

The role of ecosystems in the Sendai Framework Monitor

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Session 2: Use and Impact of Sendai Framework Monitor Data

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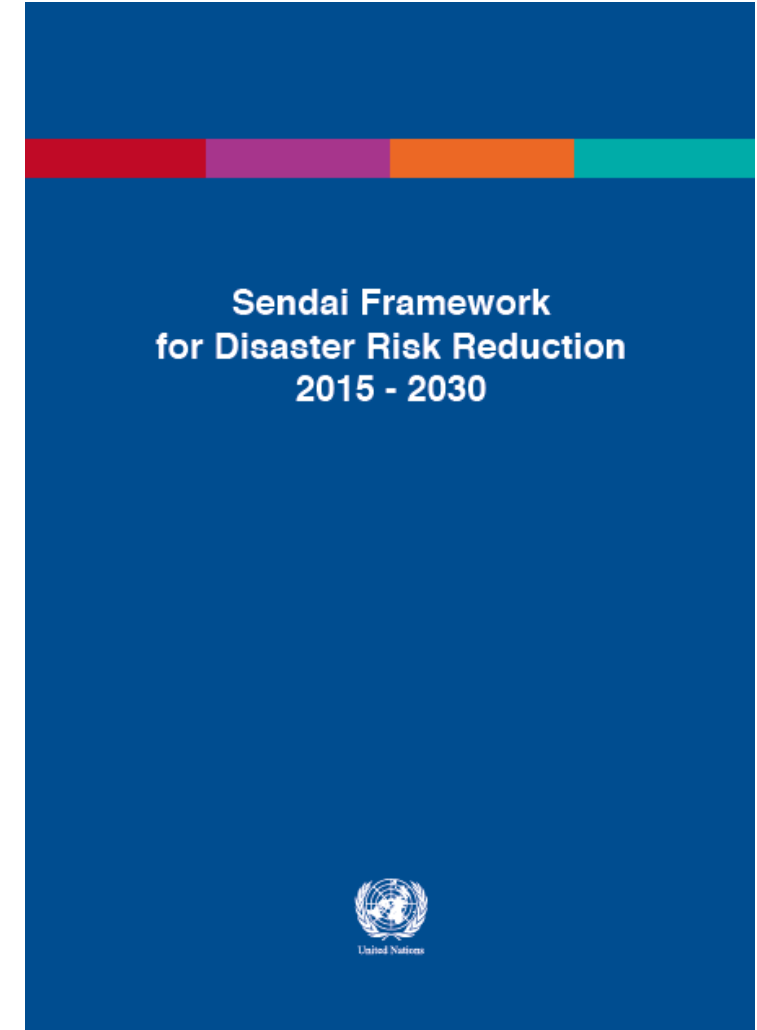
Ecosystem-based Approaches in the SFDRR

Environment mentioned in:

- Preamble
- Expected Outcome & Goal
- Guiding principles
- Priority for actions (3/4)
- International cooperation

But:

- No direct indicator related to environment or ecosystems



Ecosystem-based Disaster Risk Reduction

Nature-based Solutions are (...) actions to protect, sustainably manage, and restore natural or modified ecosystems, that address **societal challenges** effectively and adaptively, simultaneously providing human well-being and biodiversity benefits

Source: Cohen-Shacham et al. (eds.) (2016): Nature-based Solutions to address global societal challenges. Gland, Switzerland: IUCN

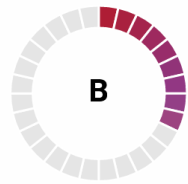
Eco-DRR is the sustainable management, conservation and restoration of ecosystems to reduce disaster risk, with the aim of achieving sustainable and resilient development

Source: Estrella and Saalismaa (2013): In “The role of ecosystems in disaster risk reduction”, Renaud, Sudmeier-Rieux and Estrella (eds), United Nations University Press, 2013, ISBN 978-92-808-1221-3

Green Infrastructure is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation, and management of wet weather impacts that provides many community benefits

Source: UNISDR (2017): [54970_techguidancefdigitalhr.pdf \(unisdr.org\)](#)

