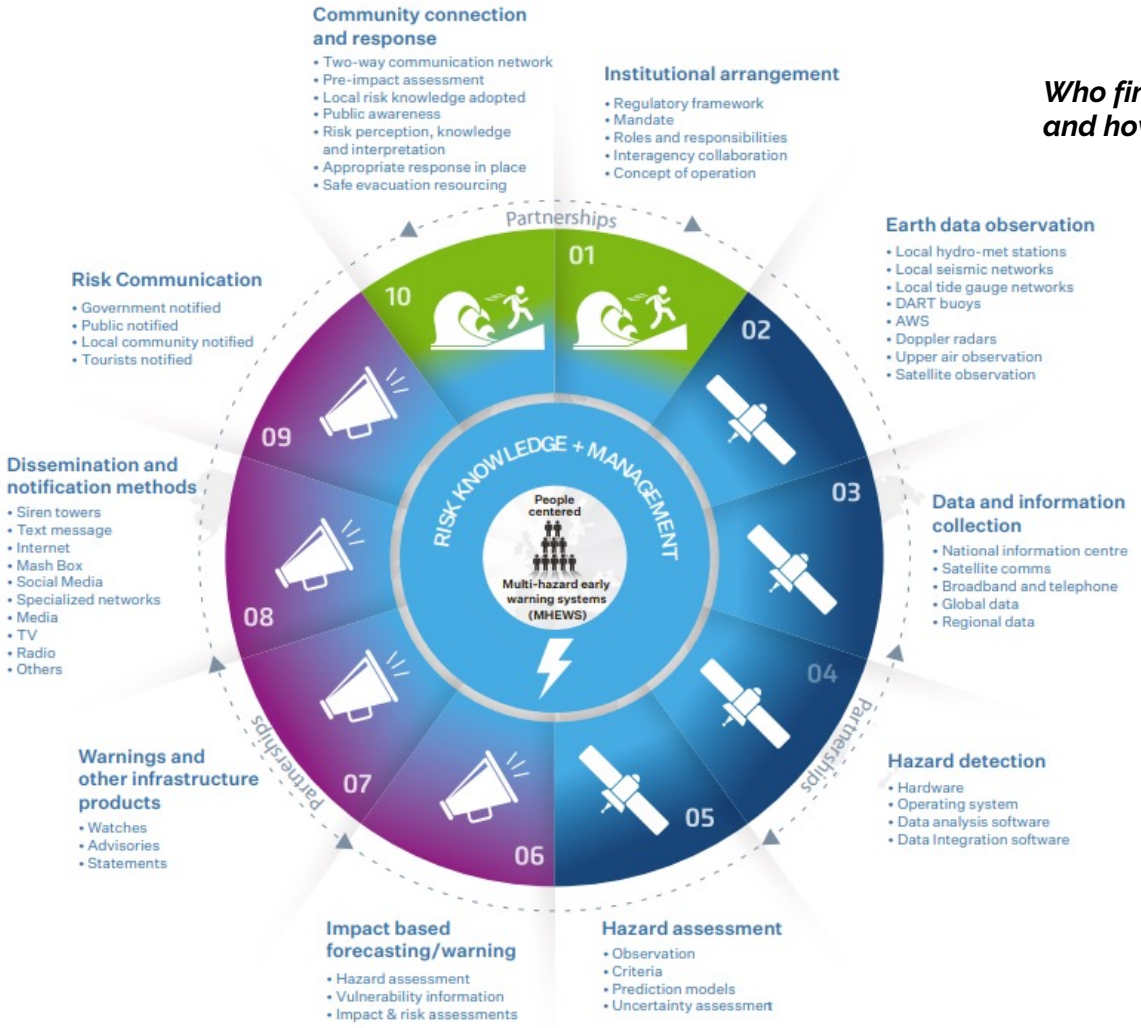
Financing early warning

What is an early warning system ?

What constitues effective financing ?

Who finances it and how ?



