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भारत में धारणीय विकास रियो+२० के दौरान एक आकलन

Sustainable Development in India: Stocktaking in the run up to Rio+20



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Ministry of Environment and Forests
Government of India



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Ministry of Environment and Forests
Government of India

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Ministry of Environment and Forests
Government of India
Paryavaran Bhawan, CGO Complex, Lodhi Road
New Delhi – 110 003, India
Website: www.moef.nic.in

Overall guidance

Smt Meera Mehrishi, Additional Secretary, Ministry of Environment and Forests
Dr Rajneesh Dube, Joint Secretary, Ministry of Environment and Forests
Shri Vivek Wadekar, Director, Ministry of Environment and Forests
Dr R K Suri, Director, Ministry of Environment and Forests

Advisors

Dr Ligia Noronha, Senior Fellow, The Energy and Resources Institute
Dr Prodipto Ghosh, Distinguished Fellow, The Energy and Resources Institute

Project Team

Ms Shailly Kedia, Research Associate, The Energy and Resources Institute
Dr Shilpi Kapur Bakshi, Associate Fellow, The Energy and Resources Institute
Mr Souvik Bhattacharjya, Associate Fellow, The Energy and Resources Institute
Dr Indrani Barpujari, Associate Fellow, The Energy and Resources Institute
Mr Saswata Chaudhury, Associate Fellow, The Energy and Resources Institute
Dr Bibhu Prasad Nayak, Associate Fellow, The Energy and Resources Institute

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जयंती नटराजन
Jayanthi Natarajan



राज्य मंत्री (स्वतंत्र प्रभार)
पर्यावरण एवं वन मंत्रालय
भारत सरकार
नई दिल्ली-110 003
MINISTER OF STATE (INDEPENDENT CHARGE)
ENVIRONMENT & FORESTS
GOVERNMENT OF INDIA
NEW DELHI-110 003

MESSAGE

The 1992 Earth Summit in Rio de Janeiro was a landmark conference which brought together 108 heads of State and Government to Rio, where they endorsed Agenda 21, the blueprint for a sustainable future. There is agreement that the Earth Summit was a major success in raising public awareness about the need to fully integrate environmental and social considerations into economic development policy. Agenda 21 remains a powerful long-term vision for balancing economic and social needs with planetary capacity.

Since Rio, there have been extensive efforts to implement sustainable development by governments, international organizations, local authorities, business, citizen groups and individuals. Rio plus Summit marks the twentieth anniversary of the historic Earth Summit and offers a unique opportunity not only for taking stock of what the world has achieved since then, but, also for us, to reflect on India's achievements on sustainable development and the challenges that it faces.

Sustainability has been an integral part of India's ethos and culture that has been widely reflected even in our ancient scriptures. The Government of India has taken several initiatives in terms of policies and programmes to implement its commitment to the principles and goals of sustainable development that were enunciated in 1992. We are proud of our achievements but keenly aware of the long journey ahead. With the passage of time, new challenges and constraints have emerged which will need to be addressed. Globalization, technological progress, the growth of the knowledge industry combined with the strengthening of the institutional architecture and active participation of the civil society offer unprecedented opportunities for us to meet our sustainability goals.

Marking the twentieth anniversary of the Earth Summit, Rio Plus 20 will once again bring together the international community from across the world on a shared platform. We hope this book, put together to commemorate this occasion will enable a reflection on the possibilities and challenges of sustainable development in a large, democratic society.

Jayanthi Natarajan
(Jayanthi Natarajan)

तिष्यरक्षित चटर्जी
Dr. TISHYA CHATTERJEE



सचिव
भारत सरकार
पर्यावरण एवं वन मंत्रालय
Secretary
Government of India
Ministry of Environment and Forests

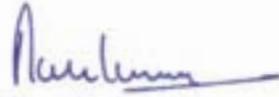
MESSAGE

Sustainable development as a concept has a unifying core, built around needs, ecological limits, and social acceptability, which makes possible a discourse that brings together groups and views to the table, that would otherwise not be shared. This we saw in Rio in 1992 and which we will see again in 2012 in Rio de Janeiro. Agenda 21 has been well recognised as the action plan to implement the principles and agreements of the 1992 Earth Summit to address the hard realities of extreme poverty, social inequity, and environmental degradation.

India has seen extensive efforts to implement sustainable development. This book outlines the broad contours of our strategy for sustainable development that is specific to our social and economic context, but at the same time integrates well with our global initiatives. The book serves as a stock taking of India achievements on sustainable development, highlighting also the emerging challenges that the country faces.

The book was commissioned, coordinated and financed by the Ministry of Environment and Forests of the Government of India and was based on a consultative process involving all the relevant Ministries of the Government of India. I hope the book will serve as an useful reflection on the pursuit of sustainable development in our country.

New Delhi
21 September, 2011


(Tishya Chatterjee)



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पर्यावरण भवन, सी.जी.ओ. कॉम्प्लेक्स, नई दिल्ली-110 003 फोन : 24360721, 24361896, फैक्स : (011) 24362746
PARYAVARAN BHAWAN, CGO COMPLEX, NEW DELHI-110 003, Ph. : 24360721, 24361896, Fax : (011) 24362746
E-mail : t.chatterjee@nic.in, titlichatterjee@gmail.com

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Abbreviations

ABS	Access and benefit sharing	CERC	Central Electricity Regulatory Commission
ADaRSH	Association for Development and Research of Sustainable Habitats	CES	Centre for Study of Science
AFRI	Arid Forest Research Institute	CFC	Chlorofluorocarbon
AHP	Affordable Housing in Partnership	CIPS	Centre for Innovation in Public Systems
ALEAP	Association of Lady Entrepreneurs of Andhra Pradesh	CITES	Convention on International Trade in Endangered Species of Fauna and Flora
APM	Administered pricing mechanism	CLCSS	Credit Linked Capital Subsidy Scheme
ATM	Automated teller machine	CNG	Compressed natural gas
ATREE	Ashoka Trust for Research in Ecology and Environment	CO	Carbon monoxide
BEE	Bureau of Energy Efficiency	CO ₂	Carbon dioxide
BIPA	Bilateral Investment Promotion and Protection Agreements	COP	Conference of Parties
BMCs	Biodiversity Management Committees	CPCB	Central Pollution Control Board
BPL	Below poverty line	CPR	Centre for Policy Research
CA	Compensatory afforestation	CRR	Cash reserve ratio
CADWM	Command Area Development and Water Management	CRSP	Central Rural Sanitation Programme
CAF	Compensatory Afforestation Fund	CRZ	Coastal Regulation Zone
CAMPA	Compensatory Afforestation Management and Planning Authority	CSD	Commission on Sustainable Development
CAPART	Council for Advancement of People's Action and Rural Technology	CSDS	Centre for the Study of Developing Societies
CAZRI	Central Arid Zone Research Institute	CSE	Centre for Science and Environment
CBD	Convention on Biological Diversity	CSIR	Council for Scientific and Industrial Research
CBDR	Common but Differentiated Responsibility and Respective Capability	CSR	Corporate Social Responsibility
CDM	Clean development mechanism	CSTEP	Centre for Study of Science, Technology and Policy
CDP	City development plan	CVC	Central Vigilance Commission
CECA	Comprehensive Economic Cooperation Agreement	CWC	Central Water Commission
CEDAW	Convention on Elimination of All Forms of Discrimination Against Women	DDP	Desert Development Programme
CEE	Centre for Environmental Education	DIT	Department of Information Technology
CEPI	Comprehensive environment pollution index	DMU	Delivery Monitoring Unit
CER	Certified emission reduction	DPAP	Drought Prone Areas Programme
		DPEP	District Primary Education Programme
		DPR	Detailed project report
		EACs	Environmental Appraisal Committees
		EAS	Employment Assurance Scheme
		ECBC	Energy Conservation Building Code
		EEFP	Energy efficiency financing platform
		EESL	Energy Efficiency Services Limited



EEZ	Exclusive Economic Zone	ICT	Information and communications technology
EIA	Environmental impact assessment	IEP	Integrated Energy Policy
EIs	Economic instruments	IFSD	Institutional Framework for Sustainable Development
ENRM	Environmental and natural resource management	IGNDPS	Indira Gandhi National Disability Pension Scheme
EoL	End of life	IGNOAPS	Indira Gandhi National Old Age Pension Scheme
EPA	Environment Protection Act	IGNWPS	Indira Gandhi National Widow Pension Scheme
EPCG	Export promotion capital goods	IID	Integrated Infrastructure Development
EPO	European Patent Office	IIIT	Indian Institute of Information Technology
ERCs	Electricity Regulatory Commissions	IIM	Indian Institute of Management
ESCerts	Energy saving certificates	IISER	Indian Institute of Science Education and Research
EWS	Economically weaker section	IIT	Indian Institute of Technology
FAR	Floor area ratio	ILO	International Labour Organization
FD	Forest Department	IPEC	International Programme on Elimination of Child Labour
FDAs	Forest Development Agencies	IPR	Intellectual property rights
FDI	Foreign direct investment	IRDP	Integrated Rural Development Programme
FEED	Framework for Energy Efficient Economic Development	IREDA	Indian Renewable Energy Development Agency
FIF	Financial Inclusion Fund	ISEC	Institute for Social and Economic Change
FIIs	Foreign institutional investors	ISOPOM	Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM)
FPCs	Forest protection committees	IT	Information technology
FPR	Flood prone river	ITeS	Information technology enabled services
FTA	Free trade agreement	ITC	International Trade Centre
FYPs	Five Year Plans	IUCN	International Union for Conservation of Nature
GATT	General Agreements in Tariffs and Trade	IWDP	Integrated Wasteland Development Programme
GDP	Gross domestic product	IWMP	Integrated Watershed Management Programme
GEF	Global Environment Facility	JFM	Joint Forest Management
GHG	Green House Gas	JFMC	Joint Forest Management Committee
GNP	Gross national product	JGSY	Jawahar Gram Samridhi Yojna
GRIHA	Green Rating for Integrated Habitat Assessment	JnNURM	Jawaharlal Nehru National Urban Renewal Mission
GSTP	Global System of Trade Preferences	JPOI	Johannesburg Plan of Implementation
HFC	High fuel consumption	JRY	JawaharRozgarYojana
IAY	Indira Awaas Yojana	KCCs	Kisan Credit Cards
ICAR	Indian Council for Agricultural Research	KVIC	Khadi and Village Industries Commission
ICDS	Integrated Child Development Services	LaBL	Lighting a Billion Lives
ICFRE	Indian Council of Forestry Research and Education	LARR	Land Acquisition, Rehabilitation and Resettlement
ICHR	Indian Council for Historical Research	LDCs	Least developed countries
ICMAM	Integrated Coastal and Marine Area Management		
ICMR	Indian Council of Medical Research		
ICPD	International Conference on Population and Development		
ICPR	Indian Philosophical Research Council		
ICRIER	Indian Council for International Economic Research		
ICSSR	Indian Council for Social Science Research		



LIC	Life Insurance Corporation	NCW	National Commission for Women
LIG	Low income group	NCZMA	National Coastal Management Authority
LNG	Liquefied natural gas	NDC	National Development Council
LOICZ	Land-Ocean Interactions in the Coastal Zone	NDMA	National Disaster Management Authority
LPG	Liquefied petroleum gas	NeGP	National e-Governance Plan
MDGs	Millennium Development Goals	NEP	National Environmental Policy
MEAs	Multilateral environmental agreements	NFBS	National Family Benefit Scheme
MERCOSUR	Mercado Comúndel Sur	NFHS	National Family and Health Survey
MFIs	Micro-finance institutions	NFP	National Forest Policy
MG-NREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme	NFSM	National Food Security Mission
MIDS	Madras Institute of Development Studies	NFWP	National Food for Work Programme
MIG	Middle income group	NGC	National Green Corps
MIGA	Multilateral Investment Guarantee Agency	NGOs	Non-governmental organizations
MINAS	Minimum national standards	NGRBA	National Ganga River Basin Authority
MLF	Multilateral Fund	NGT	National Green Tribunal
MNRE	Ministry of New and Renewable Energy	NH ₃	Ammonia
MoEF	Ministry of Environment and Forests	NHHP	National Housing and Habitat Policy
MoRD	Ministry of Rural Development	NIPs	National implementation plans
MPI	Multidimensional Poverty Index	NIT	National Institute of Technology
M RTP	Monopolies and Restrictive Trade Practices	NKN	National Knowledge Network
MSEs	Micro and small enterprises	NLDC	National Load Dispatch Centre
MSMEs	Micro, small and medium enterprises	NMEEE	National Mission for Enhanced Energy Efficiency
MSW	Municipal solid waste	NMMI	National Mission on Micro Irrigation
MT	Million tonnes	NMSA	National Mission for Sustainable Agriculture
MTEE	Market transformation for energy efficiency	N ₂ O	Nitrous oxide
MW	Megawatt	NO ₂	Nitrogen dioxide
NAAQS	National Ambient Air Quality Standards	NPC	National Productivity Council
NABARD	National Bank for Agriculture and Rural Development	TPN	Thematic Network Programme
NAC	National Advisory Council	NPP	New Population Policy
NAEB	National Afforestation and Eco-development Board	NPV	Net Present Value
NAEP	National Afforestation and Eco- Development Project	NRAA	National Rain-fed Area Authority
NAIS	National Agricultural Insurance Scheme (NAIS)	NREGA	National Rural Employment Guarantee Act
NAMA	Non-agricultural market access	NREP	National Rural Employment Programme
NAMP	National Air Quality Monitoring Programme	NRHM	National Rural Health Mission
NAfP	National Afforestation Programme	NRLM	National Rural Livelihood Mission
NAP	National Agricultural Policy	NSAP	National Social Assistance Programme
NAPCC	National Action Plan on Climate Change	NSDC	National Skill Development Corporation
NBA	National Biodiversity Authority	NSDCB	National Skill Development Coordination Board
NBM	National Bamboo Mission (NBM)	NSDF	National Skill Development Fund
NCAER	National Council for Applied Economic Research	NSIC	National Small Industries Corporation
NCEF	National Clean Energy Fund	NSS	National Service Scheme
NCRI	National Council for Rural Institutes	NTCA	National Tiger Conservation Authority
		NTPC	National Thermal Power Corporation
		NUH&HP	National Urban Housing and Habitat Policy
		NUTP	National Urban Transport Policy



