Early warning systems in central DR of Congo:

Saving lives through faster emergency response

October 2012

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330 km
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over 500,000
over 100,000
other main city
other city
Chief town of province
NIGERIA
Moundou
Ngaoundéré
C. AFRICAN REP.
SUDAN
CAMEROON
Bambari
Bertoua
Bangui
Berbérati
Yaoundé
Juba
GABON
EQUATOR
CONGO
Franceville (Masuku)
UGANDA
RWANDA
BURUNDI
TANZANIA
Brazzaville
Pointe-Noire
ANGOLA
SOUTH ATLANTIC OCEAN
Luanda
Malange
ANGOLA
ZAMBIA
Kitwe
Ndola
Kabwe
Lusaka
Harare
ZIMBABWE
NAMIBIA
BOTSWANA
Lake Kariba
Lake Cahora Bassa
Lake Bangweulu
EQUATEUR
PROVINCE ORIENTALE
NORD-KIVU
SUD-KIVU
MANIEMA
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BANDUNDU
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Wamba
Bomili
Banalia
Nia-Nia
Mambasa
Bunia
Komanda
Basoka
Yahuma
Isangi
Yatolema
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Butembo
Lubero
Rutshuru
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Uvira
Baraka
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Basankusu
Bongandanga
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Djolu
Boende
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Selenge
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Tshela
Popokabaka
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Gungu
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Kahemba
Tshikapa
Muanzanza
Luiza
Demba
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Lac Albert (Lake Albert)
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5109 PIC MARGUERITE
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Inzia
Wamba
Loange
Lulua
Lukuga
Lualaba
Luvua
Zambezi
Okavango
White Nile
Semliki

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Research for this report was conducted from February 2009 to February 2012, including field research in the Democratic Republic of the Congo.

This report is dedicated to all those in Africa who are acting courageously to respond to emergency situations in the Democratic Republic of Congo. We especially acknowledge the pioneering spirit of UNICEF/DRC.

ABBREVIATIONS AND ACRONYMS

CBDP	Community-Based Disaster Preparedness
CNDP	National Congress for the People's Defense / Le Congrès National pour la Défense du Peuple
CPIA	Provincial Inter-Agency Cluster / Cluster Provincial Inter-Agence
CRS	Catholic Relief Services
DFID	Department for International Development
DRC	Democratic Republic of Congo
ECHO	Humanitarian Aid and Civil Protection department of the European Commission
EWS	Early Warning System
FARDC	Armed Forces of the Democratic Republic of Congo / Forces Armées de la RDC
IDP	Internally Displaced Persons
M&E	Monitoring and Evaluation
MONUC	United Nations Organization Mission in the Democratic Republic of the Congo / Mission de l'Organisation des Nations Unies en République démocratique du Congo
MONUSCO	United Nations Organization Stabilization Mission in the Democratic Republic of the Congo / Mission de l'Organisation des Nations Unies pour la Stabilisation en République Démocratique du Congo
MSA	Multi-Sectoral Assessments
NGO	Non-Governmental Organization
OCHA	Office for the Coordination of Humanitarian Affairs
PARECO	Coalition of Congolese Patriotic Resistance / Patriotes Résistants Congolais
PDM	Post Distribution Monitoring
RRM	Rapid Response Mechanism
RRMP	Rapid Response to Movement of Population
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNOPS	United Nations Office for Project Services
WaSH	Water, Sanitation and Hygiene
WFP	World Food Programme

CONTEXT

In June 2004, the Democratic Republic of Congo (DRC) was shaken by widespread crises, notably in the East of the country. Significant population movements occurred over the following years, with 1.7 million internally displaced in 2011[1], 76,000 expelled from Angola, and 256,650 displaced by fires and epidemics such as cholera[2], measles[3], and polio[4]. The size of the DRC and the isolation of certain regions made rapid humanitarian response extremely difficult.

