

Private Public Engagement in Hydromet Services

Preliminary Country Analyses and First Findings

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GWE Conference, October 11, Amsterdam



Agenda

- The project
- Preliminary country analysis
- Models and examples of PPE
- First findings based on our observations
- Your feedback and guidance

The Project

Primary **objective** of the study

- ❑ Develop guidance material on public private engagement (PPE) based on a comparative analysis of public private engagements

Today we present

- ❑ A **preliminary analysis** of six countries.
- ❑ **First findings** based on our observations – **open for discussion!**
- ❑ Our goal is to get your **feedback and guidance** for the last phase of the project.

Approach and timeframe

Desk work and feedback from GFDDR project team and GWEF members

Explorative talks

Stakeholder interviews (public and private sectors)

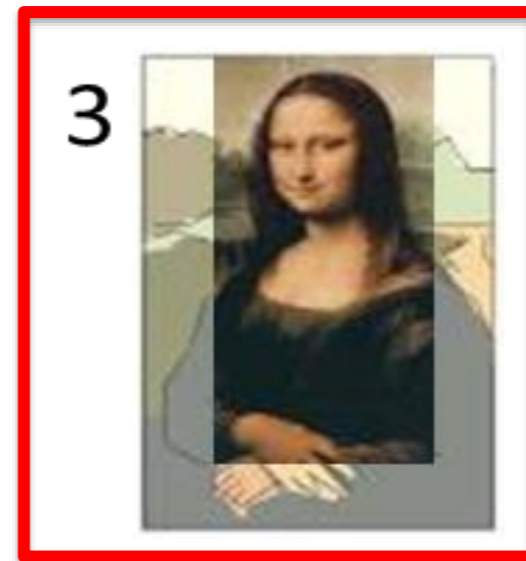
Missions Indonesia / Myanmar / Ghana



EC70
June

GWEC
October

Early
2019



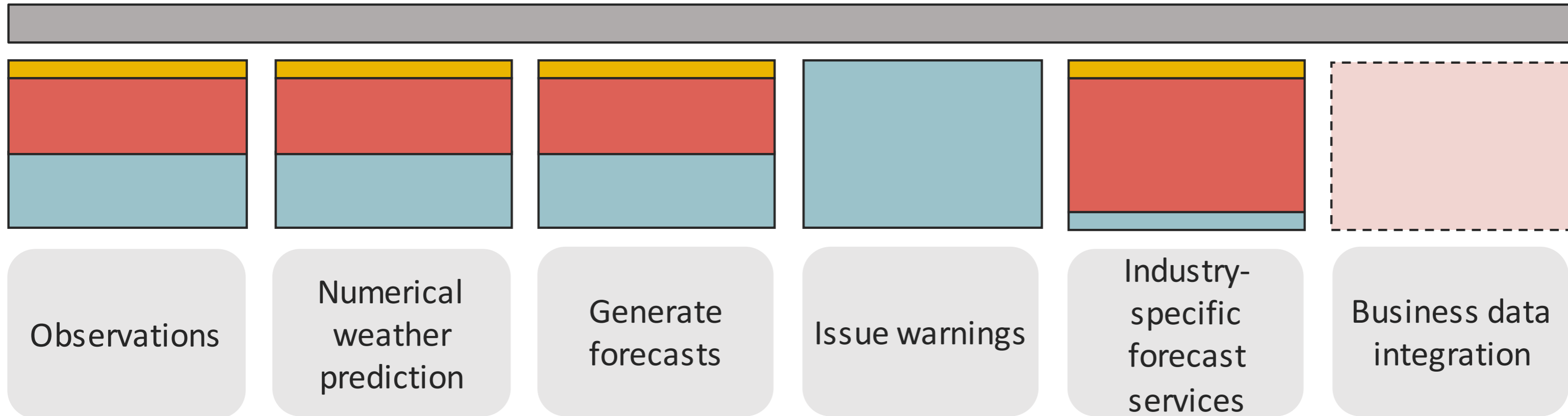
Preliminary Country Analysis

We looked at

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

In the following slides we introduce the analytical framework and give an overview over the resulting patterns for USA, Japan, UK, Indonesia, Myanmar and Ghana.