NWDPRA	National Watershed Development Project for Rainfed Areas	RSPM	Respirable suspended particulate matter
NYKS	Nehru Yuva Kendra Sangathan	RTA	Regional trade agreements
OBCs	Other backward classes	RVP	River Valley Project
ODA	Official development assistance	SAPs	State Action Plans
ODP	Ozone depletion potential	SBBs	State Biodiversity Boards
ODS	Ozone depleting substance	SC	Supreme Court
PA	Protected area	SCs	Scheduled castes
PAT	Perform Achieve and Trade	SCZMA	State Coastal Management Authority
PCBs	Pollution Control Boards	SDMAs	State Disaster Management Authorities
PCCs	Pollution Control Committees	SEAC	State Level Expert Appraisal Committee
PCT	Patent Cooperation Treaty	SEBI	Securities and Exchange Board of India
PDS	Public distribution system	SEIAA	State Level Environment Impact Assessment Authority
PFCL	Power Finance Corporation Limited	SERCs	State Electricity Regulatory Commissions
PIM	Participatory irrigation management	SEZs	Special Economic Zones
PIP	Programme Implementation Plan	SFAC	Small Farmers' Agri-business Consortium
PM2.5	2.5 micron	SFCs	State Financial Corporations
PM10	10 micron	SFURTI	Scheme of Fund for Regeneration of Traditional Industries
PMGSY	Pradhan Mantri Gram Sadak Yojana	SGRY	Sampoorna Grameen Rozgar Yojana
PMGY	Pradhan Mantri Gramodaya Yojna	SGSY	Swarnajayanti Gram Swarajgar Yojana
POPs	Persistent organic pollutants	SHGs	Self-help groups
PPP	Public private partnership	SICOM	Society of Integrated Coastal Management
PRI	Panchayati Raj Institutions	SIDBI	Small and Industrial Development Bank of India
PRODIP	Product development, design intervention and packaging	SIDCs	State Industrial Corporations
PSUs	Public sector units	SJSRY	Swarna Jayanti Shahari Rojgar Yojana
PTAs	Preferential trade agreements	SLR	Statutory liquidity ratio
PURA	Provision for Urban Amenities in Rural Areas	SO ₂	Sulphur dioxide
PXIL	Power Exchange India Limited	SPCBs	State Pollution Control Boards
QRs	Quantitative restrictions	SRP	Sector Reform Project
R&D	Research & Development	SSI	Small scale industries
RADAS	Reclamation and Development of Alkali and Acid Soil	STs	Scheduled tribes
RAY	Rajiv Awas Yojana	TDMF	Technology Development and Modernization Fund
RBA	River Basin Authorities	TERI	The Energy and Resources Institute
RBI	Reserve Bank of India	TFC	Thirteenth Finance Commission
RCH	Reproductive and Child Health	TFR	Total fertility rate
REC	Renewable Energy Certificate	TK	Traditional knowledge
REC	Renewable Energy Corporation	TKDL	Traditional Knowledge Digital Library
RIDF	Rural Infrastructure Development Fund	TPN	Thematic Network Programme
RKVY	Rashtriya Krishi Vikas Yojana	TRIPS	Trade-Related Aspects of Intellectual Property Rights
RLEGP	Rural Landless Employment Guarantee Programme	TSC	Total Sanitation Campaign
RPO	Renewable purchase obligation	TUFS	Technological Upgradation Fund Schemes
RRR	Repair, Renovation and Restoration	UIDAI	Unique Identification Authority of India



UKTPO	United Kingdom Trademark and Patent Office	UNICLOS	United Nations Convention on the Law of the Sea
ULBs	Urban local bodies	UNIFEM	United Nations Development Fund for Women
UN	United Nations	UNRWA	United Nations Relief and Works Agency
UNCCD	United Nations Convention to Combat Desertification	UTI	Unit Trust of India
UNCED	United Nations Conference on Environment and Development	UTs	Union territories
UNCSD	United Nations Conference on Sustainable Development	VCF	Venture Capital Funds
UNCTAD	United Nations Conference on Trade and Development	VFCs	Village Forest Committees
UNDP	United Nations Development Programme	VSS	Vana Samrakhyana Samiti
UNEP	United Nations Environment Programme	WBCIS	Weather Based Crop Insurance Scheme
UNFCCC	United Nations Framework Convention on Climate Change	WDPSCA	Watershed Development Project in Shifting Cultivation Areas
UNFPA	United Nations Population Fund	WII	Wildlife Institute of India
UN-HABITAT	United Nations Human Settlement Program	WIPO	World Intellectual Property Organization
UNICEF	United Nations Children's Fund	WMC	Waste Minimization Circles
		WSSD	World Summit on Sustainable Development
		WTO	World Trade Organization
		WUA	Water Users Associations

The year 2012 will mark twenty years since the United Nations Conference on Environment and Development (UNCED) or Earth Summit, held at Rio de Janeiro in 1992, when 108 Heads of State and Government, and representatives from international agencies and non-governmental organizations, from across the globe, met to discuss issues around sustainable development. The Earth Summit arrived at Agenda 21, an action plan for a sustainable future. The world will come together once again at Rio in June 2012, at what is more commonly known as Rio+20. At this point, it becomes extremely important to take stock of where we as a global community are in terms of our efforts at addressing sustainability concerns.

The last few decades have made it clearly evident that economic development can no longer be viewed in isolation from environmental protection and social progress. The nature of issues confronting us along with an increasing interdependence among nations necessitates that countries act collectively, in the spirit of multilateralism to chart a sustainable course of development. As a large complex democracy, committed to enhancing the quality of life of its people, and actively involved with the international coalition for sustainable development, the path that India has taken, is taking, and needs to take, will, we think, be of interest to those who believe that a better world is not just essential, but possible.

This book takes stock of India's efforts at addressing some of its own concerns. It documents the country's evolving framework for sustainable development since the 1992 Earth Summit, assesses the achievements it has made and the existing and emerging challenges that the country faces. It highlights some of the international agreements that it has been part of and the innovative approaches adopted to tackle sustainability concerns, while also pointing to the unfinished agenda in this context.

Part 1 of this book documents the key elements of the evolving framework for sustainable development in India. It highlights policies and programmes, legal and financial provisioning, and domestic institutional arrangements put in place to accelerate the rate of economic growth, promote social progress and encourage environmental protection in the country.

Sectoral reforms were introduced in the 1990s across sectors, including industry, agriculture, investment, trade, banking and finance, infrastructure, and focused on opening up India's market to international competition, removing controls over private sector involvement in most areas of economic activity and eliminating barriers to trade. In the financial markets, these reforms took the form of liberalizing access to foreign capital and encouraging foreign investment. Domestic capital markets also expanded with the strengthening of institutions, including banks and regulatory bodies. This has resulted in the Indian economy witnessing high annual average growth rates of 5.7 percent during 1991–2000, which increased to 7.2 percent during 2001–2010. The increased growth rates have also been accompanied by a decline in poverty.

Policies, programmes and targeted schemes have been introduced to eradicate poverty, either through a direct focus on employment generation, training and building-up assets of the poor, or indirectly through a focus on human development with an emphasis on health, education, and women's empowerment. Emphasis has also been on promoting financial inclusion. Literacy rates have been constantly rising and are estimated to be 82.14 percent for men and 65.46 percent for women as per the 2011 Census of India. Health indicators have also shown some improvement, although India is still not on target to meet some key Millennium Development Goals (MDGs) by 2015.

Environmental protection and conservation has been promoted through various policy measures across the domains of forestry, pollution control, water management, climate change, clean energy, and marine and coastal environment. The National Environment Policy, 2006 is a response to India's commitment to a clean environment and intends to mainstream environmental concerns in all development activities. There has been a net gain of 728 km² in forest cover and 1,106 km² in tree cover in 2009 as compared to 2005. India has successfully reduced its energy intensity with respect to GDP from the 1980s to the early years of the 21st century (TERI, 2006). The country is also making progress in the spread of renewable energy—amounting to about 11 percent of the total grid installed capacity in the country as on March 2011. Financial provisioning for implementation of



the various policies and programmes has played an important role through the Five Year Plan process, intergovernmental transfers and other sources. More recently, the Thirteenth Finance Commission (TFC) made recommendations to incentivize and reward improved environmental performance. A significant body of laws exist pertaining to the three pillars of sustainable development. Whereas the Right to Information Act of the year 2005 has enhanced transparency and ensured easy access to public information, the recent National Green Tribunal Act, 2010 could be instrumental in the creation of a specialized tribunal to fast-track access to environmental justice. However, despite this legislative effort, a number of challenges continue to exist. Institutional arrangements both at national and state levels have been put in place to bring about more coordinated and integrated policy responses. Inter-ministerial and state-centre coordination has been recognized as an imperative for efficient public delivery and effective functioning of the politico-administrative machinery in the country.

Part 2 of the book highlights the achievements that India has made and identifies gaps and major challenges (existing and emerging) on the road ahead. The period following the 1992 Earth Summit coincided with the economic reforms in India. The country witnessed high growth rates and has also been able to weather the global recession, with only a limited and short-lived slowdown. The wide ranging reforms in the economic sector and increased investment in the social infrastructure has lifted the estimates for potential growth to almost nine percent in the next decade compared to annual average growth rates of five to six percent in the 1980s and 1990s.

However, certain challenges continue to exist, which need to be addressed urgently to accelerate achievements of sustainable development. Though the percentage of population under poverty has continuously declined, and a new age of productivity and competitiveness has been ushered, social concerns are growing. Environmental challenges in the form of depletion of natural resources and deterioration in environmental quality continue, while new ones, such as climate change are emerging.

Part 3 of the book documents India's participation in key international agreements that relate to sustainable development. India has remained in the forefront of the evolution of key sustainable development policies and strategies, and has supported the development of global institutions, agreements and policies that are fair and equitable. As a member of the United Nations, India is committed to the realization of the

international development goals. India is one of the founding members of the International Labour Organization (ILO) and has ratified 43 ILO conventions and one protocol till date. India is party to a number of major international treaties on human rights, which include the International Convention on the Elimination of All Forms of Racial Discrimination (1968), International Covenant on Civil and Political Rights (1979), Convention on the Elimination of All Forms of Discrimination against Women (1993), and Convention on the Rights of the Child (1992).

India is party to most multilateral environmental agreements. It signed the United Nations Framework Convention on Climate Change (UNFCCC). It acceded to the Kyoto Protocol in August 2002. India became a signatory to the Convention on Biological Diversity (CBD) in December 1993 and ratified the convention in February 1994. It has been designated as the host country by the United Nations Convention to Combat Desertification (UNCCD) for the Asian Regional Action Programme on Agroforestry and Soil Conservation, under the Thematic Programme Network (TPN).

Part 4 highlights some innovative approaches that play an important role in India's efforts at achieving sustainable development. These include the use of economic instruments and eco-labeling to influence improved environmental behaviour and clean energy change.

Major groups, which include local authorities, non-governmental organizations, and business and industry are also important agents of change. Policies and interventions in India have been introduced to facilitate engagement between various major groups, which has led to innovations that contribute to the sustainable development agenda.

Efforts now need to be increasingly made to: (i) explore the convergence possibilities between the different policies and programmes, and (ii) avoid duplication of effort and leakages to ensure that the fruits of the schemes reach the targeted beneficiaries, (iii) adopt innovative approaches to environmental regulation and application of the principles of sustainable development, (iv) undertake institution building in critical areas to enhance the technical and managerial capacities.

New tools, cleaner technologies, science- and economic-driven methodologies and even more decentralized approaches are needed to ensure that our economic growth trajectory towards poverty eradication is socially inclusive and ecologically sustainable. The analysis done in this volume amply demonstrates India's commitment in this direction.

PART 1

Framework for sustainable development in India



PART 1

FRAMEWORK FOR SUSTAINABLE DEVELOPMENT IN INDIA

The Brundtland Commission Report entitled *Our Common Future* (1987) defined sustainable development as “development, which meets the needs of the present without compromising the ability of future generations to meet their own needs”. The 1992 Earth Summit in Rio de Janeiro, put the concept of sustainable development on national and international policy agendas.

Since Rio, there have been extensive efforts to operationalize sustainable development by governments, international organizations, local authorities, business, citizen groups and individuals. Agenda 21 remains a powerful document that provides long-term vision for balancing economic and social needs with the capacity of the earth’s resources and ecosystems. Twenty years post Rio, the goals of Agenda 21 have not been fully realized and there is universal agreement that efforts must be redoubled to enhance sustainable development that is equitable as well as ecological.

