Socio-Economic Benefits (SEB) of Climate Information Services (CIS)

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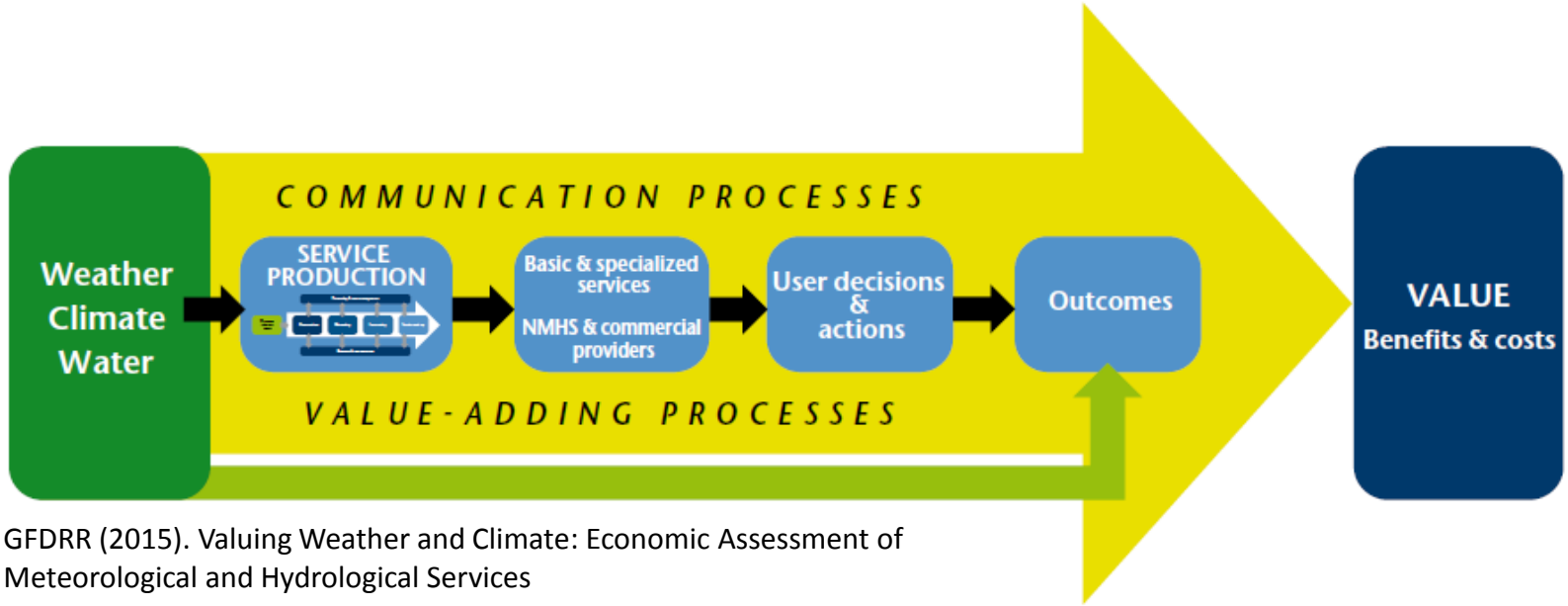
Background



GFDRR (2015). Valuing Weather and Climate: Economic Assessment of Meteorological and Hydrological Services

- Policy makers need estimates on the likely impacts of policies and investments.
- This includes as assessment of the potential dissemination of -and access to- the information generated.
- If the benefits, for any given economic actor or economy-wide outweigh the cost, the investment is justified.

Socio-Economic Benefits

The Socio-Economic Benefits of Climate Information Systems are many and varied.

- Some are direct (e.g. weather information, rainy days), some indirect (e.g. higher yield) some are induced (e.g. higher tax revenues).
- Some affect households (e.g. avoided damage to private property), others impact on businesses (e.g. avoided supply chain disruption) and the government (e.g. reduced infrastructure expenditure).
- Some are expressed in economic terms, some others have social or environmental dimensions.
- Some appear immediately and on a continuous basis, while some others will emerge over time (e.g. through improved systemic resilience).

Socio-Economic Benefits (2)

- The challenge is to estimate required **investments**, resulting **avoided costs** as well as **added benefits**.
- Investments represent the cost of intervention, across various economic actors.
  - Include capital costs, which can be shared across economic actors through the use of incentives (provided by the government) and co-financing (provided by the private sector and households).
  - The estimation should also include operation and management costs (i.e. running costs) as well as the cost of financing.
  - Investments are expressed in monetary terms.

