

Public Private Engagement in Hydromet Services

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GFDRR Hydromet Learning Course April 25, Washington



The Project

Objectives

- □ Analyze public-private engagement (PPE) in the hydromet sector
- Develop guidance material for projects in developing countries where public private engagement could be an option for the provision of hydromet services

Key aspects

- Case studies
- □ Basic economic principles
- □ Models and examples of PPE
- □ Structured approach: frame and development scenario
- Conclusions and recommendations



Iterations and timeframe



Case Studies

Scope included:

- □ Examples of PPE; understand what made them work or not
- □ The maturity of the value chain and the maturity of each element in the chain
- □ Sector balance: the role of the NMHS, the private sector, and academia
- □ The legal and policy framework governing the hydromet value chain

Analysed six countries (Ghana, Indonesia, Japan, Myanmar, UK, USA) and reviewed two NMHS that had recent policy changes (Germany, Israel)

Conducted over fifty interviews plus numerous conversations with experts and reviewers



Notional value chain and its enablers





Value chain maturity and sector balance









Basic economic principle: "the market" will not provide public goods

		E	Excludable		Non-excludable		
Rivalrous		Private goods (e.g. apples)	Private goods (e.g. apples)		Common goods (e.g. fish stock)		
Non-rivalrous		Club goods (e.g. streaming	Club goods (e.g. streaming service)		Public goods (e.g. free-to-air television)		
Economic characteristics							
non-rival	non-excl.	economies of scale	economies of scope	nat.	monopoly	Type of services	
					most	Basic systems	
						Basic services	
						Targeted services	
						Industry-specific services	
						Value-added services	





Models and examples of PPE

Customer (public) – supplier (private) relationship

Ground-based observations as a service (considered in Mexico) or computing as a service (considered e.g. in USA)

Financial partnerships for infrastructure projects

The private company pre-finances infrastructure investments (classic PPP approach). NMHS runs the instrumentation, receive knowledge transfer and pays back the private company over a certain period. The deal is backed by a government fund (Indonesia, planned).

Exchange or sharing of infrastructure

- □ Exchanging observation data between private companies and NMHS (e.g. Japan)
- NMHS receives space and ICT infrastructure on private offshore platforms, cell towers or plantations for the operation of AWS and provides data or customized services in return (Indonesia).



Models and examples of PPE (cont.)

NMHS support for new products and services

□ Weather index-based micro-insurance by local companies. The insurance is part of a complete package educating, supporting, and financing farmers. The NMHS provides weather information and informally monitors the project (Indonesia).

Cooperation with national and transnational companies

National company delivers actionable weather information via mass voice calls to farmers. Includes agronomic advice and intensive user support. Weather information is provided by transnational company; NMHS provides training and consultancy (Ghana).

Provision of open data to the private sector

Private companies use data, models and basic products from the NMHS under an open data scheme (USA).

Commercial activities of NMHS

□ The NMHS provides services like road weather to the private sector (e.g. UK)





Structured approach: frame and development scenario







Development scenarios

Scenario	Jump-start	Strengthen	Optimize	
Given situation «Immature»: The value chain is immature. Public services have significant gaps. National services have no advantage over international offerings.		«Intermediate»: The value chain meets a few of the country's needs. The NMHS is spread thin, having to provide public services as well as being pushed to recover cost by providing non- public services.	«Advanced»: The value chain serves the country's needs. Public service cost/value ratio needs to be optimized.	
Strategy	Get the value chain going and unlock existing potential in the country's private sector.	Prioritize a well-functioning NMHS focused on providing public services and enabling the national private sector to provide non- public services	Reduce public service cost without sacrificing service quality	
Realization	The public and private sectors cooperate in a sustainable hydromet value chain of intermediate maturity. Development partners and transnational companies support the provision of public services.	A strong NMHS provides public services and enables the private sector to provide non-public services in a sustainable hydromet value chain of intermediate to advanced maturity.	The public and private sectors cooperate in an optimized advanced value chain that minimizes the cost of public services without loss of quality.	







