



# MINISTRY OF NATURAL RESOURCES, ENERGY AND MINING

## DEPARTMENT OF CLIMATE CHANGE AND METEOROLOGICAL SERVICES

Weather and climate services/supporting forecasts and disaster response/management

By Yobu Kachiwanda

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# Mandate ,Vision and Mission

- *"To monitor, predict and provide information on weather, climate and climate change that would contribute towards the socio-economic development of the country"*
- *"Towards reliable, responsive and high quality weather and climate services"*
- *"To provide reliable, responsive and high quality weather and climate services to meet national, regional and international obligations through timely dissemination of accurate and up to date data and information for socio-economic development"*

# Climate services\_Malawi

- Includes the production, translation, transfer, and use of climate information by communities through the Global Framework for Climate Services (GFCS)

These include, seasonal forecast and climate scenarios/projections also designed to enable policymakers and decision-makers to address significant problems and create solutions.

- PICSA Participatory integrated Climate Services for Agriculture
- Rolled out to farmers in different areas of Malawi e.g. Balaka

# Climate services\_Malawi

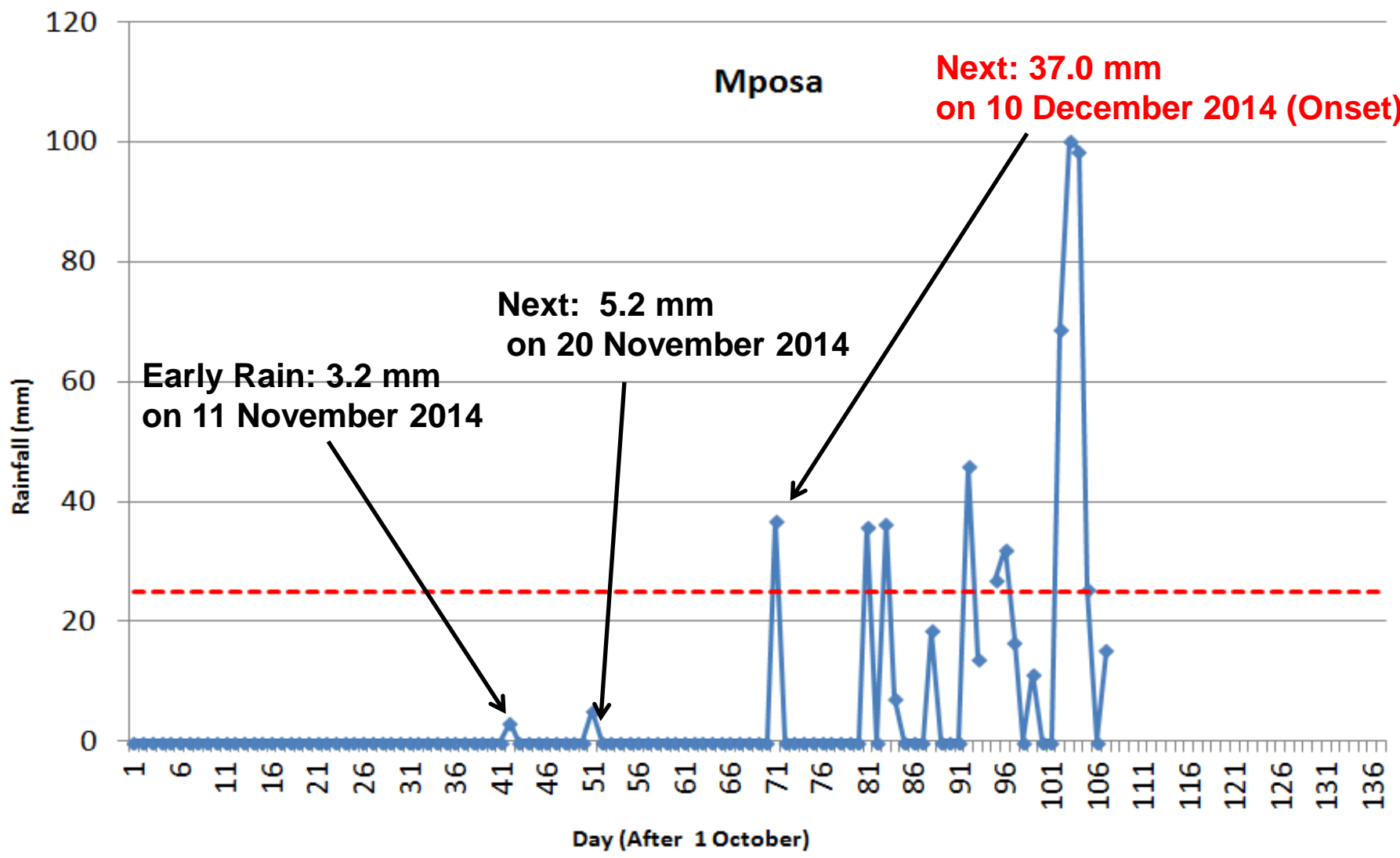
## PICSA Participatory integrated Climate Services for Agriculture

