GFDRR

Guidance Note on Recovery of the Manufacturing Sector

(DRAFT OUTLINE)

CONFERENCE VERSION

FOR CONSULTATION

**Introduction**

1. Purpose of the guide: This Guidance Note aims to inform recovery interventions in the manufacturing sector, and to assist national and local governments, intergovernmental organizations, development institutions and private sector stakeholders in designing effective manufacturing sector-focused recovery programs.
2. Importance of the manufacturing sector recovery

The quick recovery of the manufacturing sector is important for the sustained economic growth in some of these countries in the following three ways:

* 1. Ensures continued generation of jobs for local communities in the affected regions and help them return to work.
	2. Enables supply of goods required for recovery of social and economic activities
	3. Maintains competitiveness of the manufacturing sector within global value chain
	4. Reduces reputational risk among local and global buyers
	5. Ensures the continuity of investment including foreign direct investment (FDI)
	6. From these aspects, quick recovery of major affected industrial areas/ hubs (e.g. special economic zones and industrial parks) has significant impact on the recovery of the nation’s overall manufacturing sector and the national economy.
1. Summary of the impact: The manufacturing sector’s quick and effective recovery is critical to building back of the national economy after disasters:
	1. Include the summary of figures on the losses and damages from the 2011 earthquake in Japan, 2011 floods in Thailand (35 million USD in the manufacturing sector alone), 2015 Indian floods, and 2010 earthquake in Haiti
	2. Highlight typical vulnerabilities (e.g. direct impact on the physical assets such as industrial buildings and equipment, and indirect impact on the infrastructure and others that affected industrial outputs) observed and the role of the manufacturing sector’s recovery in the building back better of the national economy of these countries.

**Repair or Reconstruction of infrastructure and physical assets in the manufacturing sector**

*Key guidelines:*

1. *Short term: Conduct rapid damage assessment of industrial buildings and infrastructure. Such assessment can be conducted by local engineers, academia, and public agencies, in partnership with technical and financial assistance by international institutions. New technologies such as real-time damage monitoring and assessment technologies (satellite, IoT sensors, etc.) can be used for facilitating the damage assessment and access to finance.*
2. *Mid-term: Construct defense infrastructure such as coastal protection and develop and improve rainwater management infrastructure, by considering both structural and non-structural, nature-based solutions to protect major industrial zones from flooding; retrofit or construct industrial buildings for flood proofing and integrate earthquake- and flood-resistant structures and measures; develop business continuity plans and pre-arranged agreements for quick recovery and prioritization of critical lifeline infrastructure servicing the manufacturing sector.*
3. *Long-term: Conduct risk assessment of industrial zones and integrate into land use planning, master plans, and building regulations, etc.(e.g. upgrading industrial building / zoning codes); strengthen institutional capacity to help the enforcement of these regulations; strengthen capacity of local engineers to help them rapidly conduct a thorough damage assessment of industrial infrastructure; and secure contingency financing in case of emergency, including but not limited to insurance, or pre-arranged access to credits.*
4. Financial and regulatory support from the national and local governments, as well as from the international institutions, is critical to ensure the repair, reconstruction and retrofitting of the damaged infrastructure. Discussing and developing plans and cooperation agreements within and between stakeholders in advance for response is critical.
5. Short-term example: Rapid damage assessment (procedures and inspection forms) (the Haiti Case)
6. Rapid damage assessment can generate information required for investment decision-making, and ensure or even catalyze the further investment of the retrofit and expansion of factory shells. Ex. The Haiti case: Rapid damage assessment was conducted in SONAPI Industrial park which was affected by the 2011 earthquake. Both international and local agencies were hired to conduct the rapid damage assessment of the industrial park. This case highlights the importance of building awareness and capacities of local engineers and architects on the rapid damage assessment of factory shells and industrial infrastructures.
7. Real-time monitoring technologies used in quickly identifying/ monitoring the level of damages in the critical industrial infrastructure including roads, super dykes, on-site power plants and grids, and industrial buildings / factory shells.
	1. Ex. Smart monitoring of real-time damages. Assess and monitor the resilience of industries and industrial districts in real time
	2. This technology can also help improve local engineering skills in monitoring and repair, and increase the tenant firms’ access to the insurance.
8. Mid-term solution example
9. Construction of defense infrastructures surrounding the affected industrial zones (Thailand case)/ (New York City case) flood-proofing / elevating industrial buildings and electrical equipment/ (Japan) Installation of automatic closing systems for flood gates and land locks with application of dedicated satellite connection that ensures quick and safe closing of the gate. This can be linked to capacity building of the park developers, operators and local construction workers about the level of climate change/ natural disaster risks affecting the industrial zones and ways to reduce the impact.
10. Long-term solution example:

(India case): “Climate Expert” Climate risk assessment of industrial areas; (Thailand case) updated standards for constructing the flood protection walls; (NYC case) design and enforcement of flood-resistant construction standards etc.

