ESCAP IDD Tools & Frameworks for Digital Connectivity & E-Resilience

Science, Technology and Innovation (STI) Gap Assessment of SPECA member countries

26 November 2020

ICT and Disaster Risk Reduction Division

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ASIA-PACIFIC INFORMATION SUPERHIGHWAY

亚太信息高速公路

АЗИАТСКО-ТИХООКЕАНСКАЯ ИНФОРМАЦИОННАЯ СУПЕРМАГИСТРАЛЬ

L'AUTOROUTE ASIE-PACIFIQUE DE L'INFORMATION

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Asia-Pacific Information Superhighway (AP-IS) Initiative

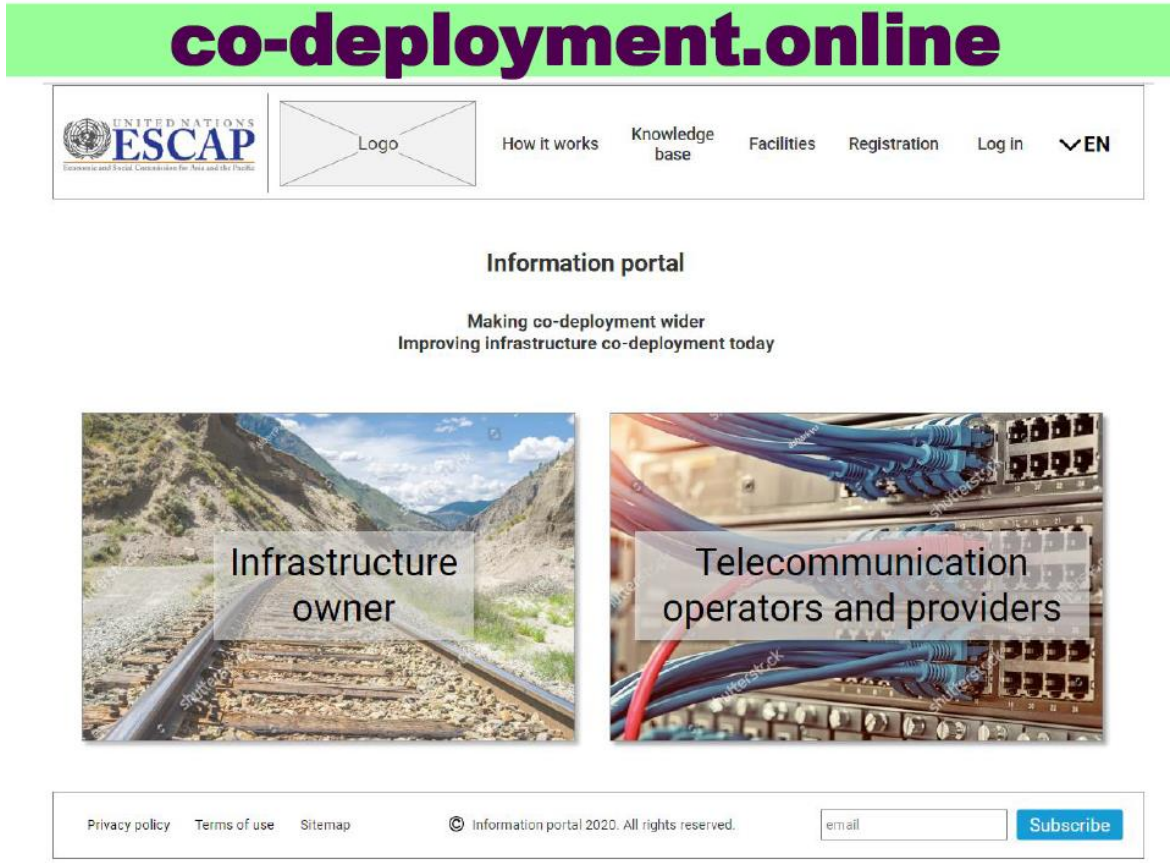
The Asia-Pacific Information Superhighway initiative aims to increase the availability and affordability of broadband across Asia and the Pacific, under four pillars:

