Open Source Weather Stations: Innovative solutions to Water Management problems

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Why open source mobile weather stations?

• Water managers needed data at local scale for NRM (due to increase in flash floods)

• Meteorological data available as a daily average-during extreme rainfall, not sufficient for NRM

• WMO certified stations are expensive, and may not be feasible for localized measurements
What is the device?

- Assembled using off-the-shelf parts; hardware and software is open source.

- The cost of the parts ~USD 350 (in SL)

- Measures rainfall, wind speed, wind direction, humidity, temperature, light, pressure, latitude, longitude, altitude

- Records these parameters every 5 minutes on a data logger card (can be used to understand changes in weather patterns)

- Can be programmed to send an SMS containing weather information when any parameter exceeds a threshold.
What is the device?

• Device customizable for local scale use

• IWMI developed Gen 1 and hosted it on website ➔
  • A startup enterprise ‘A & T Labs’ now builds, installs, operates and maintains stations for agencies on a contract basis at a fraction of the cost of a WMO station
  • Won several tech awards
Current uptake in SL

- IWMI: running a pilot project with the Irrigation Department to better manage a reservoir prone to flooding every year during the NE monsoon (Challenge Fund)

- LRWHF: installing weather stations in schools and communities around SL

- Interest also expressed by: Irrigation Department, Water Resources Department, COSTI, Met Department

- ‘A & T’ Labs ➔ business ecosystem to deliver and maintain devices
Beyond SL...

- UNDP in Solomon Islands
- Red Cross, Research and Innovation/ Red Crescent Climate Center, Togo
- Farmer’s Edge, Canada
- Space and Upper Atmosphere Council Organization, Pakistan
- Ecole Supérieure d'Infotronique d'Haiti, Association Haïtienne pour le développement des TIC, Association Haïtienne pour l'Avancement de la Science et de la Technologie, Haiti
- WWF, USA
Further plans for IWMI

• Technical:
  – R & D for increasing accuracy and precision
  – Testing devices for robustness
  – Improvements to reduce costs

• Expanding use cases—what are other potential applications?

• Working with agencies (SL and beyond) to disseminate solution and provide technical assistance

• Partnering with local manufacturing, helping businesses develop sustainable and scalable solutions
IWMI in the news

- [http://www.indiaenvironmentportal.org.in/content/406606/these-mobile-weather-stations-can-help-cope-with-floods-landslides/](http://www.indiaenvironmentportal.org.in/content/406606/these-mobile-weather-stations-can-help-cope-with-floods-landslides/) (Feb ‘15)
- [http://www.sundayobserver.lk/2015/03/15/new40.asp](http://www.sundayobserver.lk/2015/03/15/new40.asp) (March ‘15)
Thank you!