**Restoring / Resuming production of goods and services and access to goods and services**

*Key guidelines: Short-term / mid-term and long term*

1. *Short-term:*
2. *Create emergency control towers;*
3. *Quickly assess the damaged critical infrastructures (roads, transports, and power plants) that provide essential services to industrial production. Quickly develop innovative strategies to produce and ship the manufactured goods (as in the Haiti case that utilized existing trade preferences and production plants in the neighboring country). In countries export is critical to the national economy, ensure the planned investment as much as possible.*
4. *Mid-and long-term:*
5. *Incentivize firms to establish BCP; This can be done by developing guidelines and tools for firms to design both individual and collective business continuity plans, etc.)*
6. *Ensure the continued operation of critical infrastructures through promoting pre-arranged agreements or establishing for example a back-up power system at the industrial zone level. Pre-arranged agreements can be made in advance among local governments, ports, waste management companies, potential implementing agencies, and/or equipment / service providers to design the course of cooperative actions during emergencies. Back-up power system enables quick restoration of power supply and continued supply of power that is critical to continued industrial production.*
7. *Strengthen institutional capacities to promote and monitor BCP implementation (Japan Case of Business Continuity Advancement Organization (BCAO) with a pool of experts who can develop, manage, implement and update the BCP/ BCM). BCAO also operates the BCP specialist certification system and provides SMEs guidelines on the BCP.*

**Mid-and long-term solution examples:**

1. Business continuity plans (BCP)
2. It is crucial to have BCP in place to quickly resume production during the emergent situations. But this must be established prior to actual disasters. Production can be affected by prolonged power cuts, damages of the factory buildings and equipment critical to production processes. In countries that rely heavily on export-oriented manufacturing, quick resumption of the production of goods is critical for both reducing the losses of export volumes and reputational risk.
3. Industrial park level: Management/ operational example: Area-Business Continuity Plan (BCP) concept is being piloted in Akemi Industrial Park in Japan.

**Addressing Governance and Policy for Recovery in the manufacturing sector.**

It is critical to provide an enabling environment for developing and implementing recovery actions or solutions to increase resilience in the manufacturing sector (why?). This may be mostly mid-term and long-term recovery actions. In Japan, policies and established institutions have been incrementally enhanced after every disaster based on recovery experiences. The recovery phase can provide a good opportunity to identify regulatory and institutional gaps and re-examine means to address these gaps and improve decision-making processes. To secure an efficient recovery program, the following actions need be taken:

*Key guidelines for mid-term and long-term actions to provide an enabling environment to improve industrial resilience:*

1. *Revisit existing regulatory framework and identify regulatory and institutional gaps in terms of mainstreaming disaster risk management (DRM) in industrial policies and strategies for manufacturing sector’s growth*
2. *Update existing or establish new policies and regulations that could potentially increase industrial resilience. Such update needs to be accompanied by coordination and partnership among key public agencies/ line ministries. Areas of potential policy interventions include: supporting SMEs in terms of disaster prevention;*
3. *Recovery actions in the manufacturing sector and interventions to increase industrial resilience require interdisciplinary and cross-sector collaboration among the public and private stakeholders.*
4. Revisit exiting regulatory framework, identify critical regulatory & institutional gaps
	1. Review ways to mainstream DRM in industrial policies or policies affecting the manufacturing sector’s competitiveness
		1. India Case:In line with the recovery efforts after the 2015 Indian floods, GIZ also helped affected State governments identify regulatory and institutional gaps. (explain what these gaps were).
	2. (Long-term action): Update or establish policies and regulations that could potentially increase industrial resilience in the long term
		1. High-level governance system example: Japan Case: Disaster Countermeasures Basic Act (DCBA) and Basic Disaster Response Plan (BDRP) revised in the aftermath of the 2011 GEJE provide governance framework for cross-sector recovery actions. These regulations require private stakeholders to fully recognize the role they are expected to play when disaster strikes (preserving human life, preventing secondary disaster, continuing business, contributing to the community, and coexistence with local communities), understand their own risk from natural disaster and implement risk management. Development of BCP to minimize the damage are also required. Law on Special Financial Support to Deal with the Designated Extremely Severe Disaster (SBMSL) (Japan) was also enacted by the Cabinet Office to increase SMEs’ access to finance during the emergent situations. Reconstruction Agency also accelerates structural reconstruction and revitalization in the affected areas, by supporting implementation of government policies and managing coordination of reconstruction strategy and initiatives between various branches of government at a national level and with local municipalities.
		2. It is recommended that the creation of such high-level governance system is established prior to major damage on the critical industrial assets and production systems. In Bangladesh, the Bangladesh Economic Zone Authority is working with the World Bank to mainstream DRM into the design and construction of planned and on-going special economic zones.