Scale of the challenge…

- 1/3 of countries who self-assess their early warning capacities, report gaps in either the availability of risk information, the monitoring and forecasting systems, or the ability to prepare and respond to disasters (Sendai monitor) effectively
- No robust global (or disaggregated for LDCs and SIDS) estimates of financing requirements to achieve global early warning coverage/access - one reason is that 'coverage/access' has not been defined yet or minimum standards established
- Estimates of financing requirements regarding the full value chain of an early warning system are available in some countries and in some regions (Caribbean, Pacific)
- Achieving universal early warning coverage by 2027 will require investments of at least $3.1 billion (UNDRR, WMO)
- Robust body of knowledge on the return on the investment in early warning systems
- Technology innovations are reducing the costs of early warning systems

Financing early warning…

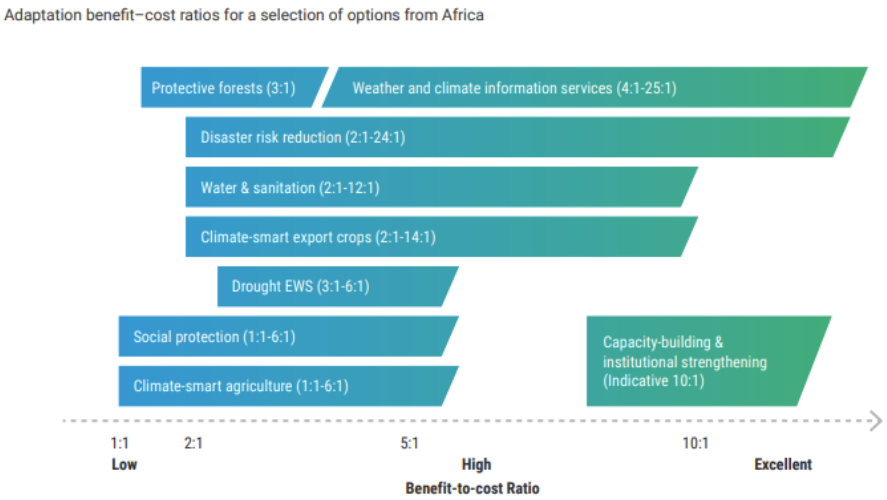
- The financing of EWS is mostly covered by public funds. Civil protection and national disaster management organizations are recognized as part of national security policies and therefore mostly financed directly by State institutions.

- Official development aid has provided financing for the establishment and strengthening of national EWS for many years. This has been mostly through bilateral cooperation and development partners, such as regional development banks, the World Bank, and United Nations agencies.

- Global Pooled financing: Green Climate Fund, Climate Risk and Early Warning Systems (CREWS), etc. - accessed through intermediaries (i.e. United Nations agencies, Multilateral Development Banks, International and Local Accredited Entities)

Making the financial case…

- Cost benefit of early warning systems consider the overall operational costs of the system, he societal and economic losses due to false alarms and the societal and economic savings due to timely action
- In the US, the public obtain several hundred billion forecasts each year, generating a benefit of USD 31.5 billion compared to costs of USD 5.1 billion
- Fewer cost benefits are available for specific warning services and subsequent actions – part of challenge of convincing government to invest public funds



Higher upstream costs

- Large portions of National Meteorological and Hydrological Services (NMHSs) operating budgets are dedicated to supporting observation systems and data management functions
- Knowing the total expected costs of an observation network over its life cycle is critical to deciding affordability
- Operation and maintenance costs (including the cost of spare parts) are typically larger than the initial procurement costs over the life cycle of the observation systems

Basic budget indicators for weather services - examples

Country	Total Population[a]	GDP[b]	GDP per capita	NMHS budget[c]	NMHS budget per capita	NMHS number of staff)[d]	Ease of Business Rank[e]
	Million 2017	USD billion 2017	USD 2017	USD million div.	USD div.	Number div.	190 total countries 2018
U.S.	325.7	19,390.6	59,535	1,000[11]	3.07	4,402	8
U.K.	66.0	2,622.4	39,733	298	4.52	1,997	9
Japan	126.8	4,872.1	38,424	593	4.68	5,027	39
Indonesia	264.0	1,015.5	3,847	165	0.63	4,748	73
Myanmar	53.4	69.3	1,298	1.7	0.03	843	171
Ghana	28.8	47.3	1,642	6.2 (f)	0.22 (f)	380 (f)	114
Germany	82.7	3,677.4	44,467	385	4.66	2,336	24
Israel	8.7	350.9	40,333	5	0.57	n/a	49

