to reinforce and to act within the CAADP framework.

One of the key objectives of the Global Water Partnership (GWP) was to facilitate the achievement of the Millennium Development Goals (MDGs) agreed upon at the Earth Summit in 1992. Twenty years later, the partnership plays fully its role of catalyst for better public policies and governance mechanisms in more than 180 countries, by sharing and disseminating knowledge and by generating synergies between actors at global, regional, country and local levels. GWP through, the respective Country Water Partnerships, has facilitated national dialogues on issues related to integrated water resources management. In 2014 within the global dialogue on the post 2015 Sustainable Development Goals, the Zimbabwe Water Partnership (ZWP) facilitated national consultations on the relevance of a dedicated water goal. The resolutions from Zimbabwe, together with similar contributions from other 28 countries, were compiled into a synthetic report which was used by the open working group tasked with preparing the UN work. This was an important contribution to the proposal for the development of a "water goal".

In this context, the GWP network has facilitated consultations on water and food security at country level in order to provide concerned governments with a widely shared position on water and food security issues and challenges in their respective countries. These elements shall be concluded by the end of June 2015 and will be presented to country representatives at the FAO Headquarters as additional support for negotiating and promoting country positions in the Committee on World Food Security (CFS) discussions in October 2015. CFS was created in 1974 and is an inter-governmental body open to all FAO member states. A High Level Panel of Experts on Food Security and Nutrition (HLPE) is already preparing a report on Water and Food Security which will feed into the bilateral and multilateral negotiations that will precede the CFS 42nd session in October 2015.

The value addition of this initiative lies in the establishment of a bridge between two issues frequently tackled in public policies; i.e. food security and water security. Through consultations at national level, contributions will be sourced from various stakeholders in the broader national development context on the issues related to the water-food-energy-ecosystems nexus.

Locally, the Zimbabwe Water Partnership (ZWP) through a committee comprised of members drawn mainly from the Water and Food sectors is spearheading the water-food consultations. The project has taken advantage of the WACDEP project which already has sound links with major stakeholders as they are already part of the WACDEP Zimbabwe project management committee.

The pattern in sub-Saharan Africa, Zimbabwe included, is that about 80% of agriculture is rain fed. However, rain fed farmers are generally subsistence farmers whose production levels are sensitive to the quality of the rainfall seasons in times of seasonal water received as well as the distribution of such rainfall to counter the impacts of dry spells. Subsistence farmers are also associated with food production at family scale and do not operate at commercial scales. With recent climate patterns signalling either early rainfall or late rainfall with poor seasonal distribution, yield levels have gradually declined. Interestingly, in Zimbabwe, 70-80% of the developed water resources in the country have been allocated to the agricultural sector, mainly as irrigation water.

Adequate cereals, particularly grains, are an indicator of food security from a Zimbabwean perspective. In a few cases, farmers grow cash crops from which they can buy cereals and grains for domestic consumption.

The report of May 2015 by the High Level Panel of Experts rightly observes the significance of the following general components which contribute to nations' food security. These include:

- The acknowledgement that water is central to Food Security and Nutrition (FSN)
- The observation that water is increasingly becoming scarce and it is necessary to manage water scarcities in agriculture and food systems,
- There is need to identify challenges of water governance for food security and nutrition. If these issues are acknowledged and addressed, then countries would be on their way to improve on food security.

2 Discussions and comments by the Stakeholders on the HLPE recommendations

From the recommendations advanced in the HLPE report, the status and relevance of issues highlighted in the report are discussed below

:

a) Ensure sustainable management and conservation of ecosystems for the continued availability, quality and stability of water for FSN

The degradation of ecosystems has been noted with pollution being the major threat to ecosystems. It is acknowledged, however, that ecosystem sciences have not been comprehensively explored or shared with general society. This has led to less appreciation of the functioning of ecosystems and, hence, less effort towards ecosystems protection. However, there are institutions in Zimbabwe which ensure that ecosystems are protected.

The main challenges confronting ecosystems in Zimbabwe are:

- Lack of coordination between relevant stakeholders;
- Informal settlements (with no supporting infrastructure) – contamination of groundwater as well as surface water due to poor sanitation practices,
- Infrastructural development / settlements - built up settlements in river catchments particularly in wetlands thereby affecting the hydrology of the rivers,
- There has been an increase in alluvial mining activities in river systems,
- Stream bank and wetland cultivation,
- There has been invasive alien species proliferation in the water bodies,
- Apparent reluctance to fully acknowledge effects of climate change and its variability.