- ❑ Climate and weather information in accessible forms is presented in collaborative and participatory forums, for use by groups of smallholder farmers. Empowered to read and interpret the data, farmers are able to identify the variability of local climatic patterns amongst other factors so as to consider their implications for crop and livestock production.
- ❑ By gaining access to new and enhanced climate information and decision making tools, supplemented with the farmers' own experiences, farmers are better able to assess their crop, livestock and livelihood options and identify those most suited to their environments.
- ❑ Better informed decision-making is enabling farmers to manage risk and adopt farming practices more resilient to variable climatic conditions.

# Climate services\_Malawi

- Piloted PSP with communities in Zomba, Machinga and Phalombe in the Lake Chilwa basin which incorporated indigenous knowledge to determine when and what to plant.

# Rainfall Onset (2014/15 Season)



# Climate services and different sectors

## ❑ **Agricultural sector**

Malawi relies on rain-fed agriculture, and the current droughts have resulted in poor crop yields or total crop failure, leading to serious food shortages, hunger and malnutrition.

## ❑ **Human health sector**

The human health sector is directly affected by climate change, and is especially linked to infant malnutrition and chronic ailments associated with malaria, cholera and diarrhoea as a result of droughts and floods

# Climate services and different sectors-continued

## ❑ **Energy sector**

The energy sector primarily derives the hydro-electric power from the Shire river. The hydro-electric power generation has been negatively affected by the droughts and floods.

## ❑ **Fisheries sector**

Droughts and floods are the major climatic hazards affecting the fisheries sector, and have been responsible for the declining, or even drying up, of water bodies resulting in low fish production and loss of biodiversity.



# Climate services and different sectors-continued

## ❑ **Wildlife sector**

The major climatic hazard that affects the wildlife sector is drought. Drought affects animal reproduction systems and migratory habits. For example, the 1979/80 drought resulted in the deaths of Nyala in Lengwe National Park in Chikwawa and the migration of most animals from the game reserve.

## ❑ **Water sector**

Water is a critical resource for human and industrial use, and for the maintenance of ecosystems. Increasing droughts and floods seriously disrupt water availability, in both quantity and quality.

# Climate services and different sectors\_continued

## ❑ **Forestry sector**

The major climatic hazards that threaten the forestry sector are extended droughts, which lead to land degradation and loss of soil fertility, as well as forest fires

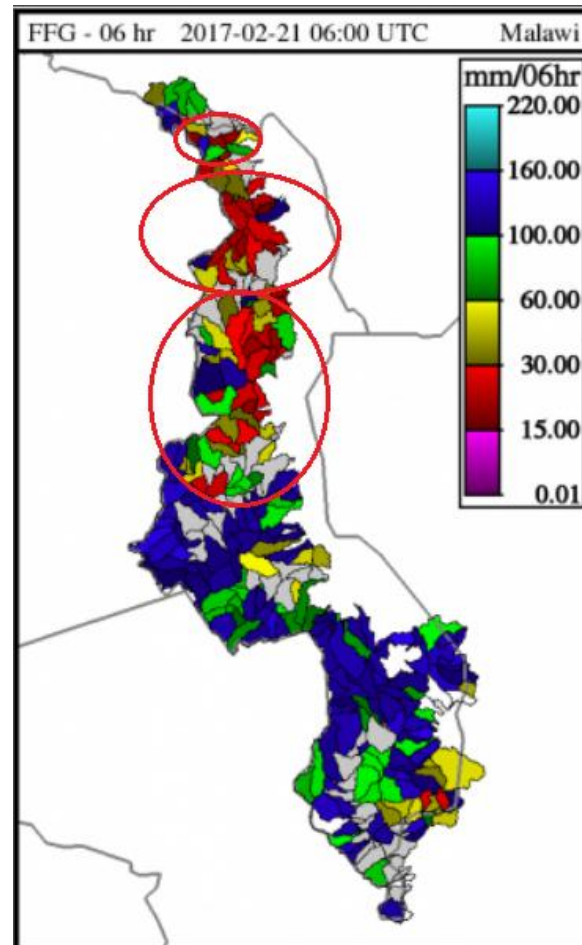
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# Warning System (EWS) made simple

