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20 - 21 February 2023

Sustainable Transformation of Utilities

Towards Resilient Power Infrastructure

Mr. Amit Prothi, Director General

CDRI

Coalition for Disaster Resilient Infrastructure

Overview- Disaster & impact on the community, critical power infra & Economy

Cyclone Fani, India (2019)

Economic Impact- $ 9 billion

Cyclone Winston, Fiji (2017)

Economic Impact- $ 1.3 bn (20-25% GDP)

Hurricane Maria, Puerto Rico (2017)

Economic Impact- $ 91 billion

Superstorm Sandy, USA

Economic Impact- $ 65 billion

Annual economic losses in Pacific SIDS- **$ 1 Bn--5%** of combined GDP- World Risk Index 2021

40 % ↑ no. of disasters during 2015-2030- GARR 2022

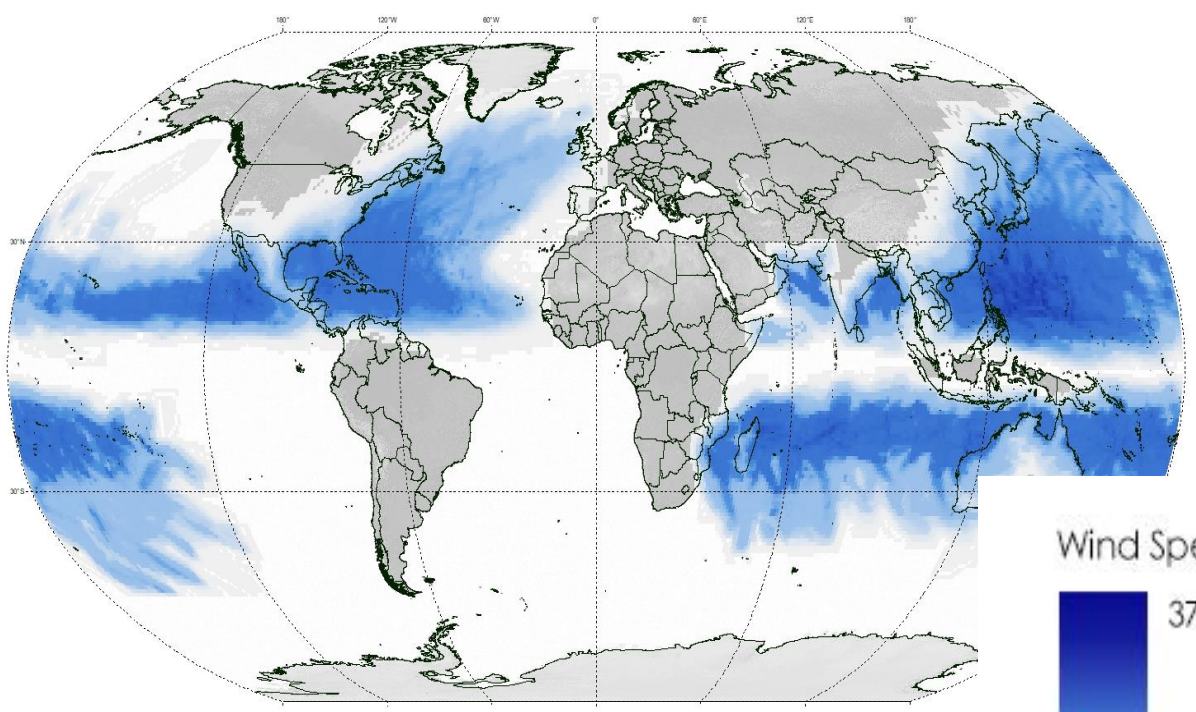
Economic Impact on developing countries-

Pvt Sector Sale Losses of **$ 82 Bn per year**

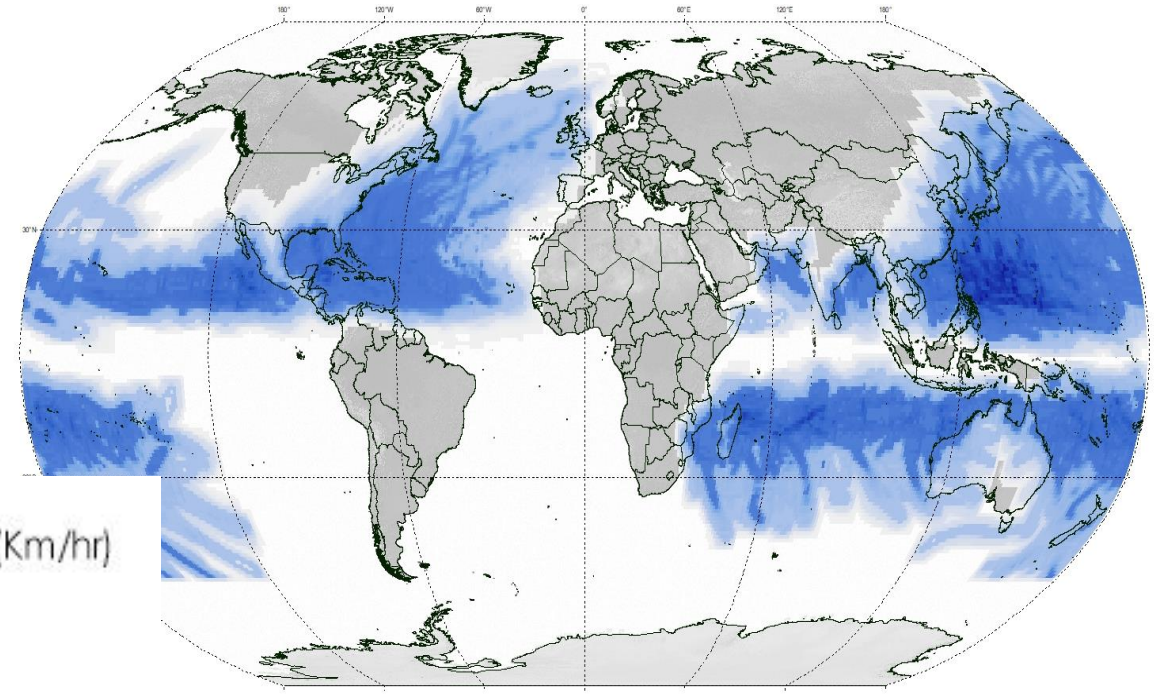
Household losses- **$ 2.3 bn -190 Bn per year**