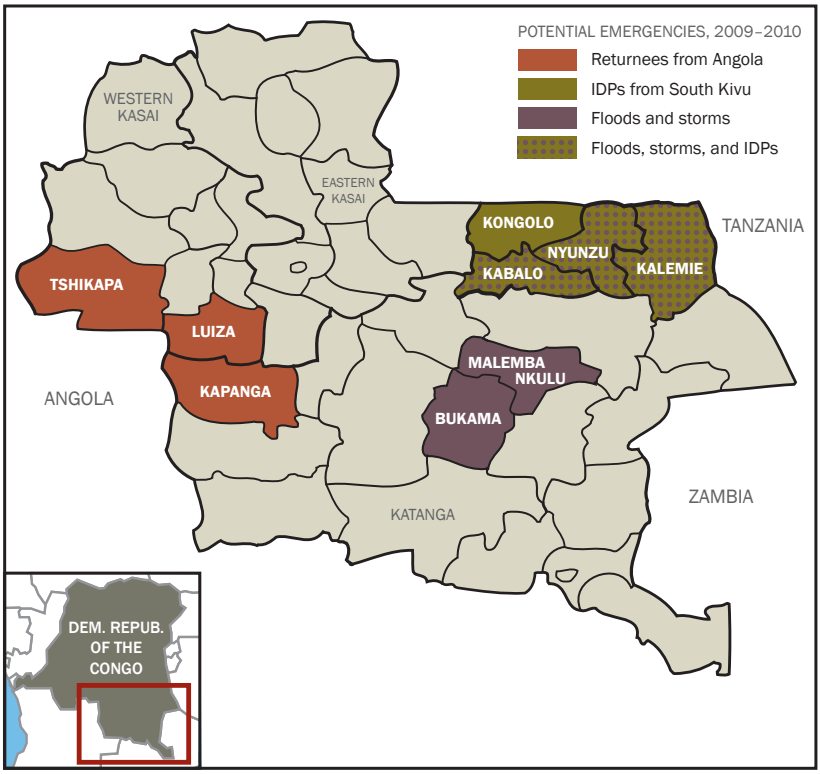
To ensure that response organizations had the financial and material means to react quickly, the humanitarian community implemented a Rapid Response Mechanism program in October 2004. Through the mechanism, humanitarian agencies pre-positioned funds and materials and identified partners with rapid response capacity.

Despite this pre-positioning, emergency response was not as rapid as intended, with news of local crises often taking months to reach the humanitarian community. Assistance was often late, poorly adapted to the local context, and uncoordinated, resulting in inefficient use of limited resources. The lack of an early warning mechanism or mitigation strategy in high-risk areas left affected communities in a cyclical state of extreme poverty.

An analysis led by UNICEF and CRS in 2010 revealed that information wasn't circulating because of a lack of communications technology, the absence of structured circuits for emergency information transmission to policy makers and the lack of local involvement in managing humanitarian crises. To address the situation, UNICEF and CRS implemented an Early Warning System (EWS) in three provinces with at-risk populations.

1 Plan d'Action Humanitaire by OCHA, 2012.
2 Voice of America, April 2012
3 Vaccines Today, 2011.
4 FluTrackers, 2012

The map and table below show the specific areas of intervention and the potential emergencies that were flagged in 2009 and 2010.



Map 2: zones of intervention

Province	Population	Area (km)	Density / Km ^{2}	Type of Risks	# of Dioceses and Offices
Katanga	5,608,683	496,871	11	IDPs, polio, measles, floods, mineral conflicts	8
Western Kasai	5,366,068	154,742	34	expulsions, inter-ethnic conflicts, measles, polio, malnutrition	4
Eastern Kasai	6,556,917	170,110	37	inter-ethnic conflicts, measles, polio, malnutrition	2
TOTAL	**17,531,668**	**821,723**	**27.33333**	-	**14**

Table 1: info on zones of intervention

I. The Early Warning System

In July 2010, CRS partnered with UNICEF and diocesan Caritas partners to create a community-based Early Warning System (EWS) to increase information flow from vulnerable communities in three provinces (see annex for emergency scenarios impacted by the new system) to provincial and national authorities and decision-makers.

The United Nations defines "Early Warning" as "the provision of timely and effective information, through identifying institutions, that allow individuals exposed to hazard to take action to avoid or reduce their risk and prepare for effective response."

- "Global Survey of Early Warning Systems," UN, March 2006.