- Weather Chasers (Malawi) created under Common Alert Protocol (CAP) of WMO on 30th January 2016 to enhance Early Warning System with regards to severe weather that affect Malawi and taking into account The Flash flood Guidance System that has very short lead times of 6 hours, 3 hours and 1 hour.
- Weather Chasers forum encompasses all stake holders and partners that works hand in hand with Department of Climate Change and Meteorological Services.


# FFG-Flash Flood Guidance Model



# Flash flood warning template



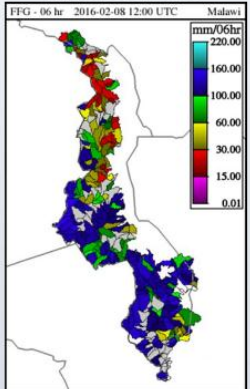
Ministry of Natural Resources, Energy and Mining  
Department of Climate Change and Meteorological Services  
Daily Guidance of heavy rainfall/ Flash Flood for Malawi



Issued: 08/02/2016. Valid from 14:00 to 20:00Hrs


Heavy rains are expected to continue over the country.  
Flash floods likely in areas marked red.

**Flash Flood Guidance**



mm/6hr  
220.00  
160.00  
100.00  
60.00  
30.00  
15.00  
0.01

FFG - 06 hr 2016-02-08 12:00 UTC Malawi



Flash floods likely in red marked areas

