

Building the concept
and plan for the
Uganda National Early
Warning System
(NEWS) – Summary
roadmap report



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Contents

Report summary.....	iv
Mandate and policy related issues.....	iv
Data systems related issues.....	iv
Communication related issues.....	iv
Coordination related issues.....	v
Monitoring and evaluation related issues.....	v
List of abbreviations.....	vi
SECTION 1.....	1
Introduction.....	1
1.1 Background and overarching goal.....	1
1.4 Report structure.....	1
SECTION 2.....	3
Summary of existing EWSs, policies and legislation in Uganda.....	3
2.1 Existing Early Warning Systems (EWSs) and tools in Uganda.....	3
2.2 Existing policies and legislation relevant to EWSs in Uganda.....	3
SECTION 3.....	5
Road map for the development a multi-hazard National Early Warning System (NEWS).....	5
3.1 Introduction to the NEWS roadmap.....	5
3.2 Mandate and policy related issues.....	10
Establishment of a memorandum of understanding to steer the development of the NEWS.....	10
Develop Standard Operating Procedures (SOPs).....	10
Clarify decision making structures with all stakeholders providing warnings and information to NECOC and NECOC staff.....	10
Establish a clear vision for the District Disaster Management Committees (DDMCs).....	10
Establish how the NEWS will be linked to response mechanisms.....	10
Establish the economic benefits of the NEWS.....	11
Integrate and develop agreements with the private sector.....	11
Establish the warning chain between different ministries within government policy and legislation.....	11

Capacity assessment of responsible EWS actors at the national, district and sub-county level in charge of issuing warnings and delivering response	11
Integrate the NEWS into economic planning at a national level.....	11
3.3 Data systems related issues	12
Data from SMS-based Disaster Monitoring System analysed	12
Disaster Risk Financing system operational	12
Inclusion of seasonal forecasting products into the Disaster Risk Financing system	12
Multi-hazard risk assessment	12
Increase the spatial scale of the Disaster Risk Financing system.....	12
3.4 Communication related issues	12
Production of monthly bulletin summarising all hazards	12
NECOC web site updated at least monthly.....	13
Establish agreements between different actors to ensure that the warnings are delivered in a coherent manner	13
Public awareness campaigns to improve awareness and the role of NECOC, as well as other actors in the case of a disaster	13
District Disaster Management Committee (DDMC) monthly bulletin produced	13
Establish the roles and responsibilities of all the organisations involved in the warning process for each hazard and how they interact with NECOC	13
Establish a coherent set of warning messages in conjunction with the relevant ministry for each major hazard	13
Establish a warning message improvement cycle	14
3.5 Coordination related issues.....	14
Establish the roles and responsibilities of each organisation involved in the warning process for each major hazard	14
Develop low and no regret responses for major hazards.....	14
Development of a simulation exercise of a major event led by NECOC and involving all the key actors	14
3.6 Monitoring and evaluation related issues	15
Evaluation of the effectiveness of early warning systems	15
Evaluation of the effectiveness of the dissemination of early warning messages.....	15
3.7 Proposed programme for the NEWS roadmap.....	15
SECTION 4.....	19
References.....	19



List of Tables

Table 1	Proposed road map for the development of a multi-hazard National Early Warning Systems (NEWS) – Mandate and policy related.....	6
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Report summary

This report provides a summary of the final report and details of a road map developed for a multi-hazard National Early Warning System (NEWS) for Uganda. For full details of the work carried out the final report should be read. Currently many of the current Early Warning Systems (EWSs) in Uganda are piecemeal in nature and not complete, as well as not being sustainable from both a financial and technical point of view. A review of the existing Early EWS in Uganda recommended that the National Emergency Co-ordination and Operations Centre (NECOC) that sits within the Office of the Prime Minister (OPM) needs to establish a roadmap for collaboration with EWSs at district and national levels to harmonize data collection and reporting and analysis. This report provides details of the road map for the NEWS which is summarised below under five main headings.

Mandate and policy related issues

These include:

- Establishment of a memorandum of understanding to steer the development of the NEWS.
- Develop Standard Operating Procedures (SOPs).
- Clarify decision making structures with all stakeholders providing warnings and information to NECOC and NECOC staff.
- Establish a clear vision for the District Disaster Management Committees (DDMCs).
- Establish how the NEWS will be linked to response mechanisms.
- Establish the economic benefits of the NEWS.
- Integrate and develop agreements with the private sector.
- Establish the warning chain between different ministries within government policy and legislation.
- Capacity assessment of responsible EWS actors at the national, district and sub-county level in charge of issuing warnings and delivering response.
- Integrate the NEWS into economic planning at a national level.