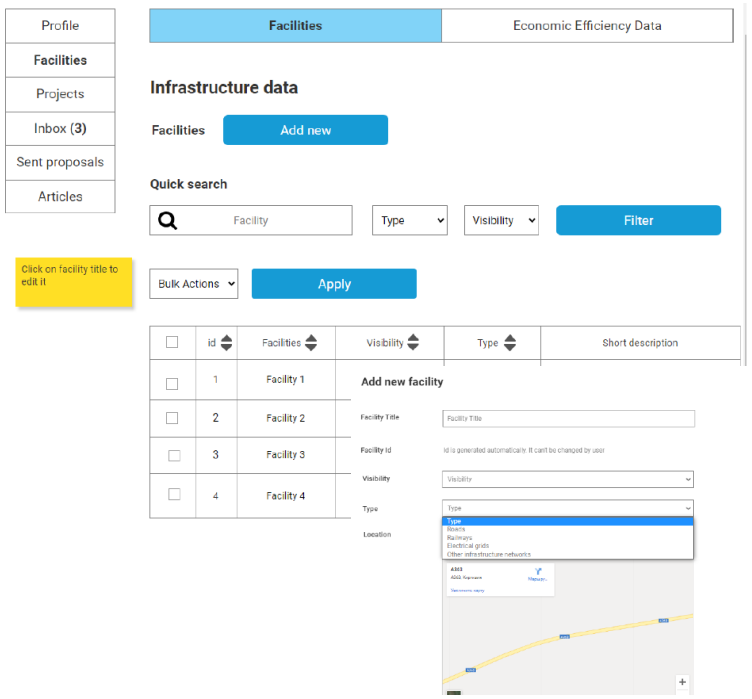
- Physical infrastructure upgrade and interconnection
- Internet traffic management
- Building regional network resilience
- Promoting broadband access in underserved areas

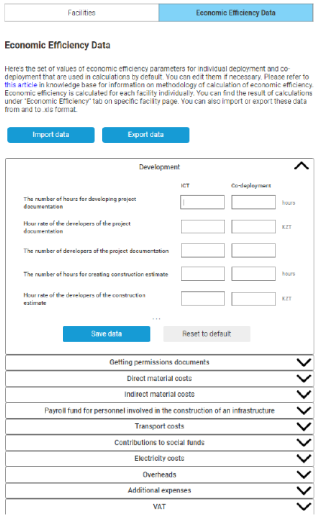
CICTSTI Recommendations on AP-IS (19-20 August 2020):

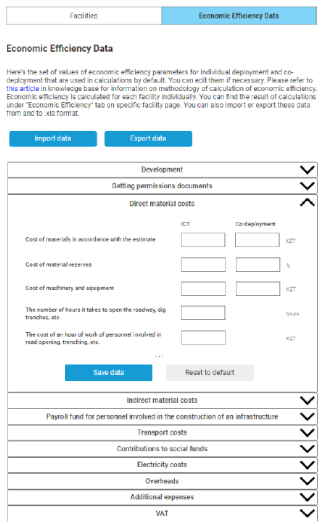
The Committee recommends that the secretariat set up a drafting group as part of the Asia-Pacific Information Superhighway Steering Committee to develop an action plan for the next phase of implementation of the Master Plan for the Asia-Pacific Information Superhighway, for 2022–2026, for consideration and adoption by the Committee at its fourth session, to be held in early 2022.

