

Compilation of good practices and lessons learned on the set-up and implementation of NSIs

Africa Climate Week (ACW)

Nairobi, Kenya, 8. September 2023



TEC work on National Systems of Innovation

The TEC identified lessons for preparation, design and implementation, as well as evaluation, monitoring and review phases from 6 case studies:

- **Good practices and lessons learned on the set-up and implementation of NSIs for developing country policymakers**
- **Summary for Policymakers (available in English, Spanish, Arabic)**



<https://unfccc.int/ttclear/tec/NSI.html>



Case studies reviewed

- The Indian Bureau of Energy Efficiency (BEE)
- The Kenya Climate Innovation Center (KCIC)
- Haiti's Disaster Risk Reduction Strategy (DRR)
- Brazil's bioethanol transport fuel activities
- Jakarta, Indonesia's urban flood management activities
- Denmark's wind energy sector



This document is part of a collection of six case studies selected from the work conducted by the Technology Executive Committee (TEC) on "Good practices and lessons learned on the setup and implementation of National Systems of Innovation". It specifically focuses on the Brazilian case.



This document is part of a collection of six case studies selected from the work conducted by the Technology Executive Committee (TEC) on "Good practices and lessons learned on the setup and implementation of National Systems of Innovation". It specifically focuses on the Kenya Climate Innovation Center (KCIC).

Country	Topic	Year	Key functions
Kenya	Energy efficiency and climate change management	2012	<ul style="list-style-type: none"> 1) Knowledge development and diffusion 2) Resource mobilization 3) Entrepreneurial experimentation 4) Regulatory support 5) Financial mobilization

¹ The Kenya Summary for Policy-makers of the TEC's work presented in June 2012 explains that the primary objective of an innovation system is to produce, diffuse, and use innovations. To accomplish this objective, the Summary for Policy-makers document identifies specific activities or functions that should be carried out to facilitate the innovation process. Based on empirical evidence, innovation studies identify seven main functions as outlined in Table 1. Evaluating to what extent an innovation system can perform these functions is necessary to identify and assess the innovation system's achievements, failures and gaps or barriers. The functions assessment found that the functions of knowledge development and diffusion (F1), entrepreneurial experimentation (F2), market formation (F3), and resource mobilization (F5) are key functions to the KCIC study case.



This document is part of a collection of six case studies selected from the work conducted by the Technology Executive Committee (TEC) on "Good practices and lessons learned on the setup and implementation of National Systems of Innovation". It specifically focuses on the Haitian disaster risk reduction strategy.



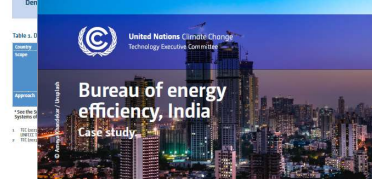
This document is part of a collection of six case studies selected from the work conducted by the Technology Executive Committee (TEC) on "Good practices and lessons learned on the setup and implementation of National Systems of Innovation". It specifically focuses on the urban flood management strategies in Jakarta.

Country	Topic	Year	Key functions
Indonesia	Urban flood management	2012	<ul style="list-style-type: none"> 1) Knowledge development and diffusion 2) Resource mobilization 3) Entrepreneurial experimentation 4) Regulatory support 5) Financial mobilization

¹ The Indonesia Summary for Policy-makers of the TEC's work presented in June 2012 explains that the primary objective of an innovation system is to produce, diffuse, and use innovations. To accomplish this objective, the Summary for Policy-makers document identifies specific activities or functions that should be carried out to facilitate the innovation process. Based on empirical evidence, innovation studies identify seven main functions as outlined in Table 1. Evaluating to what extent an innovation system can perform these functions is necessary to identify and assess the innovation system's achievements, failures and gaps or barriers. The functions assessment found that the functions of knowledge development and diffusion (F1), and resource mobilization (F5) are key functions to the Indonesian study case.



This document is part of a collection of six case studies selected from the work conducted by the Technology Executive Committee (TEC) on "Good practices and lessons learned on the setup and implementation of National Systems of Innovation". It specifically focuses on the Danish wind energy sector.



This document is part of a collection of six case studies selected from the work conducted by the Technology Executive Committee (TEC) on "Good practices and lessons learned on the setup and implementation of National Systems of Innovation". It specifically focuses on the Indian Bureau of Energy Efficiency (BEE).

