

High Impact Weather Lake System (Highway)

**Regional EWS - Expected Benefits of the EWS
– Sustainability Plan**

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This session

- Expected socio-economic benefits of Regional Early Warning
- Business plan and sustainability for HIGH WAY

Current situation

- Lake Victoria one of the most convectively active regions on Earth
- Fishermen and passengers exposed to severe weather risk on Lake
 - 220 000 Fishermen + Small boat passengers [lake islands 600 000]
 - These groups have little access to locally accurate warnings
- Estimated 3,000 - 5,000 deaths/year
 - 502 deaths per 100,000 population (Uganda. Kobusingye et al, 2016)
- Additional lost assets & productivity, indirect effects on dependents
- Majority drown during transportation (52%) and fishing (39%)
 - Most frequently mentioned factors stormy weather and overloading

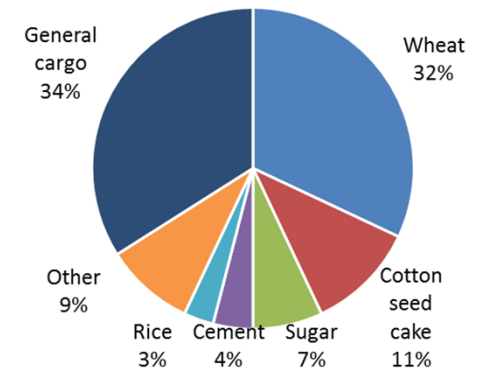
Current situation

- Severe weather also impact lake transport and regional economy

- Disruption and losses of lake transport (larger boats)

- Passenger, food, vehicles, cement, fertilizer, etc

- Lake infrastructure (port, coastal buildings, roads, etc).



- Lake storms also impact inland

- Agricultural productivity and losses

- Urban flood risk

- Overall these lead to large economic costs for the region (\$)

What are socio-economic benefits of EWS?

- Weather & climate services provide economic benefits from better decisions
 - Value of information – information leads to benefits from the actions taken
 - EWS provide information to allow users to take action and avoid losses
 - Benefits estimated by comparing with and without EWS, but have to account for losses in information, uptake, use along weather chain
- Early warning systems have been found to high benefit to cost ratios (\$:\$)
 - Analysis indicates benefit: cost ratio between 4:1 to 36:1
 - This justifies additional investment, provide high value for money