This EWS links all the major stakeholders of the DRC humanitarian system, including the NGO community, local, provincial, regional and national governments, and all affected communities, as well as private sector players who realize the value of goodwill to their business image. Designed to facilitate appropriate, concerted, coordinated and timely emergency interventions, the system allows members of at-risk communities, supported by trained volunteers or community leaders, to transmit timely emergency information to humanitarian stakeholders like CRS, partner organizations and political and administrative authorities.

With a long history of emergency and development work in the DRC, CRS has been instrumental in integrating the EWS into the country's humanitarian response system. The challenge has been adapting the EWS to the cultural context. To that end, CRS trained 36 community leaders in Kalemie and Lubumbashi in 2010, with participants from Caritas (24), CRS (8), UNICEF (2), and other Non-Governmental Organizations (NGO's)(2) taught to alert the humanitarian community to local emergencies through the EWS. Trained by Driss Moumane, Senior Technical Advisor for Emergencies, these trainers then

conducted 26 step-down trainings at different sites in the target provinces, reaching 581 people with EWS training. Today, the EWS network has grown to 617 trained volunteers.

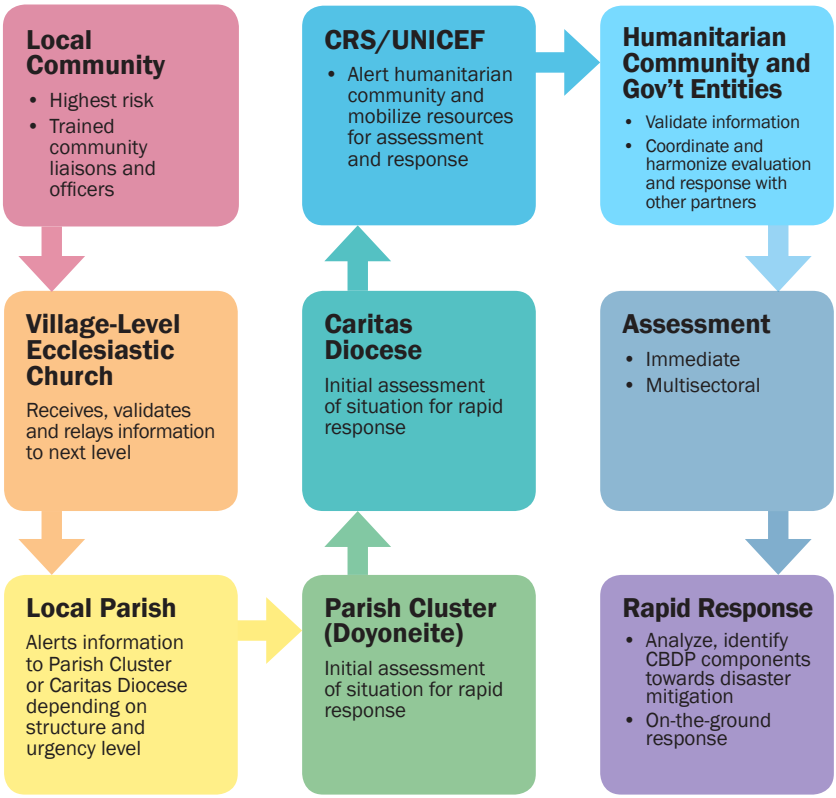
Along with these trainings, the EWS implementation strategy is also focused on restoring livelihoods, improving information circulation and developing the DRC's vast diocesan network as a communications tool. Here, the structure of the Catholic Church presents a considerable communication resource, as far-reaching Church branches allow easy and rapid communication from the community to the national levels.

To capitalize on this network, key focal points in high-risk communities were trained to gather and pass information from the village to the local parish and Caritas contacts. In an emergency these focal points, equipped with cell phones and bicycles provided by CRS, gather information as quickly as possible and alert the closest Caritas diocese via text, phone call or bicycle if the communication network is down.

Father Richard of Caritas/Kolwezi receives motorcycles in September 2011 in Lubumbashi for use within the Early Warning System. Gabriel Ngabo/CRS

Equipped with a motorcycle and a monthly fuel allowance, the Caritas focal points immediately set out to verify the report before passing that information on to the Caritas regional office. From there, information can be transmitted rapidly to the Caritas national offices, CRS and UNICEF, who can then relay it to the relevant United Nations clusters and government agencies. The map below illustrates the flow of information and actions taken along the way.