Country	Topic	Year	Key functions
India	Energy efficiency (building and energy management)	2012	<ul style="list-style-type: none"> 1) Knowledge development and diffusion 2) Entrepreneurial experimentation 3) Regulatory support 4) Financial mobilization

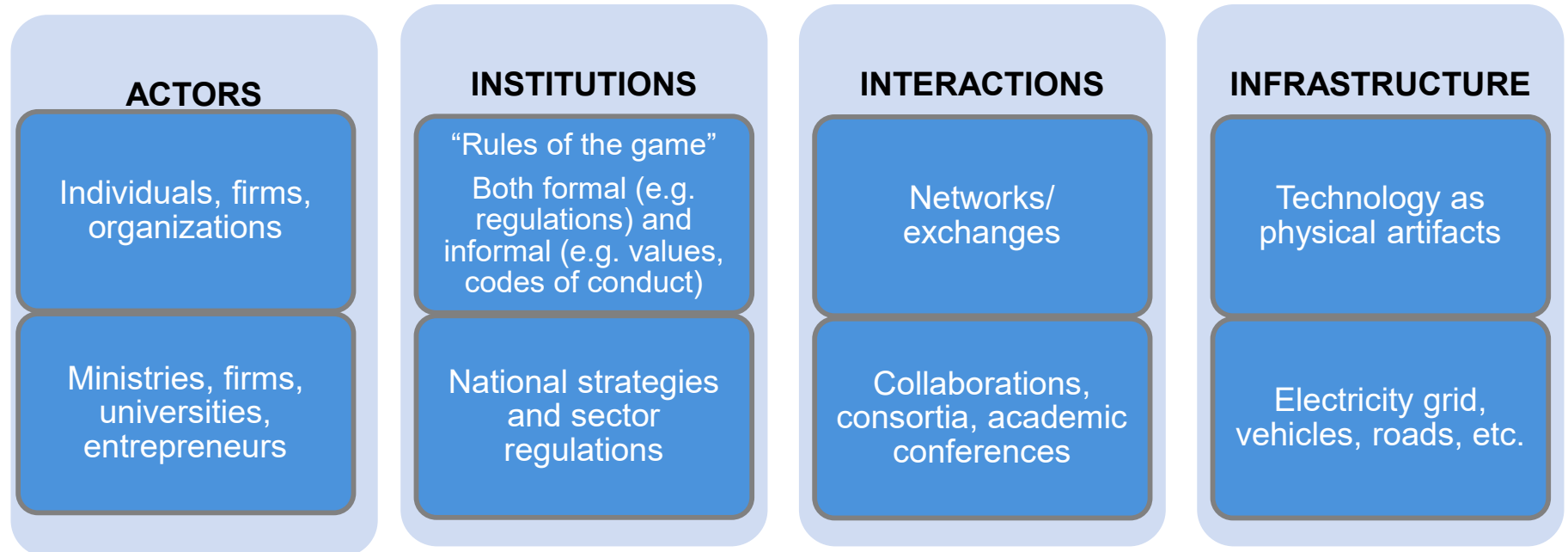
¹ The India Summary for Policy-makers of the TEC's work presented in June 2012 explains that the primary objective of an innovation system is to produce, diffuse, and use innovations. To accomplish this objective, the Summary for Policy-makers document identifies specific activities or functions that should be carried out to facilitate the innovation process. Based on empirical evidence, innovation studies identify seven main functions as outlined in Table 1. Evaluating to what extent an innovation system can perform these functions is necessary to identify and assess the innovation system's achievements, failures and gaps or barriers. The functions assessment found that the functions of knowledge development and diffusion (F1), entrepreneurial experimentation (F2), and market formation (F3) are key functions to the Indian BEE study case.

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What is a system of innovation?

The elements and relationships which interact in the production, diffusion, and use of new, and economically useful, knowledge.



How does the system contribute to innovation?

For the system to function well, 7 functions are identified

Functions	
Knowledge development & diffusion	R&D activities, conferences, joint research
Entrepreneurial experimentation	New business model, experimentation with technologies
Market formation	Creation of a market through definition of demand and choices, prices, standards
Influence on the direction of search	Decision of research and investment on e.g. which technology to explore, how to channel resource, etc.
Resource mobilization	Financial and human resources
Legitimation	Innovation seen as legitimate by stakeholders
Development of positive externalities	Positive effects – more people benefit from the innovation



How to assess the performance of the system?