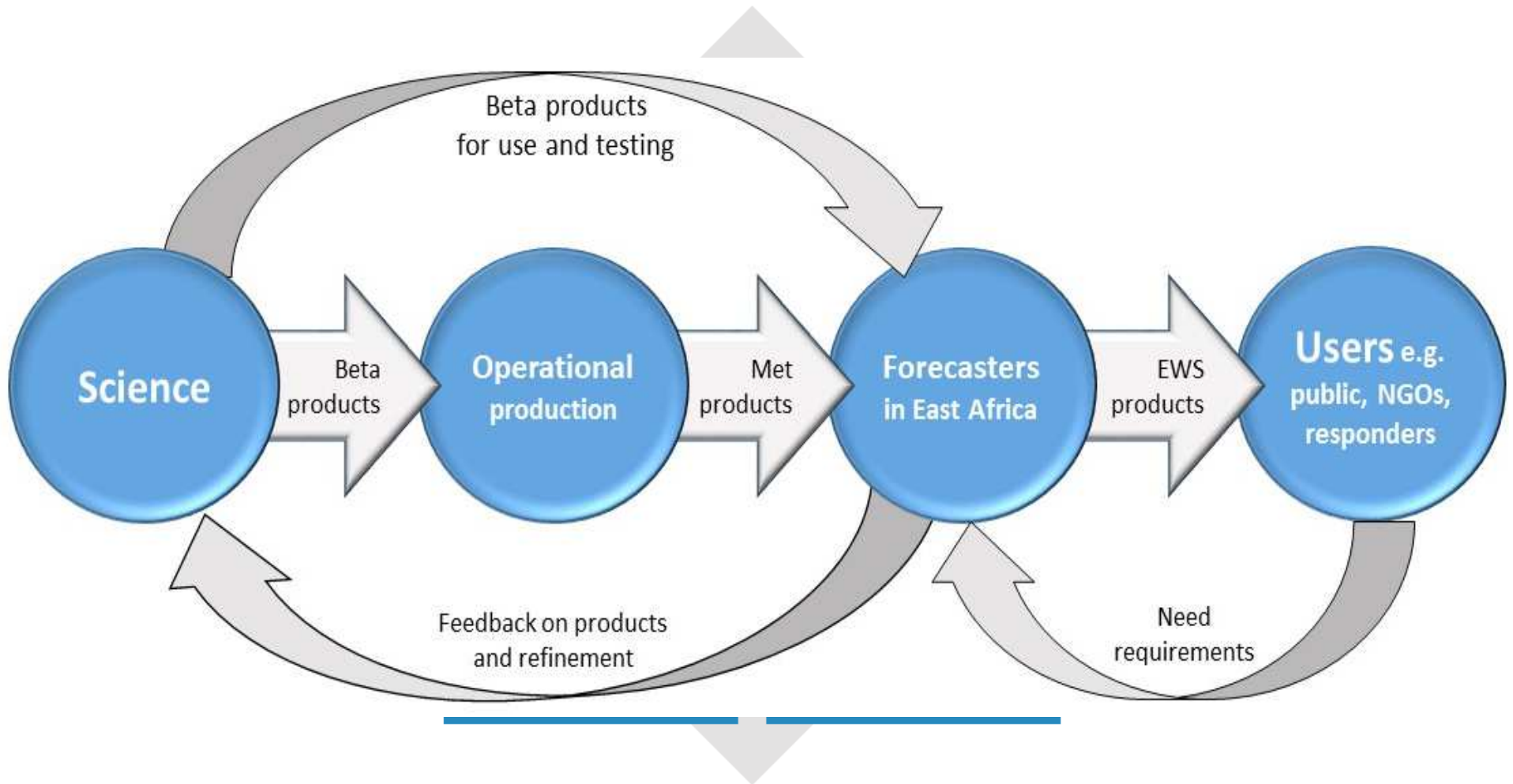
Economic benefits of HIGH WAY

- Value of avoided impacts from enhanced EWS / new EWS products
 - Reduced deaths and injuries (numbers, \$)
 - Reduced losses and damage (\$)
 - Also start considering wider economic benefits, lake navigability, etc.
- One of Impact Indicators for HIGH WAY project is

Value of avoided losses due to use of climate information

HIGH WAY addresses entire weather chain

Effectiveness of EWS depend on the effectiveness across the whole weather chain



HIGH WAY benefits

Early warning

- Improved science
- Rehabilitation and enhancement of observational data
- Enhanced data sharing and capacity, improving the accuracy of warnings
- Better communication and dissemination of warnings
- New services and technologies to alert the public
- Targeting warning service to relevant and specific users - right information to right people at right time and in the right way
- Ensuring warning messages are understood and the action taken in response

Also leading to

- Wider benefits from improvements to weather forecasting and services
- Indirect benefits (global coverage and foundational activities)

How assess these socio-economic benefits?

Steps

- Identify potential socio-economic benefits and map weather value chains
- Identify methods (modelling, econometrics, surveys, WTP)
- Derive baseline
- Assess the benefits, with cost-loss analysis (information efficiency)
- Assess the costs

Methods: for HIGH WAY, limited by modelling gaps, quantitative / qualitative

- Analysis of improvement in forecast accuracy, e.g. radar
- Surveys of EWS beneficiaries linked to pilots
- Analysis of analogues

Benefits of regional EWS

- Regional information enable exchange of information - improve the accuracy of forecasts
 - Improve national warnings, regional warnings, foundational activity
- Increasing coverage – increase number of users
- Harmonisation, minimizing confusion - improve confidence and uptake
- All of these increase the economic benefits of EWS
- Integrated system can generate significant economies of scale and scope
 - Experience from regional projects - regional cooperation generate savings worth 30% of sum of the costs incurred individually by countries