Figure 1: Process map



Once trained, these village focal points would be responsible for training other community members, clearly explaining the EWS and emphasizing individual roles and responsibilities. Through the EWS

trainings, each actor in the process is then able to translate raw data into usable information at the next level so that action can be quickly taken.

To maximize information flow, EWS members have identified community, regional, and national contacts, as well as decision-makers who can act on the information received. The EWS also enables all parties to define problem areas such as bottlenecks, capacity issues, delays or waste. CRS and UNICEF can then hold discussions with the stakeholders concerned to solve any problems. The process is continually refined to ensure the most efficient use of resources.

This process hinges on active community participation. It is essential that local communities understand their risks, respect the warning service and receive training in the EWS. Building up a prepared community requires the participation of formal and informal sectors, addressing the broader concept of risk and vulnerability. As such, proper emergency management in the DRC involves a range of measures that bring together private, voluntary, and government agencies to deal collectively with the whole spectrum of emergency needs. The EWS has placed the fates of at-risk communities in their own hands. Along the way, it has become a tool for mobilizing the community and enabling the voices of the most vulnerable to be heard.

Caritas staff prepare bicycles for use in the EWS in their diocese. Samba Fall/CRS

Father Lippens, coordinator of Caritas Sakania Kipushi, receiving a motorcycle for the EWS in his diocese. Samba Fall/CRS

Homes burned after a conflict between Munyengie and Kalambo villages in Western Kasai. Dominique Kabongo/CRS

Villages burned after a conflict between Bakua Ngula and Bena Kalombo villages in Western Kasai. Michée Kashosi/CRS

II. Results - February 2011 – January 2012

The EWS has demonstrated its impact far beyond the local level, playing a key role in linking immediate, accurate information to rapid responses. In the past, it would take up to three months for news to travel from the village level to the authorities due to the lack of communication structures and limited infrastructure. Using

Phase I: Risk mapping

(consolidate knowledge at various levels – community, humanitarian network, provincial)

1. Agencies are now aware of risk (level, location) and vulnerabilities for the identified villages
2. EWS alerts brought necessary resources and attention to the Katanga
3. EWS helps humanitarian agencies create a cartography of risks, actions and resources in various locations

For example, prior to the EWS, four needs assessments per year took place via the CRS/UNICEF collaboration. After the establishment of the EWS, the number increased to 23 needs assessments per year. Though other factors contributed to the increase, the EWS has been shown to facilitate information dissemination.

Phase II: Diffusion of information

1. Allows for diffusion of real-time information to decision-makers
2. Allows for quick information validation
3. Reduces information diffusion delays (from 3-6 months to less than 24 hours)
4. Allows for even small disaster alerts for maximum situational understanding
5. Dramatically increases confidence in information accuracy, promoting quick circulation

- Boosted involvement by authorities, who now truly collaborate and coordinate with the humanitarian community as well as provide complementary resources for rapid disaster response

During the November 2011 elections, attacks by Mai-Mai rebel groups resulted in the displacement of over 900,000 people. Within three days, the EWS transmitted important information to the Katanga governor, Moise Katumbi, who quickly set up a meeting with the local authorities and humanitarian stakeholders. He invested $200,000 of his own money and was able to immediately deploy teams to address the situation.

the EWS, villages channel information through the local Caritas partner as soon as an emergency occurs, allowing Caritas and local authorities to quickly validate the information and transmit it to coordination agencies for a response. There have been numerous achievements during each phase of the EWS, in particular:

Phase III: Response capacity

1. Now able to quickly forecast natural disasters
2. Increases quantity and quality of humanitarian response at the local, provincial, regional and national levels
3. Increases coordination and harmonization of disaster responses
4. Increases involvement of authorities at the local, regional, provincial and national level
5. Enables the development community to address the root causes of vulnerability, allowing for long-term treatment of problems, not only symptoms
6. Permits rapid assessment and action by decision-makers in emergency situations
7. Allows CRS and UNICEF to work with high-risk villages to identify and formulate true community-based disaster preparedness programs (CBDP)

In Western Kasai, as a result of the EWS Information, the vice-governor himself visited the on-the-ground and encourages the community to return to their previous location. The entire humanitarian community as well as local authorities then assessed the displacement situation and immediately mobilized resources.