The responsibility of ensuring that sustainable ecosystems are maintained and protected is undertaken by various institutions. The Ministry of Environment, Water and Climate has the mandate for developing laws and policies related to environmental protection. The following stakeholders are also actively involved in the functioning of ecosystems mainly through environmental legislation:

- Environmental Management Agency (EMA),
- Zimbabwe National Water Authority (ZINWA),
- Catchment and Sub catchment councils,
- Forestry Commission,
- Urban and Rural Authorities.

While the environment and ecosystems are compromised at all levels of the social ladder, the following activities have been noted to pose the biggest threat:

- Pollutants from both industrial and municipal discharge – these have impacted heavily on the quality and the quantity of water in the fresh water bodies. This has led to increased budgets for water treatment and, in some cases, the water supplied has been said to be sub-standard for some consumers. Fishing activities have also been affected by pollution.

- Alluvial mining in freshwater bodies - water courses have degraded due to this malpractice. Communities are driven to such activities by lack of alternative livelihood strategies.
- Unsustainable farming practices – many farmers have adopted practices which do not conserve the environment. These include tobacco growing which has high economic potential but has also serious environmental consequences if not managed well. It also extends to poor agricultural farming practices which pay little regard to soil and water conservation.
- Unsustainable energy sources such as firewood for fuel have contributed to land degradation.
- To a large extent, water withdrawals for energy generation have also impacted on the ecological requirements as withdrawals optimise power generation at the expense of the environment and ecosystems.

On a positive note, it is acknowledged that efforts are underway at national scale to promote sustainable utilisation of resources and this includes ecosystem protection. Policies have been drafted which seek to ensure that the environment is kept in an acceptable condition through empowering stakeholders. Some policies and instruments have been drafted namely:

- National Environment Policy
- Urban Councils Act (Chapter 29:15)
- Regional Town and Country Planning Act (Chapter 29:12)
- Rural District Councils Act (29:13)
- Water Act (1998)
- Water Policy (2013)

b) Ensure an integrated approach to water and FSN related policies

One of the challenges that has been identified as contributing to food insecurity is the absence of an integrated approach towards implementation of policies and projects. It is not uncommon to encounter completed dam projects with full storages yet the matching irrigation infrastructure is not there. The land reform exercise that has been undertaken by government has not matched the water sector review that was implemented at almost the same time. This has seen less utilisation of available water with dams recording higher levels of storage throughout the year than had been witnessed before.

However, notable efforts have been observed on the part of government to promote coordinated development and implementation of projects. This starts with streamlined institutional responsibilities as shown in Table 1:

Table 1: Roles and responsibilities of key stakeholders in food security and nutrition

Organisation	Roles and responsibilities
Ministry of Agriculture Mechanisation and Irrigation Development	Ensuring food and nutrition security at national and household level, advice and investments on production.
Ministry of Health and Child Care	Advice and guidance on nutrition (diets, water, sanitation and hygiene)
Ministry of Education	Research and development, curriculum development, school feeding programmes
Food and Agricultural Organisation	Food security
Development partners	Research and Development, Information dissemination, Financing programmes and projects, Capacity building
Farmer organisations	Organisations, Capacity building, Information dissemination
Private sector	Financing, Marketing, Value addition and processing

Efforts to see coordinated efforts are visible through the following initiatives:

- The Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) Programme
- Zimbabwe Agricultural Investment Plan,
- Development of a National Irrigation Policy
- Development of a Food and Nutrition Security Policy,
- More Food for Africa and Input Programmes.
- District and Provincial Development Plans.

The Zimbabwe Agricultural Investment Plan (ZAIP)

The overall programme objective of ZAIIP is to facilitate sustainable increase in production, productivity and competitiveness of Zimbabwean agriculture that focuses on client and consumer needs through building capacity of farmers and institutions, improving the quantity and quality of public, private and development partner investment and policy alignment

There also several regional initiatives that are aimed at contributing to food security at national and regional level. These include CAADP, COMESEA, Global Water Partnerships and SADC programmes.

The Comprehensive Africa Agriculture Development Programme (CAADP)

Countries have been encouraged to participate in the Comprehensive Africa Agricultural Development Programme (CAADP) which will be guided by the following key principles:

- The pursuit of a 6% average annual agricultural sector growth rate at the national level
- The allocation of 10% of national budget to the agricultural sector

- Exploitation of regional complementarities and cooperation to boost local growth
- Policy efficiency, dialogue, review and accountability
- Partnerships and alliances to include farmers, agribusiness and civil society communities.