Monitoring disaster-related losses of ecosystems in the SFM

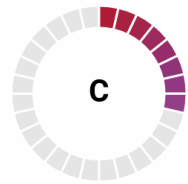


People affected

B-5: Disrupted/destroyed

B5a: Hectares of crops affected

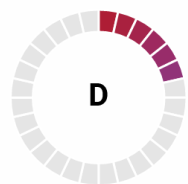
B5b: Number of livestock lost



Economic loss

C-2: Direct agricultural loss attributed to disasters

C-5: Direct economic loss resulting from critical infrastructure



Critical infrastructure & services

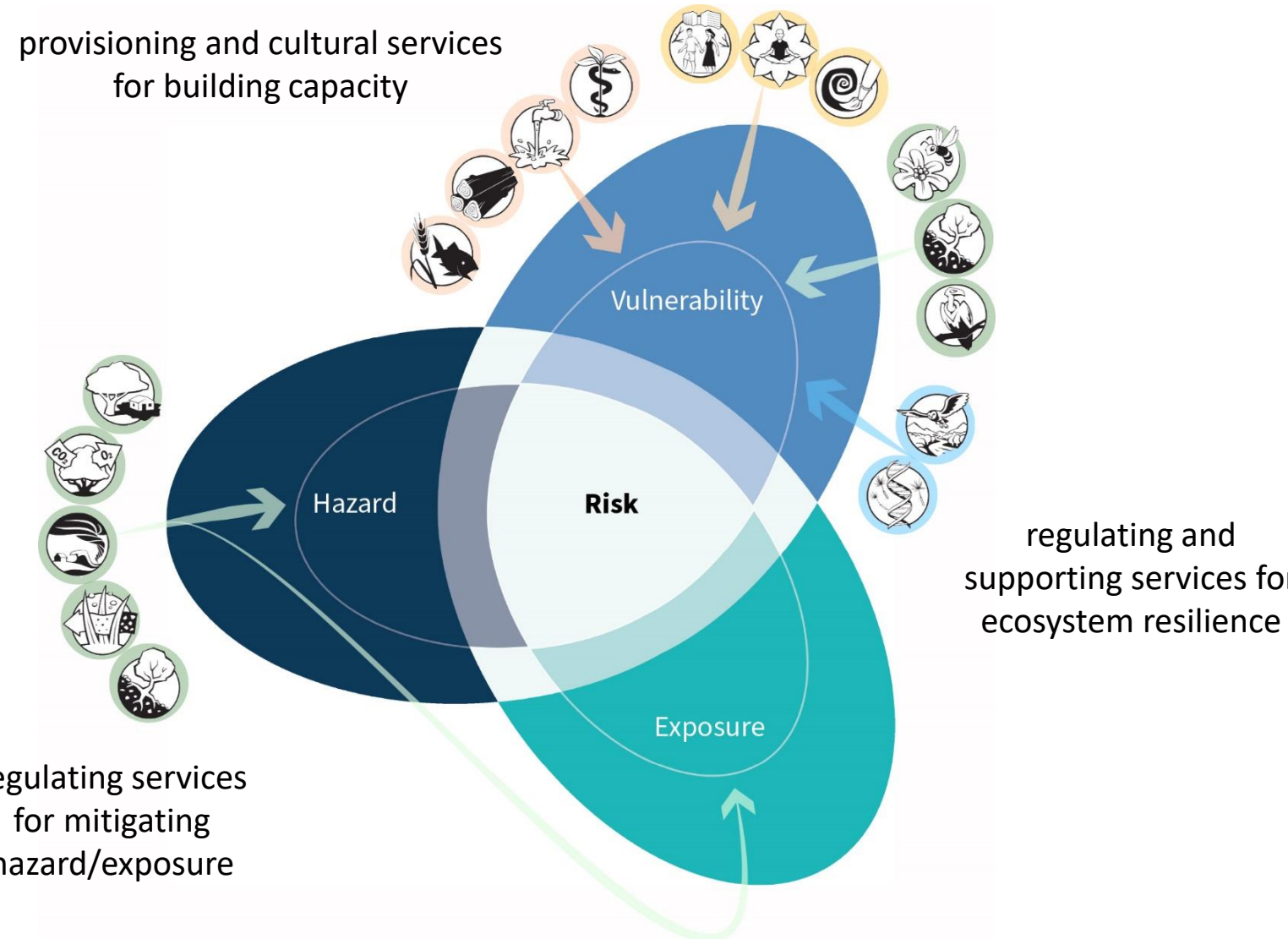
D-4: Number of other destroyed or damaged critical infrastructure

Disaster-related losses of ecosystems

- Arable land ; Crops
- Livestock
- Crops; Livestock; Forestry; Aquaculture; Fisheries
- Coral reefs; Mangrove forests
- Coral reefs, Mangrove forests; Protected areas