Stronger Power, World Bank 2019

Risk profile is changing- Cyclone Wind Hazard (25/100 Years)



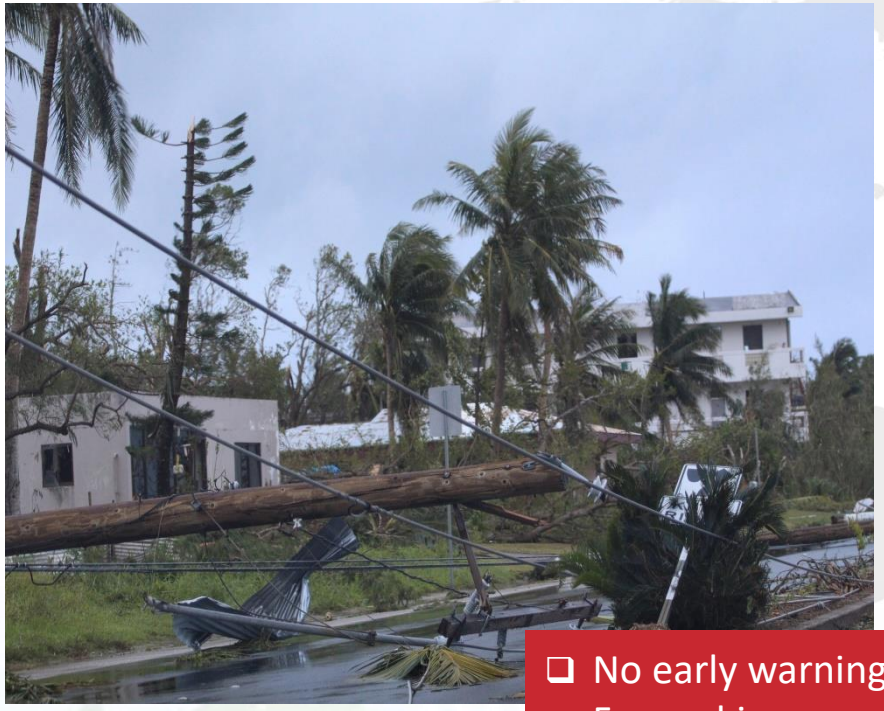
25 years



100 years

The Infrastructure Assets on the coastal geographies will need to integrate climate risk data across the infrastructure lifecycle. Cyclone wind hazards will increase in intensity and frequency. - *CDRI's Global Infrastructure Risk Model and Resilience Index - GIRI*

Case Study- Cyclone Fani: Impact on Odisha Power Infrastructure



Damage to power infrastructure: INR 8,139 Crs (USD 1.2 Bn)

Transmission (440, 220 and 132kV)
- **116** towers
- **2** Grids and **250 km** lines

Distribution (33kV, 11kV and LT)
- **2.2 lakh** poles
- **1.1 lakh km** lines
- **12,064** Transformers

Estimated revenue loss: INR 254 Crs (USD 36 Mn)

Electricity consumers impacted: 4.63 Mn

- ❑ No early warning indicator- Formed in pre-monsoon (April)
- ❑ Gale winds **175-185 kmph;** gusting to **205 kmph**
- ❑ Old tower standards not upgraded to the above wind speed
- ❑ High winds and torrential rains in Puri & Bhubaneswar

- ❑ Major damage to distribution infrastructure; transmission impact was limited
- ❑ Power disruption to critical consumers like hospitals, water pumps, state dept. offices
- ❑ Clogged roads and highways due to fallen trees, electricity poles, and lines

Infrastructure for Resilient Island States (IRIS)

CDRI Flagship Initiative on building Coastal Resilience in SIDS

Launched at the World Leaders Summit at COP26

IRIS is a dedicated initiative to achieve sustainable development in SIDS through a systematic approach towards resilient, sustainable and inclusive infrastructure

Aims to provide technical support on multifaceted issues posed by infrastructure systems in SIDS

All SIDS from the Caribbean, Pacific, Atlantic, and Indian Ocean regions are eligible for support through IRIS

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IRIS Call for Proposal

Key Themes

Risk-Informed Policy & Planning

- Data Repositories & Management
- Policy & Regulatory Frameworks
- Infrastructure Strategy & Plans

Implementation Readiness

- Project Implementation Capacity
- Academic & Professional Training
- Knowledge Generation & Exchange

Inclusion Mainstreaming

- Policy & Advocacy
- Solutions for Equitable Access
- Capacity Development & Training

Access to Finance Actions

- Investment Readiness
- Expansion of Funding Landscape
- Access to Investors

Priority Sectors

Transport Infrastructure | Power Systems | Coastal Infrastructure | Water, Waste & Wastewater Management | Housing | Tourism Infrastructure | Social Infrastructure | ICT & Multi Hazard Early Warning Systems

Thank You

For discussions/suggestions/queries email: amit.tripathi@cdri.world