Zimbabwe is actively participating in the programme.

c) Prioritise the most vulnerable and marginalised, including mainstreaming gender and addressing the specific needs of women

In principle, there is no discrimination to food security issues by gender. The Constitution is very clear on gender issues. All policies developed by government are gender sensitive and, in some cases, a quota for women is specified. In practice, however, the situation may be different as other household considerations and social factors constrict women participation.

For all vulnerable groups there are national efforts to ensure fair access to food security programmes. The reservation of about 10% of water in national dams, for instance, is a deliberate effort to promote access to water by marginalised communities who would otherwise not have access to such water. However, there is a general observation that such water is not being accessed for domestic and agricultural by communal people as no corresponding support for conveyance infrastructure has been extended to such communities.



d) Improve water management in agriculture and adapt agricultural systems to improve their overall water efficiency and water productivity, and their resilience to water stresses

The overall goal of the Water Sector is to achieve sustainable utilization of water resources that, in turn, will improve:

- Equity in access to freshwater by all Zimbabweans,
- The efficient use of water among competing users,
- Provision of affordable and sustainable Water Sanitation and Hygiene (WASH) services, Environmental protection,
- Protection of water resources, including, safety of the country's dams and groundwater,
- Consumer and institutional viability in the water sector,
- The economic development of the country,
- The administration of the Water Act.

Zimbabwe already experiences considerable water stress as a result of insufficient and unreliable rainfall, changing rainfall patterns and extreme climatic events in general. The impacts of climate change – including predicted increases in extremes – are likely to add to this stress, leading to additional pressure on water availability, accessibility, supply and demand.

Zimbabwe is a semi-arid country characterized by highly variable low rainfall averaging 657mm/year. Rainfall varies spatially from the eastern highlands (1100mm/year) to low lying areas in the south and west (400mm/year). Temporal and inter annual variability is high, impacting on availability and reliability. The country has invested heavily in the construction of storage works and currently Zimbabwe has a total storage capacity of about 8 x 10⁶ Megalitres from over 8 000 dams (Table 2).

Table 2: Distribution of dams by Province and Capacity in Zimbabwe

Province	Number of Dams	Total Capacity (m ³)	Number of Dams with Capacity >1,000,000 m ³	Number of dams with Capacity between 1,000,000m ³ and 500,000m ³	Number of dams in the range of Capacity between 500,000m ³ and 100,000m ³	Number of dams in the range of Capacity less than 100,000m ³
Bulawayo	32	9 785	2	0	2	28
Harare	50	13 272	1	0	12	37
Manicaland	679	148 656	16	10	80	573
Mashonaland Central	763	691 113	29	34	164	536
Mashonaland East	1 363	292 378	29	35	207	1 092
Mashonaland West	1 413	1 334 765	45	38	255	1 075
Masvingo	1 044	2 339 527	20	14	158	852
Matabeleland North	611	190 498	18	13	97	483
Matabeleland South	2 243	873 271	51	53	310	1 829
Midlands	1 620	2 098 731	54	38	195	1 333
TOTAL	9 818	7 991 996	265	235	1 480	7 838

Table 2 shows that most dams are categorised as small to medium. Midlands, Masvingo and Mashonaland West provinces lead in total developed storage. Although the dams were built for various purposes, the largest use sector is agriculture (irrigation).

At 1 547 cubic meters per capita per year, Zimbabwe's renewable water resources is 25% of the average of Sub-Saharan Africa. The total developed irrigated area in 2000 was estimated at 200,000 hectares of which 180,000 hectares were characterized as formal irrigation schemes and 20,000 hectares were in the form of wetland gardens. Water is a core development issue in Zimbabwe, central to agriculture, rural, urban and industrial

development. Water is a key input in the mining and energy sectors and it is fundamental for navigation, fisheries, national parks, natural ecosystems, recreation and assimilating waste from urban, industrial, mining and agricultural sources of pollution. Available estimates suggest that:

- Agriculture accounts for 82% of the developed surface water use
- Domestic and industrial use accounts for about 15% and
- Mining accounts for 3%

The Ministry of Environment, Water and Climate (MEWC), through the Department of Water Resources Planning and Management is the primary institution responsible for water matters in Zimbabwe. The overall planning, development and management of water resources is presided over by the Ministry of Environment, Water and Climate (MEWC) supported by the Zimbabwe National Water authority (ZINWA), Catchment Councils and Sub Catchment Councils. In addition, Local Authorities that supply water to residents in urban areas, the DDF, Ministry of Agriculture Mechanisation and Irrigation Development are also stakeholders in water development and management. The coordination of all aspects of water development and management in Zimbabwe is undertaken by the National Action Committee (NAC). NAC is the apex inter-ministerial body which has three subcommittees; Water Resources Management, Urban and Rural and these are responsible for sub-sector coordination.