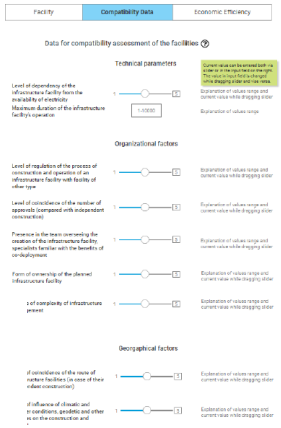
Partnership Portal Prototype











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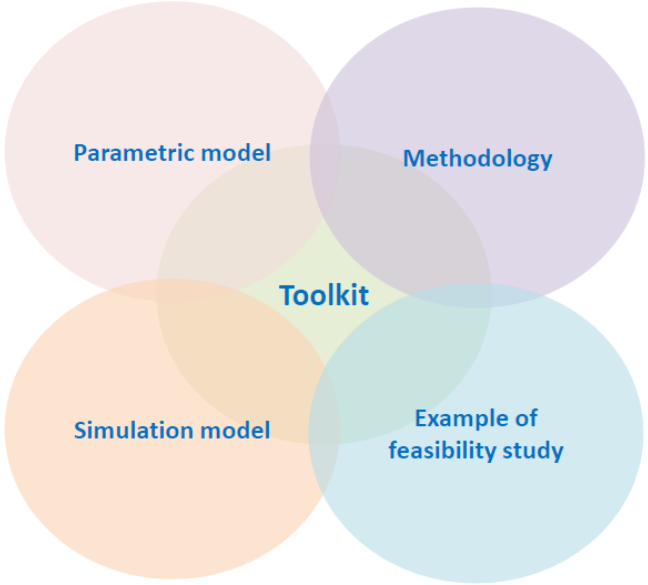
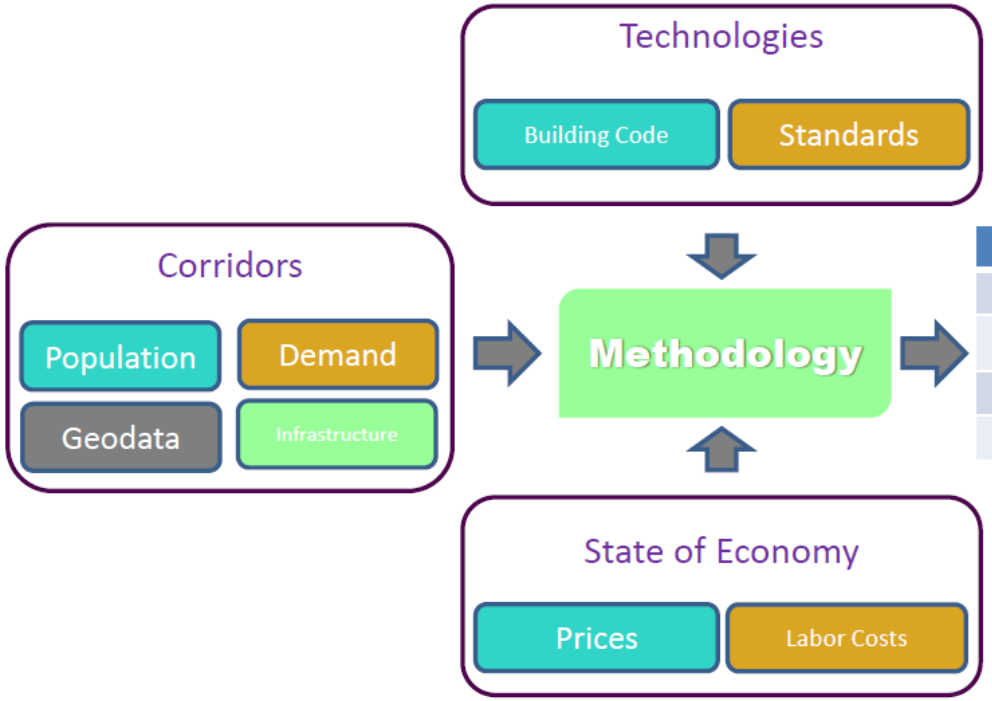
Smart Corridors Simulator

Toolkit and **methodology** for determining the most promising and suitable model of the new transport corridors' development





Scenarios	CAPEX	OPEX	NPV
Scenario 1	...	...	...
Scenario 2	...	...	...
...	...	...	...
Scenario N	...	...	...

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E-resilience Framework from a Pandemic Management Perspective

Pandemic phase and ICT role	Risk Prevention	Risk Reduction	Preparedness, adaptation and response	Recovery
Key Task	Improving Pandemic informed investments, Strategies, operations in ICT connectivity, risk analytics for early warning and enhanced preparedness	Mitigating the chance of virusinduced Disruption, damage, Socioeconomic losses, through development of analytical tools, applications, lessons learned	Risk indexing, lessening the impacts by Preparing Developing an eresilience index to assess readiness	Restoring functions with graded lockdowns and operations, recovering to build back better
1. Resilience of ICT infrastructure and networks				
2. ICT for societal resilience				

What e-resilience toolkits are available?

- For the resilience of ICT infrastructure and networks?
- For ICT for societal resilience?