Benefits of regional EWS will rise in the future

Future trends indicate growing needs / higher benefits for Lake EWS

- Population growth (population at risk)
- Climate change –potential changes in extreme precipitation (Thiery et al. 2016)
- Regional investment
 - Plans for investment to increase navigation on the lake (cost competitive)
 - Strengthen inter-regional transport connections (transport corridors) for economic integration and economic growth
 - Lake Victoria Transport Program - Phase 3
 - >NNLVMET

Sustainability and business planning

HIGH WAY

Matt Savage

Sustainability and Business Planning

What is **sustainability** from a regional EWS perspective?

- HIGH WAY activities and investments continue to function post 2020

AND...

- Regional EWS plans continue to be implemented and capacity gaps filled 2020-25

MEANING...

- Funding options explored during the project (minimising gaps)
- Political agreement and commitment developed among multiple stakeholders
- Alignment with wider economic development processes to ensure relevance

Business Plan - Objective

Clear business plan can support long-term sustainability of regional EWS

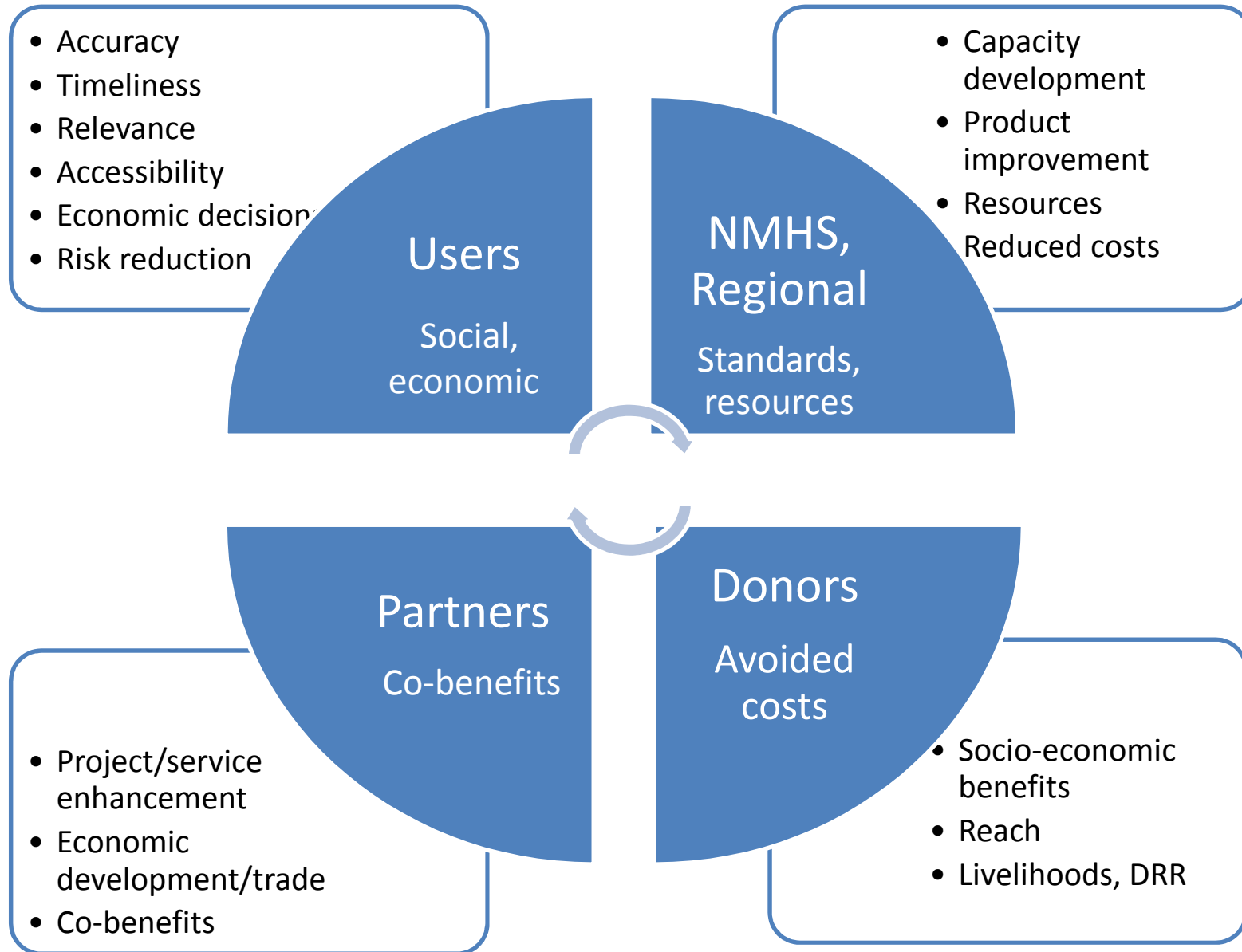
- Articulating NMHS shared vision for regional EWS post HIGH WAY
 - Building upon existing strengths, capabilities and capacities in region
 - Setting out 5+ year development pathway
 - Covering institutional arrangements, infrastructure, science, and services
 - Making financial and economic case for integration/support
 - Demonstrating achieved and potential future benefits from regional EWS
 - Scoping the resourcing requirements and funding case for regional EWS
- **Owned by the NMHS, facilitated by the project**