The mandate of the Ministry is to ensure the reliability and availability of an acceptable quantity and quality of water for health, livelihoods and production, coupled with an acceptable level of water-related risks. Its main areas of focus are:

- i) Sufficiency - through design, construction and maintenance of medium to large size dams and water supplies to satisfy present and future water requirements.
- ii) Affordability - through development of policies to guide the orderly and integrated planning of the optimum development, utilization and protection of the country's water resources in the national interest;
- iii) Safe & Physical Accessibility - to develop sustainable groundwater resources and to provide raw and/or treated water to growth points, rural service centres and urban areas in consultation with the Ministry of Local Government, Public Works and National Housing.
- iv) Policy & Trans-Boundary Issues - to manage and administer the water fund and to participate in the development and implementation of SADC and other regional and international organizations' water resources management frameworks.

Some of the Plans and Policies that have been put in place to ensure the current issues are addressed, The Water Act [Chapter 20:24] and the ZINWA Act [Chapter 20:25] underpin water resources management and service provision in Zimbabwe. In addition to the Water and ZINWA Acts of 1998, other important pieces of legislation are:

- Development of an Integrated Water Resources Management Strategy (IWRM) of 2000,
- Launch of the National Water Policy of 2013
- Development of River System Outline Plans (2010).
- The Environmental Management Act [Chapter 20:27] of 2002,
- Urban Councils Act [Chapter 29:15] of 1996,

- Rural Districts Act [Chapter 29:13] of 1996,
- Mines and Minerals Act [Chapter 21:05], and,
- Public Health Act and Disaster Risk Management Bill (2011).

3 Key implications and means of implementation identified for achieving the recommendations over the period 2015-30.

Table 3 shows the identified activities that are highly prioritized for achieving food security in Zimbabwe.

Table 1: Zimbabwe's Short term priorities in the various sectors affecting food and water security

	THEME	STRATEGY	ACTION	ESTIMATED COST (US\$M)
Agriculture and food security				
	Agriculture and Water	a) Strengthen national research and extension capacity for development and integrated management of agricultural water resource.	a1. Strengthen capacity for surveillance and predictive analysis of agricultural water use patterns across temporal and spatial scales	2
			a2. Develop research and development frameworks to generate and promote technical and institutional innovations for water harvesting and management in crop and livestock production system	5
	Farming Systems	a) Develop frameworks for supporting agricultural specialization according to agro-ecological regions, including mechanisms for commodity exchange, trade and marketing	a1. Strengthen capacity to review the delineation of Zimbabwe's agro ecological zones and the matching farming systems to enhance dynamic responses to emerging climatic scenarios.	2.5
			a2. Establish surveillance schemes on how production and marketing systems respond to climatic pressures within and across agro-ecological zone.	2
	Crop Productivity	a) Strengthen the capacity of farmers, extension agencies, and private agro-service providers to take advantage of current and emerging indigenous and scientific knowledge on stress tolerant crop types and varieties, including landraces that are adaptable to arising climatic scenarios.	a1. Promote community seed production schemes that harness crop diversity.	5

			a2. Develop training programmes for promoting processing and consumption of neglected but stress tolerant and nutritious crops	2.5
			a3. Strengthen capacity for development of new food recipes and industrial products using stress tolerant and traditional crops.	5
		b) Develop frameworks for promoting science-based crop production and post-harvest technologies and management practices.	b1. Strengthen research capacity towards development of solutions and innovations in crop improvement and fertilizer development to increase productivity with minimal GHGs emission	5
Livestock Production		a) Strengthen the capacity to identify and promote adoption of indigenous and improved livestock breeds that are tolerant to climate related stresses.	a1. Strengthen surveillance systems for livestock diseases and production performance indicators against changing climatic and ecological variables.	2
			a2. Develop frameworks for promoting effective rangeland management systems to enhance sustainable production and storage of livestock feed resource	0.5
		b) Establish monitoring systems for greenhouse gas emissions in agricultural systems and support mechanisms for their reduction.	b1. Review and document current levels of gaseous emissions under different livestock management systems in the country	1
			b2. Promote linkages for coordination of information and knowledge sharing on climate change mitigation in agriculture	1
Biodiversity and ecosystems				