In addition to the emergency sector, UNICEF now finances activities in the domains of WASH, education and economic development.

Phase IV: Surveillance

1. Enables aggregate surveillance of potential disasters
2. At the local level, the means of communication and transportation has operationalized
3. At the humanitarian level, the risk map has enabled the community to effectively monitor situations
4. CRS and UNICEF have become important information resources for other humanitarian agencies.
5. Other agencies use EWS data in sectors such as nutrition and WASH.

Table : Results realized in Katanga, Kasai Occidental and Kasai Oriental

	Jan 2009 - Sept 2009	Sept 2009 - Nov 2011	Jan 2011 - Feb 2012	Total
# alerts*	0	25*	105	130
# needs assessments	N/A	17	35	52
# direct humanitarian interventions	N/A	8	11	19
# other humanitarian interventions (by CRS, Caritas and UNICEF)	N/A	N/A	N/A	-
# interventions by households directly assisted by project (assisted by CRS, Caritas and UNICEF)	N/A	11,850	10,320	22,170
# beneficiaries directly assisted by project	N/A	62,591	25*	114,191

*The 25 alerts were given from August to November 2010, when the EWS was first put in place.

In 2011, the EWS was composed of 560 people in three provinces, the majority of them located in the 12 most at-risk territories. Each member is tasked with communicating information about the physical, human and political impact of disasters on their community. Thus far, the EWS alerts have been used to notify humanitarian agencies of fires, community conflicts, floods and rainstorms, the expulsion of Congolese from Angola, epidemics and shipwrecks. During the tumultuous November 2011 legislative and presidential campaign, the EWS played a crucial information validation role in high-risk territories and villages. This information was harnessed to design strategic response plans to election-related conflicts, an important step in humanitarian intervention.

The EWS led to the establishment of seven community-based disaster preparedness programs (CBDP) in high-risk villages, building local

capacity to mitigate disasters. This further reinforced the accountability of community-led and community-owned infrastructure, a major step towards long-term sustainable development. As a means of developing local communications structures, CRS provided motorcycles, bicycles, phones and a $50 cell credit to fourteen local Caritas offices. In turn, Caritas provided the bicycles to the village-based EWS agents, while the motorcycles were given to the diocese-based agents, strengthening the overall reporting chain.

The Early Warning System has provided credibility to nationwide alert information and bolstered fundraising exposure. From 2010 to 2011, the amount of investment in the Katanga region increased by 14%, from around $700,000 to $1 million.

The EWS has allowed CRS and UNICEF to more effectively manage resources related to the Rapid Response to Movement of Population's (RRMP) stock of NFI's and shelter items. The RRMP mechanism began working only in the emergency sector but now comprises the NFI, shelter and WaSH sectors as well. In addition, the overall provincial budget increased by about 10% from 2010 to 2011, while the EWS enlarged the designated "zones of conflict," increasing the total number of territories. This has led to increased scale and scope of assistance to the beneficiaries in both these "zones of conflict" and "zones of transition."

III. Case Studies

Drownings, expulsions and massacres in Western Kasai

Ten days after step-down training of Caritas/Luebo, including discussion of the EWS setup, the members were immediately deployed in Western Kasai, just north of Angola. Immediately after the setup of the EWS, reports began emerging of emergencies in the area, long thought to be peaceful.

A few examples:

- **September 6, 2010: 1st alert reported – ship wreck in Kasai River with multiple drownings**
- **October 25, 2010: 2nd alert reported – large numbers of Congolese expelled from Angola**
- **November 25, 2010: 3rd alert reported – more Congolese expelled from Angola**
- **April 12, 2011: 4th alert report – once again signaled the expulsion of Congolese from Angola and the massacre of others.**

After these alerts, the humanitarian community began focusing on human rights in the area, conducting field surveys and collecting statistics while gathering evidence and information on needs gaps and intervention possibilities. The information provided by the EWS directly impacted around 1,500 households, which re-

ceived distributions of much-needed non-NFI's.

As a result of the Kasai Occidental reporting, Caritas/Luebo organized additional trainings to involve more people into the EWS. After an Inter-Agency joint assessment mission in Kasai Occidental, including CRS, agencies were better able to plan their assistance and fill previously unknown coverage gaps.