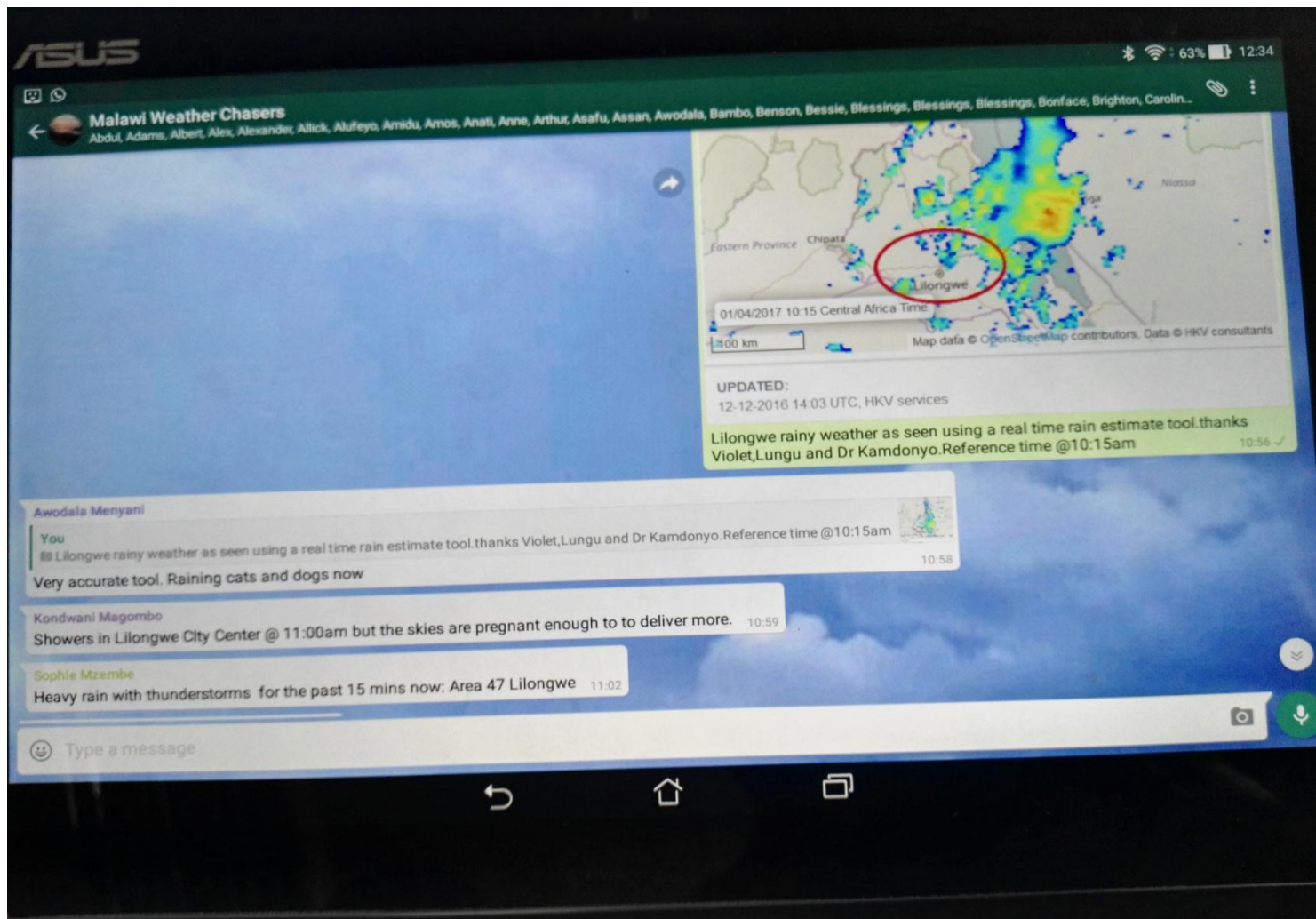
**AREAS AT HIGH RISK OF FLASH FLOODS**

- Areas marked red on the map have the likelihood of flash floods if they get rain amounts of 10mm to 30mm in the 6 hour period( 14:00hrs to 20:00hrs) today.
- Karonga is at high risk of flash floods.
- Therefore residents in the listed areas are advised to stay alert and take caution.
- Residents in the highlighted areas including the whole Northern region are advised that heavy rain will continue today until tomorrow.

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For further information contact the Director of Climate Change and Meteorological Services, P.O. Box 1818, Lilongwe, E-mail: metdept@metmalawi.com; Tel: (265) 1 822014; Fax: (265) 1 822215. Website: www.metmalawi.com.

# Severe weather monitoring



# Sample 1 of a feedback

Weather Chasers (Malawi)  
Adams, Amos, Amos, Bakali, CHITEDZE, Charles, Charles, Chilenga, Donald, Elina, Florence, Florence Ntepa zomba district council. Disaster risk, Hastings Mbale Water, H...