Value-Chain country pattern



International dependency

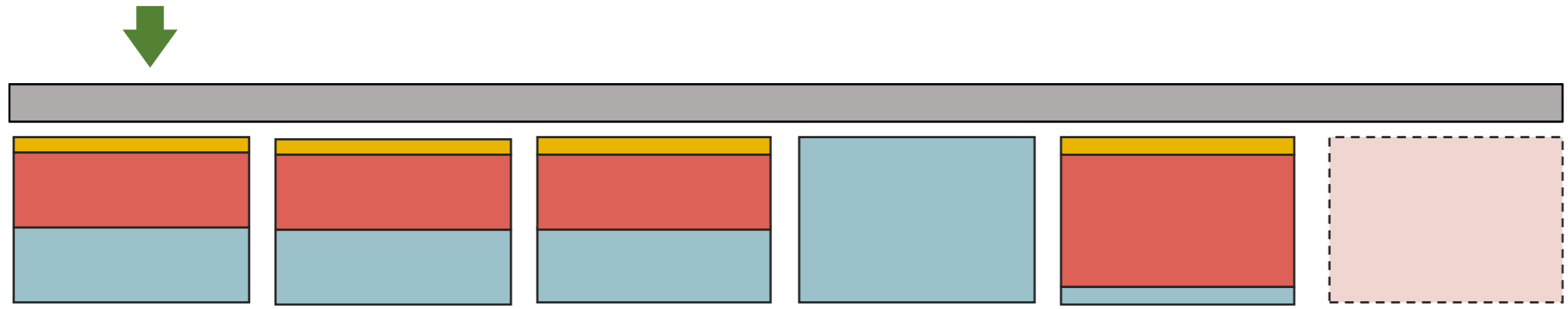
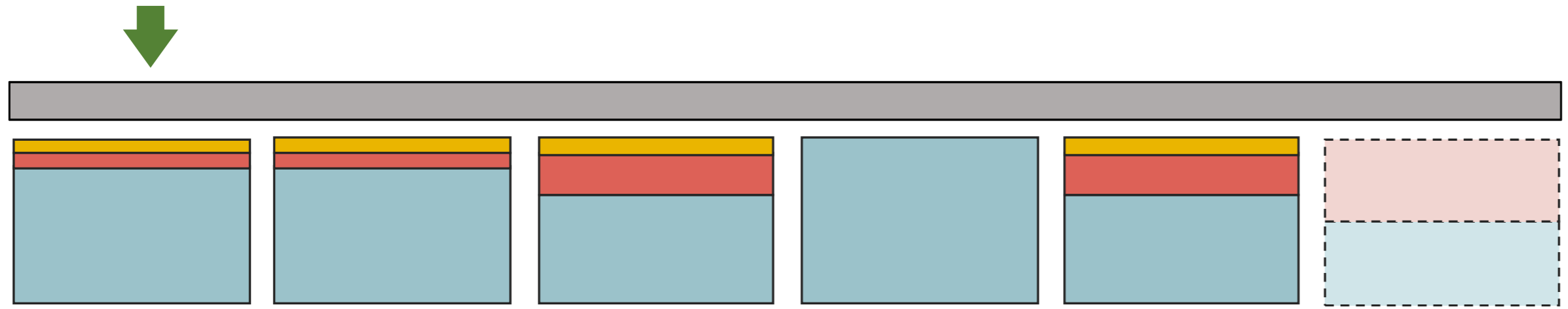
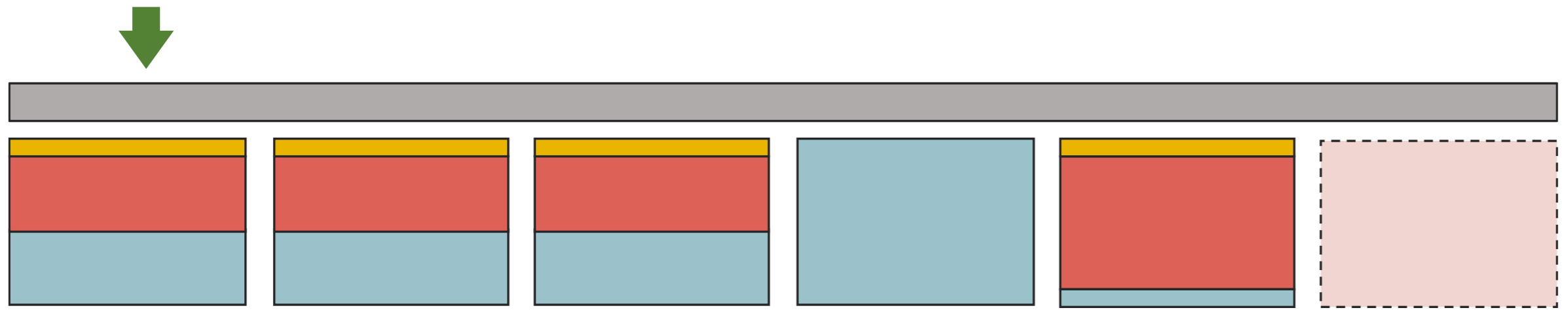