	Biodiversity and Ecosystems	Promote appropriate climate smart land-use options for the drier natural regions where cattle production and wildlife ranching are the most suitable land-use options	Strengthen the capacity of communities whose livelihoods depend on biodiversity in various adaptation techniques	10
Physical and social infrastructure				
	Energy	a) Introduce policies and regulatory frameworks for renewable energy, energy conservation and energy efficiency	a1. Introduce a Renewable Energy, Energy Conservation and Energy Efficiency Policy with time-defined targets for renewable energy mix and carbon intensities for the energy sector	20
			a2. Develop and implement incentives aimed at promoting and reducing costs of Renewable Energy such as renewable energy feed-in tariffs, net metering, subsidies and tax redemptions to make renewable energy technologies affordable	50
			a3. Enact the Rural and Renewable Energy Act as prescribed by the Energy Policy of 2012	0.2
			a4. Introduce regulations that enforce the use of solar water geysers and use of passive heating on all new housing developments	10
		b) Strengthen energy planning, research and development.	b1. Establish a National Integrated Resource Plan that shows the renewable energy and conventional energy mix to meet the country's energy need	0.5
			b2. Establish an information system within the Ministry of Energy and Power Development that is a strategic tool for investment decision making and optimal energy resource mix at least cost	1
			b3. Promote research and development in the renewable energy sector	10

			b4. Establish an Energy Research Council and an Energy Research Fund.	20
Climate change issues for the water sector				
	Water Management Issues	a) Strengthen stakeholder participation institutions in water resources management	a1. Strengthen the Water National Action Committee and its subcommittees	1
			a2. Strengthen Catchment and Sub-catchment Councils	5
		b) Promote more efficient water use practice	b1. Promote water demand management.	1
			b2. Promote rainwater harvesting	0.5
			b3. Identify and support demonstration projects.	7
		c) Promote catchment protection	c1. Enforce existing legislation	0.1
			c2. Implement catchment protection measures (e.g. silt traps, vetiver grass, contour ridges, and sustainable tillage techniques).	20
			c3. Discourage uncontrolled alluvial mining along rivers.	3.5
			c4. Control discharge of wastes and sediments into surface and groundwater systems	5
	Water Development Issues	Develop, rehabilitate, maintain and protect surface and groundwater resources.	Revive the policy of one medium dam per Province per year.	5
Gender, people living with HIV and AIDS, and other vulnerable groups				
	Gender, People Living with HIV and AIDS, and Other Vulnerable Groups	a) Strengthen adaptive capacity of the vulnerable groups	A1. Use integrated adaptation responses that combine indigenous knowledge from the elderly with expert insights.	0.5

		b) Enhance provision of early warning systems on droughts, floods and disease outbreaks to vulnerable groups and ensure a coordinated approach in providing them with emergency service.	b1. Create a multi-stakeholder forum with representatives of vulnerable groups for emergency services provision.	0.5
			b2. Disseminate updated information on climate change and raise awareness of vulnerable groups on disaster preparedness	1
			b3. Train vulnerable groups on how to respond to disaster	2

Table 4 presents longer term strategies to cope with food insecurity.

Table 4: Long term priorities on the factors related to food and water security

	THEME	STRATEGY	ESTIMATED COST (US\$M)
Agriculture and Food Security			
	Farming Systems	Develop frameworks for supporting agricultural specialization according to agro-ecological regions, including mechanisms for commodity exchange, trade and marketing.	20
	Crop Productivity	Strengthen the capacity of farmers, extension agencies, and private agro-service providers to take advantage of current and emerging indigenous and scientific knowledge on stress tolerant crop types and varieties, including landraces that are adaptable to arising climatic scenarios.	200
		Develop frameworks for promoting science-based crop production and post-harvest technologies and management practices.	55
	Livestock Production	Strengthen the capacity to identify and promote adoption of indigenous and improved livestock breeds that are tolerant to climate related stresses.	500