A structure-function coupled analysis

Structural component	Systemic problem (Weakness)	Type of problem
Actor (for F1 to F7)	Absence of relevant actor/s	Presence/absence
	Absence or inadequate capabilities in the actor/s	Capability
Institutions (for F1 to F7)	Absence of required/relevant institutions	Presence/absence
	Absence or inadequate institutions	Capability
Interactions (for F1 to F7)	Absence of interactions between relevant actors and organizations (due to distance, lack of trust, lack of capabilities, divergent goals, etc.)	Presence/absence
	Inadequate quality or intensity of interactions (too strong, too weak)	Quality or intensity
Technology (incl. physical artefacts, knowledge setups, financial infrastructure, etc.) (for F1 to F7)	Absence of technology, infrastructure	Presence/absence
	Inadequate quality of the infrastructure	Quality

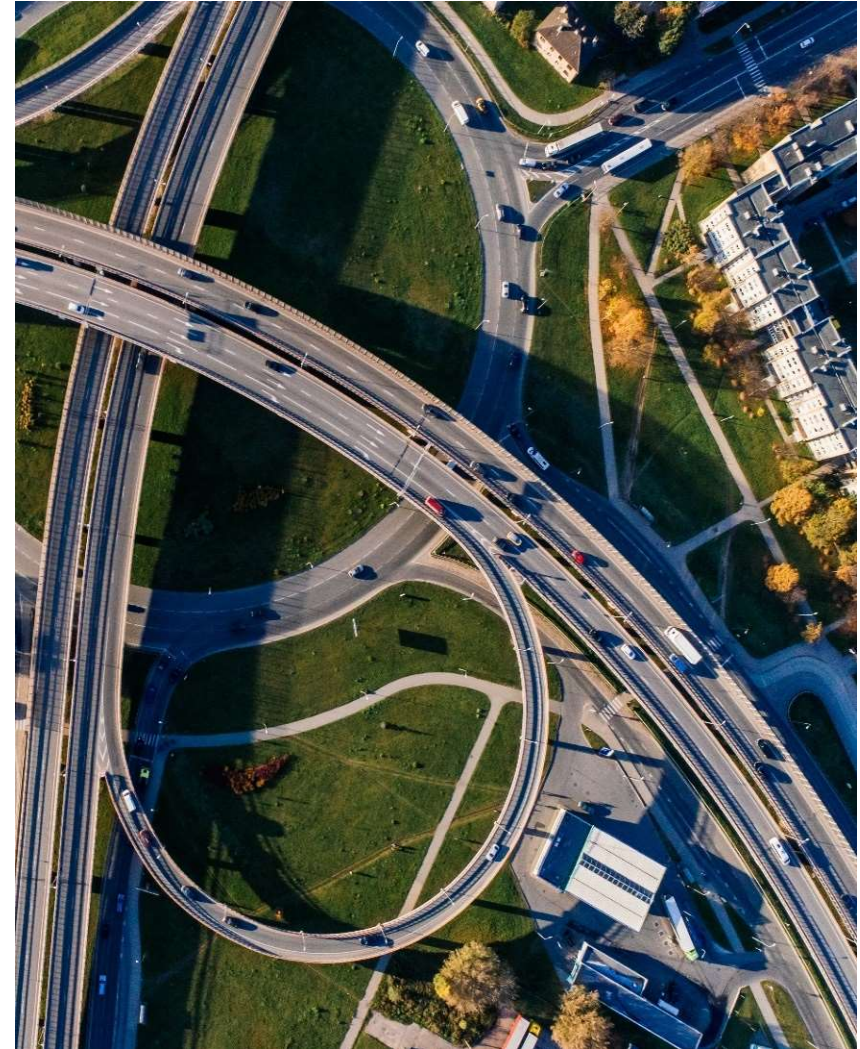


How to analyse and establish NSIs?

“.. the implementation of the NSI is best guided through a **systemic approach** that draws upon **NSI functions** and **structure-function frameworks** as a way to suitably organize efforts”.