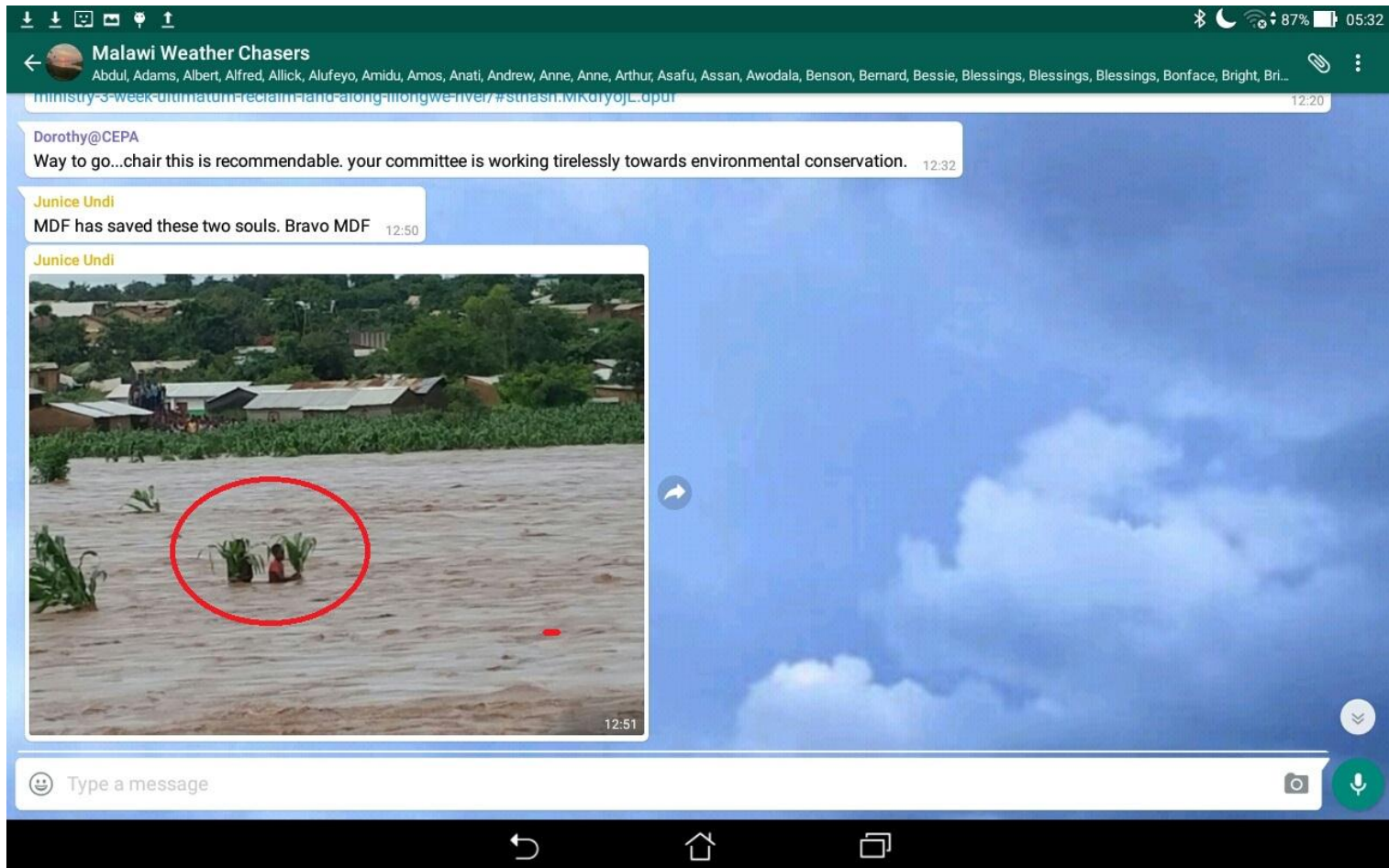
Njuli from Machinjiri as well at 15:58 5:59 PM

Light showers falling and many people in sweaters since morning in this part of BLANTYRE 6:00 PM

+265 991 00 56 81 ~Fyawupi M... fingo

Sangwani, the updates, forecast and flash flood guidance have been very helpful for us in disaster prepadness and response planning. We have been able to warn communities in time to move to safer havens, preposition relief items and deploy Search and Rescue teams in advance. We had boats and helicopter prepositioned in Karonga, for example.

# Sample 2 of a feedback





# Human influence -MALADAPTATION

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- [VID-20170211-WA0003.mp4](#)

# Sample 2 of a feedback

Weather Chasers (Malawi)  
Adams, Amos, Amos, Bakali, CHITEDZE, Charles, Charles, Chilenga, Donald, Elina, Florence, Florence Ntepa zomba district council. Disaster risk, Hastings Mbale Water, H...