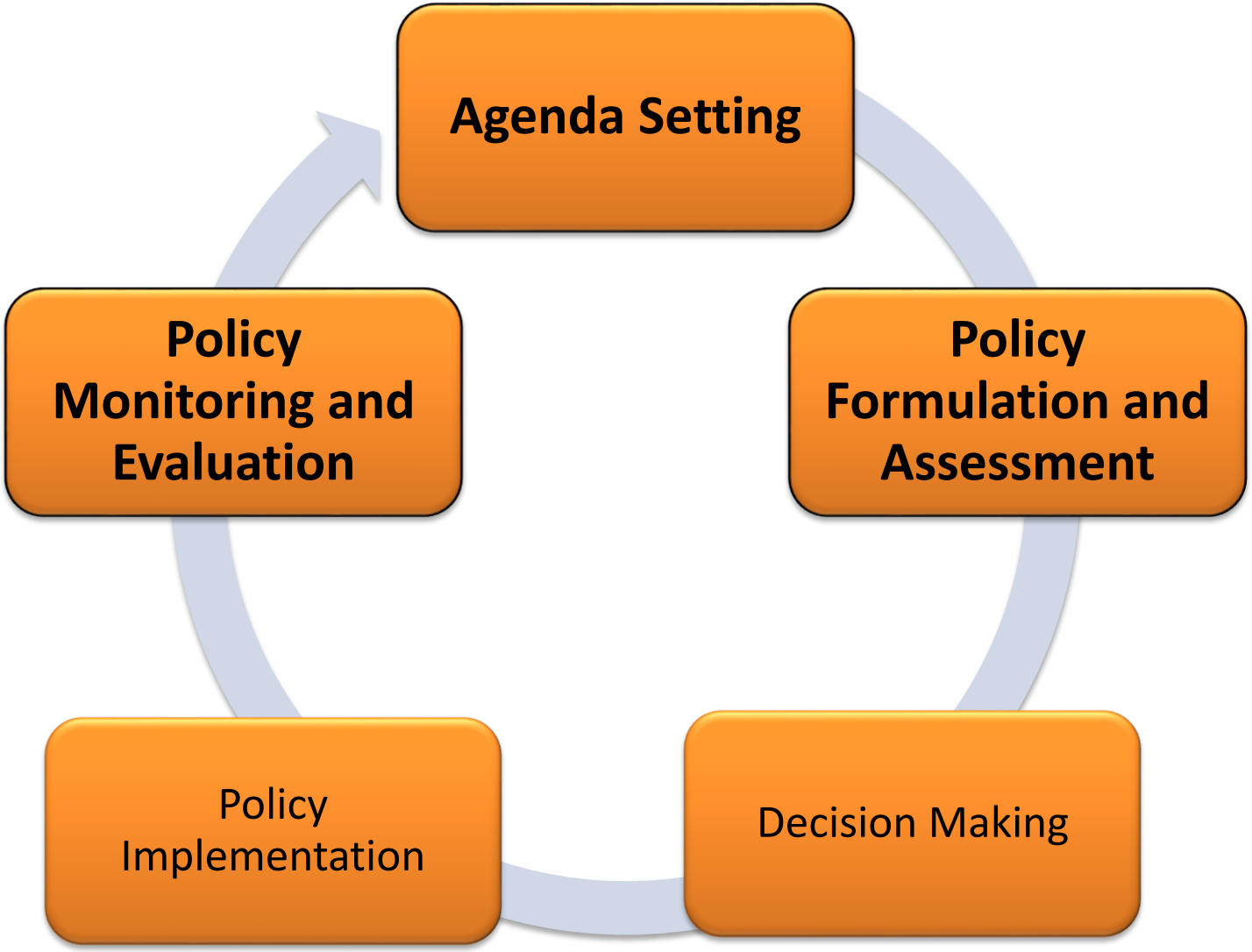
Socio-Economic Benefits (3)

- Avoided costs include those investment or policy-induced outcomes that reduce costs that would have been accrued in the baseline scenario.
  - If the use of weather information leads to a reduction in yield loss, the avoided cost is the amount of revenue that would be accrued in addition to the loss that would have been projected in the baseline scenario.
  - Avoided costs also apply to infrastructure. E.g. if a road was secured as a result of the availability of weather information (e.g. expectations for a high rainfall event), road maintenance could be lower than in the baseline scenario.
  - Avoided costs are measured in social (e.g. avoided injuries and loss of life), economic and environmental terms.

Socio-Economic Benefits (4)

- Added benefits include those new opportunities that emerge thanks to the implementation of a given policy or investment.
  - If, in result of expectations for longer drought periods, different types of crops are planted, more revenues may be accrued and more jobs may be created (on top and above what would be forecasted in the baseline scenario).
  - Added benefits are to be measured in social, economic and environmental terms.
- As a result, an opportunity would be missed if decisions only aim at mitigating costs and passively adapt to climate change.
  - If a more active approach is taken, new opportunities may emerge, and avoided costs could be reinvested in more resilient economic activities.

How/When is this relevant?



