

International Symposium on Sustainable Infrastructure

Fujian Normal University, UN Environment, University of Geneva, UN Environment-Tongji Institute
for Sustainable Development
22-23 October | Fuzhou, China

Meeting Summary

Introduction

Infrastructure is central to achieving the Sustainable Development Goals (SDGs). It is included in SDG 9, but underlies all of the other socio-economic SDGs. At the same time, the choices that we make about the types of infrastructure we build, where we build it, and how it is designed, constructed, and operated will affect the environmental SDGs including climate actions.

For infrastructure to contribute to socio-economic SDGs without undermining environmental SDGs, it is essential to adopt an integrated approach to its planning and implementation. Yet, most countries tend to follow a siloed approach. In doing so they miss the opportunity for maximizing synergies and minimizing trade-offs among the economic, social and environmental aspects of sustainability.

This meeting brought together experts from international organizations, academic and research institutions, and the private sector to validate the centrality of infrastructure in delivering the SDGs, raise the visibility of this link, and take forward the idea of an integrated approach to infrastructure planning and development. Participants discussed the meaning of - and the need for - an integrated approach, examined the reality of infrastructure governance in different national contexts, shared good practices and knowledge, and identified a number of priorities for promoting such an approach by countries.

Session 1: Infrastructure and the SDGs: setting the context

Moderator: SHENG Fulai, UN Environment

Presenters:

- **Xin ZHOU**, IGES
The role of infrastructure in the 2030 Agenda for Sustainable Development
- **Bill TOMPSON**, OECD
Sustainable infrastructure and the SDGs

This session introduced the interlinkages between infrastructure and the Sustainable Development Goals, and assessed the global landscape of sustainable infrastructure discourse.

Key Messages

- There are complex interlinkages between SDGs, which we must understand and take into account if we to achieve the goals. Infrastructure is linked to most of the goals, and a number of synergies and trade-offs exist. Countries need support in linking infrastructure

planning to the SDGs so that they can find the right balance of policy objectives and institutional arrangements to manage the synergies and trade-offs.

- There is sure to be a massive amount of infrastructure investment in the coming decades, which presents an opportunity to do things radically differently (and better), particularly in the case of greenfield development. However, it will be important that synergies and trade-offs are managed at the local and regional levels, i.e. in the places where the impacts occur.
- Strategic multidisciplinary planning, stable regulatory environments and sound governing principles are crucial for managing the uncertainty and risk, improving the bankability of projects, and delivering sustainable infrastructure.
- The lock-in effect for infrastructure is long – it is important to get the choices right.
- Private sector investors can be a powerful ally – once they start investing on the basis of a policy shift, they become defenders of the reform.
- Backward looking analysis is helpful, but we also need tools to help look forward and account for various future scenarios, e.g. new technologies.

Session 2: Defining an integrated approach to infrastructure

Moderator: Kate NEWMAN, WWF

Presenters:

- **Spiro POLLALIS**, Harvard University
“Integration” in the development of infrastructure
- **Gulnara ROLL**, UNECE
Key principles of an integrated approach to sustainable infrastructure

This session looked at some of the key features of an integrated approach to sustainable infrastructure, drawing primarily on lessons from an urban planning context.

Key Messages

- Nature is fluid and adaptable, but infrastructure is solid, static, and often blocks the natural functions of ecosystems. We need to find new ways of integrating them.
- Rapid population growth creates the need for compact, high density cities. In the business-as-usual model of urban development cities consume huge amounts of resources and generate high levels of pollution and waste. We need to move towards more “closed circuit” models of urban development (i.e. city as a system) that reduce the resource inputs and waste outputs. More integrated planning of infrastructure can help this.
- The decision-making and governance processes for infrastructure needs to be better integrated both vertically and horizontally. Integration between different disciplines (e.g. urban planning and engineering), decision-making processes, natural systems and human settlements, and infrastructure systems. However, high-level planning and governance still needs to be linked with local level, on the ground implementation.
- The purpose of infrastructure is to deliver services. Good planning can help to reduce the demand for services in the first place, which reduces the volume of infrastructure needed, and in turn the resource footprint, etc.
- Removing siloes is very difficult because each “silo” has its own interests; various planning tools can help to remove these barriers and serve common interests.

- Innovative financing mechanisms are needed to support integrated planning and delivery processes, and having private sector buy in (via a strong business case) can make governance and political challenges more manageable.