Woman whose family was expelled, with orphaned baby sister in Luebo in 2011. Michee Kashosi/CRS

Rapid alerts in Kabinda

Though it moved forward quickly with step-down trainings in October 2010, training 20 people that month, Caritas KABINDA was already active in the EWS before the training of trainers, as is evidenced by these reports from the months preceding:

- August 20, 2010 – wildfire ravages houses
- September 8, 2010 – heavy rainstorm destroys houses in Tshungu and Luebo
- October 11, 2010 – heavy torrential rains flood the territory of Lubao
- February 16, 2011 – spikes of infant mortality in two villages, signaling an epidemic
- February 17, 2011 – escalation of conflict between villages of Munyengi and Kalambo
- March 11, 2011 – heavy rain destroys 50 houses

Congolese expelled from Angola line up to register.

All of these alerts were reported within 72 hours of occurring. With the information verified immediately through the EWS, humanitarian actors including CRS quickly mobilized responses, from NFI and shelter distribution to epidemic investigation and peace mediation. Through the EWS, Caritas/Luebo, Caritas/Kabinda and Caritas/Kongolo have demonstrated that minimal support from CRS is necessary to carry out effective disaster response. Consequently, they have become models for other Caritas structures in implementing the EWS, a critical element in the success and sustainability of this model.

Going forward, Caritas can further build the capacity of its peers and demonstrate the importance of maintaining the EWS, having shown that the following elements are necessary for successful response:

- **Willingness of EWS members with means to participate**
- **Spirit of sacrifice and volunteerism**
- **Availability and mobility of EWS members**
- **Rapid transmission of accurate information**
- **Reliability of data collected and transmitted**

The EWS has demonstrated that reliable data is critical to effective resource mobilization. Furthermore, the EWS has proven to be a powerful tool of advocacy for vulnerable populations, coordination between multiple response sectors, and reference for all stakeholders.

Fire in Kongolo

In August 2010, the Kongolo territory, located in northern Katanga province, was ravaged by a serious fire, engulfing entire homes, barns and fields. Within six hours of the disaster, word had traveled from the village focal points to Caritas/Kongolo, which relayed the information to CRS. Within 48 hours of the fire, the Provincial Inter-Agency Cluster (CPIA) focal points disseminated the information to the national cluster level, as well as national and international news sources, including the DRC's Radio Okapi, France's "Journal le Potentiel," Belgium's "la Revue Afrique" and Germany's "The Voice."

A Caritas staff member during the evaluation in Kongolo.

III. Conclusion and recommendations

The EWS serves first and foremost as a powerful catalyst of advocacy for the most vulnerable. Secondly, the EWS permits coordination between different actors to ensure efficient and effective emergency response. And third, the EWS has become the gold standard of accurate information for key stakeholders, including humanitarian actors and local authorities. More specifically, the EWS has succeeded most effectively in the following four areas:

- Bringing to light the scope and scale of crises taking place
- Bringing attention to needed areas of intervention during the election period of November 2011
- Reducing overall emergency response time
- Shedding light on root causes of emergencies by addressing solutions at the Community Based Disaster Preparedness level

The EWS has been proven as a viable information-disseminating tool in man-made and natural disaster preparedness and response. As a result of the EWS, communities are now better informed about and equipped for disasters. As intervention plans and strategies have been better structured, response times have also been significantly shortened.

To properly and effectively design a successful EWS the following conditions and actions are recommended:

- All stakeholders (donors, implementing partners, communities, etc.) must hold planning meetings to identify activities and determine roles and responsibilities for each actor

People in key EWS roles at various levels must not only fit certain criteria (what criteria) but must also be long-term staff, minimizing the possibility of turnover. The points of contact must have decision-making influence so they will likely stay in the position long term.

- Check the network of communication. How can the project provide inputs to support this?
- Create a risk map to identify and assess vulnerable areas – a key component.
- Hold regular meetings to monitor the system's strengths, weaknesses, opportunities and threats to ensure effective functioning.
- Identify concrete activities and clearly delineate communication responsibilities.