Frame elements for Jump-start

Immature value chain Private sector companies start identifying and servicing customer needs	Jump-start givens		
Talent leaves public sector for other countries			
Jump-start mission statement : Take advantage of private sector capacity to jump start-the value chain while laying the foundation for a sustainable NMHS.			
The government views hydromet services as strategic and engages accordingly with its stakeholders			
Basic public services are provided sustainably after development support for operations and maintenance ceases	Jump-start definition of		
Official warnings have good accuracy and reach affected people.			

One or more small hydromet-related companies are successful

Protect lives and property	Common	
Create additional socio-economic value	values	
International cooperation		
Public / private sector cooperation in value chain	Common value drivers	
Development projects		
Effectiveness (impact) of value chain		
Sustainable public services	Jump-start	
Cooperation between government agencies		
Public / private sector cooperation in value chain		
National capacity		





Strategy for Jump-start

Option	Decision	
Share data through appropriate regional mechanisms (i.e. regional specialized meteorology centers, regional climate centers)	Data sharing policy	
Government agency (e.g. NMHS) with significant technical support from transnational companies / agencies	Provision of public services	
Instrument suppliers price in several years of maintenance	Operations and	
Development partners finance operations and maintenance	maintenance	
Train in country, on the job, embed trainers in workforce for several months at a time		
Train teams rather than individuals, especially if sending them abroad	Training	
Train on the job before sending staff for training abroad		
Train more people than needed and accept that some will move on		
Inexpensive robust stations	Surface-based observations	
Data aggregation via regional hubs	Observation data	
Data aggregation via mobile operator service	sharing architecture	
Use software-as-a-service 3 rd party post-processing chain	Post-processing	





Frame for Strengthen

Intermediate value chain		
NMHS pushed to cover costs through profits from providing non-public services, effectively competing with the private sector	Strengther givens	
Talent leaves public sector for private companies		
Strengthen mission statement: Strengthen the NMHS and focus it on providing public services, thus laying the foundation for the private sector to efficiently provide non-public services.		

The NMHS has budget and capacity to safeguard the basic system and services

Official warnings have state-of-the-art accuracy and reach everybody affected. The warning system is resilient

Hydromet market grows

Strengthen definition of success

Protect lives and property	Common	
Create additional socio-economic value	values	
International cooperation		
Public / private sector cooperation in value chain	Common value drivers	
Development projects		
Clearly defined role of NMHS focuses on public services	Strenathen	
Public / private sector cooperation in value chain	value drivers	
Profitable private enterprise		





Strategy for Strengthen

Option	Decision	
Focus NMHS role on provision of public services		
Facilitate co-investment by NMHS and the private sector	Laws, policies, and regulations	
Monitor hydromet market development		
Partial outsourcing to national private company	Provision of public services	
State takes a share of financial risk	Eineneiel riek ehering	
Private partner takes a share of financial risk	Financial risk sharing	
NMHS makes in-kind contributions	Investment	
Private partner pre-finance equipment that they provide	investment	



Conclusions (excerpt)

- □ The **socio-economic benefits** of the hydromet value chain are still underestimated
- □ The **government's commitment** to the hydromet domain is needed
- Developing public-private engagement requires a **broad and systematic approach**
- □ Role of the NMHS and data access policy are the crucial regulatory aspects
- □ Consistency of severe weather warnings is critical
- We identified 17 PPE blockers, including:
- □ Hydromet services are not treated as strategic public service by government
- □ Lack of clear regulation
- □ NMHS not seen as an enabler for a well-functioning hydromet market
- □ Focus of development activities on NMHS instead of on the hydromet value chain



Recommendations (excerpt)

- □ Take a strategic approach at the country level by developing an overall strategy to maximize socio-economic benefit of the full hydromet value chain.
- Develop a country-specific approach to foster public and private engagement and develop the hydromet value chain.
- Implement the hydromet strategy in a transparent and stable legal and regulatory framework.
- □ Ensure an open and free access to all data and public-services.
- Develop a structured, continuous and open dialog between the public, private, and academic sectors.
- □ Solve the issue of inconsistent severe weather warnings.
- □ Build commitment of governments by demonstrating hydromet value chain impact.



Thank you very much for your attention!

We thank everybody for their input into this study.

If you have further questions or would like to receive a copy of the final report, please send us an email (msuwa@worldbank.org; stefan.vongruenigen@econcept.ch).

