# On Improvement of Weather Management in Uganda

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# Outline

- Introduction
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# Introduction

- The WMO recommends a NMS for each country to provide forecasts and warnings (weather, climate and hydrologic)
- Weather forecasts guide important decisions that enhance a country's economy e.g.
  - reduce crop damage
  - reduce property damage
  - save lives
  - safety in the aviation industry

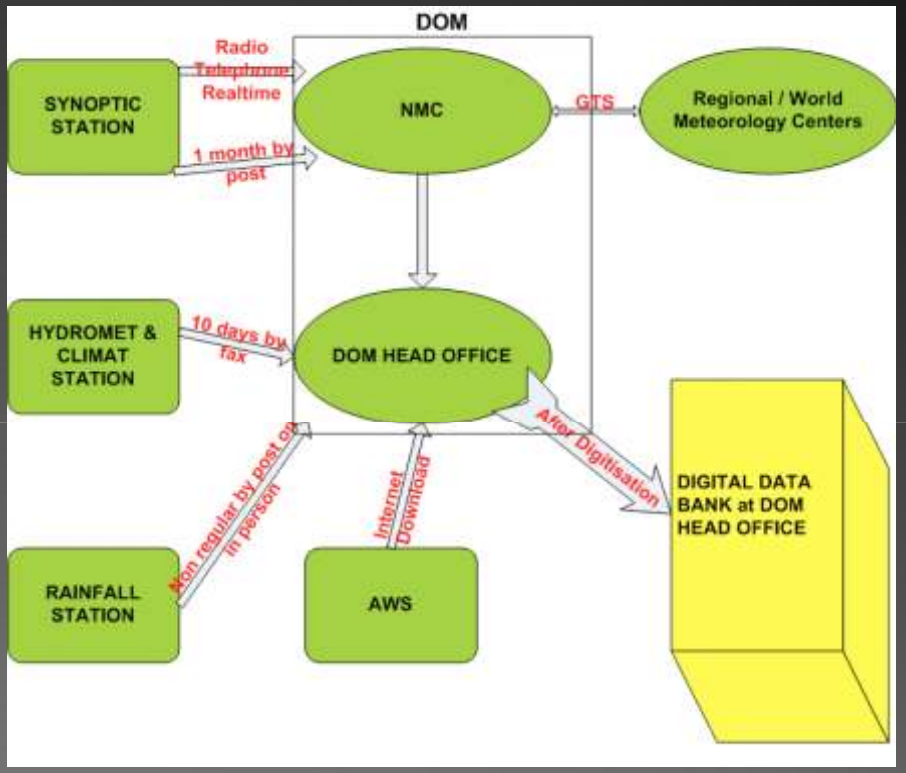
# Uganda's Status (1)

- Uganda's NMS is DOM & was established in the colonial era
- Weather stations are unevenly distributed
- Current coverage is 35% of Uganda's area
- Only 49 % are operational


Uganda's Weather Stations (source: DOM)

# Uganda's Status (2)

- Reporting weather data:
  - By person & post methods are too slow
  - By fax, radio & phone methods leave room for errors during digitisation




Data flow from Weather Stations to DOM (source: DOM)

# The Problems

- A sparse Meteorology Network
- Delayed analysis due manual data processing
- The few AWS are semi-automated
- The available weather information is neither properly packaged nor readily accessible
- The above have led to the following:
  - Failure to provide sufficient advise to some stakeholders especially the farmers
  - Inappropriate response to weather related disasters

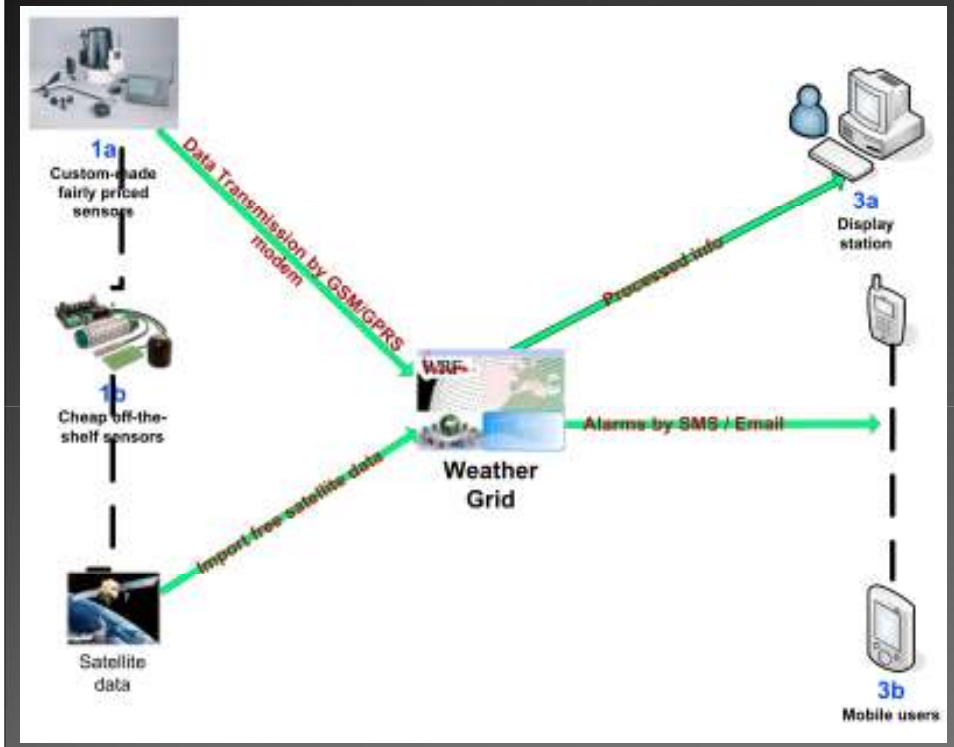
# Approach (1)

- Field study & Brainstorming sessions so as to include several stakeholders' concerns.
- Experimental research:
  - Design, program, deploy and test off-the-shelf wireless sensor nodes, including uplinks from remote wireless sensor networks in areas without other connectivity.
  - Integrate the data from the existing weather stations and the wireless sensor stations with free satellite data especially for places where there is no weather station coverage.

# Approach (2)

- Implementation:
  - Setting up of a numerical weather prediction model to automate weather data processing through earth science grid infrastructures, particularly WRF.
  - Develop the weather information dissemination tool so as to provide the different stakeholders with access to the relevant weather information, particularly though mobile phones since they are readily accessible to the majority.
- Test and deploy the system incrementally
- Dissemination & Sensitization

# Expected Results / Output




The proposed System

- Combined data collection
  - Custom weather stations
  - Off-the-shelf weather sensors
  - Free satellite data
- Weather forecasting and prediction modeling in the grid
- Weather info dissemination
  - DOM displays
  - Mobile users

# Expected outcomes

- More accurate and timely weather predictions
- Increased convenience of weather data processing
- Affordable and sustainable Technology based on off-the-shelf (cheap) wireless sensors and free satellite data since it will be designed in such a way that it provides for full automation and is self-sustainable on renewable energy.
- Improved access to weather information by the different stakeholders especially the farmers.
- Better informed decision hence enhancing the economy

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# Q & A
# Thank you
# Asante