



LFEWS

Local Flood Early Warning System



© Photo by Jacqueline Hernandez

LFEWS Development and Evolution of LFEWS

▼ Affected communities in Abuyog and Ormoc during the 2011 heavy typhoons.





LFEWS establishment is flexible and could be adjusted according to prevailing conditions.

Minimum Requirements of an operational FEWS



The minimum requirements of an operational FEWS depend on the size of the watershed. The technical requirements – the equipment and facilities – are adjusted according to at least four considerations:

- The number of river systems and basins;
- The number of strategic locations and river choke points where the rain and water level gauges need to be installed;
- The spread of vulnerable communities that accounts for estimating the equipment and capacity of the communications network; and,
- The number of LGU structures that form part of the system.

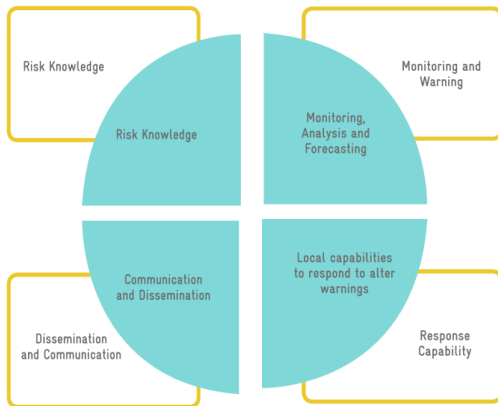


LFEWS is affordable, costing around PhP1 million to establish and PhP500,000 to operate and maintain annually.

Table 3: Cost of the minimum requirements per type of watershed of an operational LFEWS

Cost Items	Unit Cost (2009) (PHP)	System Size					
		Large		Medium		Small	
		Qty	Amount	Qty	Amount	Qty	Amount
Telemetered Rain Gauges	220,000	3	660,000	2	440,000	1	220,000
Telemetered Water Pressure Gauges	450,000	3	1,350,000	1	450,000	1	450,000
Digital Rain Gauge	7,000	3	21,000	2	14,000	1	7,000
Manual Rain Gauge	7,000	1	7,000	1	7,000	1	7,000
Water Level Marker	1,000	8	8,000	6	6,000	4	4,000
Data Center (Solar Power, Early Warning Software, RF Transmitter)	165,000	3	495,000	2	330,000	1	165,000
Back-up PC for Data Centers	20,000	3	60,000	2	40,000	1	20,000
Automatic Weather Station	45,000	1	45,000	1	45,000	1	45,000
Base Radio	20,000	3	60,000	2	40,000	1	20,000
Handheld Radios	10,000	6	60,000	5	50,000	5	50,000
Total			2,766,000		1,422,000		988,000





1

Secure political consent of Local Governments and social acceptance at community level

- Dialogues and consultations
- Coordination with relevant national agencies and local offices (like DOST, OCD, PAGASA, NIA and water districts)
- Initial assessment of disaster areas
- Forging of MOA with concerned LGU(s)

2

Conduct Participatory Disaster Risk Assessment (PDRA)

- Hazard Assessment
- Hydrographic survey
- Vulnerability and capacity assessment
- Establish monitor transmission signal

3

Planning and Integration of LFEWS to existing disaster plans and structures

- Agreement on warning levels
- Agreement on communication protocols
- Formulation of the Disaster Preparedness Plan
- Local government adoption of Disaster Preparedness Plan and integration to existing Comprehensive Development Plan
- LFEWS Integration to the Annual Investment Plan
- Institutional set up
- Training
- Formulation of monitoring and evaluation tools

4

Hardware Installation

- Calibration of monitors and communication equipment
- Dry run and drills
- Post-event validation, recalibration of monitors and equipment
- Continuing refinement of protocols

5

Implementation

- Set up Operations Center (OPCEN)
- 24/7 disaster monitoring
- Systems maintenance
- Hardware maintenance
- Coordination
- Resource generation
- Re-training

Thank you very much for your attention!



GIZ Philippines/Pacific

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