Color coding for sectors and maturity

Value chain				
Academia				
Private				
Public				
	Advanced	Intermediate	Basic	N/A, unknown

Size coding for relative importance of sector

Minor
Major
Dominant



Observations Numerical weather prediction Generate forecasts Issue warnings Industry-specific forecast services Business data integration

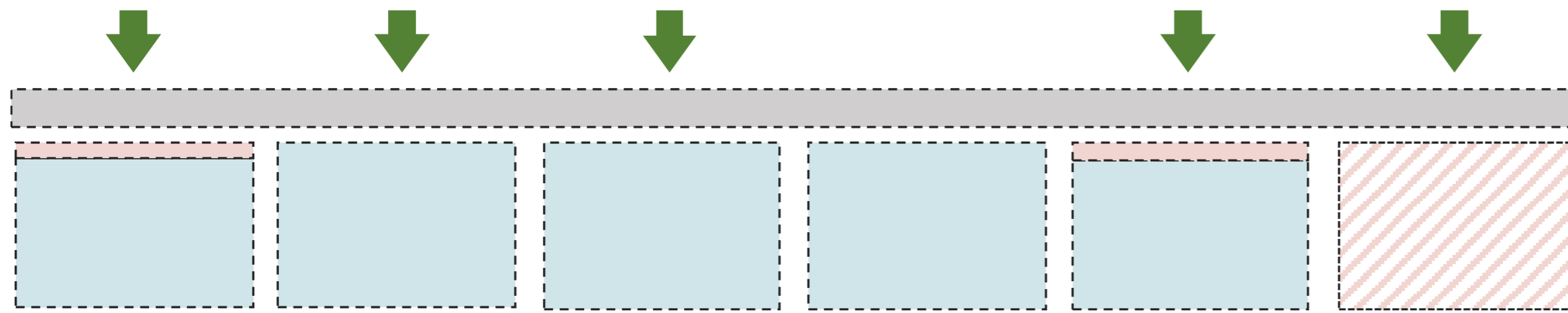
International dependency ↓

Value chain	Advanced	Intermediate	Basic	N/A, unknown
Academia	Advanced	Intermediate	Basic	N/A, unknown
Private	Advanced	Intermediate	Basic	N/A, unknown
Public	Advanced	Intermediate	Basic	N/A, unknown