The importance of considering ecosystem and their services

- | | |
|---|--|
| <p>Provisioning services</p> <ul style="list-style-type: none">  Food  Raw materials  Fresh water  Medicinal resources <p>Cultural services</p> <ul style="list-style-type: none">  Recreation and mental and physical health  Aesthetic appreciation and inspiration for culture, art and design  Spiritual experience and sense of place | <p>Regulating services</p> <ul style="list-style-type: none">  Local climate and air quality  Carbon sequestration and storage  Moderation of extreme events  Erosion prevention/ Maintenance of soil fertility  Waste-water treatment  Pollination  Biological control <p>Habitat/Supporting services</p> <ul style="list-style-type: none">  Habitat for species  Maintenance of genetic diversity |
|---|--|

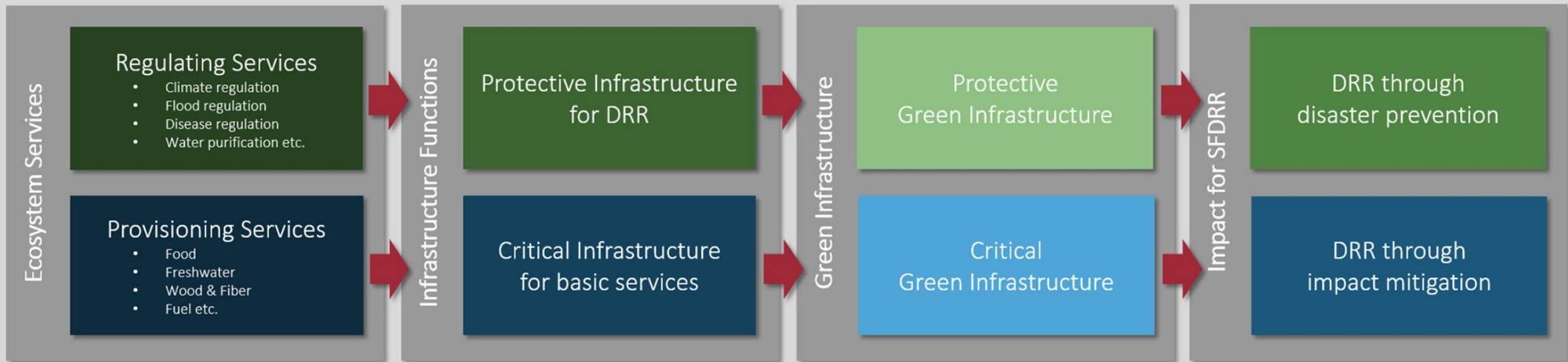


Source: Walz, Y., Janzen, S., Narvaez, L., Ortiz-Vargas, A., Woelki, J., Doswald, N., Sebesvari, Z., (2021). Disaster-related losses of ecosystems and their services. Why and how do losses matter for disaster risk reduction? *International Journal for Disaster Risk Reduction*, 63(102425), 1-16