Data systems related issues

These include:

- Analysing data from SMS-based Disaster Monitoring System.
- Ensuring that the Disaster Risk Financing system is operational.
- Disaster Risk Financing system should be being used regularly (i.e. at least once a week). Inclusion of seasonal forecasting products into the Disaster Risk Financing system.
- Multi-hazard risk assessment carried out.
- Increasing the spatial scale of the Disaster Risk Financing system.

Communication related issues

These include:

- Production of monthly bulletin summarising all hazards.



- NECOC web site updated at least monthly.
- Establish agreements between different actors to ensure that the warnings are delivered in a coherent manner.
- Public awareness campaigns to improve awareness and the role of NECOC, as well as other actors in the case of a disaster.
- District Disaster Management Committee (DDMC) monthly bulletin produced.
- Establish the roles and responsibilities of all the organisations involved in the warning process for each hazard and how they interact with NECOC.
- Establish a coherent set of warning messages in conjunction with the relevant ministry for each major hazard.
- Establish a warning message improvement cycle.

Coordination related issues

These include:

- Establish the roles and responsibilities of each organisation involved in the warning process for each major hazard.
- Develop low and no regret responses for major hazards.
- Development of a simulation exercise of a major event led by NECOC and involving all the key actors.

Monitoring and evaluation related issues

These include:

- Evaluation of the effectiveness of early warning systems.
- Evaluation of the effectiveness of the dissemination of early warning messages.



List of abbreviations

DDMC	District Disaster Management Committee
DEWS	Drought Early Warning System
DFID	Department for International Development
DRF	Disaster Risk Financing
EWS	Early Warning System
FAO	Food and Agriculture Organization
FEWS NET	Famine Early Warning System Network
GDP	Gross Domestic Product
NECOC	National Emergency Co-ordination and Operations Centre
NEWS	National Early Warning System
NGO	Non-Governmental Organisation
NOAA	National Oceanic and Atmospheric Administration
OPM	Office of the Prime Minister
SDMC	Sub-County Disaster Management Committee
SMS	Short Message Service
SOP	Standard Operating Procedure
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Emergency Fund
UNMA	Uganda National Meteorological Authority
USAID	United States Agency for International Development
WFP	World Food Programme



SECTION 1

Introduction

1.1 Background and overarching goal

There are currently significant levels of investment across Uganda into systems that collect and share early warning information on a range of hazards including floods, droughts, diseases and conflicts. The UK Government's Department for International Development (DFID) has contributed to these early warning systems both at a national level and with a specific focus on the drought-affected sub-region of Karamoja, which experiences some of the highest levels of poverty and vulnerability in Uganda.

In October 2014 the Ugandan Government's Office of the Prime Minister (OPM) launched a National Emergency Coordination and Operations Centre (NECOC) to provide "*timely and early warning information on disasters, climate modelling and forecasting, and also to help coordinate emergency responses*" (UNDP, 2014).

Over the past decade in Uganda there has been a proliferation of Early Warning Systems (EWS) each monitoring different, or in some cases the same hazards and issuing their own warnings targeted at various audiences. A review of the existing Early Warning Systems (EWS) carried out by the United Nations Development Programme (UNDP) in 2014 (see Atyang, 2014) made the following recommendations:

- NECOC needs to establish a roadmap for collaboration with existing early warning systems at district and national levels to harmonize data collection and reporting and analysis.
- A multi-hazard National Early Warning System (NEWS) should be set up with a single national authority issuing warnings.

The overarching goal of this work was to respond to the need to establish a roadmap for the NEWS and to assist with facilitating an agreement with the key actors in Uganda around a roadmap for the development of a multi-hazard National Early Warning System (NEWS).

1.4 Report structure

This report provides a summary of the final report and details of the road map developed for the NEWS. For full details of the work carried out the following reports should be read in conjunction with this one:

- **Building the concept and plan for the Uganda National Early Warning System (NEWS) - Final report** which provides a review of existing EWSs in Uganda and existing institutional structure, policy and legislation relevant to EWSs, as well as barriers and gaps.
- **Annex 1 - Results of a stakeholder survey** detailing the findings of an internet-based survey aimed at key actors in Uganda who implement or use the results of EWSs.