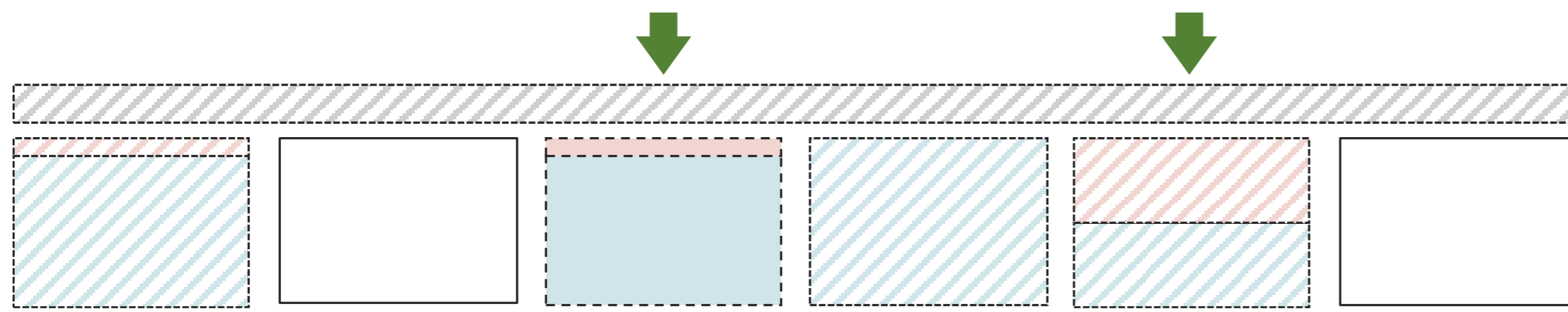
Color coding for sectors and maturity

Size coding for relative importance of sector

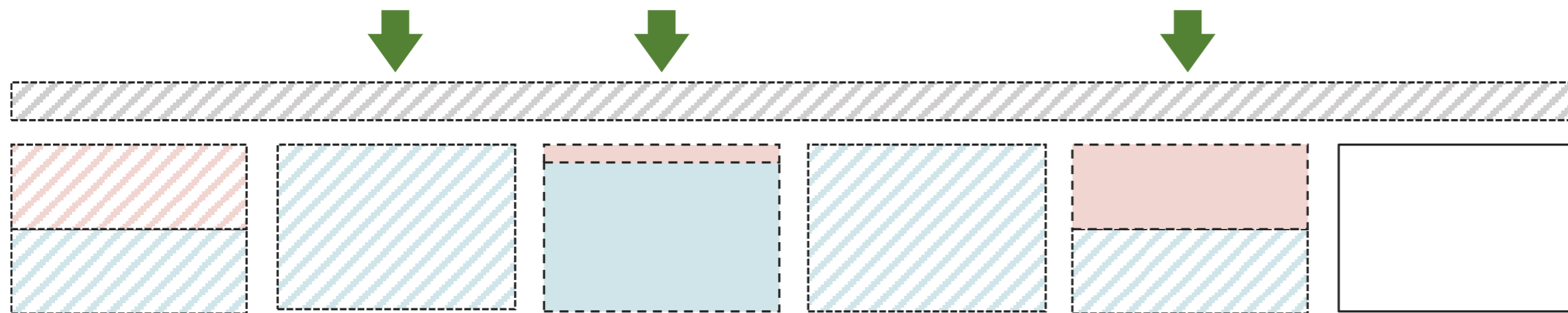
Minor
Major
Dominant



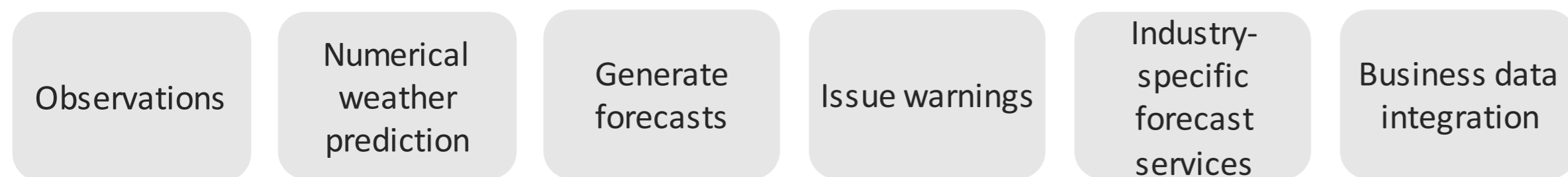
Indonesia



Myanmar



Ghana



International dependency ↓

Value chain	Advanced	Intermediate	Basic	N/A, unknown
Academia	[Yellow box]	[Yellow box]	[Yellow box]	[White box]
Private	[Red box]	[Red box]	[Red box]	[White box]
Public	[Blue box]	[Blue box]	[Blue box]	[White box]

Color coding for sectors and maturity

Size coding for relative importance of sector

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Models and examples of PPE

Customer – Supplier relationship

- ❑ Ground-based observations as a service (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 (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.)

Joint development of 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 information as decision making support (Indonesia).

Cooperation with transnational companies

- ❑ Actionable weather information delivered 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)

Selection of preliminary findings

A strategic approach is needed in the public sector

- Center the strategy around the enhancement of socioeconomic benefits
- Focus on the customer end of the value chain first, improving value chain components is only second
- Involve private sector
- Define the (future) role of NHMS within the strategy, examples of roles are:
 - Regulator of the hydromet domain
 - Provider of basic hydromet data, forecasts and warnings as open and free data
 - Hydromet provider with commercial activities

The legal and regulatory framework is fundamental for the private sector

- Legal framework: existent, enforced and stable over time
- Clear data policy and access procedures

Selection of preliminary findings (cont.)