The World Summit on Sustainable Development (WSSD) in 2002 at Johannesburg resulted in Johannesburg Plan of Implementation (JPOI). JPOI reiterated the importance of achieving internationally agreed development goals embedded in the outcomes of the major United Nations conferences and international agreements since 1992, including those contained in the United Nations Millennium Declaration, United Nations Framework Convention on Climate Change, Convention on Biodiversity, Convention to Combat Desertification and non-binding targets of the Forestry Principles.

The Constitution of India and relevant amendments that have been incorporated over the years, reinforce

the policy and legal basis of sustainable development in India. The Preamble, which lays down the ‘basic features’ and remains the ‘soul’ of the Constitution promises to all Indian citizens justice encompassing the social, economic and political, equality of status and opportunity and the dignity of the individual. The pillars of sustainable development are embedded in the fundamental rights guaranteed by the Constitution, which lay down the framework for social justice in India. Article 21 conferring the Right to Life has been subject to the broadest interpretations by the judiciary to encompass right to clean environment, right to livelihood, right to live with dignity and a number of other associated rights. The Directive Principles of State Policy often referred to as the ‘conscience’ of the Constitution are intended to ensure ‘distributive justice’ and that political democracy in India is accompanied side by side with social and economic democracy¹. In addition to the state mandate to ensure social and economic justice, the Directive Principles also enjoins a duty upon the state to protect and improve the environment and safeguard the forests and wildlife. The Executive, Judiciary and the Legislature have given expression to these normative ideals in innovative ways in response to demands from the people, and national and international exigencies.

The National Environmental Policy (NEP) of 2006 articulates the spirit of ‘sustainable development’; it states that only such development is sustainable, which respects ecological constraints and the imperatives of social justice. The NEP highlights the consensus around the sustainable development concept through three foundational

¹ Report of the National Commission to Review the Working of the Constitution (2002)



aspirations: first, that human beings should enjoy a decent quality of life; second, that human beings should become capable of recognizing the finiteness of the biosphere; and third, that neither the aspiration of a good life, nor the recognition of the limits of the biophysical world should preclude the search for greater justice in the world. The NEP 2006 also asserts that the most viable basis of environmental conservation is to ensure that people gain better livelihoods from the act of conservation of natural resources than from environmental degradation.

Part I of the book documents some of the key elements of the evolving framework of sustainable development in India: policies and programmes; legal provisioning; institutional arrangements; and financial provisioning.

1A. POLICIES AND PROGRAMMES

Policies and programmes for achieving sustainable development in India aim to fulfill its commitment towards social progress, accelerated economic growth and increased environmental conservation.

Sustainable development has been embedded in the planning process of the country since the 1990s. The Ninth Five-Year Plan (1997–2002) explicitly recognized the synergy between environment, health and development and identified as one of its core objectives the need for ensuring environmental sustainability of the development process through social mobilization and participation of people at all levels (see MoEF, 2002).

However, after the WSSD in 2002, a process of preparing and implementing a national strategy for sustainable development was initiated, key elements of which are present in the subsequent five-year plans (FYPs). The government's commitment to sustainable development was also reflected in specific and monitorable targets for a few key indicators of human development and conservation of natural resources that became part of the Tenth Five-Year Plan (2002–2007). Efforts have also been made to achieve the UN Millennium Development Goals (MDGs) especially pertaining to poverty eradication that have been subsumed under the country's monitorable development goals.

This chapter discusses the key policies and programmes formulated by the government pertaining

to the three pillars of sustainable development—social, economic and environment.

Economic

The broad economic reforms programme was put in place in 1991 in response to the severe economic crisis, which the country faced. Subsequent to these reforms, other reforms have also been initiated in the country. The thrust of the reforms in all sectors was to open India's market to international competition, remove controls over private sector involvement in most areas of economic activity and eliminate barriers to trade. In the financial markets, reforms sought to liberalize access to foreign capital and encourage foreign investment. Domestic capital markets were also expanded by strengthening of institutions, including banking and financial regulatory bodies.

Agriculture and food management

The agriculture sector accounts for about 58 percent of the employment in the country and is a very important sector in the economy (GoI, 2011a). India's National Agricultural Policy (NAP) has stressed the importance of management and conservation of resources by stating that, 'the policy will seek to promote technically sound, economically viable, environmentally non-degrading, and socially acceptable use of country's natural resources—land, water and genetic endowment to promote sustainable development of agriculture' (GoI, 2000). The Central and state governments have initiated several measures to promote sustainable agricultural development. The NAP stated that improving the quality of land and soil, rational utilization and conservation of water, and sensitizing the farming community to environmental concerns would receive high priority (GoI, 2000).

Several programmes have been introduced to increase agricultural productivity and profitability, and in domains of input provision, irrigation, drought protection, price policy and credit and insurance. Box 1.1 lists some of these initiatives.

Providing minimum nutritional support to the poor through subsidized food grains and ensuring price stability in different states have been the twin objectives of the food security policy in India. In addition, procurement policies for agricultural products, particularly wheat and



Box 1.1 Key programmes initiated in the agricultural sector

National Food Security Mission (NFSM)

- To increase the production of rice by 10 million tonnes, wheat by 8 million tonnes and pulses by 2 million tonnes by the end of Eleventh Five Year Plan (2007-2012)
- Measures include bridging the yield gap with respect to the identified crops through dissemination of improved technologies and farm management practices

Rashtriya Krishi Vikas Yojna (RKVY)

- Considers a holistic development of the agricultural and allied sectors
- Aims to achieve an annual growth rate of 4 percent in the agricultural sector during the Eleventh Five Year Plan (2007-12)

Integrated Watershed Management Programme (IWMP)

- Main objectives are to restore the ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water.
- Key outcomes include prevention of soil run-off, regeneration of natural vegetation, rain water harvesting and recharging of the ground water table.

National Watershed Development Project for Rainfed Area (NWDPA)

- Promotes agriculture productivity and production in rainfed areas.
- Programme is planned, implemented, monitored and maintained by watershed communities.

Command Area Development and Water Management Programme (CADWM)

- Objectives of improving the utilization of created irrigation potential and optimizing agriculture production and productivity.

- Area Development Authorities provide technical support.

National Project for Repair, Renovation and Restoration (RRR) of Water Bodies

- To restore and augment storage capacities of water bodies, and
- Recover and extend their lost irrigation potential.

Kisan Credit Card (KCC) Scheme

- Provides adequate and timely credit to farmers under single window, with flexible and simplified procedure

National Agricultural Insurance Scheme (NAIS)

- Addresses the issue of production risk faced by the agricultural farmers
- Funding is divided between the Central and State Government on a 50-50 sharing basis

Macro Management of Agriculture (MMA)

- Works on ensuring central assistance on agriculture is spent on focused and specific interventions for the development of agriculture in the state

Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM)

- Works on providing flexibility to the states to diversify crop production
- Provides a focused approach to the programme keeping in mind the regional differentiation of each state

Weather Based Crop Insurance Scheme (WBCIS)

- Mitigates the hardship of the insured farmers against the likelihood of financial loss
- Provides coverage against weather parameters like rainfall, temperature, frost, humidity, etc.

Source Compiled from government sources

rice by the government have led to comfortable level of food stocks to meet the food requirements in the country and maintain adequate buffer stocks. There is a need, however, to re-design/strengthen procurement policies with respect to other crops, such as pulses and oilseeds, improve foodstock management and also to promote a more targeted subsidy structure for the poor.

Industry

The Industrial Policy Statement of 1991 established a sound policy framework to encourage entrepreneurship, develop indigenous technology through investment in research and development, bring in new technology, dismantle the license-permit system, develop the capital markets and increase competitiveness for the benefit

of the common man. The policy further stated that ‘the spread of industrialization to backward areas of the country will be actively promoted through appropriate incentives, institutions and infrastructure investments’.

Besides general industrial policy measures like virtual abolition of comprehensive investment licensing, abolition of restrictive monopoly regulation, significant opening up of activities previously reserved for the public sector; some industry specific measures were initiated in sectors, including textile, heavy industries, mineral, oil and gas, and electricity.

The thrust of the reforms in all areas was opening of India’s markets to international competition, removing controls over private sector involvement in most areas of economic activity and eliminating barriers to trade. In the financial markets, liberalizing access to foreign capital and encouraging foreign investment.

The Indian pharmaceutical industry is the world’s second-largest by volume and many initiatives have been introduced to promote growth in this sector. The Pharmaceuticals Policy 2002 puts emphasis on abundant availability of good quality essential pharmaceuticals at reasonable prices. It sought to strengthen indigenous capability for production and exports, and quality control and distribution. It encouraged research and development (R&D) with particular focus on diseases endemic or relevant to India and created an incentive framework to promote new investment and introduction of new technologies and new drugs.²

A number of initiatives in the economic domain focus on assistance to the small and medium sector enterprises. The Marketing Assistance Scheme aims at providing marketing support to micro and small enterprises (MSEs) through National Small Industries Corporation (NSIC) and enhances capabilities, competitiveness and marketability of their products. The Credit Guarantee

Cover Fund Scheme for Small Industries promotes collateral security and impediment to flow of credit to small scale industries (SSI) sector. Direct lending and development support from Small Industries Development Bank of India (SIDBI) and state level institutions, such as State Financial Corporations (SFCs) and State Industrial Corporations (SIDCs), Technology Development and Modernization Fund (TDMF) and Venture Capital Funds (VCF) has also played an important role. The Credit Linked Capital Subsidy Scheme (CLCSS) for technology upgradation aims at facilitating technology upgradation by providing upfront capital subsidy to SSI units, including tiny, khadi, village and coir industrial units.



Encouraging cottage industry
Source <http://www.ignca.nic.in/craft057.htm>

Major steps have been taken to promote Information and Communications Technology (ICT) with a strong focus on software development for export, telecommunications policy reform, privatization of the national long-distance and mobile phone markets and development of a more comprehensive approach to ICT. The New Telecom Policy in 1999 was significant in this regard.³ The opening up of the telecom sector in India has led to rapid growth and increased national coverage and has helped the maximization of consumer benefits in terms of declining tariffs.

With the help of proactive market policies and liberal fiscal incentives, many knowledge-based industries in biotechnology, chemicals, drugs and pharmaceuticals,

² <http://www.nppaindia.nic.in/may-2002/policy-02.html> last accessed on 12/08/2011

³ <http://www.dot.gov.in/ntp/ntp1999.htm> last accessed on 12/08/2011. Currently efforts are being made to formulate a new and comprehensive National Telecom Policy 2011, which is expected to infuse greater transparency into the sector.



food processing, information and communication technology came up and revolutionized the economy.

Investment

The policy towards deregulation of foreign direct investment (FDI) has played a major role in the economic growth of the country. Post liberalization (1991 onwards), regulations have been diluted with regard to foreign equity caps and technology transfer, and prerequisites for national treatment have been relaxed.

Most activities are open to foreign investment on automatic route without any limit on the extent of foreign ownership. FDI up to 100 percent has also been allowed, under automatic route, for most manufacturing activities in Special Economic Zones (SEZs). In 2004, the FDI limits were raised in the private banking sector (up to 74 percent), oil exploration (up to 100 percent), petroleum product marketing (up to 100 percent), petroleum product pipelines (up to 100 percent), natural gas and liquefied natural gas (LNG) pipelines (up to 100 percent) and printing of scientific and technical magazines, periodicals and journals (up to 100 percent). In 2005, the FDI ceiling in the telecom sector in certain services was increased from 49 to 74 percent.

policies have included a significant scaling down of tariff barriers, and a partial dismantling of the system of import and export licenses and simplification of procedures that were in place.

Significant trade liberalization took place post 1991. Peak tariff rates were reduced steeply from 350 percent in 1991 to less than 20 percent in 2009;⁴ average tariffs rates have also declined significantly in the period in addition to reduced dispersion in rates. Quantitative restrictions (QRs) on imports were abolished for most capital and intermediate goods in 1991, while those on consumer goods were abolished in instalments between 1999 and 2001.



Information technology enabled services (ITeS) as one of the thrust area of development in India

Source <http://s.and.nic.in/Industry/Images/p53.gif>



Special Economic Zones are supported by infrastructure and fiscal benefits

Source <http://www.sezindia.nic.in/images/home-toppic.jpg>

Trade

Trade Policy Reforms have been central to the new economic policies initiated in 1991. Changes in trade

Technology upgradation

An important element of the Foreign Trade Policy is to help exporters with technological upgradation. This was achieved by promoting imports of capital goods for certain sectors under Export Promotion Capital Goods (EPCG) scheme at zero percent duty.⁵ This scheme was available for engineering and electronic products, basic chemicals and pharmaceuticals, apparels and textiles, plastics, handicrafts, chemicals and allied products and leather and leather products (subject to exclusions of current beneficiaries under Technological Upgradation Fund Schemes [TUFS]).

⁴ <http://www.globaltrade.net/international-trade-import-exports/f/business/text/India/Trade-Policy-Import-Tariffs-in-India.html> last accessed on 12/08/2011

⁵ This is under the EXIM policy of 2002–2007. See also <http://dgftcom.nic.in/exim/2000/procedures/bchap-5.htm>



Banking and finance

Financial sector reforms that were initiated in the 1990s sought to create an efficient, productive and profitable financial sector; enable price discovery by market determination of interest rates; provide operational and functional autonomy to institutions; and promote financial stability of the system.

The banking sector reforms consisted of (a) a shift in banking sector supervision from intrusive micro-level intervention over credit decisions toward prudential regulations and supervision; (b) inter-state and entry deregulation; (c) adoption of prudential norms; and (d) use of other monetary policy instruments.