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SECTION 2

Summary of existing EWSs, policies and legislation in Uganda

2.1 Existing Early Warning Systems (EWSs) and tools in Uganda

The following can be concluded with respect to existing EWSs and relevant tools in Uganda:

- Many of the current EWSs in Uganda are piecemeal in nature and not complete. Many do not appear to be sustainable from both a financial and technical point of view.
- Few of the tools incorporate a forecasting aspect and little use appears to be made of internationally, freely available short- (i.e. <10 days) and medium- term (i.e. <40 days) climate forecasts. Most of the EWSs currently being used in Uganda are based on situational analyses which are, at best, based on the situation of the previous day. The incorporation of climate forecasts could help encourage early action.
- The number of different, sometimes parallel, initiatives reflects a lack of coordination between government ministries, donors and NGOs with respect to existing EWSs and relevant tools
- A number of useful innovative evaluation tools, related to droughts and food security, have been piloted in Uganda. However, they do not appear to be widely used or to receive the appropriate amount of funding to make them financially sustainable.
- There would appear to be a limited amount of monitoring and evaluation carried out on the effectiveness of existing EWSs with respect to meeting their stated objectives.
- The donor community needs to ensure that systems are in place to integrate EWSs throughout the development and humanitarian cycle.
- The gap between information provided by the EWSs about impending hazards and the ability of government to act to reduce these threats in advance, would appear to be a major shortcoming.

2.2 Existing policies and legislation relevant to EWSs in Uganda

The following was concluded with respect to existing policies and legislation relevant to EWSs in Uganda:

- The current mission of NECOC and the role of a NEWS needs to be clarified, as there is some confusion over both their roles, within NECOC and with respect to other actors.
- The percentage of the national budget allocation for natural hazards in Uganda is not currently commensurate with their possible impact on the country's GDP.



- The current institutional framework for disaster preparedness and management would appear to be inadequate and lack transparency and accountability.



SECTION 3

Road map for the development a multi-hazard National Early Warning System (NEWS)

3.1 Introduction to the NEWS roadmap

The road map for the NEWS is outlined in Tables 1 to 3 as follows:

- Table 1 outlines issues related to mandate and policy.
- Table 2 covers data systems and communication related issues.
- Table 3 summarises issues related to coordination and monitoring and evaluation.

For each of these areas each table provides the following:

- Activities with an approximate timeframe in months.
- Progress.
- Indicators of progress that has been made.
- National and international stakeholders that should be involved in each activity including potential donors.

Sections 3.2 to 3.6 provide further details of each the activities that should be carried out under each of the five areas (i.e. mandate and policy; data systems; communication; coordination; monitoring and evaluation).

It is important to note that the OPM's NECOC and the NEWS should act as the focal point for early warnings in Uganda. However, it is key that the EWSs for an individual hazard are improved as only the mTrac system, used to monitor human epidemics, would appear to provide country wide warnings and be sustainable from a financial and technical point of view. EWSs for different hazards should still be able to operate autonomously. However, they should operate in parallel with, *not* in competition with, the NEWS. The relevant government organisation should still be able to exercise their mandate of warning dissemination and response coordination. However, warning messages and responses for different hazards need to be standardised, to avoid messages coming from different sources creating confusion for the recipients and responses to warnings need to be coordinated with NECOC.

