

# 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'Haïti , 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.ft.lk/article/540409/DIY-weather-stations-will-aid-flood-control-efforts> (May '16)
- <http://humanitariannews.org/20160504/press-release-diy-weather-stations-will-aid-flood-control-efforts> (May '16)
- <http://www.downtoearth.org.in/news/these-mobile-weather-stations-can-help-cope-with-floods-landslides-48760> (Feb '15)
- <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> (March '15)
- <http://www.reuters.com/article/us-food-climatechange-technology-idUSKBN0LS1ZF20150224> (Feb '15)
- [http://www.climateactionprogramme.org/news/scientists\\_invent\\_new\\_technology\\_to\\_prevent\\_crops\\_flooding](http://www.climateactionprogramme.org/news/scientists_invent_new_technology_to_prevent_crops_flooding) (Feb '15)
- <http://www.un-spider.org/news-and-events/news/iwmi-low-cost-weather-stations-help-sri-lanka-prepare-floods> (Feb '15)
- <http://www.rinnovabili.it/ambiente/sri-lanka-climate-change-666/> (Feb '15)
- <http://www.actualites-news-environnement.com/33727-technologie-Sri-Lanka-inondations.html> (Feb '15)
- <http://www.thienhien.net/2015/02/26/cong-nghe-di-dong-giup-sri-lanka-ung-pho-voi-bien-doi-khi-hau/> (Feb '15)



# Thank you!