Yobu Kachiwanda  
Noted @ Paulos 9:42 PM

+265 991 00 56 81 ~Fyawupi Mwafongo  
An update on Mzuzu. A total of 1 265 hhs affected. Total population affected is 5782 people. Fresh reports on some more hhs still being received. 3 official endorsed camps, other emerging camps will be checked out tomorrow. The committee is trying to regulate the sprouting of several small camps. More disaggregated data on camp population, household damage tomorrow. 10:14 PM

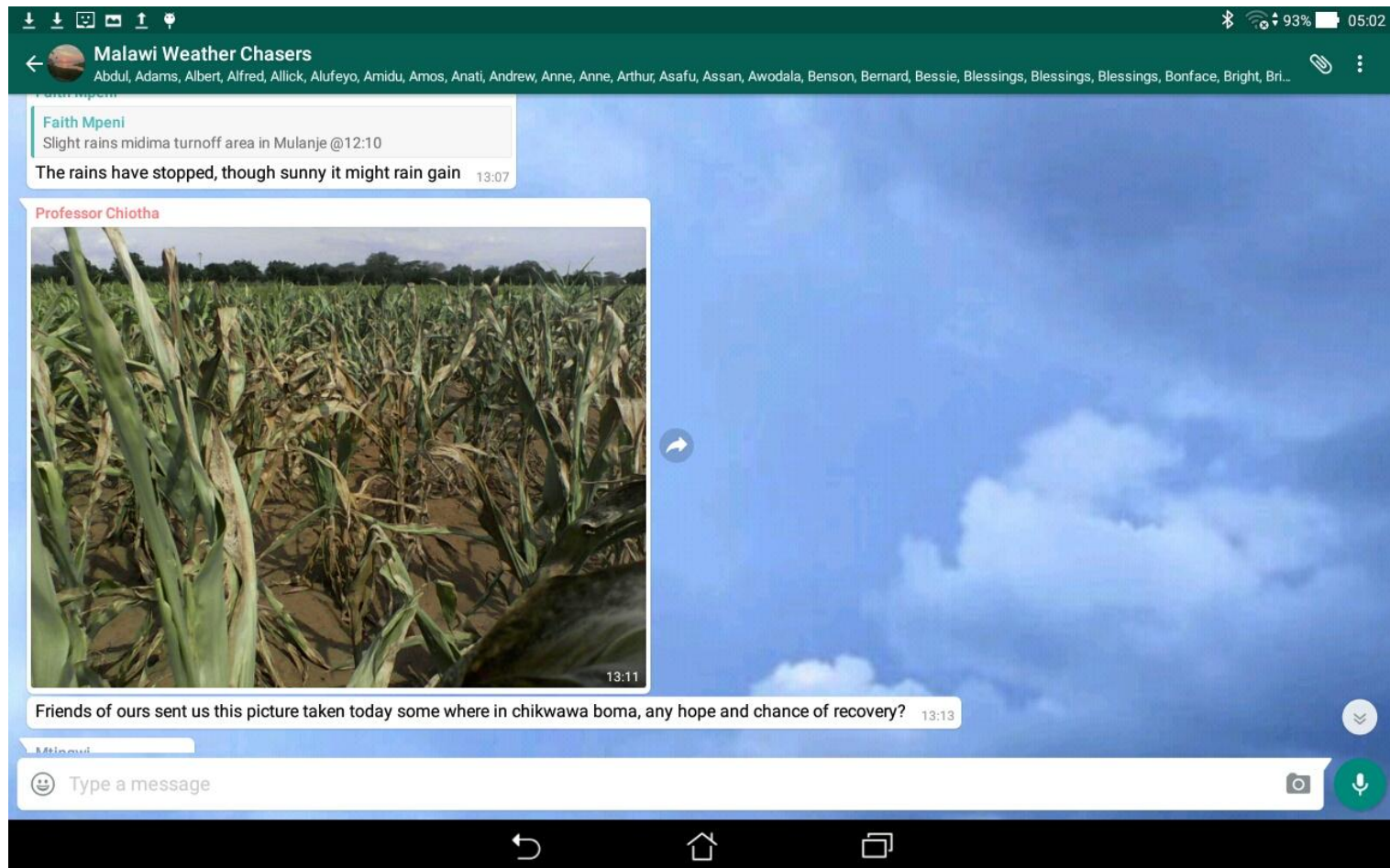
Area still water logged. In some homes water is emerging from the floor underneath. Sanitation compromised as some pit latrines are overflowing with water. Most affected areas are being served with piped water from NRWB .other affected areas like Masasa it due to land/ mud slides where houses literary on hill slopes are collapsing due to the softening of the ground 10:21 PM