Business Plan – Audience

Business Plan oriented towards multiple audiences

- **National NHMS and project partners**
 - Supports alignment around common vision, roles and responsibilities and needs
- **National policy makers and decision makers**
 - Builds political support, budget and resourcing, regional contributions
- **Donors and international funding agencies (e.g. GCF, GEF, MDBs)**
 - Creates inputs and evidence for project proposal development
- **Regional partners and platforms (e.g. EAC, AMCOMET)**
 - Articulate capacity needs for regional coordination/alignment
- **Potential partners and users (investment, delivery, private sector)**
 - Demonstrates relevance of EWS for investments (transport, infra), product development

Business Plan – Understanding R-EWS value



Business Plan – Delivery Process

Three stage process for delivery

- Business plan concept (March 2018)
 - Aims and objectives, structure and inputs, process
- Baseline report (mid-2018)
 - Baseline situation, existing evidence on benefits, NHMS plans, funding opportunities
- Feedback and integration of learning (2018-20)
- Final Report (2020)
 - Evidence of benefits from pilots and field campaign
 - Needs analysis
 - Common development vision, roles and responsibilities
 - Potential partnerships, funding opportunities

Business Plan – Structure

Business plan structure

- NMHS shared vision for regional EWS for Lake Victoria Basin
- Current context
 - Baseline (regional) EWS capacity, existing plans (EAC and NHMS)
 - HIGHWAY project activities
- Benefits of enhanced regional EWS
 - Existing evidence
 - (Emerging) benefits of HIGH WAY
- Options for regional EWS
 - Needs and gap analysis (institutional, infrastructure, science, communications)
 - Resource implications for preferred options (finance, other)
- Quantify projected benefits of further action on enhanced regional EWS
- Set out potential funding options and modalities
- Alignment and anchor regional EWS with other regional initiatives

Business Plan – Inputs

A range of inputs are required for development of robust business plan

- Shared vision on EWS structure, roles and responsibilities NMHS, EAC, WMO
- Baseline and emerging opportunities PWA
- Current strategic plans and EWS costs/ budgets NMHS
- Investment requirements (infrastructure and capacity) NMHS, EAC, WMO
- Resourcing requirements NHMS, EAC, WMO
- Benefits of enhanced regional EWS PWA – HIGH WAY
- Financing modalities, project partnerships NMHS, PWA, All

➤ **Collaborative effort to build business plan for Regional EWS**

Business Plan – Longer term considerations

Business plan – longer term issues for consideration during project

- Identifying unique national strengths and capacities to support regional EWS
- Benefits of moving beyond coordination/consistency towards integration
- Opportunities for pooling national resources/avoiding duplication
- Alignment of regional EWS within existing NHMS strategic and budget plans