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E-resilience monitoring model

E-resilience can be defined by 4 components, 8 pillars and 48 indicators (chosen from NRI, EGDI and INFORM Risk indexes):

	Governmental Policy on ICT infrastructure and applications		Level of development of ICT Infrastructure				ICT's role in the cycle of national level data managing	ICT enabled formation of new structures
	NRI 2020: Governance Pillar	INFORM Risk indexes: lack of coping capacity	NRI 2020 Technology	EGDI 2020: TII	EGDI 2020: HCI	NRI 2020: People	EGDI 2020: OSI	NRI 2020: Impact pillar
Kazakhstan	58.55	3.8	39.64	0.70	0.89	51.33	0.92	56.01
Tajikistan	37.87	5	25.84	0.35	0.73	30	0.32	42.86
Azerbaijan	49.45	4.7	41.7	0.65	0.77	50.04	0.71	53.84
Kyrgyzstan	45.29	4.5	26.22	0.59	0.79	35.59	0.65	47.31

Component 1: *Ease of doing business, Legal framework's adaptability to emerging technologies, E-commerce legislation, ICT Regulatory Environment, Secure Internet, Cybersecurity, Regulatory quality -2.5 -2.5 (best), Adult Literacy (%), mean year of schooling, R&D expenditure by governments & higher education*(% of GDP), *Public Trust in Politicians,* DRR

Component 2: *Mobile cellular subscriptions per 100 inhabitants, Percentage of Individuals using the Internet, Fixed (wired) broadband subscriptions per 100 inhabitants, Active mobile-broadband subscriptions per 100 inhabitants, Mobile tariffs*(% monthly GDP per capita), *Handset prices*(%monthly GDP per capita), *Computer software spending, Percentage of households with Internet access at home, 4G mobile network coverage, Fixed-broadband subscriptions, International Internet bandwidth per Internet user (kbit/s), Internet access in schools, Gender gap in Internet use, Rural gap in use of digital payments.*

Component 3: *Online service index, GitHub commits per 1,000 population, Wikipedia edits, Availability of local online content, Use of virtual social networks (% of population), ICT skills, Publication and use of open data, Online access to financial account, E-Participation.*

Component 4: *ICT PCT patent applications, Firms with website* (% of total), *R&D expenditure by businesses (% of GDP), Government promotion of investment in emerging technologies, Internet shopping (%), Socioeconomic gap in use of digital payments, Medium-and high-tech industry, High-tech exports, Prevalence of gig economy, Investment in emerging technologies, Mobile apps development, Adoption of emerging technologies.*

Three Messages on the ways to Boost Implementation of the Innovation Strategy in SPECA countries

1. The need to fight pandemic through innovation create opportunities for development of adaptive policies and enabling environment for a digital nomad;

2. Partnership portal and simulation models for sharing infrastructure and co-deployment of ICT, energy and transport infrastructure create opportunities for effective resource allocation to new projects and to e-resilience;

3. E-resilience monitoring dashboard will be contextualized for SPECA countries:

   - It creates opportunities for policy experimentation for enabling seamless connectivity and the agility of a digital nomad.
   - It may provide information and data for feasibility studies, analysis and frameworks, not only for assessment of current state of countries in the e-resilient environment.
   - It can help reveal also technological trends and illustrate the impacts of related digital technologies across sectors.
   - It opens-up opportunities for innovative start-up projects in public and private constituencies resulting from better ICT connectivity.