Since 1992, reform measures in the equity market have focused mainly on regulatory effectiveness, enhancing competitive conditions, reducing information asymmetries, developing modern technological infrastructure, mitigating transaction costs and controlling speculation in the securities market. Another important development under the reform process has been the opening up of mutual funds to the private sector in 1992, which ended the monopoly of Unit Trust of India (UTI), a public sector entity. The Indian capital market was opened up for foreign institutional investors (FIIs) in 1992.

India has managed to maintain high domestic savings rate and stable domestic investments in the capital markets even during the turbulent global economic scenario. Institutions like the Securities and Exchange Board of India (SEBI) have played an important role in creating international standards in the Indian capital market, while simultaneously protecting the interests of the investors.

Infrastructure

The Electricity Act 2003, the National Electricity Policy 2005 and the Tariff Policy 2006 were instrumental in giving a big push to the growth of the electricity sector by creating a conducive environment for investments in the power sector. The National Electricity Policy underscores the use of renewable sources of energy as does the Integrated Energy Policy (IEP) of 2008.

A package of fiscal incentives is provided for renewable energy projects. In January 2010, Renewable Energy Certificates were introduced to enable the matching of resource availability and requirements of obligated entities to meet their renewable portfolio obligations.

Various policy measures have facilitated increased private sector participation in key infrastructure sectors, such as, telecommunication, roads and ports. Further, foreign equity participation up to 100 percent has been allowed in construction and maintenance of roads and bridges. Monopolies and Restrictive Trade Practices (MRTP) provisions have been relaxed to encourage private sector financing by large firms in the highway sector. This has contributed significantly to the growth of infrastructure in the country.

Social

Changes in social policies were made to address not only the existing social inequity and concerns, but also the serious social impacts that accompanied economic liberalization and globalization. The Twenty Point Programme was introduced in 2006. The programme is an umbrella package of social sector schemes and programmes that are administered by various Ministries and implemented by State/Union Territory Governments with the basic objectives of poverty eradication and improving the quality of life of the poor and the under privileged population of the country.⁶ The broad aspects covered under the programme include poverty, employment, education, housing, health, agriculture, afforestation and environment protection, drinking water, energy to rural areas and welfare of the weaker sections of the society. Box 1.2 lists some key social schemes under the Twenty Point Programme in terms of their objectives.

Interventions for poverty eradication

Most of the poverty eradication programs can be classified under one of the following, (i) self-employment (ii) wage employment (iii) food safety and (iv) social security. These programmes have to a very large extent been helpful in fighting poverty in India. (For details in achievements with respect to MDG targets please refer Annexure 1.1).

⁶ Ministry of Statistics and Programme Implementation for the restructuring of the existing Twenty Point Programme, popularly known as TPP – 86. The restructured programme will be called the Twenty Point Programme – 2006 (GoI, 2006).



Box 1.2 Government of India's Twenty Point Programme

1. Garibi Hatao (poverty eradication)

Rural Areas

- Employment generation under the National Rural Employment Guarantee Act
- Swaranjayanti Gram Swarajgar Yojana
- Sampoorna Grameen Rojgar Yojana
- Rural Business Hubs in Partnership with Panchayats
- Self Help Groups

Urban Areas

- Swaranjayanti Shehari Rojgar Yojana

2. Jan Shakti (power to people)

- Local Self Government (Panchayati Raj and Urban Local Bodies)
 - Activity mapping for devolution of functions
 - Budget flow of funds
 - Assignment of functionaries
- Quick and inexpensive justice
 - Gram Nyayalayas and Nyaya Panchayats
- District Planning Committees

3. Kisan Mitra (support to farmers)

- Watershed development and dry land farming
- Marketing and infrastructural support to farmers
- Irrigation facilities (including minor and micro irrigation) for agriculture
- Credit to farmers
- Distribution of waste land to the landless

4. Shramik Kalyan (labour welfare)

- Social security for agricultural and unorganized labour
- Minimum wages enforcement (including farm labour)
- Prevention of child labour
- Welfare of women labour

5. Khadya Suraksha (food security)

- Targeted public distribution system
- Antodaya Anna Yojana
- Establishing grain banks in chronically food scarcity areas

6. Subke Liye Aawas (housing for all)

- Rural housing – Indira Awaas Yojana
- EWS/LIG houses in urban areas

7. Shudh Peya Jal (clean drinking water)

- Rural areas
 - Swajaldhara
 - Accelerated Rural Water Supply Programme
- Urban areas
 - Accelerated Urban Water Supply Programme

8. Jan Jan Ka Swasthya (health for all)

- Control and prevention of major diseases:
 - a) HIV/AIDS (b) TB (c) Malaria (d) Leprosy (e) Blindness
- National Rural Health Mission
- Immunization of children
- Sanitation programme in
 - Rural areas
 - Urban areas
- Institutional delivery
- Prevention of female foeticide
- Supplementary nutrition for mothers and children
- Two child norms

9. Sabke Liye Shiksha (education for all)

- Sarv Shiksha Abhiyan
- Mid-Day Meal Scheme
 - Compulsory elementary education

10. Anusuchit Jaati, Jan Jaati, Alp-sankhyak evam Anya Pichhra Varg Kalyan⁷ (welfare of scheduled

⁷ The Scheduled Castes (SCs), also known as Dalits, and the Scheduled Tribes (STs) are two groupings of historically disadvantaged people that are given express recognition in the Constitution of India. The Scheduled Castes and Scheduled Tribes make up around 15 percent and 7.5 percent, respectively of the population of India, or around 24 percent altogether, according to the 2001 Census. OBCs are described as “socially and educationally backward classes”, and the government is enjoined to ensure their social and educational development.



Box 1.2 Contd...

castes [SCs], scheduled tribes [STs], minorities and other backward classes [OBCs])

- SC families assisted
- Rehabilitation of scavengers
- Rights of forest dwellers – owners of minor forest produce
- Primitive tribal groups
- No alienation of tribal lands
- Implementation of Panchayats (extension to scheduled areas) Act (PESA)
- Welfare of minorities
- Professional education among all minority communities
- Reservation of OBCs in
 - Education
 - Employment

11. Mahila Kalyan (women welfare)

- Financial assistance for women welfare
- Improved participation of women in panchayats, municipalities, state legislatures, and parliament

12. Bal Kalyan (child welfare)

- Universalization of ICDS Scheme
- Functional Anganwadis

13. Yuva Vikas (youth development)

- Sports for all in rural and urban areas
- Rashtriya Sadbhavana Yojana
- National Services Scheme

14. Basti Sudhar (improvement of slums)

- Urban poor families assisted under seven point charter viz. land tenure, housing at affordable cost, water, sanitation, health, education, and social security

15. Paryavaran Sanrakshan evam Van Vridhi (environment protection and afforestation)

- Afforestation
 - Area covered under plantation of public and forest lands
 - Number of seedlings planted on public and forest lands
- Prevention of pollution of rivers and water bodies
- Solid and liquid waste management in
 - Rural areas
 - Urban areas

16. Samajik Suraksha (social security)

- Rehabilitation of handicapped and orphans
- Welfare of the aged

17. Grameen Sadak (rural roads)

- Rural roads – Pradhan Mantri Grameen Sadak Yojana

18. Grameen Oorja (energization of rural areas)

- Bio-diesel production
- Rajiv Gandhi Grameen Vidyutikaran Yojana
- Renewable energy
- Energizing pump sets
- Supply of electricity
- Supply of kerosene and LPG

19. Pichhra Kshetra Vikas (development of backward areas)

- Backward Regions Grants Fund

20. E-Shasan (IT enabled e-Governance)

- Central and State Governments
- Panchayats and municipalities

Source http://mospi.nic.in/Mospi_New/upload/Revised_tpp_2006.pdf

The Integrated Rural Development Programme (IRDP) was started in the seventies to increase the income of small farmers and landless labourers. The beneficiaries were given subsidized credit, training, and infrastructure, so that they could find new sources of earnings. Agricultural labourers and small scale farmers

were re-skilled to enable vocations other than cultivating land. This programme evolved into the Swarnjayanti Gram Swarozgar Yojana (SGSY) in 1999. SGSY involves the organization of the poor into self-help groups (SHGs) where they are provided with credit, technology, infrastructure and training. In 2009, the SGSY was



restructured into the National Rural Livelihoods Mission (NRLM). NRLM endeavours to reach out to the rural poor households by building their capacities, financial strength and access, create self-managed self-reliant institutions through placement in jobs, and/or nurture them for remunerative self-employment and enterprises.

In the 1993, the Employment Assurance Scheme (EAS) was launched in 1778 identified backward blocks situated in drought-prone, desert, tribal and hill areas. The Jawahar Gram Samridhi Yojna (JGSY) was launched in 1999 to ensure development of rural infrastructure at the village level by restructuring the erstwhile Jawahar Rojgar Yojana (JRY), which was born after merging National Rural Employment Programme (NREP) and Rural Landless Employment Guarantee Programme (RLEGP). Sampoorna Grameen Rozgar Yojana (SGRY) was introduced in 2001 by merging EAS and JGSY. The National Food for Work Programme (NFWP) was launched in 2004 under SGRY. NFWP evolved into the Mahatma Gandhi National Rural Employment Guarantee Scheme (MG-NREGS) that now extends to all the districts of India.

The largest flagship programme currently in rural areas is the MG-NREGS, launched in 2006, which aims at enhancing the livelihood security of people in rural areas by guaranteeing minimum one hundred days of wage-employment in a financial year to a rural household whose adult member is willing to work. Failing this, the

person will be provided with a daily unemployment allowance (one third to one half of the minimum wage). If employment or compensation is not given, the concerned person has the right to seek judicial intervention to ensure his/her rights. This demand-driven programme is focused on generating productive assets, protecting the environment, empowering rural women, reducing rural-urban migration and fostering social equity (MoRD, 2008).⁸

Over the years, various policies and schemes to promote social security have been introduced in India. Some of the important schemes in this regard are presented in the following sections. The National Social Assistance Programme (NSAP) was launched by the Government of India in 1995 and represents a significant step towards the fulfilment of the Directive Principles in the Constitution. NSAP introduced a National Policy for Social Assistance for the poor and aims at ensuring minimum national standard for this assistance in addition to the benefits that states are currently providing or might provide in future. NSAP comprises the following schemes: Indira Gandhi National Old Age Pension Scheme (IGNOAPS), Indira Gandhi National Widow Pension Scheme (IGNWPS), Indira Gandhi National Disability Pension Scheme (IGNDPS), National Family Benefit Scheme (NFBS) and Annapurna (Table 1.1).

Efforts are also being made to strengthen the system of social security for domestic workers. The National

Table 1.1 Social security schemes for people below the poverty line

Programme	Year of launch	Key characteristics
Indira Gandhi National Old Age Pension Scheme (IGNOAPS)	2007	Persons of 65 years and above who do not have any kind of source of income can avail this pension facility (INR 200 per person per month)
Indira Gandhi National Widow Pension Scheme (IGNWPS)	2009	Widows aged between 45 and 64 years of age and from a household are eligible for pension amounting to INR 200 per month
National Family Benefit Scheme (NFBS)	1995	Financial assistance is given to the family on the death of the breadwinner in the family (amount INR 10,000)
Annapurna Scheme	2000–2001	Indigent senior citizens (65 years of age or above) who are under the IGNOAPS can receive 10 kilograms of food grains per person per month free of cost under the scheme

Source Compiled from various sources

⁸ MoRD (2008). NREGA Operational Guidelines, 3rd Edition. New Delhi: Ministry of Rural Development, Government of India.



Commission for Women (NCW) has recently suggested a comprehensive piece of Central legislation for domestic workers. It drafted a Bill titled 'Domestic Workers Welfare and Social Security Act, 2010', which highlights the exploitative nature of domestic work, including the recent practice of trafficking in women and children, for domestic work, by spurious placement agencies. The legislation has been designed specifically to address the working conditions of domestic workers, including their registration and the emphasis of the draft Bill is on the regulation of placement agencies.

Food security is largely addressed by the public distribution system (PDS). PDS was originally a universal public distribution system and not conceived as an anti-poverty programme, the main objectives being to create demand for food grains to incentivize production and stabilization of food grain prices through support prices. The central government initiated a new PDS programme in June 1997, a targeted public distribution system. The Unique Identification Project⁹ is also envisioned to ensure efficient and targeted delivery of government services, including the PDS.

Urban housing and livelihoods

The National Housing and Habitat Policy (NHHP) was introduced in 1998 with the aim of 'Housing for all'. Further, the National Urban Housing and Habitat Policy (NUH&HP) 2007 sought to promote sustainable development of habitat in the country with a view to ensuring equitable supply of land, shelter and services at affordable prices to all sections of society. As part of efforts to achieve the goal of 'Affordable Housing for All', the NUH&HP mandates the reservation of '10–15 percent land in new public/ private housing projects or 20–25 percent of floor area ratio (FAR) (whichever is greater) for economically weaker sections (EWS)/ low income group (LIG) housing through appropriate legal stipulations and special initiatives'.

The National Policy for Urban Street Vendors of 2004¹⁰ provides and promotes a supportive environment for earning livelihoods to street vendors, as well as ensures the absence of congestion and maintenance of hygiene in public spaces and streets. Some of the basic objectives are to give vendors legal status, provide facilities for appropriate use of identified spaces, regulate access to public spaces through a nominal fee and give street vendors a role in distribution.