Methodologies and models

- Traditional assessments include:
  - **Regression analysis**: assesses the sensitivity to certain sectors/activities to climatic changes.
  - **Cost loss models**: compare the cost of protection to a probable climate-related loss. This approach can include social and environmental dimensions (Continuously Forecasting System).
  - **End-to-end forecasting**: links a biophysical model (e.g. crop yield) to an economic model (e.g. profit maximizing) to identify optimal adaptation strategies.
  - **System Dynamics**: focuses on causality, merges social, economic and environmental indicators to generate “what if” scenarios for policy analysis. It is a “knowledge integrator”.

Methodologies and models (2)

Main considerations:

- **Each model has strengths and weaknesses**
  - Most models are sectoral and only cover one dimension or economic actor.
  - The analysis is often discrete (time is not a key factor), while decision makers need to know *when* an event might take place and what return they can expect from investments.
  - Uncertainly needs to be taken into account, optimization models only provide the answer (not the means) and assume under perfect conditions/information.
- **Many additional models are already being used to assess sectoral performance.**

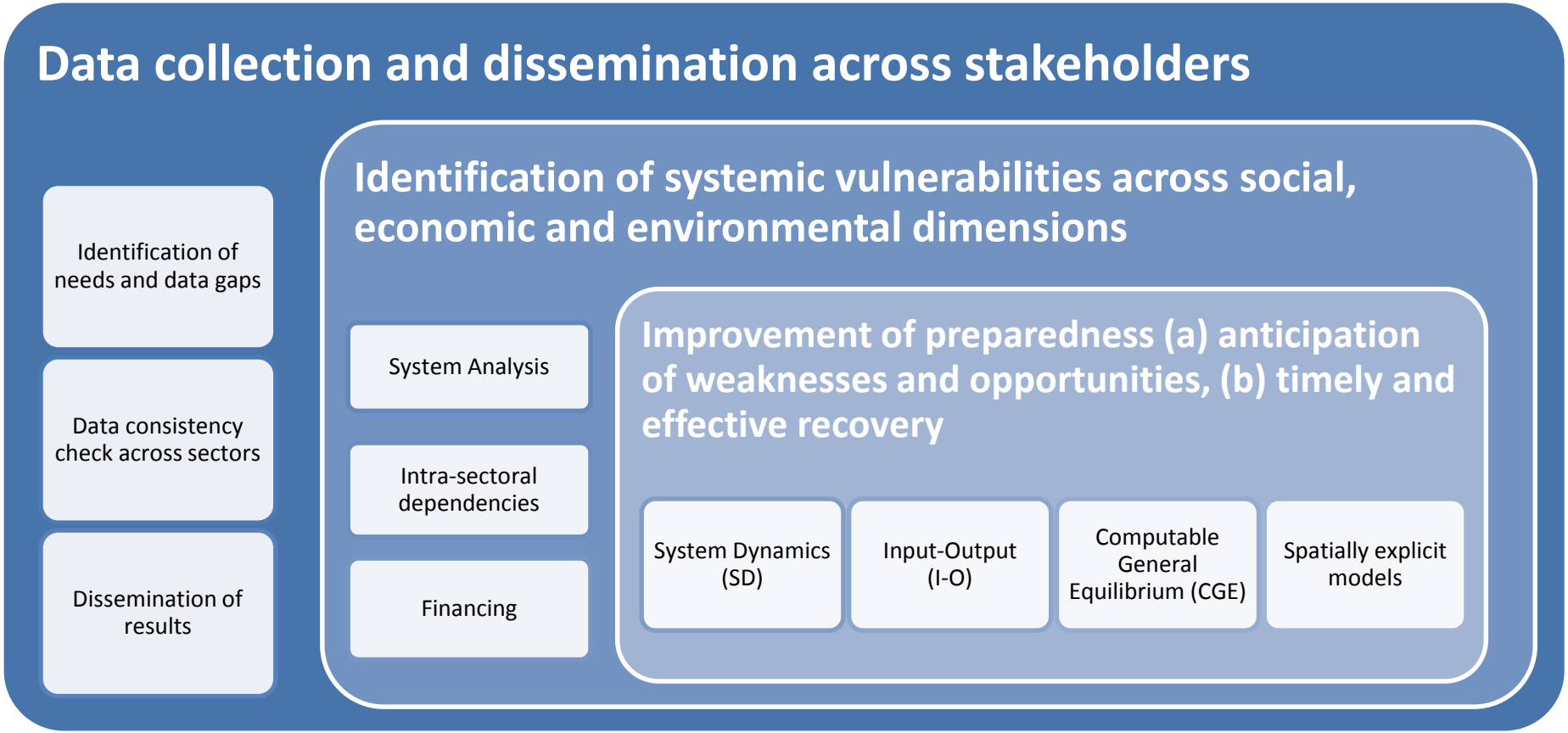
Proposed assessment framework

Designed to inform decision making and simultaneously

(1) reduce the impact of climate change, and

(2) create new opportunities for resilient and inclusive growth.

through the improved collection, use and dissemination of weather information



Thank you!

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