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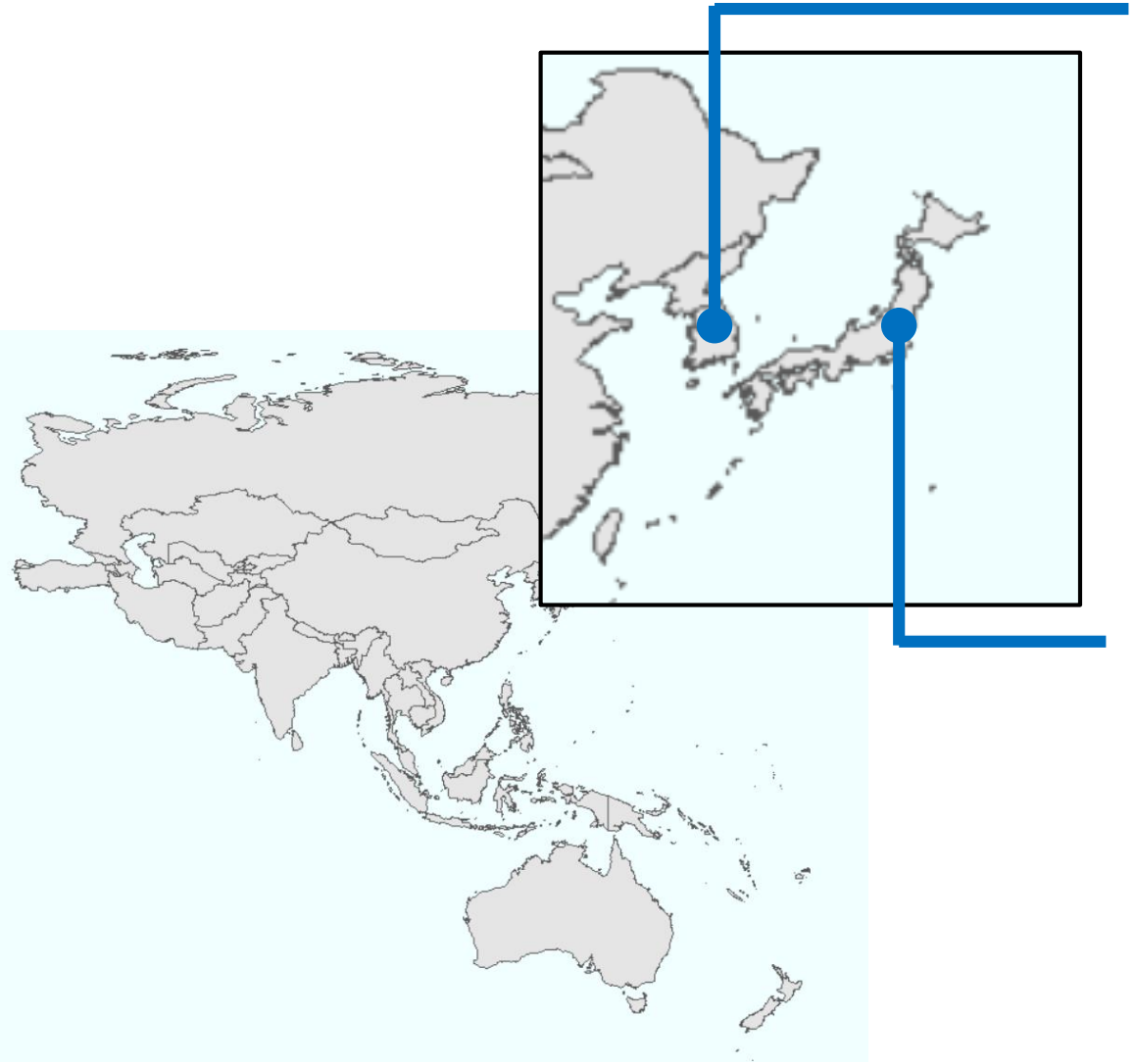
Country Examples (1)