The National Urban Sanitation Policy 2008 seeks to generate awareness, eliminate open defecation, promote integrated citywide sanitation, promote safe disposal and proper operation and maintenance of all sanitary installations.

Jawaharlal Nehru National Urban Renewal Mission (JNNURM) was launched in 2005 with focus on enhancing efficiency in urban infrastructure and service delivery mechanisms. The policy initiatives under the JNNURM include reforms related to governance, financial sustainability, land and property management, responsiveness to citizens, transparency and inclusive development. More details on JNNURM are given in Box 1.3.

Affordable Housing in Partnership (AHP) scheme, launched in 2007 for the construction of one million houses for the economically weaker section (WS)/low income group (LIG)/middle income group (MIG), aims at partnerships among various agencies/Government parastatals/urban local bodies (ULBs)/developers for realizing the goal of affordable housing for all. The Affordable Housing in Partnership Scheme has now been dovetailed into Rajiv Awas Yojana (RAY). The Ministry for Housing and Urban Poverty Alleviation envisages RAY to cover about 250 cities, across the entire country which have an estimated 32.10 million people living in slums.¹¹

The National Mission on Sustainable Habitat was approved recently as one of the eight missions of the National Action Plan on Climate Change (NAPCC). It

⁹ Unique identification project is an initiative that is expected to provide identification for each resident across the country and would be used primarily as the basis for efficient delivery of welfare services. It would also act as a tool for effective monitoring of various programs and schemes of the Government. For more details please refer to Section 1C of this book.

¹⁰ <http://mhupa.gov.in/policies/natpol.htm> last accessed on 13/08/2011.

¹¹ <http://www.pib.nic.in/newsite/erelease.aspx?relid=73585>, last accessed on 12/08/2011



Box 1.3 Jawaharlal Nehru National Urban Renewal Mission (JnNURM)

Jawaharlal Nehru National Urban Renewal Mission (JnNURM) was launched by India's Prime Minister Dr. Manmohan Singh in December 2005. It is administered by the Ministry of Urban Development and Ministry of Housing and Urban Poverty Alleviation to support state and local investment in urban development. The overall objective of the Mission is to 'create economically productive, efficient, equitable and responsive cities.' It is to encourage reform and fast track planned development for identified cities with a sustained focus on efficiency in urban infrastructure and service delivery mechanisms, community participation and accountability of all ULBs/parastatal agencies.

The JnNURM combines an offer of financial support for infrastructure projects under a cost sharing arrangement with the states and local governments, which is linked to a carefully structured governance model, that includes both central assistance and mandatory and optional reforms. The duration of the mission is for seven years, commencing in 2005–2006 with an identified requirement of INR 1,205.36 billion (\$ 28 billion) of investment in 63 cities across the nation.

To qualify for JnNURM funding, a three-tiered application with the following information is mandatory; first, it requires each qualifying city to prepare a city development plan (CDP) laying out their vision for the city over the next 20–25 years; second, a detailed project report (DPR) detailing their financial needs; and lastly, a timeline for the implementation of urban reforms for their respective city.

Source Compiled from <http://jnnurm.nic.in/>

provides an overarching policy framework to address issues relating to sustainable urban development. It seeks to promote sustainability of habitats through improvements in energy efficiency in buildings, urban planning, improved management of solid and liquid waste, including recycling and power generation and modal shift towards public transport and conservation.

Urban transport

The National Urban Transport Policy (NUTP) 2006 was adopted to promote public transport, given the

need for increased mobility of urban populations and the impact of increasing vehicle numbers on air quality. The objective of this policy is to ensure safe, affordable, quick, comfortable, reliable and sustainable access for the growing number of city residents to jobs, education, recreation and such other needs within cities. This is a significant departure from traditional urban transport practices in Indian cities, as the needs of the majority of the population using public transport and non-motorized modes are now at the forefront. The vision and objectives of this policy include:

- Recognizing that people occupy centre stage in our cities; and that all plans should be for their common benefit and well being
- Incorporating urban transportation as an important parameter at the urban planning stage rather than a consequential requirement
- Bringing about a more equitable allocation of road space with people rather than vehicles as its main focus
- Encouraging greater use of public transport and non-motorized modes by offering Central financial assistance for the development of infrastructure and operation
- Promoting the use of cleaner technologies
- Enabling the establishment of quality focused multi-modal public transport systems that are well integrated, providing seamless travel across modes

The launching of the Government of India central assistance fund for the JNURM provided a timely platform for providing significant financial support for investments in urban transport infrastructure to conform to the rules and regulations stated under the NUTP.

Empowerment of women

The National Policy for Empowerment of Women 2001 sought to bring about the advancement, development and empowerment of women. In 2010, the Rajiv Gandhi Scheme for empowerment of adolescent girls was launched with the objective of empowering adolescent girls in the age group 11–18 years by bringing improvement in their nutritional and health status and upgrading various skills – home, life and vocational.



Another important scheme implemented by the Ministry of Women and Child Development is the Dhanlaxmi Scheme launched in 2008, which is a conditional cash transfer scheme for the girl child.

In the Eleventh Five-Year Plan, 56 ministries/departments of the Government of India have set up gender budget cells and have reflected allocations for women in the 'Gender Budget Statement of the Union Budget'. India has also ratified various international conventions and human rights instruments committing to secure equal rights of women; key among them is the ratification of the Convention on Elimination of All Forms of Discrimination against Women (CEDAW) in 1993.

Health policy

Health care in India features a universal health care system run by the centre, constituent states, districts and local communities. The Indian Constitution, article 47, requires states to raise the level of nutrition and the standard of living of its people and work towards the improvement of public health. Key initiatives under the National Health Policy, formulated in 1983, include the creation of an infrastructure for primary health care, close co-ordination with health-related services and activities (like nutrition, drinking water supply and sanitation). It envisaged the active involvement and participation of voluntary organizations, the provision of essential drugs and vaccines; qualitative improvement in health and family planning services; the provision of adequate training; and medical research aimed at the common health problems of the people^{12,13}. A revised National Health Policy was introduced in 2002 with an objective to achieve an acceptable standard of good health among the general population of the country and with goals to be achieved by the year 2015.

The National Rural Health Mission (NRHM) was launched in 2005 with the objective of improving the availability of, and access to, quality health care by people, especially for those residing in rural areas, the poor, women and children. The various plans of action

under the mission include involvement of accredited social health activists, strengthening sub-centres, strengthening primary health centres, strengthening community health centres for first referral care, developing new health financing schemes, public-private partnership for achieving public health goals, including regulation of private sector and strengthening disease control programmes. Immunization is one of the major areas under NRHM. Through the NRHM immunization programme, the Government of India provides vaccination to prevent six vaccine-preventable diseases. In order to strengthen routine immunization, the government has launched newer initiatives as part of the state Programme Implementation Plan (PIP).¹⁴

Population control measures

India is keenly aware that development is the best population control measure. However, given the large size of its population, stabilization of the population is seen as an essential prerequisite to ensure benefits of economic development and enhanced well-being of its people. India was the first country in the world to formulate a National Family Planning Programme in the early 1950s, with the objective of reducing birth rates to the extent necessary to stabilize the population at a level consistent with requirements of the national economy. Successive five-year plans (FYPs) have been providing the policy framework and funding for planned development of nationwide health care infrastructure and manpower. The Centrally sponsored and 100 percent centrally funded family welfare programme provides additional infrastructure, manpower and drugs, vaccines, contraceptives and other consumables needed for improving health status of women and children and to meet all the felt needs for fertility regulation.

After the 1994 International Conference on Population and Development in Cairo, a global political intervention, the orientation of India's population politics began to reflect a shift towards maternal and child health. This resulted in the Reproductive and Child Health (RCH) Programme, which was launched in 1997 and

¹² http://mohfw.nic.in/NRHM/Documents/National_Health_policy_2002.pdf last accessed on 13/08/2011

¹³ http://www.searo.who.int/en/Section313/Section1519_10849.htm last accessed on 13/08/2011

¹⁴ http://mohfw.nic.in/NRHM/Documents/Mission_Document.pdf last accessed on 12/08/2011



promotes essential and emergency obstetric care as well as improved immunization efforts.¹⁵

In 2000, India came up with a National Population Policy (NPP) that affirms the commitment towards voluntary and informed choice and consent of citizens while availing reproductive health care services, and continuation of the target free approach in administering family planning services. The NPP 2000 provides a policy framework for advancing goals and prioritizing strategies during the next decade, to meet the reproductive and child health needs of the people of India, and to achieve net replacement levels by 2010.¹⁶

Welfare and development of weaker sections

As part of efforts to achieve inclusive development, a number of schemes and programmes exist, which are aimed at economic and social empowerment and upliftment of socially disadvantaged groups and marginalized sections of the society.

The Rajiv Gandhi National Fellowship Scheme was launched in 2006 to provide financial assistance to SC students pursuing MPhil and PhD courses and there has been an increase in the number of scholarships offered under this scheme. Scholarship schemes and concessional loans schemes also exist for the various communities that have been notified as minority communities. The Scheme of Incentives to Employers in Private Sector for providing employment to persons with disabilities was launched in 2008, under which the Government bears as an incentive the employers' contribution to the Employees Provident Fund and Employees State Insurance for the first three years for employees with disabilities.

Financial inclusion

Financial inclusion is seen as key to inclusive development and government's policies have been directed towards economic and social upliftment of the population segment like landless agricultural labourers, marginal farmers, SCs, STs and OBCs to enable them to reap the benefits of growth.

A major financial inclusion initiative that has been launched is the Swabhimaan (self-respect) SCHEME

that aims at providing branchless banking through the use of technology where banks will provide basic services like deposits, withdrawal and remittances using the services of Banks Saathi (Bank Correspondents). This initiative enables government subsidies and social security benefits to be directly credited to the accounts of the beneficiaries, enabling them to draw the money from the business correspondents in their village itself. In the 2011–12 budget, an augmentation was made of INR 1 billion each year for the Financial Inclusion Fund (FIF) and the Financial Inclusion Technology Fund, that will be contributed by Government of India, Reserve Bank of India (RBI) and National Bank for Agriculture and Rural Development (NABARD).

Initiatives that are envisioned to be launched by the government, as proposed in the Eleventh Five-Year Plan include the issuing of General Credit Cards to eligible beneficiaries without insistence on security; introduction of Kisan Credit Cards (KCCs), engaging major groups in India, including non-governmental organizations, women self-help groups and micro-finance institutions (MFIs). This apart, regulatory support to MFIs through the Financial Sector (Regulation and Development) Bill 2007 has also been proposed.

In 1996, the central government proposed a number of measures for the region through the 'New Initiatives for North Eastern Regions', which included setting up of the North Eastern Development Finance Corporation Ltd. Reserve Bank of India (RBI) has also permitted banks to open branches in rural, semi-urban and urban centres in the region without its permission (subject to reporting). The Eleventh Five-Year Plan aims at faster and more inclusive growth through restructuring of policies and special focus on the region. In this regard, the RBI has launched a comprehensive programme with financial inclusion as a goal of the banking system.

Rural support

The Government of India has initiated many policies and programmes in India to accelerate rural development, given that the majority of the population

¹⁵ Panandiker, V.A. and Umashankar, P.K. (1994). Fertility Control and Politics in India Population and Development Review, 20, 89-104

¹⁶ http://populationcommission.nic.in/npp_intro.htm last accessed on 12/08/2011

still lives in rural areas, and agriculture is the main source of livelihood.

The National Food Security Mission (NFSM) was launched from 2007–2008 to enhance the production of rice by ten million tonnes, wheat by eight million tonnes and pulses by two million tonnes by the end of the Eleventh Five-Year Plan. The approach is to bridge the yield gap with respect to these crops through dissemination of improved technologies and farm management practices. NFSM has been implemented in 476 districts of 17 states in the country.



National Food Security Mission was launched with the objective to increase production and productivity of wheat, rice and pulses

Source http://fciweb.nic.in/Stocks/About_us.htm

Debt Waiver and Debt Relief Scheme for farmers was launched in 2008–2009, which covers the direct agricultural loans extended to ‘marginal and small farmers’ and other farmers by Scheduled Commercial Banks, Regional Rural Banks, Cooperative Credit Institutions (including Urban Cooperative Banks) and Local Area Banks (hereinafter referred to compendiously as ‘lending institutions’) as indicated in the guidelines.

Housing policy for rural areas was launched through the Indira Awaas Yojana (IAY) in 1985 as a sub-scheme of Jawahar Rozgar Yojana. Since 1993, the scope of IAY was extended to cover Non-Scheduled Castes/ Scheduled Tribes below poverty line (BPL) families in rural areas.

In the realm of water in the rural areas, the effort is towards empowering local government and/or local

communities to manage water supplies. For example, new national guidelines implemented in 2000 in India mandates panchayats (village councils) to manage water supplies within the village, and contain provisions for building community capacities and allocating resources to local communities.

The Rashtriya Krishi Vikas Yojana (RKVY), launched in 2007, aims at achieving four percent annual growth in the agriculture sector during the Eleventh Plan period, by ensuring a holistic development of the agriculture and allied sectors.

The Rural Infrastructure Development Fund (RIDF) was set up by the government in 1995–1996 for financing ongoing rural infrastructure projects. The Fund is maintained by the National Bank for Agriculture and Rural Development (NABARD) and its main objective is to provide loans to state governments and state-owned corporations to enable them to complete ongoing rural infrastructure projects. The scope of RIDF has been widened to include activities, such as rural drinking water schemes, soil conservation, rural market yards, rural health centres and primary schools, mini hydel plants, Shishu Shiksha Kendras (child education centres) and Anganwadis (child day care centres).