Area	Elapsed time (months)	Activities	Progress	Indicators	Stakeholders and international organisations	
					National	Potential donors
Mandate and policy	12	Establish memorandum of understanding for NEWS with all relevant actors	Memorandum of understanding drafted by NECOC	Memorandum of understanding signed by all relevant stakeholders	NECOC	UNDP
	12	Develop Standard Operating Procedures	Standard Operating Procedures (SOPs) drafted	Standard Operating Procedures agreed with all key stakeholders	NECOC, all relevant ministries	UNDP, DFID, FAO, World Bank
	12	Clarify decision making structures with all stakeholders providing warnings and information to NECOC	In parallel with the development of SOPs, clarify the decision making structures within relevant stakeholder organisations with respect to the warning information provided	A report on decision making structures completed and agreed	NECOC	UNDP
	12	Establish a clear vision for the District Disaster Management Committees (DDMCs) including integrating the Drought Early Warning System (DEWS) and the relationship with NECOC focusing on contingency planning	Vision for the DDMCs drafted by NECOC and DDMCs	DDMC vision established including integration of the DEWS and relationship with NECOC focusing on contingency planning	DDMCs, NECOC	UNDP, DFID, ACTED, FAO
	12	Establish how the NEWS will be linked to response mechanisms	Disaster response strategy linked to NEWS	Independent evaluation of responses following a major disaster	NECOC, all relevant ministries	UNDP, World Bank
	16	Establish the economic benefits of the NEWS	Study commenced to assess benefits	Study completed and agreed with all relevant stakeholders	NECOC	UNDP, DFID
	24	Integrate and develop agreements with the private sector	Initiate regular meetings with the private sector where they are involved in early warning systems (e.g. AirTel 3-2-1 system)	Formal agreements between NECOC and the private sector agreed	NECOC, private sector organisations	UNDP
	36	Establish the warning chain between different ministries within government policy and legislation	Warning chain established by NECOC in partnership with key stakeholders	Warning chain between NECOC and other key ministries established in national policy and where necessary legislation	NECOC, all relevant ministries	DFID, UNDP, World Bank
	36	Capacity assessment of responsible actors at the national, district and sub-county level in charge of issuing warnings and delivering response	Capacity assessment conducted, gaps identified in terms of human and physical resources to NEWS	Capacity constraints addressed	NECOC, DDMCs	UNDP, DFID
	36	Integrate the NEWS into economic planning at a national level	Discussions with key budget holders undertaken	Budgets agreed with Ugandan treasury	NECOC, all relevant ministries, Ugandan	UNDP

Table 1 Proposed road map for the development of a multi-hazard National Early Warning Systems (NEWS) – Mandate and policy related

Data systems	12	Data from SMS-based Disaster Monitoring System analysed	Method established to analyse data	Analysis of data completed and reported on	NECOC	UNICEF, UNDP, DFID, World Bank				
	12	Disaster Risk Financing system operational	Disaster Risk Financing system used regularly (i.e. at least once a week)	Result of the Disaster Risk Financing system disseminated to relevant stakeholders	NECOC	UNDP, World Bank				
	24	Multi-hazard risk assessment completed where risk = probability of hazard occurring x consequence	Information on different hazards, exposure and vulnerability collected and produced. Risks based on economic damage, impact on livelihoods and loss of life established	Risk assessment completed	NECOC	UNDP				
	24	Seasonal forecasting products (e.g. rainfall, temperature) included into the Disaster Risk Financing system	Build capacity within the Uganda National Meteorological Agency (UNMA) and NECOC so that seasonal forecasts of rain and temperature at a daily time step start to be used predict the probability that thresholds in the Disaster Risk Financing system will be exceeded	Forecasting products are in use and forecasts are disseminated to key stakeholders	NECOC, UNMA	World bank, UNDP, DFID				
	24	Increase the spatial scale of the Disaster Risk Financing system so it operates across the whole of Uganda	Establish the feasibility of increasing the spatial coverage of the Disaster Risk Financing system and commence pilots in other regions of Uganda	Pilot testing of the Disaster Risk Financing system in other regions of Uganda completed	NECOC	World bank, UNDP				
Communication	12	Monthly bulletin produced by NECOC summarising all the major hazards	Utilise readily available information available from relevant stakeholders to produce a two sided PDF news bulletin	Disseminate two page PDF bulletin to all relevant stakeholders and make it available via the NECOC web site	NECOC	UNDP				
	12	NECOC web site updated at least monthly	Updates occur regularly	NECOC website traffic monitored to assess usage	NECOC	UNDP				
	24	Establish agreements between different actors to ensure that the warnings are delivered in a coherent manner	Agreements drafted	Agreements completed and in place	NECOC	UNDP				
	24	Public awareness campaigns to improve awareness and the role of NECOC, as well as other actors in the case of a disaster	Awareness campaign commenced	Survey of stakeholders from communities to a national level carried out to assess the effectiveness of the campaign	NECOC	UNDP				
	24	DEWS/District Disaster Management Committee (DDMC) monthly bulletin produced	Format and layout of DDMC monthly bulletin agreed with key stakeholders	Monthly bulletin agreed at district level in partnership with NECOC's agreement and Standard Operating Procedures (SOP) for the DDMC	DDMCs, NECOC	UNDP				
	24	Establish the roles and responsibilities of all the organisations involved in the warning process for each hazard and how they interact with NECOC	In partnership with the relevant stakeholder establish the roles and responsibilities for the relevant hazard	Roles and responsibilities established for each major hazard (e.g. droughts, floods, livestock and crops diseases, human epidemics)	NECOC, all relevant ministries, DDMCs	UNDP				
	24	Establish a coherent set of warning messages in conjunction with the relevant ministry for each major hazard (i.e. floods, droughts, health-related and agriculture-related)	Development of consistent warning messages and symbology commenced	Warning messages for each major hazard produced and agreed with a wide range of stakeholder groups including District Disaster Management Committees and communities	NECOC, all relevant ministries	UNDP, World Bank, DFID, UNICEF				
	36	Establish a warning message improvement cycle	Method via which warnings can be improved commenced	Warnings for different hazards improved with input from various levels of stakeholders	NECOC, all relevant ministries	UNDP, World Bank, DFID, UNICEF				