Republic of Korea – Fiber Optic Cable (FOC) Co-deployment

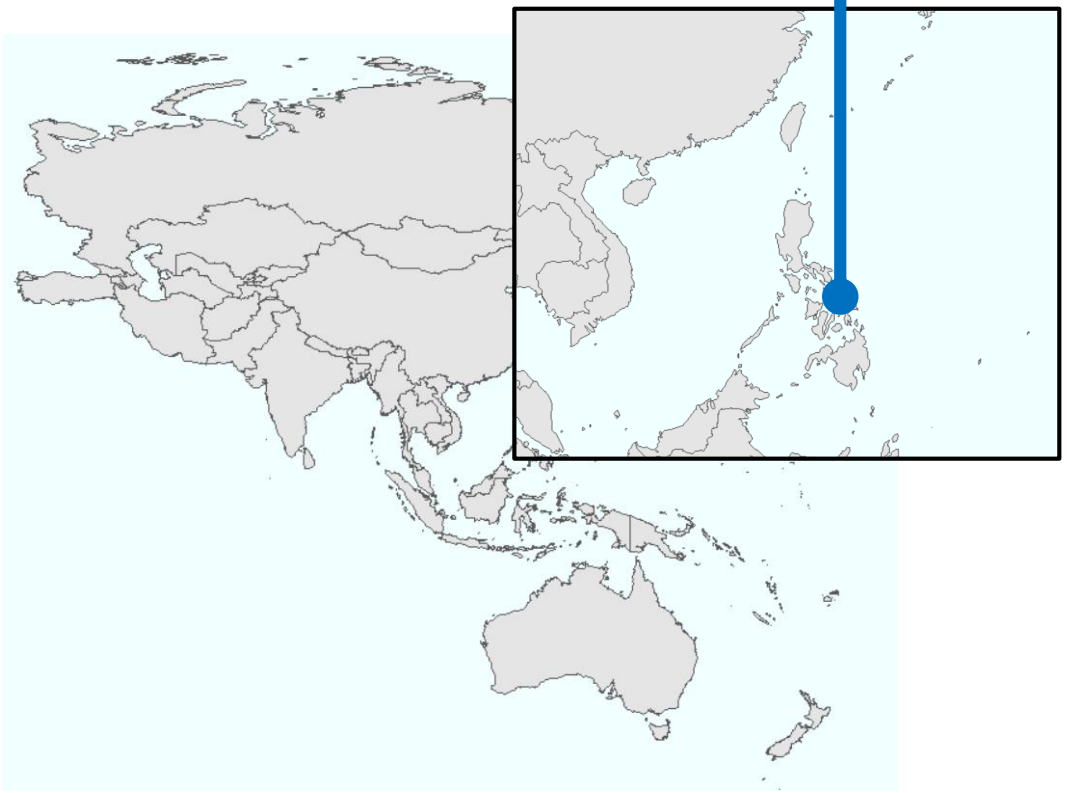
In order to facilitate and coordinate FOC co-deployment among telecom operators, the Korean government established and operated the **Consultative Council for Co-Deployment** under the Korea Telecommunications Operators Association. The Consultative Council for Co-Deployment also worked with various infrastructure management agencies on behalf of the telecom operators in FOC co-deployment along the transport and energy infrastructure. To further promote the rapid spread of broadband Internet services, the Korean government introduced the **Broadband Building Certification System** that requires all new buildings over a certain size to install FOC facilities.

Japan – Resilient ICT Infrastructure

Wireline and wireless access networks pose different challenges in terms of ensuring resilience. Post-disaster analysis of wireline networks in Japan showed that aerial cables were susceptible to greater damaged than buried cables. As a result, experts in Japan have promoted the use of ducts and buried cables. After the Great East Japan Earthquake and tsunami of March 2011 destroyed some 56,000 utility poles, legislation was enacted to facilitate the relocation of power lines underground, requiring the national government to take steps to expedite the effort and urging prefectures and municipalities to draw up plans of their own.

https://www.unescap.org/sites/default/files/ICT%20Infrastructure%20Co-Deployment%20with%20Transport%20and%20Energy%20Infrastructure%20in%20North%20and%20Central%20Asia.pdf
https://www.unescap.org/sites/default/files/Technical%20Paper-ICT-Resilient-Development_0.pdf

Country Examples (2)



Philippines – ICT and Disaster Management

The Philippines is a case in point where **ICTs** have been **incorporated in all stages of the disaster management lifecycle** with joint collaborative work of various government agencies:

1. **Disaster Prevention and Mitigation:** The Department of Science and Technology (DOST) to provide high-resolution flood hazard maps of 18 major river basins in Philippines, for emergency response and disaster preparedness.
2. **Disaster Preparedness:** The Office of Civil Defense' Disaster Information for National Awareness to inform the public of the measures (via audio–visual presentations) that need to be taken before, during and after a disaster. The National Cell Broadcast System for the Public was established to allow sending real-time location-specific information messages to many telecom subscribers.
3. **Disaster Response:** The National Disaster Risk Reduction and Management Council (NDRMC)'s Intelligent Operations Center (IOC) provides a communication facility that consists of an operational building and a vehicle with emergency communication equipment to respond to disasters
4. **Disaster Recovery:** iGovPhil provides infrastructure and support services for e-Governance. The infrastructure of iGovPhil includes the government data centers and fiber optic networks to connect government offices to provide high-speed communication for the purpose of sharing tasks and data during a disaster recovery situation.

https://www.unescap.org/sites/default/files/Building_EResilience_ICT_DRM_ids.pdf

Thank you!

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