Introduction

Sea levels have risen by 20 cm and are projected to rise by another 30 cm to over a meter by 2100, subject to future emission levels.

Sea levels rise gradually in response to global warming, and once initiated, this increase persists over millennia.

IPCC AR6 SYR Figure 3.4a
Impact assessment of Slow-Onset Events

Risks to coastal geographies increase with sea level rise and depend on responses

INFORM RISK a collaboration of the UN Inter-Agency Standing Committee and EC.

INFORM Climate Change useful to identify disparities in climate impacts, including those affecting marginalized groups like displaced populations.

Marzi et al, 2021, Global Env Change link UNDRR GAR Global Assessment Report 2022 link
Data generated / data available and methods applied

INFORM Climate Change Results

This table shows top results from INFORM Climate Change: the current and future climate change risk index and - for 21 countries: the INFORM Climate Change Risk index by change in risk in the community itself.

![INFORM Climate Change Results](image)

Data generated / data available and methods applied

Venezia 2021, assessment of the economic benefits arising from the flood protection in Venice. Annual expected damage (AED) and loss (AEL) under current and future climate (different scenarios)

![Venezia 2021](image)

Source: Essenfelder et al, in preparation

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Data generated / data available and methods applied

Storylines as a way of extending the climate risk assessment and exploring alternative ways of how the events unfold.

**RECEIPT** – storyline visualiser

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Affected</th>
<th>Internal Displacements (&gt;1m)</th>
<th>Aid Required¹</th>
<th>Direct Building Damage²</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019 Factual; TC Idai</td>
<td>1.9M</td>
<td>478K</td>
<td>$95M</td>
<td>$257M</td>
</tr>
<tr>
<td>2100 RCP8.5³ + HA</td>
<td>2.6M</td>
<td>647K</td>
<td>$128M</td>
<td>$871M</td>
</tr>
<tr>
<td>2100 RCP2.6³</td>
<td>2.1M</td>
<td>529K</td>
<td>$105M</td>
<td>$361M</td>
</tr>
</tbody>
</table>

HA = Extreme Humanitarian Access Constraints

Source: Pal et al, 2023, under review

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**Challenges and Lessons**

- All Slow Onset Events (SoEs) are inherently **interconnected** and have a compound effect on each other.
- They **deplete resources and capabilities**, thus shrinking the capacity for resilience.
- While most SoEs are **apparent**, they frequently go unaddressed, symbolizing predictable but ignored threats.
- Their impacts can be widespread as they unfold through various risk pathways.
- Many SoEs precipitate outcomes long before they physically occur.
- They intensify the effects of Fast Onset Events and pose adaptation challenges, as the solutions often necessitate substantial time to implement and become effective.

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*Source: Shutterstock*

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Recommendations / Opportunities

Not only impact or loss accounting. It is critical to assess, monitor and build capacities and expand the limits to adaptation.

**b) Typical timescales of coastal risk-management measures**

- Ecosystem-based adaptation: 15 years
- Sediment-based protection: 15 years
- Elevating houses: 30 years
- Protect levees: 50 years
- Protect barriers: 100 years
- Planned relocation: ≥100 years

Higher greenhouse gas emissions lead to larger and faster sea level rise, demanding earlier and stronger responses, and reducing the lifetime of some options.

Example: timing of 0.5m sea level rise.

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IPCC AR6 SYR Figure 3.4b

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Thank you for the attention!

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