The Ministry of Micro, Small and Medium Enterprises has been implementing product development, design intervention and packaging (PRODIP) through the Khadi and Village Industries Commission (KVIC) since 2002–2003. Studies show that the scheme has been very effective in bringing about product improvement at the institutional level and the beneficiary institutions have successfully utilized the PRODIP assistance to develop new designs, generate additional sales as well as liquidate stocks. Similarly, the Scheme of Fund for Re-generation of Traditional Industries (SFURTI)¹⁷ was introduced in 2005–2006 for re-generation of traditional industry clusters in khadi, and village industries as well as the coir sector. Small Farmers’ Agri-business Consortium (SFAC) is being implemented in close association with commercial banks¹⁸ to provide financial assistance for promotion of innovative ideas for generating income and

¹⁷ http://msme.gov.in/msme_sfurtti.htm

¹⁸ <http://pib.nic.in/newsite/erelease.aspx?relid=51091> last accessed on 16/08/2011



employment in rural areas through support to the various types of agri-business.

Pradhan Mantri Gramodaya Yojna (PMGY) launched in 2000–2001 in all states and union territories (UTs) aims to achieve sustainable human development at the village level. This programme envisages allocating additional central assistance to the states and UTs for selected basic minimum services in order to focus on certain priority areas: primary health, primary education, rural shelter, rural drinking water and nutrition. This programme has now been merged into the Bharat Nirman (Developing India), which has monitorable targets relating to water supply, housing, information and communication technology, roads, electrification and irrigation.

The National Rural Health Mission (NRHM), which was launched in 2005, seeks to provide universal access to affordable and quality health care in the rural areas and seeks to achieve the goals set under the National Health Policy and the Millennium Development Goals (MDGs).

Education and skill development

The Sarva Shiksha Abhiyaan (Education for All Campaign) with special focus on girls' education seeks to increase the literacy level in the country. The District Primary Education Programme (DPEP), which became operational in 1994–1995, attempts to take a holistic view of primary education development and implement the strategy of universality of elementary education, through district planning and desegregated target setting. The Right of Children to Free and Compulsory Education Act came into force from 1 April 2010, with a budgetary

commitment of \$50 billion, has special relevance for girl children, child labour, migrant children and children with special needs. A legislative step undertaken by Government of India to promote higher education in the country is the Foreign Universities Bill that encourages foreign universities to set up campuses in India.

As the proportion of working age group (15–59 years) in the population is increasing steadily, India has the advantage of a 'demographic dividend'. However, tapping of this demographic dividend will need appropriate skill development. The government has constituted a three-tier structure for coordinated action on skill development, which consists of (i) the Prime Minister's National Council on Skill Development, (ii) the National Skill Development Coordination Board (NSDCB), and (iii) the National Skill Development Corporation (NSDC). The capacity of the skill development programmes was 3.1 million by January 2011 and India has set a target of developing the skills of 500 million people by 2022. The National Skill Development Fund (NSDF) is a 100 percent government-owned trust that invests in the NSDC, and is run by professional fund managers. The 2011–12 budget has made a provision of an additional INR 5 billion to the NSDF.

The National Youth Policy of 2003 was designed to galvanize the youth to rise up to the new challenges, keeping in view the global scenario, and aims at motivating them to be active and committed participants in the task of national development. The main features of the policy are developing qualities of citizenship and community service, reinforcing volunteerism in youth, engaging rural youth in nation building activities, training and research in youth development, encouraging adventure activities and travel to acquire an international perspective in convergence with other departments on youth matters.

Recognizing the growing importance of information technology in the Indian economy and the rising need of human resources in the sector, the government has encouraged the role of the private sector in skill creation beyond the IT sector. In February 2009, India launched a National Mission on Education through ICT, which is a billion dollar enterprise that aims to provide internet connection to about 20,000 colleges and other educational institutions in the country.



Sarva Shiksha Abhiyaan seeks to increase the literacy level in the country

Source <http://himachal.nic.in/ssa/images/computer/FSCN2083.JPG>



The Ministry of Youth Affairs and Sports proposed in 2011 the involvement of youth of the North East states through the NYKS, NSS and National Youth Corps in a major skill development initiative that aims at providing sustained livelihoods, job opportunities and meeting other aspirations of the youth.

Traditional knowledge and practices

India has a rich history of traditional knowledge. In this regard, policies have been adopted to protect traditional knowledge from being patented by countries desirous of doing so. The Traditional Knowledge Digital Library (TKDL) was set up in 2001 as a repository of 1200 formulations of various systems of Indian medicine, such as Ayurveda, Unani and Siddha and 1500 Yoga Asanas (postures), translated into five languages—English, German, French, Spanish and Japanese. The country has also signed agreements with the European Patent Office (EPO), United Kingdom Trademark and Patent Office (UKPTO) and the United States Patent and Trademark Office to reduce commercialization of traditional medicines by giving patent examiners at International Patent Offices access to the TKDL database for patent search and examinations purposes. The State of Kerala introduced the IPR Policy of Kerala in 2008, which proposed to adopt the concepts ‘knowledge commons’ and ‘commons license’ for the protection of traditional knowledge.

Rehabilitation and resettlement and disaster management

The National Rehabilitation and Resettlement Policy 2007 was introduced with the objective to minimize displacement from development activities, ensure adequate rehabilitation packages and protect the rights of the weaker sections of society. A Land Acquisition, Rehabilitation and Resettlement (LARR) Bill¹⁹, which brings the issues together in a single Act, is currently in Parliament.

The National Disaster Management Policy of 2009 is in conformity with the International Strategy for

Disaster Reduction, the Rio Declaration, the Millennium Development Goals and the Hyogo Framework.²⁰

E-governance

India has been harnessing the benefits provided by the information and communication technologies (ICT) to provide integrated governance, reach the citizens faster, and provide efficient services and citizen empowerment through access to information. The aim is to redefine governance in the ICT age to provide Smart Governance. Several significant initiatives have been taken both at the central and the state levels in this direction.

At the central level, the government has extensively promoted the use of IT in managing its internal processes and has drawn up a ‘Minimum Agenda of e-Governance’. Further government ministries/departments have provision of two to three percent of their annual budgets to be spent on IT related activities. The government has enacted IT Act 2000, which provides legal status to the information and transactions carried on the net. Several state governments have also taken various innovative steps to promote e-Governance and have drawn up a roadmap for IT implementation and delivery of services to the citizens online.

Environment

India’s engagement with the environment predates the Brundtland Report (1987) as evident in several policies and Acts. The National Environment Policy of 2006²¹ acts as a key policy document that lays down the principles for sustainable development. This section discusses policies and programmes under broad categories of the environmental pillar—forestry, biodiversity, pollution control, land degradation, water management, climate change, marine and coastal environment, and clean energy.

Forestry

The forestry sector has seen the most progress in terms of policies initiated. The National Forest Policy (NFP), 1988 made environmental stability and maintenance of ecological balance as its principal aim, as it is vital for sustenance of all life forms. It made clear that the

¹⁹ <http://www.rural.nic.in/Final.pdf>

²⁰ <http://ndma.gov.in/>

²¹ <http://envfor.nic.in/nep/nep2006.html>



derivation of direct economic benefit is subordinate to this principal aim. In 1990, the central government outlined and conveyed to state governments a Joint Forest Management (JFM) framework for creating a people's movement through involvement of village committees for the protection, regeneration and development of degraded forest lands. The National Afforestation and Eco-development Board (NAEB) set up in 1992 focuses on afforestation in forest and adjoining lands. A National Forestry Action Programme was launched in 1999, which was a comprehensive strategy and long-term work plan formulated for the next twenty years to address the issues underlying the major problems of the forestry sector in line with NFP.



The National Afforestation Programme was launched during the 10th plan

Source <http://www.fsi.nic.in/pic/hoshagadad005.jpg>

A National Afforestation Programme (NAfP) was launched in 2002, which involves plantation in degraded forests of the country. NAfP is a flagship programme of National Afforestation and Eco-development Board (NAEB) and provides physical and capacity building support to the Forest Development Agencies (FDAs), which are the implementing agencies.

In February 2011, India's Prime Minister approved the National Mission for a Green India, which aims to double India's afforested areas by 2020, adding an additional 10 million hectares. The objective of the mission is to enable forests to absorb 50–60 million tonnes of CO₂ annually, offsetting about six percent of India's annual emissions.

Biodiversity

India's huge and diverse biogeographic resource base supports a great wealth of flora and fauna and about 7–8 percent of the world's recorded plants and animal species are found in India (MoEF, 2010b). India, known for its rich heritage of biological diversity, has so far documented over 91,200 species of animals and 45,500 species of plants in its ten bio-geographic regions (MoEF, 2009). With four global biodiversity hot spots (Eastern Himalaya, Indo-Burma, Western Ghats and Sri Lanka, and Sundaland), India ranks among the top ten species-rich nations with high endemism and socio-cultural diversity and uniqueness (ibid). However, the continual degradation of habitats due to degradation of forest, land and water quality has threatened India's biodiversity significantly and this makes India home to nine percent of the world's threatened species (in TERI, 2010). Government has initiated several policy measures and programmes to conserve its biodiversity. The enactment of Biological Diversity Act 2002 has facilitated the establishment of dedicated institutions like National Biodiversity Authority at the national level and the State Biodiversity Boards at state level. India also has a huge network of protected areas spread over different parts of the country to protect the biodiversity. The government has initiated tiger conservation programmes in 1973 and has a network of 39 tiger reserves located across 17 different states. The National Biodiversity Action Plan was formulated in 2008 that entails integration of in situ, on farm and ex-situ conservation along with other measures to augment the natural resource base (MoEF, 2008). The government has recently initiated capacity building for Taxonomy and also launched a new study for the valuation of natural capital and ecosystem services, which will further boost biodiversity conservation efforts of the country. India is also a party to a host of multilateral environmental agreements and is hosting COP 11 of Convention of Biological Diversity in October 2012.

Pollution control

Air: National Ambient Air Quality Standards (NAAQS) were notified in the year 1982, duly revised in 1994 based

²² <http://moef.nic.in/downloads/public-information/NBAP-iyb.pdf> last accessed on 16/08/2011.



on health criteria and land uses. The NAAQS have been revisited and revised in November 2009 for 12 pollutants, which include sulphur dioxide (SO₂), nitrogen dioxide (NO₂), particulate matter having size less than 10 micron (PM₁₀), particulate matter having size less than 2.5 micron (PM_{2.5}), ozone, lead, carbon monoxide (CO), arsenic, nickel, benzene, ammonia, and benzopyrene. The National Air Quality Monitoring Programme (NAMP) is undertaken in India (i) to determine status and trends of ambient air quality; (ii) to ascertain the compliance of NAAQS; (iii) to identify non-attainment cities; (iv) to understand the natural process of cleaning in the atmosphere; and (v) to undertake preventive and corrective measures. The present national network includes 424 manual monitoring stations across 175 cities, towns and industrial areas and 48 continuous monitoring stations (24 × 7 basis) in 28 cities, including 16 metros. India started adopting European equivalent emission and fuel regulations for four-wheeled light-duty and for heavy-duty vehicles since 2000. Introduction of mass transport, such as the metro and CNG buses in cities is yet another initiative to address air quality concerns.

The government has notified emission and effluent standards relevant for 102 categories of processes and industries, which include the 17 categories of highly polluting industries under the Environment (Protection) Act of 1986. The concerned State Pollution Control Boards/Committees along with Central Pollution Control Board (CPCB) monitor the discharges from these industries.

Water: The National Ganga River Basin Authority (NGRBA) was constituted on 20 February 2009 under Section 3(3) of the Environment (Protection) Act, 1986. The NGRBA is a planning, financing, monitoring and coordinating body of the centre and the states. The objective of the NGRBA is to ensure effective abatement of pollution and conservation of the river Ganga by adopting a river basin approach for comprehensive planning and management. The Union budget allocation for National Ganga River Basin Authority (NGRBA) in 2010–2011 was doubled from the current financial year to INR 5 billion. In June 2011, Government of India signed an agreement with the World Bank for \$1 billion towards long-term support for cleaning the Ganga River.

Land degradation

With 2.5 percent of the world's landmass, India supports approximately 16 percent of the world's human population and 20 percent of the world's livestock population (MoEF, 2001). The increasing population and competing demand for land has resulted in a significant decline in per-capita availability of land from 0.89 ha in 1951 to 0.3 ha in 2001 (MoEF, 2002). The problem of scarcity is compounded by the widespread degradation of land. The estimates on the extent of land degradation vary from 16–57 percent of the total geographical area of the country (TERI, 2010). Natural factors, such as high storm intensity, soil characteristics and climatic conditions, the land management practices and other social factors contributed to such degradation. The government has initiated a host of measures for arresting further degradation and for development of degraded lands, which are implemented through different Ministries like Agriculture, Rural Development and Environment and Forest. Some of the major schemes are National Watershed Development Project for Rainfed Areas (NWDPR); Soil Conservation in the Catchments of River Valley Project (RVP) and Flood Prone River (FPR); Reclamation and Development of Alkali and Acid Soil (RADAS), Watershed Development Project in Shifting Cultivation Areas (WDPSCA); Drought Prone Area Programme (DPAP); Integrated Wasteland Development Programme (IWDP); and National Afforestation and Eco-Development Project (NAEP). Apart from these programmes, the Ministry of Environment and Forests has recently notified the Wetlands (Conservation and Management) Rules, 2010 in order to ensure that there is no further degradation of wetlands.

