

Chapter 10

Conclusion

Issues related to sustainable development touch almost all spheres of our life; be it our daily electricity needs, transport requirements, food production, water contamination, air pollution or landscape around us. Environmental degradation is a serious concern globally. Increasing pollution in cities is a concern for local government and the inhabitants. Problems related to global warming and climate change are attracting attention of the world community. Understanding related to such local and global linkages is continuously evolving. Looking at the complex feedback mechanisms, it is likely that scientific knowledge and expertise will continue to play an active role in the policy debate. The imprecise nature of the regional distribution of possible impacts and the uncertainties about the timing, pace, and magnitude of these linkages, adds to the complexity. Integrated Assessment (IA) techniques offer an analytical tool to address such complexities.

A framework for IA at the national level developed for the present study is given in Figure 1. The figure shows the interactions of the country level dynamics with the global emissions and atmospheric change, global policy regimes and international agreements, and climate change. The country level IA of energy and environment deals with the national level emissions, the impacts of climate change and socio-economic developmental paths and decisions related to mitigation and adaptation to address these changes and impacts. One of important components of the IA study (and shown in Figure 10.1) is the socio economic development path. These refer to both the current and the future development paths. While the first chapter captures the recent important government development policies in detail, the third chapter provides description of the Indian scenarios developed. Scenarios are useful tools for scientific assessments, for learning about complex systems behaviour and for policy making. Each scenario is one alternative image of how the future can unfold; they are neither predictions nor forecasts.

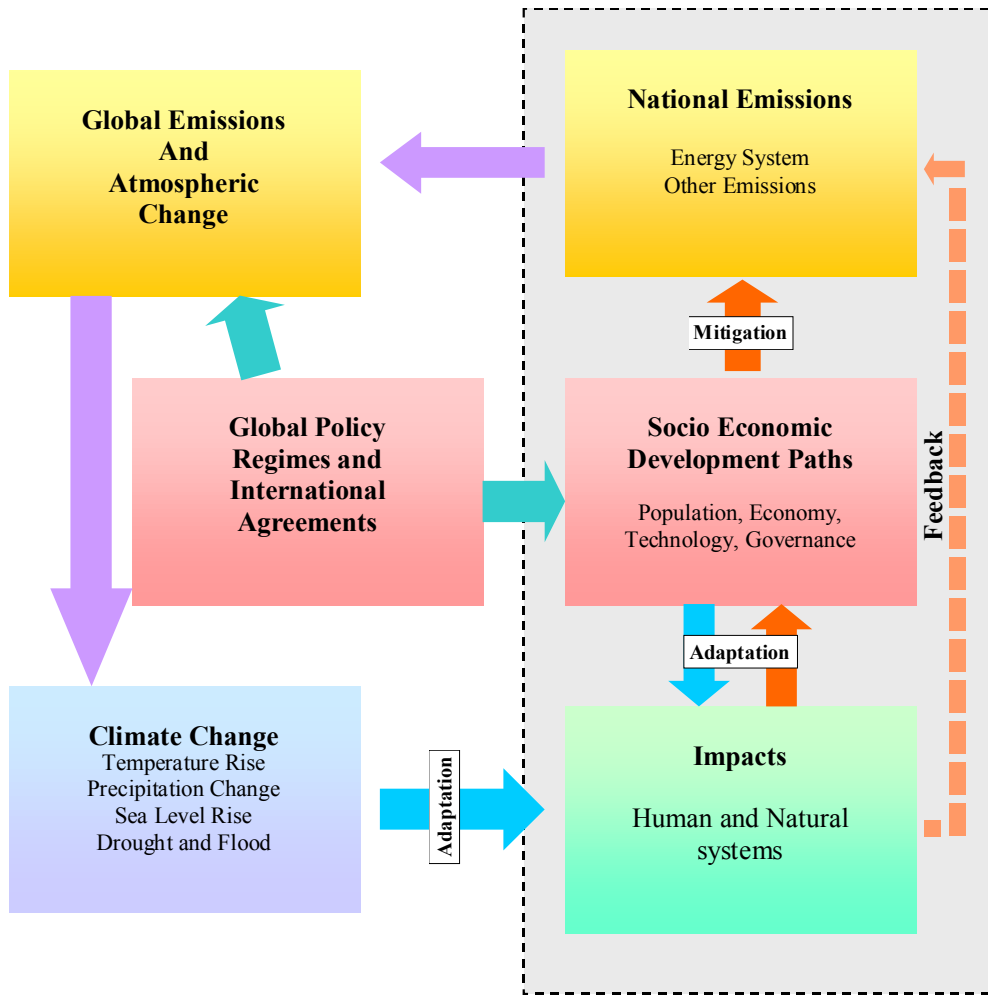


Figure 10.1 Framework for Integrated Assessment on national level

The national emissions and impacts of the various alternate development paths (captured through scenarios) have been discussed through case studies. The case studies included projection of future Indian GHG emissions using appropriate models for the business-as-usual case and three other Indian scenarios; climate change impact on infrastructure and climate sensitive industry; study on the benefits of regional energy cooperation in South Asia and a case study which looked at urban pollution in India.