Blockers of PPE

- Focus only on NMHS capability, losing sight of value chain.
- Lack of understanding the big picture, focus on tactical issues.
- Lack of international revenue/cost sharing mechanism for observation data.
- False hopes for willingness to pay for basic data and products.
- False hopes for the capability of NMHS to tailor, deliver, and support a large variety of services requiring a high degree of customer business integration.

Selection of preliminary findings (cont.)

Developing countries

- ❑ Developing countries can take another path than developed countries did.
- ❑ Donors play a major role. However, often ...
 - ❑ ... the project design does not consider the development of PPE.
 - ❑ ... projects fail to take into account the total cost of ownership of new equipment. This creates pressure find new revenue streams to cover for additional operation and maintenance costs.

Key enablers of a vibrant PPE

- Legal framework: existent, enforced and stable over time
- Open Data with free access for data produced by all public entities, including the NMHS.
- No hydromet monopoly (beside warnings), licensing or other market barriers.
- No commercial activities of the NMHS, without very strong laws on competition.
- Sound strategy, clear role and corresponding budget allocation for NMHS. No requirements regarding cost recovery.
- Creating high awareness of public entities (not only NMHS), businesses and the general public regarding the benefits from hydromet products and services.
- A structured and continuous dialog between public, private, and academic sector.

Thank you very much for your attention

- We would like to thank everyone who contributed so far to this project.
- We are present today and tomorrow and happy to talk to you. Any comments and feedback are very much appreciated.
- If you have further questions or suggestions please send us an email anytime (msuwa@worldbank.org; stefan.vongruenigen@econcept.ch).

Appendix: Maturity assessment guideline

	Entire chain	Observations	Numerical weather prediction	Generate forecasts	Issue warnings	Industry-specific forecast services	Business data integration
Advanced	Warnings have state-of-the-art accuracy and reach everybody affected. Additional socio-economic benefits of hydromet services are widely realized.	Adequate coverage with ground-based observations. Access to all satellite data save a few exceptions. All data available timely where it is needed. International ground-based observations are available and integrated.	NWP codes are created and/or innovated with local resources. Models achieve state-of-the-art skill, run regularly. Models run at global, regional, and local levels. Model ensembles and multi-model ensembles quantify forecast uncertainty. Model output is readily available.	Use a mix of global, regional, and local NWP output to generate forecasts. Add NWP results obtained from elsewhere to further enhance the forecast in specific situations. Add local expertise to improve the forecast.	Warnings have state-of-the-art accuracy and reach everybody affected. The warning system is resilient.	A large variety of tailored forecast products and services help organizations regularly. Needs for new services are quickly identified and met.	Operational decision making based on continuous data feeds combining weather forecasts and real-time weather information with real-time business data is widely used.
Intermediate	Warnings have mixed accuracy and/or do not reach everybody affected. Some additional socio-economic benefits of hydromet services are achieved.	Coverage with ground-based observations has gaps. Many satellite data are not available. International ground-based observations are not used directly.	Local NWP models are set up and operated with local resources. Dependency on international global models. Capable to locally produce maps and diagrams from NWP output.	Use a mix of local NWP output and NWP results obtained from elsewhere to generate forecasts. Add local expertise to improve the forecast.	Warnings have mixed accuracy and/or do not reach everybody affected.	A number of tailored forecast services help organizations regularly. It can take considerable time to meet new needs. There may be significant dependence on international services/products.	Some organizations apply weather and business data integration. Individual projects evaluate advanced approaches. There may be significant dependence on international resources.
Basic	There are only very basic warnings and they do not reach a majority of the people affected. Very few or no additional socio-economic benefits of hydromet services are achieved.	Coverage with ground-based observations is very sparse. Hardly any satellite data are available. International ground-based observations are not used directly.	Local resources operate a local NWP model set up by a 3 rd party. Capable to access NWP output in form of maps and diagrams generated elsewhere.	Use primarily NWP results obtained from elsewhere to generate forecasts.	There are only very basic warnings and they do not reach a majority of the people affected.	One or two sectors, e.g. air traffic control may be serviced with tailored products and services. There is no significant development of new services. There is significant dependence on international services/products.	A few projects evaluate whether integrating weather and business data could help making better business decisions. There is significant dependence on international resources.
Not available	There are no warnings and/or no benefits derived from hydromet services.	There are no ground-based observations worth speaking of. Satellite data are not available.	No capability to run local numerical weather prediction.	No forecasting capability.	There are no warnings.	No activities.	No activities.