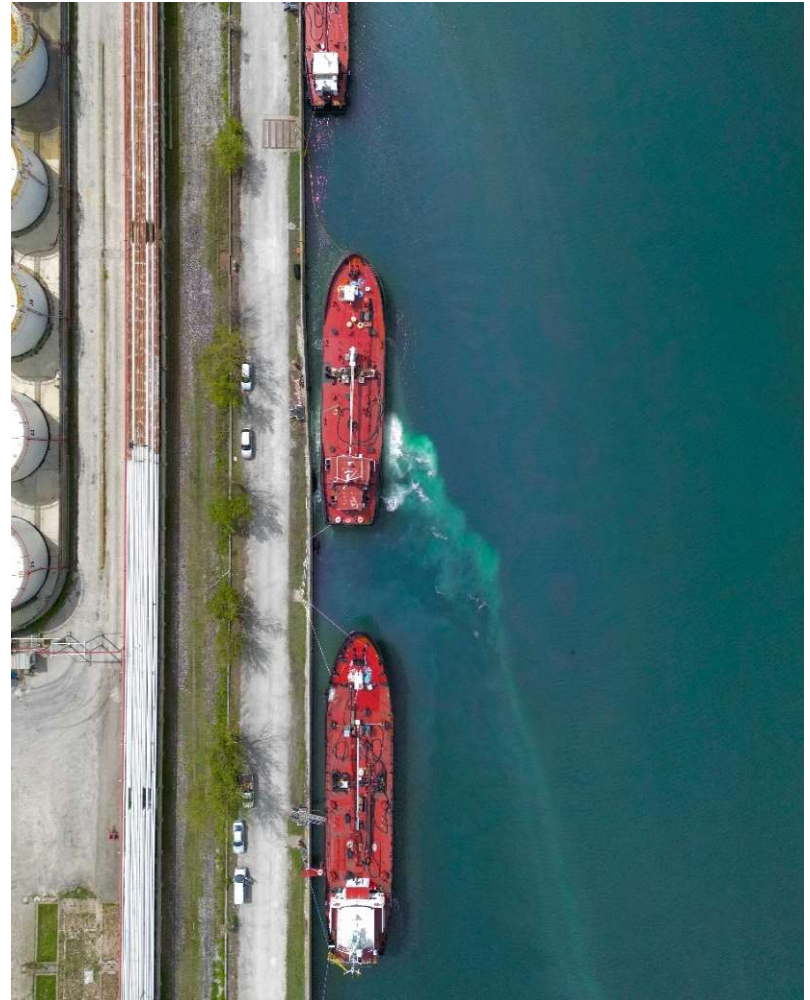
This is done by:

1. Defining the **scope** of the analysis
2. Identifying system **structural components**
3. Assessing their strengths and weaknesses throughout the **seven structure-functions**
4. Designing **interventions** to address systemic problems
5. Ensuring **monitoring, evaluation, and review**