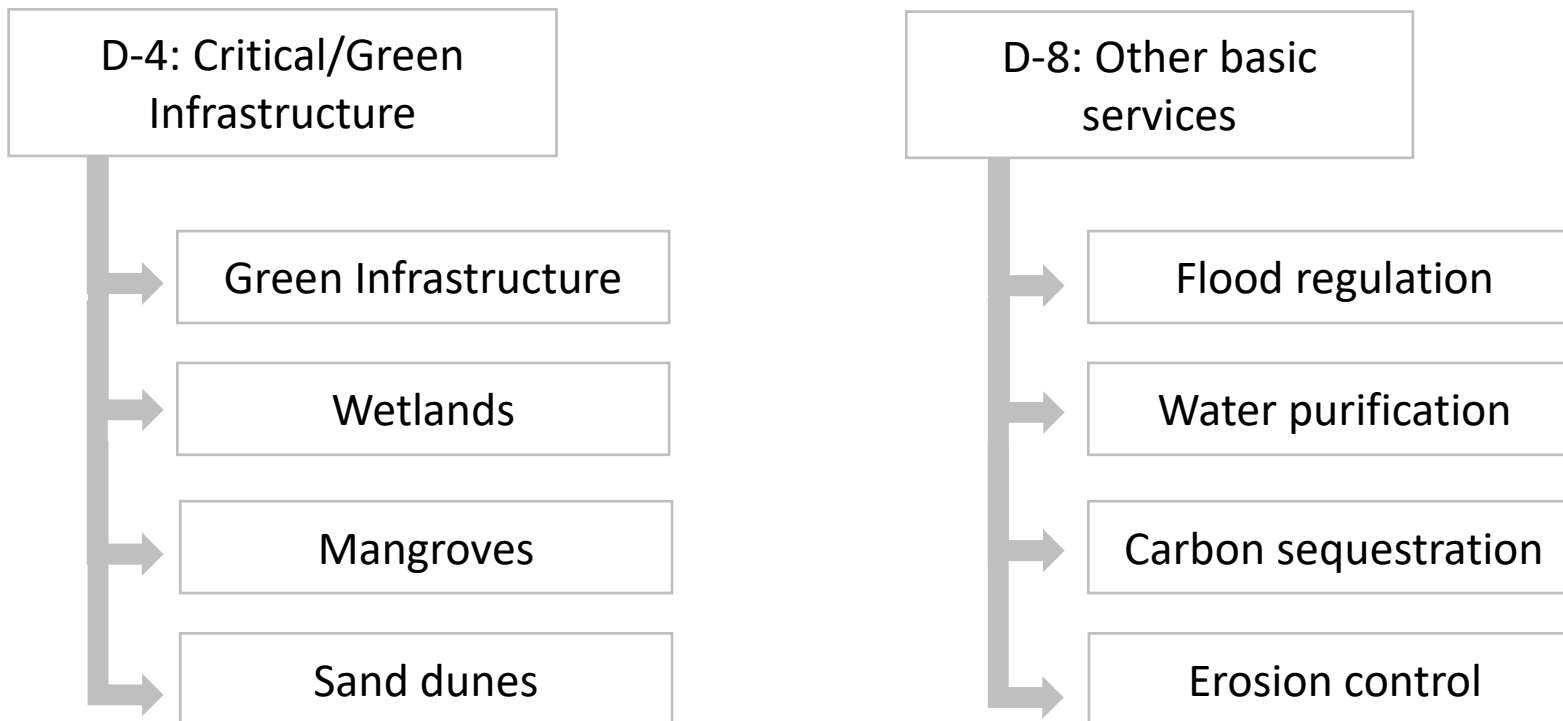
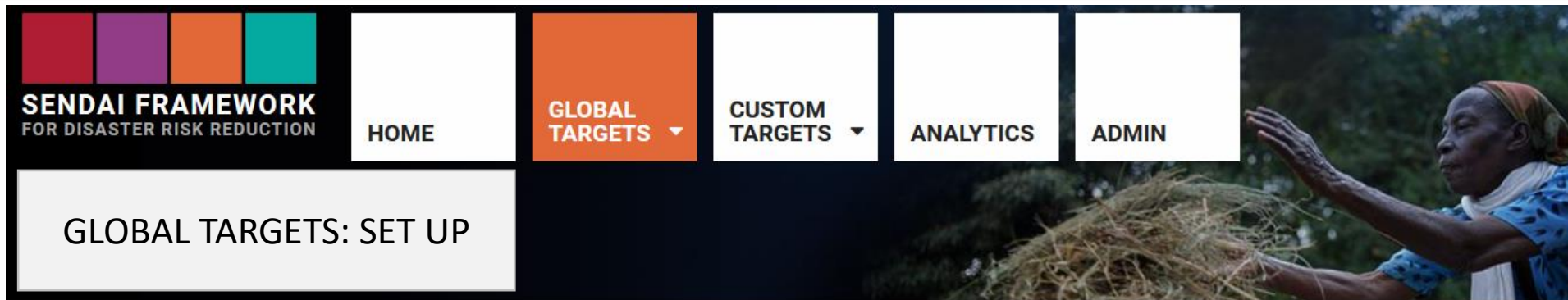
Critical infrastructure / Green Infrastructure

GREEN INFRASTRUCTURE

natural or semi-natural areas
delivering ecosystem services



Opportunities for considering ecosystems and ESS losses in the SFM



- 1) The reporting of livelihoods lost due to disasters should **go beyond crop and livestock and consider other relevant ecosystems and ESS** which provide a basis for livelihoods. (Target B)
- 2) **Most ecosystems should be considered as critical infrastructure**, which can be well justified by the role ecosystems and their services play for DRR. Green infrastructure needs a more clear and applicable definition in the SFM and complemented with blue infrastructure. (Target D)
- 3) The majority of ESS can be considered as basic services that are needed for society to function, such as fresh water supply, waste water treatment or services that are relevant for human health and well-being. Against this background, **ESS could be integrated into indicator D-8 (disrupted services) and reported in reference to ecosystem losses under green (and blue) infrastructure (monitored by indicator D-4)**. (Target D)

THANK YOU FOR YOUR ATTENTION



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