Table 2 Proposed road map for the development of a multi-hazard National Early Warning Systems (NEWS) – Data systems and communication related

Coordination	12	Establish the roles and responsibilities of each organisation involved in the warning process for each major hazard and designate a coordinating body at the national, district and sub-county level	NECOC to work with key stakeholders to establish their responsibilities	Roles and responsibilities established for each organisation responsible for warnings	NECOC, all relevant ministries	UNDP
	36	Develop low and no regret responses for a range of hazards and identify key actors in charge of delivering response (from the national to the sub-county level)	Study to develop low and no regret responses commenced and funding identified	Low and no regrets responses for different hazards initiated and funding secured for timely response	NECOC, all relevant ministries	UNDP
	36	Simulation exercise of a major event led by NECOC and involving all key actors held	Design of simulation exercise undertaken by NECOC and agreed with key actors	Simulation exercise held annually	NECOC, all relevant ministries	UNDP, World Bank, DFID
Monitoring and evaluation	24	Evaluate whether or not the early warning systems already established are being operated effectively as per the prescribed frameworks and procedures and contributing to achievement of expected outcomes	Survey of stakeholders including those at district and national level within different ministries to establish if prescribed frameworks are being used	An agreed percentage of the stakeholders questioned (e.g. 70%) deem the frameworks and procedures are being followed	NECOC	UNDP
	24	Evaluate whether or not early warning messages were disseminated among the agencies and communities concerned in time by early warning systems with the result that these agencies and communities benefit from the messages	Survey of stakeholders including those at community, district and national level to establish if prescribed frameworks are being used	An agreed percentage of the stakeholders questioned (e.g. 70%) deem the warnings to be understandable and effective	NECOC	UNDP



Table 3 Proposed road map for the development of a multi-hazard National Early Warning Systems (NEWS) – Coordination and monitoring and evaluation related

3.2 Mandate and policy related issues

Establishment of a memorandum of understanding to steer the development of the NEWS

Establishing a memorandum of understanding would help enhance cooperation and coordination between NECOC and other ministries and actors in the development of the NEWS. A draft memorandum of agreement is included in Appendix A of this report.

Develop Standard Operating Procedures (SOPs)

A standard operating procedure is a document which describes the regularly recurring operations to ensure that the operations are carried out correctly and consistency. The implementation of a NEWS will require clear standard operating procedures (SOPs) to enable effective coordination among different ministries and other stakeholder agencies who own and operate early warning systems for different hazards at national and local levels. SOPs should be developed in partnership with all the key stakeholders to provide clear guidance on the processes that should be followed to ensure coordination and timely response for each major hazard in Uganda. The development of SOPs by ministries and other stakeholders in partnership with NECOC should help NECOC to become a trusted source of warning information.

Clarify decision making structures with all stakeholders providing warnings and information to NECOC and NECOC staff

Decision making structures with all stakeholders providing warning information need to be clarified. This includes the staff running the NEWS. They should be characterised by a clearly defined mandate, tasks and goals with clear divisions of responsibility, clear leadership and decision-making structures, clarity in the chain of command, clear communication systems and, where appropriate, responsiveness to organisational change.