Session 3: implementing an integrated approach to infrastructure

Moderator: Matteo TARANTINO, University of Geneva

Presenters:

- **Carol Boyle**, Deakin University
Building blocks for an integrated approach
- **Arend KOLHOFF**, Netherlands Commission for Environmental Assessment
Strategic Environmental Assessment
- **Lothar LINDE**
Enhancing the Sustainability of the infrastructure planning cycle – contributions of spatial analysis

Panel discussion: *Examples of an integrated approach in practice*

- Vincent NADIN, TU Delft
- Will USHER, Oxford University
- Anuradha RAMASWAMI, University of Minnesota
- DONG Zhangfeng, Chinese Academy of Environmental Planning

This session used examples of the implementation of an integrated approach to identify key features. Strategic Environmental Assessment (SEA) and spatial planning were introduced as important decision support tools for implementing an integrated approach.

Key Messages

- Current infrastructure governance and decision-making frameworks often prevent a cross-cutting, interdisciplinary, strategic approach. We need to train experts and political leaders to think differently about how infrastructure is planned, and adapt tools methodologies, financing mechanisms, and governance models to support this approach. Politicians need to shift from a conflict culture towards a consensus culture.
- An integrated approach requires an understanding of the infrastructure planning cycle, hard and soft constraints, current and future demand for and pressures on infrastructure, different technological and engineering options, etc.
- Infrastructure rating tools are good, but when applied at the project level, they don't address the more important issue, which is, why the project is being built (i.e. right projects vs. doing projects right). An integrated approach should first and foremost help to decide what to build, and only then how to build it. Strategic Environmental Assessment is designed to help support strategic planning about what to build, and spatial planning tools can help to inform all stages of the planning cycle and link upstream decision-making with project level planning.
- Assessments have to have influence at the right stages of the planning cycle. This is often difficult to do in practice, as planning cycles aren't linear or circular, but rather chaotic.

Session 4: Governance for sustainable infrastructure

Moderator: MENG Han, UN Environment-World Conservation Monitoring Centre

Presenters:

- **Greg SEVERINSEN**, Environmental Defense Society of New Zealand
Key attributes/principles of institutional design for sustainable infrastructure
- **ZHENG Wei**, Fujian Normal University
Green infrastructure: a new era for G20 economic cooperation

Panel discussion: *Examples of good institutional arrangements for infrastructure development*

- Spiro POLLALIS, Harvard University
- Ian PALMER, Palmer Development Group and University of Cape Town
- Arend KOLHOFF, Netherlands Commission for Environmental Assessment
- Xin ZHOU, Institute for Global Environmental Strategies
- YU Hai, Policy Research Centre for Environment and Economy
- HAN Chuanfeng, Tongji University

Session 4 looked at the governance and institutional arrangements that are necessary to effectively implement an integrated approach.

Key Messages

- All of the tools discussed so far won't work unless they have the right institutional arrangements to support their use. There is a need to achieve a balance between integration and separation of institutions, levels of independence and accountability, level of centralization, and breadth of focus.
- Ideal institutional arrangements differ from country to country, and we need guidance that recognizes this and can be adapted to different national contexts.
- Lack of harmonized rules, norms, standards, etc. in different countries, coupled with geopolitical uncertainty and long time horizons for returns on infrastructure investments are all impediments to sustainable infrastructure investments. Governance and institutional arrangements can help to address these issues and decrease risk for infrastructure investments.
- Institutional arrangements should facilitate the involvement of relevant experts from the very earliest stages of planning
- It is very important to ensure that local needs inform national policy and that national policy in turn meets those needs. Institutional framework needs to be set up to support this exchange.

Session 5: Challenges and the way forward

Moderator: Achim DEUCHERT, GIZ

Presenters:

- **Vincent NADIN**, TU Delft
Green infrastructure: a new era for G20 economic cooperation
- **Laura BONICH**, NV5
Challenges and the way forward

During this session the participants attempted to distil the previous discussions into some concrete steps that could be taken in order to move forward and promote the idea of an integrated approach to sustainable infrastructure.

Key Messages

- There are many tools to help us plan in implement sustainable infrastructure in an integrated manner. We should help countries to access and use the entire toolbox of complementary tools. Infrastructure planning is a subset of spatial planning – we should therefore ensure that spatial planning tools are included in the toolbox.
- Engineers are key to the provision of sustainable infrastructure and they should be engaged as early in the planning process as possible. However, planners should also challenge engineers and other experts to be innovative and think outside the norms of their disciplines. Good planning should be interdisciplinary rather than multidisciplinary.
- Developing sustainable infrastructure depends on having strong leadership and good “owners”, i.e. project proponents. The leaders need to ask the right questions of the experts in order to challenge them to deliver solutions that are more sustainable, lower cost, and provide better services.
- Sustainability issues need to be translated into a business case. This is the bottom line for convincing investors and financiers to support sustainable infrastructure projects.