As is evident from the methodology adopted for this report, the first stage necessitates identification of the problems, based on the interaction of energy and environment, with the issues of concern for IA. The prime issues identified are national emission assessment of global pollutants, and assessment of impacts on natural and human systems.

The outputs from the steps described above became inputs to the proposed integrated framework. The policy implementation framework in figure 2 provides an outline of the methodology used in the report. The first part relates to development and application of an integrated framework and the second relates to policy formulation and implementation. The analysis of issues such as global, national and local policies; long and short-term issues; and linkage between policy and implementation, is done to bring out policy recommendations. These recommendations include technology policies, economic measures and command and control strategies for mitigation, and policies related to vulnerability reduction and protection against potential loss.

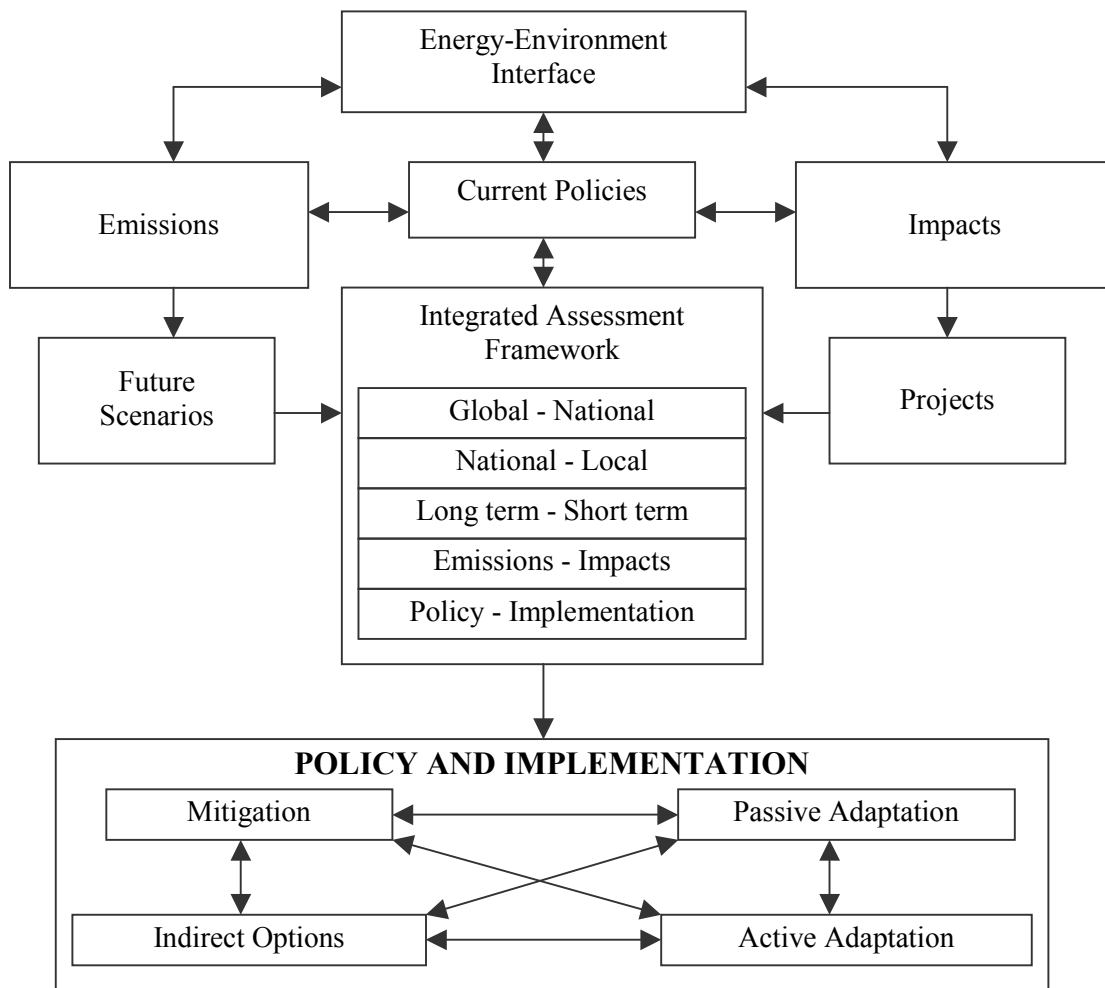


Figure 10.2 Policy implementation framework

This report has used country case studies for establishing the link between development policies and climate change. There are several key development issues that are directly related to climate change impacts, and to adaptation and mitigation policies. The challenge now is to further identify and implement integrated development and climate strategies that address development priorities and at the same time capture climate benefits. It is also important to identify promising policy options that can be part of a transition towards long-term sustainable development patterns including climate change mitigation and adaptation policies. This will include facilitation of network formation between actors capable of promoting such options. Partnership between centers of excellence in developing and industrialized countries that promote sharing of experiences about integrated development and climate change policies would go a long way in meeting the challenges of sustainable development. Learnings from case studies can be used to further international cooperation in sustainable development and climate change policies.