Water management

Integrated Watershed Management Programme (IWMP) is being implemented by the Ministry of Rural Development. This is a comprehensive programme that brings together three different and long existing watershed programmes viz. Drought Prone Areas Programme—DPAP (started in 1973–1974), Desert Development Programme—DDP (started in 1977–1978) and Integrated Wasteland Development Programme—IWDP (started in 1989–1990) to be implemented under



Common Guidelines on Watershed Development, 2008. The main objectives of the IWMP are to restore the ecological balance at the watershed level by harnessing, conserving and developing degraded natural resources, such as soil, vegetative cover and water.

The Tenth Five-Year Plan (2002–2007) had put emphasis on natural resource management through rainwater harvesting, groundwater recharging measures and controlling groundwater exploitation, watershed development, and treatment of waterlogged areas.



Integrated Watershed Management Programme is implemented by the Ministry of Rural Development
Source <http://dolr.nic.in/d6.jpg>

The National Project for Repair, Renovation and Restoration (RRR) of Water Bodies is implemented by the Ministry of Water Resources, since January 2005. It emphasizes de-silting in terms of quantum of silt to be removed, repair of conveyance system, strengthening of bund(s), repair of weirs and sluices, catchment treatment, command area development, soil erosion prevention works and, quality control measures. The major benefits under this project is creation of additional irrigation potential, increase in agriculture/horticulture/pisciculture production and productivity, increase in recharge of ground water, improvement in water use efficiency, increase in availability of drinking water, impact on water quality, and promotion of tourism and culture. The project encourages convergence of the activities being undertaken under other programmes, such as MG-

NREGS, watershed development programme, scheme of rural drinking water supply using common convergence guidelines or with the schemes of the agriculture department aimed at generating additional irrigation potential and increasing water use efficiency; with schemes of ground water department and Central Ground Water Board aimed at ground water recharge, and with schemes of Drinking Water Supply Department of the state aimed at sustainability of drinking water sources.

Climate change

Government has been actively engaged in initiatives that address the issue of global climate change. Twenty four initiatives have been put in place by the Government of India that address climate science and research, policy development and implementation, international cooperation and forest issues.²³ The most significant of these is the National Action Plan on Climate Change (NAPCC) announced in June 2008, which links development and climate change frontally. Eight missions of NAPCC that focus on solar energy, energy efficiency, sustainable habitat, water, sustaining the Himalayan eco-system, Green India, sustainable agriculture and strategic knowledge for climate care are being implemented by the nodal ministries to address vulnerability to climate change and enhance capacity at central and state levels.

Government of India has launched eight Missions as part of the National Action Plan on Climate Change (NAPCC) in specific areas i.e. solar energy, enhanced energy efficiency, sustainable habitat, water, sustaining the Himalayan eco-system, green India, sustainable agriculture and strategic knowledge for climate change.

State Action Plans (SAPs) aimed at creating state level institutional and programme oriented capacities to address climate change are also being prepared. These

²³ MoEF (2010). “India Taking on Climate Change: 24 Recent Initiatives Related to Climate Change.” Ministry of Environment and Forests (MoEF), Government of India.



SAPs together with the National Missions will enhance the climate change related actions in public and private domains. Some Indian states, including the Himalayan states, Gujarat, Kerala and Delhi have been proactive in addressing climate change. Delhi launched a climate change action plan for 2009–2012 that is structured closely around the NAPCC.

The agriculture sector has seen some efforts to address climate change mitigation and adaptation. The broad mitigation measures include:

- (a) Standardization of fuel-efficient pump sets, rectification of existing pump sets.
- (b) Rationalization of power tariffs and better cultivation practices that would help reduce emissions.

The broad adaptation measures include:

- (a) Crop improvement: Programmes address technical issues, such as development of arid-land crops and pest management, as well as capacity building of extension workers and NGOs to support better and vulnerability-reducing practices.
- (b) Drought proofing: Programmes seek to minimize the adverse effects of drought on production of crops and livestock, and on productivity of land, water and human resources, so as to ultimately lead to

drought proofing of the affected areas. They also aim to promote overall economic development and improve the socio-economic conditions of the resource poor and disadvantaged sections inhabiting the programme areas.

Marine and coastal environment

India with a long coastline of more than 7500 km has marine resources that are spread in the Indian Ocean, which is the Arabian Sea and Bay of Bengal. The Exclusive Economic Zone (EEZ) of the country has an area of more than 2 million sq. km. part of which exists on the west coast, part on the east coast and around the Andaman and Nicobar islands. In order to protect its marine environment, a number of programmes were initiated prior to Rio, which acquired a new significance post 1992. Continuous monitoring of the ongoing projects, acquiring of new technology and implementation of already existing policies are being carried out actively, keeping in view the objectives of Agenda 21. Table 1.2 provides details on some such initiatives that relate to the protection of the marine environment and amendments to them (if any) post Rio.

Clean energy

There have been policies and programmes targeted towards promotion of energy efficiency and renewable energy,

Table 1.2 Key initiatives to protect marine and coastal environments

Initiatives	Salient features	Developments post Rio
Coastal Ocean Monitoring and Prediction System (COMAPS)	<ul style="list-style-type: none"> • Being implemented 1991 onwards • Assesses the health of coastal waters and facilitates management of pollution-related issues 	<ul style="list-style-type: none"> • Programme was restructured and modified in 2000–2001 to include pollution monitoring; liaison, regulation and legislation; and consultancy services.
Land Ocean Interactions in the Coastal Zone (LOICZ)	<ul style="list-style-type: none"> • Investigates the effects of global change on the coastal zone • Aims to develop, on a scientific basis, the integrated management of coastal environments 	<ul style="list-style-type: none"> • Launched in 1995
Integrated Coastal and Marine Area Management (ICMAM)	<ul style="list-style-type: none"> • Aims at integrated management of coastal and marine areas. 	<ul style="list-style-type: none"> • Launched in 1998 • Model plans for Chennai, Goa and Gulf of Kutch being prepared
Society of Integrated Coastal Management (SICOM)	<ul style="list-style-type: none"> • Major national initiative to protect coastal ecosystems • A professional body with experts in various aspects of coastal science and management 	<ul style="list-style-type: none"> • Launched in 2010

Source Compiled from various sources



which not only address environmental sustainability concerns, but also are able to promote sustainability of economic growth. Some of the specific policies include:

- (i) Electricity from renewables: The Electricity Act, 2003, requires State Electricity Regulatory Commissions to specify a percentage of electricity that the electricity distribution companies must procure from renewable sources. Several commissions have operationalized this mandate, and also notified preferential prices for electricity from renewables. This has contributed to acceleration in renewable-electricity capacity addition bringing the total installed renewable capacity to over 11,000 MW. Of this, more than 7,000 MW is based on wind power and India has one of the largest installed wind capacity in the world. The National Hydro Energy Policy has resulted in the accelerated addition of hydropower in India. The Ministry of New and Renewable Energy has initiated several programmes focusing on the utilization of renewable energy sources in buildings.
- (ii) Enhancing efficiency of power plants: Coal is the mainstay of India's energy economy, and coal-based power plants account for about two-thirds of the total electric generation installed capacity in the country. In addition, the Electricity Regulatory Commissions are also linking tariffs to efficiency enhancement, thus providing an incentive for renovation and modernization. New plants are being encouraged to adopt more efficient and clean coal technologies, and some plants under construction have adopted the more-efficient supercritical technology for power generation.
- (iii) Introduction of labeling programme for appliances: An energy labeling programme for appliances was launched in 2006, and comparative star-based labeling has been introduced for fluorescent tube lights, air conditioners, and distribution transformers. Almost all fluorescent tube lights sold in India, and about two-thirds of the refrigerators and air conditioners, are now covered by the labeling programme.
- (iv) Energy Conservation Building Code: An Energy Conservation Building Code (ECBC) was launched

in May 2007, which addresses the design of new, large commercial buildings to optimize the building's energy demand. Commercial buildings are one of the fastest growing sectors of the Indian economy, reflecting the increasing share of the services sector in the economy. Many buildings are already following the code, and compliance with it has also been incorporated into the Environmental Impact Assessment requirements for large buildings. The Ministry of Environment and Forests (MoEF) has also instituted the Environmental Impact Assessment (EIA) and clearance policy. This is a mandatory requirement for all buildings with a built up area above 20,000 sq. m. and such projects have to be appraised by the MoEF's Environmental Appraisal Committees (EACs) and the State Environmental Appraisal Committees (SEACs).

- (v) Energy audits of large industrial consumers: In March 2007, the conduct of energy audits was made mandatory in large energy-consuming units in selected industrial sectors. These units, notified as 'designated consumers' are also required to employ 'certified energy managers', and report energy consumption and energy conservation data annually.

The Jawaharlal Nehru Solar Mission envisages establishing India as a global leader in solar energy. It sets an ambitious target of 20,000 MW of solar power by the year 2022 (Thirteenth Five-Year Plan). To promote generation of wind energy, generation based incentives are provided. Perform Achieve and Trade (PAT), as a certification scheme of energy savings that could be traded, has been introduced by the Bureau of Energy Efficiency (BEE). Units that achieve savings in excess of their target will be provided the excess savings as Energy Savings Certificates. Units that underperform can buy these certificates to meet their target compliance requirements. A National Rating System—GRIHA (Green Rating for Integrated Habitat Assessment) has been developed, which is suitable for all types of buildings in different climatic zones of the country. All new government buildings would henceforth mandatorily

**Table 1.3 Key policies and programmes relevant to sustainable development**

Economic	
Key policies and programmes	New Industrial Policy, 1991 Pharmaceuticals Policy, 2002 Marketing Assistance Scheme for SME Export Promotion Capital Goods Scheme National Mineral Policy, 2008 New Exploration and Licensing Policy National Telecom Policy, 2011 National Electricity Policy, 2005
Social	
Key policies and programmes	National Housing and Habitat Policy, 1998 Pradhan Mantri Gramodaya Yojna, 2000 National Policy for Empowerment of Women, 2001 Sarva Shiksha Abhiyaan, 2003 National Policy for Urban Street Vendors, 2004 National Rural Health Mission, 2005 National Food Security Mission, 2007 National Rehabilitation and Resettlement Policy, 2007 Debt Waiver and Debt Relief Scheme, 2008 National Mission on Education, 2009
Environment	
Key policies and programmes	National Forestry Action Programme, 1999 National Afforestation Programme, 2002 National Mission for a Green India, 2011 Auto Fuel Policy, 2002 Mission Clean Ganga Initiative National Forest Policy
Social equity (economic and social)	
Key policies and programmes	Rural Infrastructure Development Fund, 1995 Annapurna Scheme, 2000–2001 Rashtriya Krishi Vikas Yojana, 2007 Indira Gandhi National Old Age Pension Scheme, 2007 Indira Gandhi National Widow Pension Scheme, 2009
Socio-ecological (environment and social)	
Key policies and programmes	National Agricultural Policy, 2002 National Urban Sanitation Policy, 2008 Integrated Watershed Management Programme, 2009
Green economy (economic and environment)	
Key policies and programmes	Technological Upgradation Fund Schemes, 1999 Fodder and Feed Development Scheme, 2005 Integrated Energy Policy of 2008 Perform, Achieve and Trade (PAT)
Sustainable development (social, environment and economic)	
Key policies and programmes	Mahatma Gandhi National Rural Employment Guarantee Scheme, 2005 National Urban Transport Policy, 2006 National Environmental Policy, 2006 National Urban Housing and Habitat Policy, 2007 National Action Plan on Climate Change, 2008 National Disaster Management Policy, 2009 National Rural Livelihood Mission, 2009

Source Compiled by authors



conform to 3 star or 4 star GRIHA ratings. Recently, the Clean Energy Fund has been created, which is based on a cess on coal at the rate of INR 50 (\$ 1) per metric tonne imposed on domestic and imported coal.

Table 1.3 is a broad attempt to present the key Indian policies and programmes pertaining to sustainable development under the sub-heads: economic, social, environment, social equity (combining social and economic pillar), green economy (combining economic and environment pillar), socio-ecological (combining environment and social pillar), and sustainable development (combining the three pillars).

Conclusion

Prior to and since the Earth Summit in 1992, India has initiated many policies, schemes and programmes relating to economic growth, social progress and environmental conservation. This policy landscape is still evolving in response to felt needs. Programmes and schemes are revisited as and when required. Despite these efforts, India is keenly aware that much more is needed to address the welfare of the poor and increase the ecological sustainability of development activities.

1B. LEGAL PROVISIONING

International legal principles on sustainable development: definition, genesis and evolution

Sustainable development law, in the international context, broadly refers to ‘a corpus of international legal principles and treaties, which address the areas of intersection between international economic law, international environmental law and international social law aiming towards development that can last (Cordonier Segger and Khalafan, 2004). The notion of integration or interrelationship is the crux of sustainable development law and in the words of McGoldrick (1996), it makes the boundaries between environmental law, human rights law and economic law increasingly redundant. The development of the principles of sustainable development law has run parallel to the several global policy making processes associated with sustainable development, beginning with the Stockholm Declaration of 1972. As per Principle 21 of the Stockholm Declaration, states

have the sovereign right to exploit their own resources pursuant to their own environmental policies, as well as the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction. The Report of the World Commission on Environment and Development or the Brundtland Commission Report entitled *Our Common Future* (1987), in its legal annex, proposed the adoption of twenty two legal principles, divided into four groups on general principles, rights and responsibilities; principles, rights and obligations concerning trans-boundary natural resources and environmental interferences; state responsibility; and peaceful settlement of disputes, to pave the way for future law making. Agenda 21 considered as the ‘blueprint of action for sustainable development’ placed a priority on ‘development of international law on sustainable development, giving special attention to the delicate balance between environmental and developmental concerns’ (Chapter 38). It has also stressed on the ‘need to clarify and strengthen the relationship between existing international instruments

Agenda 21 placed a priority on ‘development of international law on sustainable development, giving special attention to the delicate balance between environmental and developmental concerns’.

or agreements in the field of environment and relevant social and economic agreements or instruments, taking into account the special needs of developing countries’.