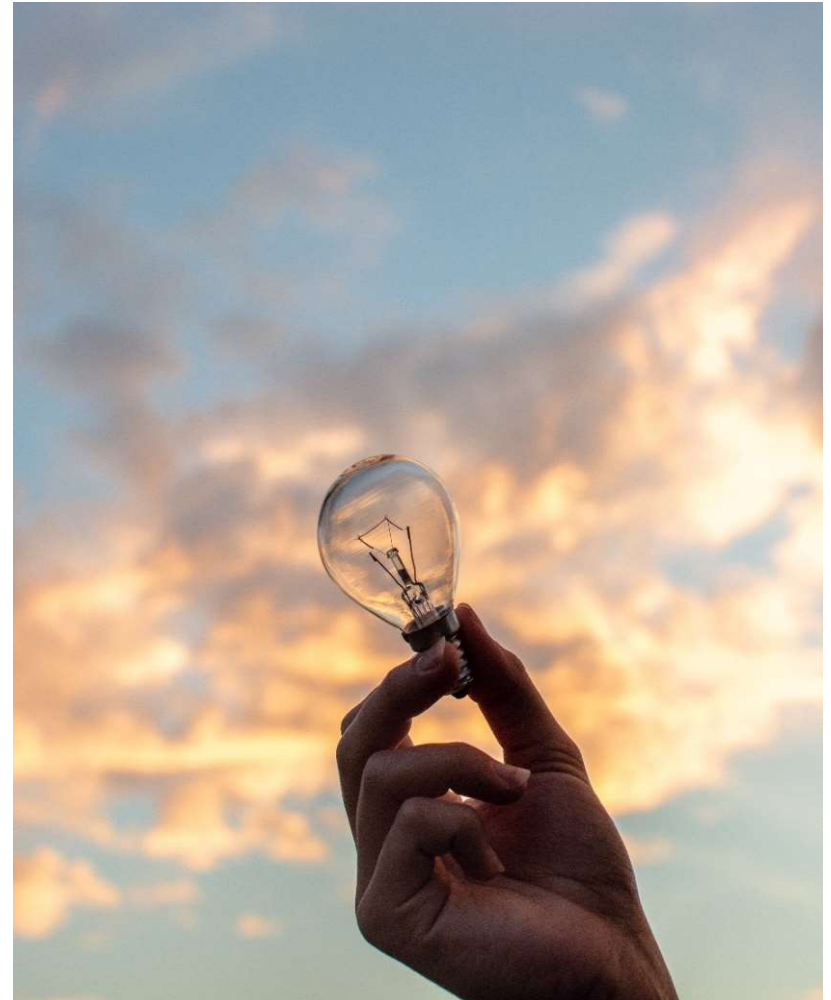
Lessons learned: success factors

1. **Take a systemic perspective** towards the establishment/strengthening of the NSI, integrated with host country development objectives (all cases)
2. ... **yet a tailored approach to bridging sector- and innovation** phase-specific gaps (all cases)
3. **Leadership** with a collaborative attitude and an understanding of local context (all cases)
4. **Participation of/interactions** among local actors facilitates innovation and alignment (all cases)



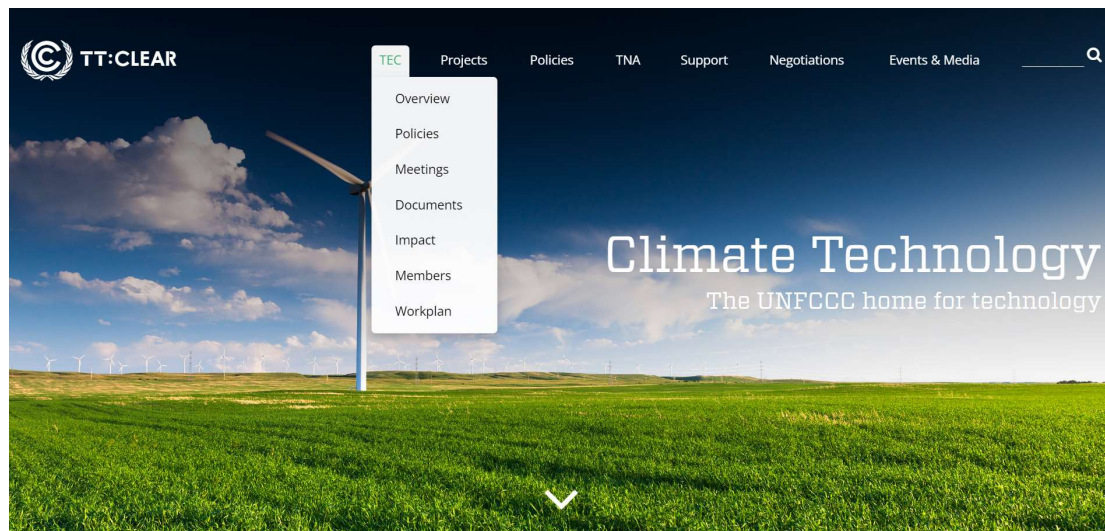
Lessons learned: success factors

5. **Engage with international institutions and collaborations** to help build local institutions and networks (BEE, KCIC, Haiti DRR, Jakarta)
6. Ensure that innovation/organizations are **evolutionary and able to adapt** to new circumstances, through continuous monitoring and review (all cases)
7. Use a **portfolio** of solutions (all cases)
8. Deal with structural underlying problems (Jakarta, Haiti DRR, Brazil)



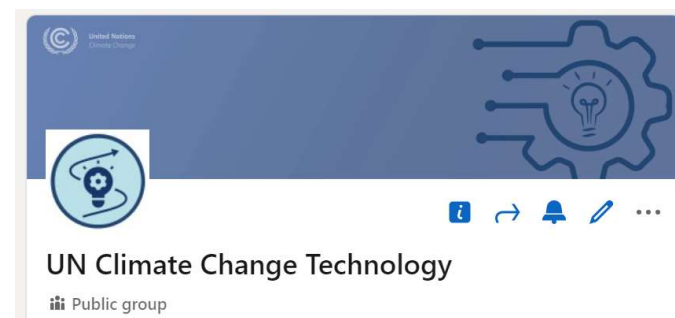
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