**Discussing key partners and the interinstitutional coordination for sector recovery.**

*Key guidelines for mid-term and long-term actions on multi-stakeholder involvement and interinstitutional coordination.*

1. Identify key partners and implementing agencies: Who are the key implementers/ champions/ affected stakeholders for the manufacturing sector’s recovery?

Recommendation/ example of stakeholder mapping

* 1. Public stakeholders: Prime Minister’s Office / Cabinet Office playing the role of champions with power to convene different line ministries, Ministry of Industry or Ministry of Economy (line ministries responsible for policies promoting industrial competitiveness), Ministry of Disaster Risk Management, Ministry of Land Use and Transportation, etc. State and local governments, industrial park developers and operators
	2. Private sector stakeholders: Banks, firms/ tenant firms in (potentially) affected industrial zones, industrial park developers and operators
	3. Local communities
	4. NGOs & academia
1. Increase institutional capacity to coordinate and address the most affected communities through Public-Private Dialogue (PPD)
	1. Public-Private Dialogue (PPD) principle
	2. Highlight how PPD principle can help build institutional capacity to coordinate
		1. Examples:

USA: NEMA

Japan: BCAO – a network of academic, consultants, NGOs… to help develop standards and guidelines on BCP.

* 1. Increase the representation of women for designing BCP and other recovery measures.
	2. Design and implement training programs for women entrepreneurs in the manufacturing sector and address the gendered impact of disasters on the manufacturing sector.
		1. Example: Haiti: Business EDGE program involving women entrepreneurs in the capacity building program in the aftermath of the 2011 earthquake.

**Making recovery implementation more effective and efficient at the sector level.**

Key guidelines:

* + 1. Arrange procurement arrangements for reconstruction and recovery prior to disasters.

Example: Pre-arranged agreements: Clearance of the roads and other infrastructures, which helped improve productivity of supply chain logistics and industrial park operation during and in the aftermath of emergencies. (Japan, Sendai City and Sendai Construction Company Association “Post-Disaster Emergency Response Partnership Agreement”)

**Identifying financing mechanisms for sector recovery**

Key guideline

* Ensure the liquidity of local banks in a disaster-affected region.
* Create national, regional, or other collective insurance fund / pool system.
* Finance reconstruction of damaged industrial areas, facilities, buildings and equipment.

Encourage pre-arrangement of post-disaster recovery credit with financial institutions

1. It is important to ensure the liquidity of local banks in a disaster-affected region. National governments, as well as the national and local banks, play a critical role in

Some examples of innovative financial mechanisms:

* 1. In Japan:
		1. At the national level, strategy and guideline was established to keep liquidity of local banks in a disaster region. The Bank of Japan (BoJ) and local banks cooperated and kept opening in the first weekend after the GEJE to cope with needs for cash. BoJ provided 21.8 trillion JPY to keep enough liquidity in the market, which was the biggest provision a day in the history.
		2. At the prefectural level, a disaster trigger credit guarantee programwas established. Shizuoka Prefecture Credit Guarantee Association developed a post disaster guarantee programs in 2007 for SMEs. Through the program, SMEs with BCPs can submit pre-applications for post disaster credit guarantee, whereby guarantee fee is waived.
	2. In Thailand:
		1. At the national level, National Catastrophe Insurance Promotion Fund (NCIP) was established to support insurance companies that had to pay huge claims from the manufacturing sector. Public money of 1.6 billion USD was put to create the NCIP. This fund provided Catastrophe Insurance fund that covered up to 30 percent of claims of general insurance.
		2. Financing reconstruction of industrial parks: Catalyzing financing for development of flood protection levee to build back better after devastating floods (Thailand/ Japan collaboration Case): The Rojana Industrial Park was heavily damaged by the flood in 2011. As a key strategy to attract investors (firms) back to the industrial park, the operator of Rojana Industrial Park worked with national government and international community to enhance disaster risk management capacity through the construction of levees. Subsidies (2/3) and low-interest loans from Thailand's Ministry of Finance were provided, with support from the Government of Japan.

**Short examples of recovery interventions and implementation in the Sector.**

Examples of actual recovery programs have been already discussed in the categories mentioned above.

**Tools and resources** useful for the sector recovery implementation

1. International codes for flood protection measures in industrial zones:

Thailand, IEAT, the investment needed to construct and upgrade defense infrastructures around industrial parks

Japan

1. Technical papers: Resilient Industries Report (Global report), Japan In-depth Case Study
2. Other useful resources:

Climate Expert (GIZ, risk assessment of industry/ manufacturing sector)

ACRI +

New York City: Resilient Industry Initiative