Effective early warning systems have been one of the best investments for disaster prevention and mitigation. In the last decade, we have witnessed significant progress towards better risk detection, monitoring and prediction. However, the best warnings are ineffective if they cannot be rapidly distributed and targeted to those at risk. With the evolvement of new Information and Communication Technologies, we have both new opportunities and new challenges in improving classical warning processes. Based on our experience and research results from two user-centered hydro-meteorological Early Warning Systems, we present an approach for context-aware alerts that can considerably increase the effectiveness of warnings. Furthermore, we introduce an applied evaluation model for the effectiveness of an EWS designed to truly empower local communities.

Annex 1: Proposed Zones of Intervention in Western Kasai

One of DRC's ten provinces, Western Kasai has a population of 5.36 million people dispersed over 154,000^2 km. It borders the provinces of Bandundu to the west, Équateur to the north, Eastern Kasai to the east, and Katanga to the southeast. Angola is its southern neighbor. The province takes its name from the Kasai River, which flows through the Kasai district from south to north.

Map 3: Western Kasai zones of Intervention

The current situation in Western Kasai includes expulsions from Angola in addition to cases of measles, polio and endemic malnutrition. Adding to these issues have been inter-ethnic conflicts. In the 1960s, ethnic conflict erupted between the Lulua and the Luba-Kasai. Ethnic identity has remained a potent force, and ethnic tensions have festered, exacerbated by the country's economic and social deterioration. Recently, ethnic violence has again flared as some groups feel threatened by others perceived to be more successful or having more advantages. This has been exacerbated in a climate of economic uncertainty and increasingly fierce competition for scarce resources. Political parties and special interest groups still manipulate these allegiances to raise the level of fear and intolerance.

Table : Info on provinces where early warning systems are established

Province	Population	Area (km)	Density / Km ^{2}	Type of Risks	# of Dioceses and Offices
Katanga	5,608,683	496,871	11	IDPs, polio, measles, floods, mineral conflicts	8
Western Kasai	5,366,068	154,742	34	expulsions, inter-ethnic conflicts, measles, polio, malnutrition	4
Esatern Kasai	6,556,917	170,110	37	inter-ethnic conflicts, measles, polio, malnutrition	2
TOTAL	**17,531,668**	**821,723**	**27.33333**	**-**	**14**

Annex 2: Proposed Zones of Intervention in Eastern Kasai

Eastern Kasai has a population of 6.56 million people covering 170,000 km. It borders Équateur to the northwest, Orientale to the northeast, Maniema to the east, and Katanga to the south. Eastern Kasai is one of the richest diamond producing regions in the world. It produces 10% of the world's total industrial diamonds, disproportionately located in the provincial capital of Mbuji-Mayi, a town that exists solely for the mining companies. As a result of this, the lack of health care infrastructure has contributed to the ongoing existence of measles, polio and malnutrition. According to surveys of PRONANUT conducted in November 2010, the prevalence of global acute malnutrition is estimated at 15% in the area. Similar to its neighbor to the west, inter-ethnic conflicts has complicated matters.

Map 4: Eastern Kasai zones of intervention

Annex 3: Proposed Zones of Intervention in Katanga

To the south of the Kasais lies Katanga province, home to DRC's most mineral-rich region and Lubumbashi, a rival city to Kinshasa's power, Although the mining industry has brought enormous revenue to the area (50-80% of the national budget over the past ten years), it also fostered immense socio-economic as well as health disparity. Polio, measles and most recently cholera have gripped the area, exacerbated by inadequate or nonexistent access to social services like health care and education. Natural disasters such as bush fires and flooding also take place while conflicts between north and south, outsiders and natives and rebel groups/national army have led to massive displacement within the region as well as from South Kivu. The "Triangle of Death," including Manono, Mitwaba and Pweto, has remained active, further exacerbating the effects.

In comparison to other provinces where IDPs usually live with host families, the majority of IDPs in Katanga group together in collective, self-settled sites near existing towns and villages. Mass population movements have impacted the local population, limiting access to food, schooling and social services, reducing economic capacity, disrupting subsistence activities, depleting NFI stocks, increasing disease risks due to improper sanitation facilities, and decreasing community resilience. Of the province's 5.6 million people, 100,000 are displaced over an area of 497,000 km, while an additional 1,548 expelled persons from Angola and Zambia (source: UN HAG 2012) render the situation more tenuous. Limited local infrastructure makes it difficult for the humanitarian community and local authorities to effectively respond.

Map 5: Katanga zones of intervention

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