Florence Ntepa zomba district council. Disaster risk management officer  
Ok 10:23 PM

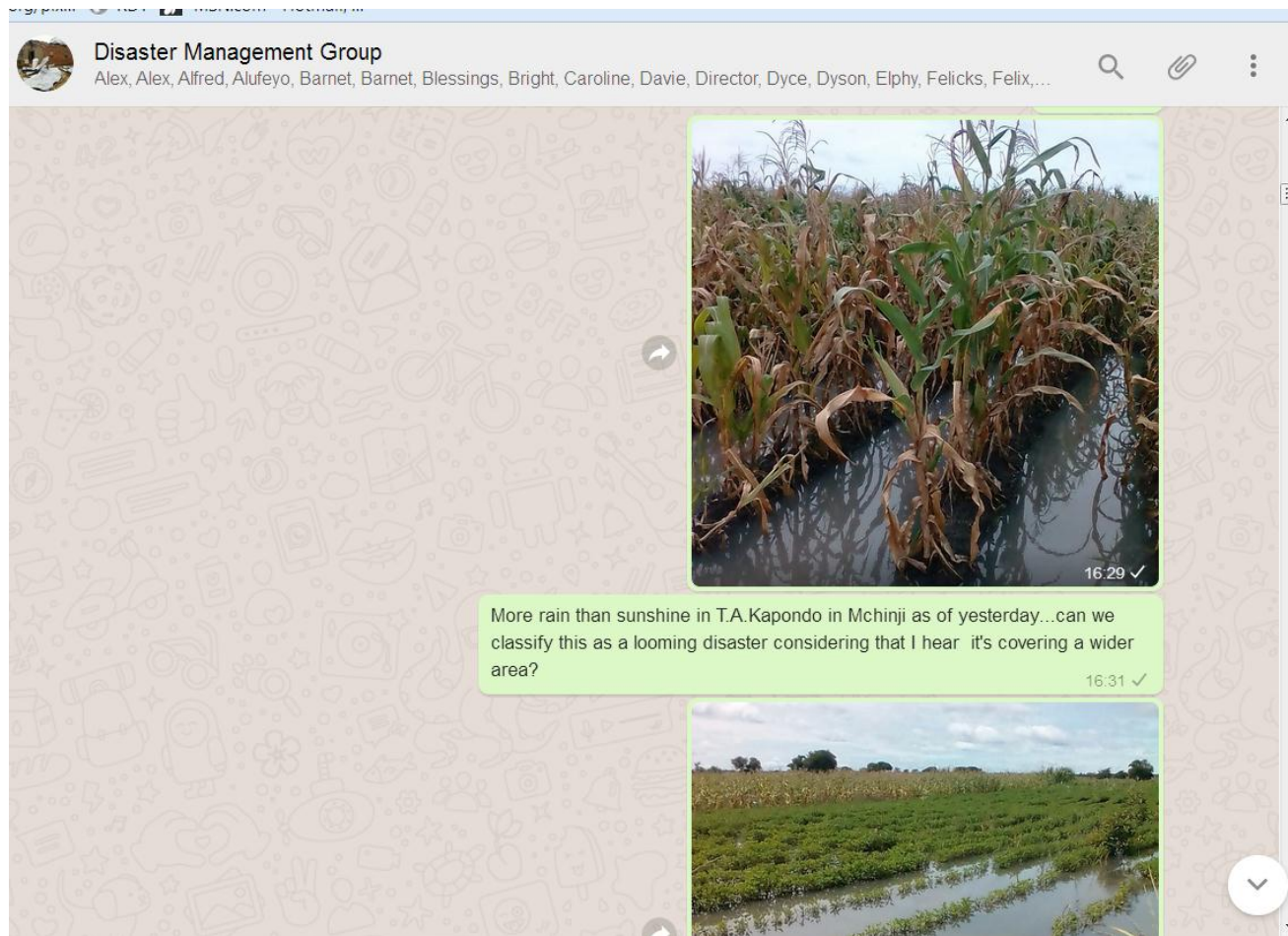
+265 991 00 56 81 ~Fyawupi Mwafongo



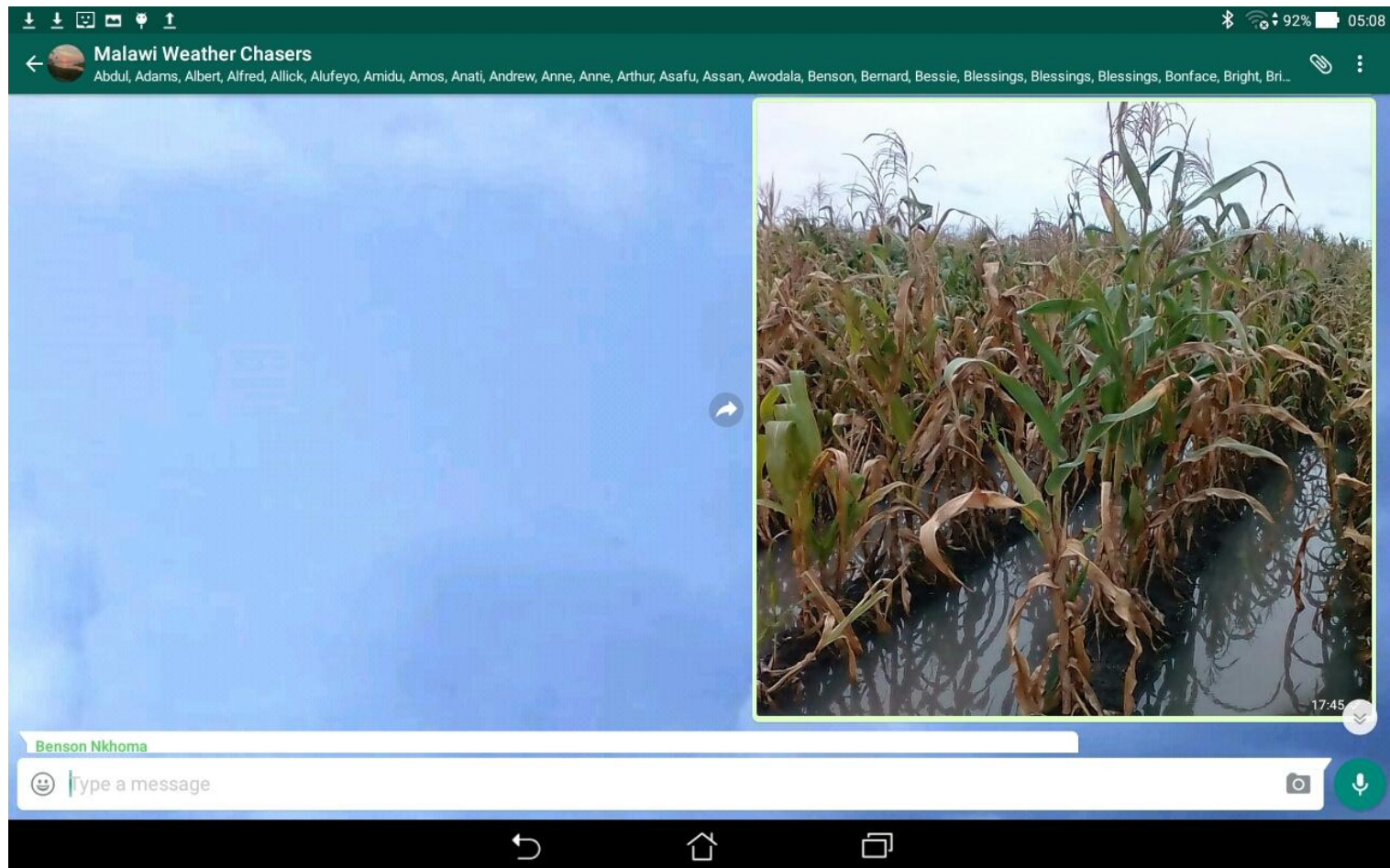
# Lower Shire valley on 24 February 2017\_maize field\_ in Chikwawa

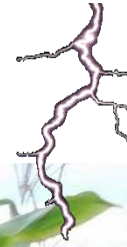


# Problems requiring long term interventions- Mchinji-February 2017



# Water logging





Malawi Weather Chasers archive photo\_flooding  
in Karonga, Malawi, April 2016