		Establish monitoring systems for greenhouse gas emissions in agricultural systems and support mechanisms for their reduction.	10
	Agriculture and Water	Strengthen national research and extension capacity for development and integrated management of agricultural water resources.	500
Climate change issues for the water sector			
	Water Management Issues	Strengthen stakeholder participation institutions in water resources management.	6
		Promote more efficient water use practices.	8.5
		Promote catchment protection.	28.6
	Water Development Issues	Develop, rehabilitate, maintain and protect surface and groundwater resources.	2750
Biodiversity and ecosystems			
	Biodiversity and Ecosystems	Promote and strengthen biodiversity conservation management and the integrity of natural ecosystems.	10.5
		Promote appropriate climate smart land-use options for the drier natural regions where cattle production and wildlife ranching are the most suitable land-use options	32
Physical and social infrastructure			
	Energy	Introduce policies and regulatory frameworks for renewable energy, energy conservation and energy efficiency.	80
		Strengthen energy planning, research and development.	31.5
Gender, people living with HIV and AIDS, and other vulnerable groups			
	Gender, People Living with HIV and AIDS, and Other Vulnerable Groups	Mainstream climate change in policies for the vulnerable groups with their active participation at every level.	20.5

4 Concluding Comments

Zimbabwe is currently in a situation where food security is not guaranteed. This is despite the fact that the water resources are well developed to support irrigation of at least 200,000 hectares. Establishment of a Water and Wastewater Regulatory Authority will ensure improved water security thereby resulting in improved health and food security. The reduced activity in the irrigation sector, larger reliance on rain fed cropping and the lower yields being attained for all crops due to compromised agricultural practices has driven the country towards food insecurity.

There are currently several initiatives to stabilise the food security situation in Zimbabwe through regional, national and non-governmental efforts. These should be supported through working together of the various clusters that contribute towards food security.

The following recommendations are advanced for the present situation:

- ✓ The need for increased budget allocation to water resources development and management is inevitable
- ✓ There is need for awareness on water conservation.
- ✓ Planners and policy makers need to be able to link energy requirements with specific objectives of agricultural and rural development, such as food security, agro-industry development and sustainable farming practices
- ✓ Developing long-term water policies and related strategies, taking into account Zimbabwe's legal, institutional, economic, social, physical and environmental conditions.
- ✓ In order to promote food security strategies with the necessary energy inputs, policies and methodologies the critical linkages between agricultural production, agriculture-based industries distribution and commercialization and the rest of the economy should be considered.
- ✓ Policy attention, by national governments and trans-national bodies will, increasingly, have to focus on the coordination of water uses across transboundary river-basins and across different sectors, and arbitration in increasing conflicts over water.

5 References

- Bates, B.C., Kundzewicz, Z.W., Wu, S. and Palutikof, J.P. (eds) (2008) 'Climate Change and Water'. Technical Paper of the Intergovernmental Panel on Climate Change. Geneva: IPCC Secretariat.
- Calow, R., MacDonald, A., Nicol, A. and Robins, N. (na) 'Ground water security and drought in Africa – linking water availability, access and demand' (unpublished manuscript). Challenges of Climate Change. December. Sirte, Libyan Arab Jamahiriya.
- Chotte, J. (2013) Climate change and food production: green revolution versus ecological
- FAO (2002) The State of Food Insecurity in the World 2001. Rome: FAO.
- FAO (2008c) 'Water for Agriculture in Africa: Resources and Challenges in the Context of Climate Change'. Ministerial Conference on Water for Agriculture and Energy in Africa: The Challenges of Climate Change. December. Sirte, Libyan Arab Jamahiriya.
- FAO (2015), HLPE Report on Water for food security and nutrition, Rome, Extract from the Report: Summary and Recommendations (9 April 2015), Italy, www.fao.org/cfs/cfs-hlpe
- Froebrich, J. (2013) Climate smart agriculture: the role of EU -Africa research and innovation to stimulate Green Economic Growth in Africa. CAAST Net Plus workshop, Addis Ababa, June2013.www.caast-net-plus.org/attach/Climate_smart_agriculture
- Zimbabwe Government. 1998. Water Act
- Zimbabwe Government. 1998. ZINWA Act
- Zimbabwe Government. 2002. Environmental Management Act
- Zimbabwe Government. 2013. National Water Policy
- Zimbabwe Government. 2014. National Climate Change Response Strategy. Third Draft.
- ZUNDAF (2012-2015). 2011. Policy Framework Document (with signatures). Available at: 2013. www.caast-net-plus.org/attach/Climate_smart_agriculture_-_J_Froebrich.pdf

6 Annex 1. List of Participants

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