Establish a clear vision for the District Disaster Management Committees (DDMCs)


There is a need to establish a clear vision for the District Disaster Management Committees (DDMCs). This includes:

- Ensuring the functionality of DDMCs. It would appear that in many parts of Uganda that the DDMCs do not meet regularly.
- Regular review of district contingency plans.
- Regular data collection to inform indicators (e.g. through DEWS or a similar system).

The DDMCs require an adequate budget in order for them to function. If local government is also to play a role in dissemination to communities, then the resources and capacity for this must also be decentralised.

Establish how the NEWS will be linked to response mechanisms

There is a need for a disaster response strategy to be linked to the NEWS. In many districts of Uganda there are no disaster response strategies in place and district officials often have little capacity to respond, thus it is done on an ad hoc basis, or when it is too late. There is a need for the NEWS to link to a clear response strategy, with designated roles and



responsibilities for different actors at national, district and local level, coupled with readily accessible funding for a timely response.

Establish the economic benefits of the NEWS

Research carried out in Kenya has shown that responding on time and before the full impact of drought is felt, is both cheaper and more effective. The model and assumptions used were based on actual costs wherever possible and yielded a cost per head approximately 50% lower in both drought and non-drought years (Fitzgibbon, 2012). Early response needs to become the standard approach to drought response; however, evidence of the economic benefits of early action will need to be collated by NECOC to show the benefits of the NEWS.

Hard evidence, based on a systematic study of the cost and benefits of NEWS for Uganda, could convince politicians to invest in EWSs in general. To fully appreciate the costs and benefits of an EWS and NEWS, the overall operational cost of the system, the societal and economic losses owing to false alarms and the societal and economic savings as a result of timely action, need to be quantified.

Integrate and develop agreements with the private sector

The predicted increase in coverage of mobile and smart phones in Uganda could lead to a greater participation of the private sector in the development of EWSs. When these occur they should be integrated into the NEWS.

Establish the warning chain between different ministries within government policy and legislation

The dissemination of warnings needs to be established in government policy and/or legislation to ensure that this process is clear to government, NGOs and other organisations.

Capacity assessment of responsible EWS actors at the national, district and sub-county level in charge of issuing warnings and delivering response

A capacity assessment of the responsible EWS actors at the national, district and sub-county level in charge of issuing warnings and delivering responses should be undertaken. Capacity building for local government disaster risk reduction structures, appear to be required, to ensure that DDMCs are able to:

- Appropriately identify early warning indicators.
- Interact with one another i.e. other DDMCs and Sub-County Disaster Management Committees (SDMCs).
- Plan and initiate responses.
- Communicate resources needs to line ministries i.e. developing clear proposals.
- Effectively coordinate with development actors.

Integrate the NEWS into economic planning at a national level

EWSs in Uganda, currently do not receive sufficient central government funding given the benefits that they yield. To ensure financial sustainability NECOC should lobby senior civil servants and politicians in order to integrate the NEWS and other EWSs into economic planning at a national level. **However, it is important that each EWS retains its own funding stream** and that NECOC does not administer funds for all EWSs.



3.3 Data systems related issues

Data from SMS-based Disaster Monitoring System analysed

In Uganda there is a paucity of observed data with respect as to how people respond to different hazards. However, ownership levels of mobile phones in Uganda are relatively high and their usage is growing rapidly. Data gathered from the SMS-based Disaster Monitoring System should be analysed because this could be used to generate a clear picture of the actions of the stakeholders during emergencies and the effectiveness of the system itself.

Disaster Risk Financing system operational

The Disaster Risk Financing system should be being used regularly (i.e. at least once a week). The results of the Disaster Risk Financing system should be being disseminated to relevant stakeholders.

Inclusion of seasonal forecasting products into the Disaster Risk Financing system

Seasonal forecasting is the attempt to provide useful information about the "climate" that can be expected in the coming months. Seasonal forecasts are available from organisations such as NOAA and these can provide an outlook of the evolution of drought. It should be investigated as to how freely available seasonal forecasts can be used as inputs to the Disaster Risk Financing system to allow early, no regrets actions to be implemented in at risk areas, such as Karamoja, in advance of a drought.