What role for the private sector

- Many countries are struggling to keep up with the ever-increasing demand for more sophisticated services to protect lives and assets
- Private-sector actors push the frontiers of knowledge, investing in innovative solutions that deliver more reliable forecasting and more efficient and diverse services
- Scenarios for private sector role:
  - «Jump-start» for value chains of low maturity: Take advantage of private-sector capacity to jump start the value chain while laying the foundation for a sustainable NMHS.
  - «Strengthen» for intermediate value chains: Strengthen and focus the NMHS on providing public services, thus laying the foundation for the private sector to efficiently provide non-public services.
  - «Optimize» for advanced value chains: Optimize the cost of public services by leveraging synergies with the private sector

State-dominated	State-biased	Open
State keeps full control of the hydromet information and recovers as much of the cost as possible.	State controls the market but takes advantage of the private sector in some areas.	Maximize the benefits that the private sector and competition can bring.

ODA - effectiveness driven agenda

Financing track record

- Fragmentation of action, the multiplicity of financing channels
- Ineffectual sustaining of the infrastructure and capacity put in place through projects
- Perceived bias towards infrastructure financing with last-mile, early action insufficiently resourced (although no formal tracking)

Principles for effective financing

- Cover the full value chain for early warning services - people centered
- Normalized methodologies for assessing needs
- Stakeholder engagement: requires multi-institution, multi-stakeholder consultations in countries
- Foundational elements need not be overlooked: i.e. legislation and policy frameworks; governance structures
- Mutualizing services and capacities: certain countries provide services for groups of countries, through the designation of global and regional centres for observations, data processing, weather forecasting, climate predictions and capacity building

ODA Financing – role of global mechanisms

Name	Scope	Innovative aspects
Green Climate Fund; https://www.green-climate.fund/	The world's largest dedicated fund helping developing countries to reduce their greenhouse gas emissions and to enhance their ability to respond to climate change. Serves as an operating entity of the UNFCCC financial mechanism.	Transformational planning and programming underpinned by climate science. Committed to climate infor-mation and early warning. Focuses on modernization of hydrometeorological services and sector applications.
Global Environment Facility; https://www.thegef.org/	Provides funding to assist devel-oping countries in meeting the objectives of international envi-ronmental conventions. Serves as an operating entity of the three Rio Conventions on biodi-versity, climate change and land degradation. Includes the Special Climate Change Fund and the LDC Fund.	Its agencies have extensive experience in supporting technological, institutional and business innovation. Experience in financing EWS and climate information programmes. Has a Challenge Program for Adaptation Innovation.
Climate Investment Funds; https://www.climateinvestment-funds.org/	Accelerates climate action by empowering transformations in clean technology, energy access, climate resilience and sustainable forests in developing and middle-income countries. Its large-scale, low-cost, long-term financing lowers the risk and cost of cli-mate financing.	Works in partnership with gov-ernments, the private sector, civil society, local communities and six major multilateral de-velopment banks. Extensive experience of weath-er, water and climate services through the Pilot Program for Climate Resilience. All programmes and operations are bound by a commitment to gender equality.

Two dedicated financing mechanisms…

HOW DO COUNTRIES BENEFIT FROM CREWS FUNDING

1 - national and local multi-hazard early warning systems are prioritized and funded

2 - early warning service delivery and accessibility is improved

3 - early warnings are driven by people-centered and gender-responsive principals and promote private sector engagement

- countries have risk information and tools to deliver impact-based warnings
- countries improve and sustain their capacity to monitor, analyze and predict hazards
- warnings are communicated by the country based on common alerting protocols
- warnings are received, understood and acted upon based on preparedness and anticipatory action plans

MEASURING SUCCESS

- For countries to measure progress against the Early Warning for All initiative - a limited and solid set of metrics on what constitutes effective early warning systems
- CREWS has adopted a new MEAL framework to ensure that our result measurement systems with these national metrics and global goals and indicators
- CREWS success is measured in the reduction of lives and livelihoods lost to extreme climate events (SDGs and the Sendai Framework for Disaster Risk Reduction) and contributes to the action agenda of the Paris Climate Agreement

CREWS is supporting the EW4All monitoring system, its maturity index

CREWS CLIMATE RISK & EARLY WARNING SYSTEMS

Thank You

CREWS Implementing Partners:

WORLD METEOROLOGICAL ORGANIZATION

GFDRR Global Facility for Disaster Reduction and Recovery

Administered by THE WORLD BANK IBRD • IDA | WORLD BANK GROUP

UNDRR UN Office for Disaster Risk Reduction

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