Multi-hazard risk assessment

A multi-hazard national risk assessment for all hazards in Uganda should be carried out. This activity would quantify the magnitude and frequency of natural hazards and their associated impacts and aggregate these results for each district. It will provide the foundation for the prioritisation of risk reduction interventions and support national decision-making processes. A hazard atlas is currently being produced for UNDP but is not clear if this atlas will include risk, where risk is defined by the probability of the hazard occurring x consequences.

Increase the spatial scale of the Disaster Risk Financing system

The Disaster Risk Financing system is currently only planned to cover the Karamoja sub-region. The feasibility of increasing the spatial coverage of the Disaster Risk Financing system should be established and pilots should be carried out in other regions of Uganda.

3.4 Communication related issues

Production of monthly bulletin summarising all hazards

NECOC should produce a bulletin summarising all the major hazards. This bulletin would be produced monthly and collate all the information on the major hazards to affect Uganda. The bulletin would comprise two pages and bring together key information on the extent and location of droughts; food security; floods; animal diseases; human diseases; conflicts and other relevant information for policy makers and national level actors. The bulletin would be distributed a variety of means including email and also be made available via NECOC's and the participating organisations' websites.



NECOC web site updated at least monthly

The NECOC web site should be updated regularly. At a minimum on a monthly basis and the traffic to the web site should be monitored and reported.

Establish agreements between different actors to ensure that the warnings are delivered in a coherent manner

The dissemination of warnings needs to be established in government policy and/or legislation to ensure that this process is clear to government, NGOs and other organisations. There will be the need to establish an agreement between different actors to ensure that the warnings are delivered in a coherent manner.

Public awareness campaigns to improve awareness and the role of NECOC, as well as other actors in the case of a disaster

There is a requirement for a public awareness campaign to improve knowledge of the role of NECOC and other actors. The first step in developing and improving awareness of NECOC would be to create a plan of action to ensure that the key stakeholders at all levels (i.e. national, regional and local) fully understand the mission and goals of NECOC.

District Disaster Management Committee (DDMC) monthly bulletin produced

Monthly bulletins should be produced by the DDMCs. In Karamoja this could be based on information produced by the DEWS.

Establish the roles and responsibilities of all the organisations involved in the warning process for each hazard and how they interact with NECOC

The roles and responsibilities of all the organisations (e.g. ministries, WFP, private sector organisations, FEWS NET) need to be clearly defined and agreed in advance of the commencement of the operation of the NEWS by the Ugandan Government and all the relevant stakeholders. Although the national policy for disaster preparedness and management does this to a certain extent there is a need for more clarity. This will limit any duplication and improve the effectiveness of warnings. It will be important to allow the relevant organisation to maintain ownership of the warning for their own particular hazard to avoid confusion both in issuing warnings and with the recipients. It needs to be established which organisation has a role in the following:

- Developing risk knowledge.
- Monitoring, forecasting and warning.
- Dissemination and communication.
- Response.

The flow of information between Ministries, NGOs, projects, as well as other key actors and NECOC needs to be established.

Establish a coherent set of warning messages in conjunction with the relevant ministry for each major hazard

There is a need to establish a coherent set of warning messages with the relevant ministry for each major hazard in Uganda. Issues that currently exist with some of the warnings that are produced are as follows:

- The warning and messages are often too general and are not geographically or livelihood zone specific.

- The warnings produced are often not specific about the nature of the threat and its impacts. There is limited evidence of mechanisms in place to inform the community when the threat has ended.
- There is an absence of evidence on how people access and interpret early warning messages and lessons learnt incorporated into message formats and dissemination processes.

Establish a warning message improvement cycle

A method needs to be established whereby warnings can be improved. The current warnings for all major hazards need to be improved so that they are focussed on the correct responses by stakeholders. They should address the challenge of how effective responses can be encouraged from stakeholders for different hazards and the role that warnings have within that process. Warnings for different hazards should be improved with input from various levels of stakeholders. Communication, trust and credibility in the sources of warnings need to be looked at to avoid investing in accurate EWSs whose warnings are ignored. There is an absence of evidence on how people access and interpret early warning messages and how the lessons learnt are incorporated into message formats and dissemination processes.

In general the following principles should be adhered to:

- Warning methods need to be tailored to reach different types of stakeholders.
- Messages need to focus on actions to enable people to respond effectively.
- Communication, trust and credibility of the warning sources need to be high, otherwise these will undermine attempts to improve methods and messages.

3.5 Coordination related issues

Establish the roles and responsibilities of each organisation involved in the warning process for each major hazard

The roles and responsibilities of each organisation involved in the warning process for each major hazard should be established together with designating a coordinating body at the national, district and sub-county level. NECOC should work with key stakeholders to establish their responsibilities.

Develop low and no regret responses for major hazards

Develop low and no regret responses for a range of hazards and identify key actors in charge of delivering a response (from the national to the sub-county level). This could be carried out by identifying both the low and no regret responses commenced and the funding associated with them.

Development of a simulation exercise of a major event led by NECOC and involving all the key actors

A simulation exercise of a major event should be developed. This should be led by NECOC and involve all the key actors. The development of a simulation exercise and the subsequent holding of regular simulation exercises would allow the effectiveness of the NEWS to be assessed. This would include the dissemination of warnings and the response. Given the impacts of droughts in Karamoja it could be used as a region where this is carried out initially.



3.6 Monitoring and evaluation related issues

Evaluation of the effectiveness of early warning systems

An evaluation of early warning systems should be undertaken. This would evaluate whether or not the EWSs already established are being operated effectively, as per the prescribed frameworks and procedures and contributing to achievement of expected outcomes. This evaluation of EWSs should occur on a regular basis (e.g. annually). This could be undertaken via a survey of stakeholders at a variety of levels (e.g. national, regional and local levels).

Evaluation of the effectiveness of the dissemination of early warning messages

Following a major event it should be evaluated whether or not early warning messages were disseminated among the agencies and communities concerned in time by EWSs and also to assess if the relevant stakeholders have benefited from the messages.

3.7 Proposed programme for the NEWS roadmap

A proposed outline programme for the implementation of the NEWS roadmap is given in Tables 4 and 5.



Activities within different areas	Month																																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36				
Mandate and policy																																								
Establish memorandum of understanding for NEWS with all relevant actors																																								
Develop Standard Operating Procedures																																								
Clarify decision making structures with all stakeholders providing warnings and information to NECOC																																								
Establish a clear vision for the District Disaster Management Committees (DDMCCs)																																								
Establish how the NEWS will be linked to response mechanisms																																								
Establish the economic benefits of the NEWS																																								
Integrate and develop agreements with the private sector																																								
Establish the warning chain between different ministries within government policy and legislation																																								
Capacity assessment of responsible actors at the national, district and sub-county level in charge of issuing warnings and delivering response																																								
Integrate the NEWS into economic planning at a national level																																								
Data systems																																								
Data from SMS-based Disaster Monitoring System analysed																																								
Disaster Risk Financing system operational																																								
Multi-hazard risk assessment																																								
Seasonal forecasting products included in the Disaster Risk Financing system																																								
Increase the spatial scale of the Disaster Risk Financing system so it operates across the whole of Uganda																																								

Table 4 Proposed programme for the implementation of the road map for the development of a multi-hazard National Early Warning Systems (NEWS)



Activities within different areas		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36			
Communication Monthly bulletin produced by NECOC summarising all the major hazards	Establish agreements between different actors to ensure that the warnings are delivered in a coherent manner																																							
	Public awareness campaigns to improve awareness and the role of NECOC, as well as other actors in the case of a disaster																																							
Communication NECOC web site updated at least monthly	DEWS/District Disaster Management Committee (DDMC) monthly bulletin produced																																							
	Establish the roles and responsibilities of all the organisations involved in the warning process for each hazard and how they interact with NECOC																																							
	Establish a coherent set of warning messages in conjunction with the relevant ministry for each major hazard																																							
Communication Establish a warning message improvement cycle	Establish the roles and responsibilities of each organisation involved in the warning process for each major hazard																																							
	Develop low and no regret responses for a range of hazards and identify key actors in charge of delivering response at different levels																																							
	Simulation exercise of a major event led by NECOC and involving all key actors held																																							
Monitoring and evaluation Evaluate whether or not the early warning systems already established are being operated effectively	Evaluate whether or not early warning messages were disseminated among the agencies and communities concerned in time																																							



Table 5 **Proposed programme for the implementation of the road map for the development of a multi-hazard National Early Warning Systems (NEWS)**



SECTION 4

References

Atyang, A. (2014) *Study on early warning systems in Uganda*. United Nations Development Programme (UNDP), 3 October 2014

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