Post Rio, the 1995 Report of the Expert Group Meeting on Identification of Principles of International Law for Sustainable Development (prepared by the Division for Sustainable Development for the Commission on Sustainable Development) came out with nineteen principles and concepts of international law for sustainable development divided into five groups: principles of interrelationship and integration; principles and concepts relating to environment and development; principles and concepts of international cooperation; of participation,



decision-making and transparency; and principles and concepts of dispute avoidance and resolution procedures, monitoring and compliance. An important contribution to this process came in 2002, when the International Law Association's Committee on the Legal Aspects of Sustainable Development brought out the Delhi Declaration as a Resolution of the 70th Conference of the International Law Association held at New Delhi, based on previous work of the UNCSO and that of many legal experts. These principles were subsequently reaffirmed and recognized at the 2002 World Summit on Sustainable Development (WSSD) at Johannesburg. The Delhi Declaration of 2002 recognized seven key principles of the international law on sustainable development, which includes:

- duty of states to ensure sustainable use of natural resources;
- equity and the eradication of poverty;
- the precautionary approach to human health, natural resources and ecosystems;
- public participation and access to information and justice;
- good governance;
- the principle of common, but differentiated obligations; and
- integration and interrelationship, in particular in relation to human rights and social, economic and environmental objectives.

With regard to the legal validity of the above principles of international law, several are not yet recognized as binding rules of customary international law. However, their significance lies in the fact that they are increasingly made operational in binding international treaties, forming part of international law and policy in the field of sustainable development, providing normative context for best policies and laws in the field, as well as in local Agenda 21 initiatives and national strategies (Goepel, 2010). Also, many national laws and judgements have fully acknowledged a connection between environmental protection, economic development and human rights (CISDL, 2002). Cordonier Segger and Khalfan (2004) argue that as of yet, the legal principles on sustainable development cannot be considered as a binding principle of international customary law. At the same time, they

have acquired a status above that of a mere broad policy goal, found in certain international treaties, but without specific meaning. In their view, sustainable development law can be best seen as an emerging area of international law in its own right as well as a type of norm, which facilitates and requires a balance and reconciliation between conflicting legal norms relating to environmental protection, social justice and economic growth.

The Indian legal framework

Sustainable development law principles are slowly, but surely, acquiring a certain persuasive force as reflected by the commitment of various nations to implement these in their own jurisdictions. In India, post Stockholm and particularly, post Rio, a plethora of laws has been enacted and implemented pertaining to the three pillars of sustainable development. The Bhopal disaster of 1984 is a landmark in the evolution of jurisprudence in this regard. The Indian Supreme Court has in a number of cases held that environmental principles enshrined in international conventions and treaties (to which India has acceded) are an intrinsic part of the municipal laws of the country (these cases are discussed later on in the chapter). While earlier, Indian legal initiatives have focused more on the environment, of late, there have been a number of initiatives that address social and economic issues and a higher level of integration between the different pillars.

The legal provisioning on sustainable development in the Indian context can be reviewed in four broad (often overlapping) phases; each characterized by distinct priorities and policy goals. These are as follows.

First phase (1972–1983)

The policy focus of this phase was largely the environment and its protection. Its key highlights are constitutional amendments to protect the environment and the enactment of legislation on wildlife and to arrest pollution of air and water.

The modern legal framework governing the environment in India came largely in the wake of the Stockholm Conference of 1972, which required states to adopt measures to protect and improve the environment. Post Stockholm, the 42nd amendment to the Constitution of India was made in 1976. Through this amendment, Article 48A was incorporated, whereby protection and



improvement of the environment and the safeguarding of forests and wildlife became a part of the Directive Principles of State Policy. A Fundamental Duty was thrust upon citizens of the country to 'protect and improve the natural environment, including forest, lakes, rivers and the wildlife, and to have compassion for living creatures' (Article 51A (g)). While lacking the enforceability of other constitutional provisions and being largely of a prescriptive nature, the Supreme Court in several cases has increasingly upheld the principles enshrined in Article 48A (*M C Mehta v. Union of India*, AIR 1988 SC 1037) and as complementary to the Fundamental Rights (*Somprakash Rekhi v. Union of India* AIR 1981 SC 212). The cumulative effect of Articles 48A and 51A (g) seems to be that the state as well as the citizens are now under constitutional obligation to conserve, protect and improve the environment, with every generation owing a duty to all succeeding generations to develop and conserve the natural resources of the nation in the best possible way (*State of Tamil Nadu v. Hind Store*, AIR 1981 SC 711).

In the wake of the Stockholm Declaration, India also enacted primary environmental legislation across a number of important sectors, namely the Wildlife (Protection) Act of 1972, the Water (Prevention and Control of Pollution) Act of 1974, the Water (Prevention and Control of Pollution) Cess Act of 1977, the Forest Conservation Act of 1980, the Air (Prevention and Control of Pollution) Act of 1981. The Wildlife (Protection) Act of 1972 is a comprehensive legislation for the protection of wild animals, birds and plants and also lays down the law for the setting up of protected areas—sanctuaries, national parks and closed areas. The Water (Prevention and Control of Pollution) Act, 1974 has as its aim the prevention and control of water pollution and of restoring the wholesomeness of water quality. The Water (Prevention and Control of Pollution) Cess Act of 1977 sought to provide for the levy and collection of a cess on water consumed by persons operating and carrying on certain types of industrial activities. The Forest Conservation Act 1980 strictly restricts and regulates the dereservation of forests or use of forest land for non-forest purposes without prior approval of central government. The Air (Prevention and Control of Pollution) Act, 1981

provides for the prevention, control and abatement of air pollution and explicitly states in its Preamble that the Act represents an implementation of the decisions taken at Stockholm.

Second phase (1984–1997)

In the aftermath of the Bhopal disaster of 1984, India entered a proactive phase of legal reform and initiatives, targeted towards prevention of recurrence of such an event and better preparedness. The focus still continued to be the environment, but increasingly oriented to issues of social justice and equity. As a response to the Bhopal disaster of 1984, environmental jurisprudence in India reached a new high, owing largely to judicial activism, new interpretation of existing legislation, amendments and procedural laws and new legislation. The Air (Prevention and Control of Pollution) Act, 1981 went through a major amendment in 1987.

A key legislation of this period is the Public Liability Insurance Act, 1991 that has been enacted to provide for immediate relief to persons affected by accidents from handling of notified hazardous substance, on a 'no fault basis'. It is mandatory for industries involved in operation or processes of hazardous substances in quantities notified under the Act to take Public Liability Insurance cover for immediate relief to victims or damage to property, on a scale prescribed in the Schedule to the Act. Also, the National Environment Tribunal Act, 1995 (Repealed) and the National Environment Appellate Authority Act, 1997 (Repealed) were enacted during this time to give effect to the Rio Declaration's call upon States to develop national laws regarding liability and compensation for the victims of pollution and other environmental damages. These have been subsequently repealed and replaced by the new National Green Tribunal Act of 2010.

The Environment (Protection) Act was enacted in 1986 as an umbrella legislation with three fold objectives— (i) protection of the environment (ii) improvement of environment and (iii) prevention of hazards to human beings, other living creatures, plants and property. The sweep of the Act is very broad, and within the broad framework of this Act, a series of rules, notifications and other secondary legislation have been enacted in a number of areas. The Rules for the Manufacture, Use, Import,



Rules formulated under the Environment Protection Act also sought to arrest pollution at source, ensure that the polluter pays and involve the public in decision-making.

Export and Storage of Hazardous Micro-Organisms Genetically Engineered Organisms or Cells Rules, 1989 were enacted under the Environment Protection Act. The Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 were also notified under the Environment Protection Act, which sought to prevent the re-occurrence of a Bhopal-like disaster by putting rules in place for emergency planning, preparedness and response. Rules formulated under the Environment (Protection) Act also sought to arrest pollution at source, ensure that the polluter pays and involve the public in decision-making. Under the Environment (Protection) Act, the Central Government through a notification in 1991 declared coastal stretches as coastal regulation zone (CRZ) where activities connected with the setting up and expansion of industries, operations or processes etc. are to be regulated. The Environmental Impact Assessment (EIA) Notification, 1994 under the EPA made an EIA mandatory for 29 different activities, which was earlier necessary only for mega projects undertaken by the government and PSUs. A major amendment to the EIA notification was made in 2006 making an EIA mandatory for environmental clearance for a number of activities and industries and lay down procedure that requires public participation in the process (giving effect to an important Rio principle). There have been a number of amendments to the EIA Notification, 2006 with the latest amendment in 2009. Other important legislation pertaining to the environment includes the Motor Vehicles Act, 1988, which recognizes the need to arrest vehicular pollution. The Bio-Medical Waste (Management and Handling) Rules were notified in 1998.

Post Rio, environmental principles, such as precautionary principle, polluter pays principle, public trust law doctrine, inter-generational equity and absolute liability came to be accepted in India as part of Article 21 (Right to Life) in a number of judicial pronouncements

by the Supreme Court (Indian Council for Enviro-Legal Action v. Union of India (AIR 1996 SC 1446), Vellore Citizens' Welfare Forum v. Union of India (AIR 1996 SC 2715)). Though a large chunk of the legislation governing the environment in India has been enacted prior to Rio, the Supreme Court, in interpreting the provisions, has shown reliance upon the Rio Principles, as well as on the need for careful balancing of the different pillars of sustainable development. To cite an example, the Forest (Conservation) Act of 1980 has as its objective arresting of further deforestation and conserving forests. The Supreme Court, in the case of Shri Bhagawati Tea Estates Ltd v. Government of India (AIR 1996 SC209) held that the restrictions under the Act were not absolute and the objective of the Act (forest conservation) has to be reconciled with the livelihood issues of forest dependent marginalized communities.



The Environmental (Protection) Act provided for environmental impact assessments of development projects

Source <http://moef.nic.in/images/modules/project-clearances/environmental-clearances.jpg>

Third phase (1998–2004)

The third phase, coinciding with India's membership of the WTO in 1998, has a strong focus on reconciling the economic with the environment and social imperatives. Legislation enacted post 1998 and amendments to existing legislation, done to achieve compliance with the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) have also sought to incorporate principles of the Convention on Biological Diversity (CBD), such as conservation of bio-resources, access and benefit sharing, rights of indigenous communities, local producers and farmers. In fact, achieving TRIPS



The Protection of Plant Varieties and Farmers' Rights Act, 2001 while seeking to protect the rights of plant breeders, as mandated under TRIPS, has in an innovative fashion, managed to provide 'rights' to the Indian farmer

– CBD reconciliation has been the focus of many of India's submissions at the TRIPS Council. The Biological Diversity Act, 2002 and the Rules framed under it seeks to give effect to the two key principles of the Convention on Biological Diversity: the sovereign right of countries of origin over their genetic and biological resources and the acceptance of the need to share benefits flowing from commercial utilization of biological resources with holders of indigenous knowledge. The Patents (Amendment) Act of 2005 has a provision to prevent misappropriation of indigenous knowledge of communities by making it non-patentable. It also mandates disclosure of the geographical origin of biological resources used in the invention. The Protection of Plant Varieties and Farmers' Rights Act, 2001, while seeking to protect the rights of plant breeders, as mandated under TRIPS has, in an innovative fashion, managed to provide 'rights' to the Indian farmer. In fact, it is the only legislation in the world, which accords comprehensive rights (as opposed to concessions or privileges) to the Indian farmer in recognition of his contribution to agro-diversity and plant breeding. The Geographical Indications of Goods (Registration and Protection) Act, 1999 facilitates protection of the collective rights of the rural and indigenous communities in their unique products.

A number of laws have also been enacted in the economic domain. Post liberalization of the Indian economy in the early 1990s, there was recognition of the need to regulate as well as develop foreign trade in India, leading to the Foreign Trade (Development and Regulation) Act, 1992. The Competition Act, 2002 seeks to prevent anti-competitive practices and to promote and sustain competition in markets, to protect the interests of consumers and to ensure freedom of trade carried on by other participants in markets. Reducing fiscal deficit is the goal of the Fiscal Responsibility and Budget Management

Act, 2003. Equity and inclusiveness in economic development is the principle governing the Micro, Small and Medium Enterprises Development Act, 2006 designed with the objective to develop these industries as 'engines of inclusive growth and development'.

This phase also continued to be characterized by priority to environmental concerns and saw a number of secondary legislations being framed under the Environment Protection Act, including the Municipal Solid Wastes (Management and Handling) Rules, 2000; the Recycled Plastics Manufacture and Usage Rules, 1999; the Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 2000; the Batteries (Management and Handling) Rules, 2001; the Ozone Depleting Substances (Regulation and Control) Rules, 2000; and a series of notifications delegating power to state River Conservation Authorities to deal with water pollution. The Noise Pollution (Regulation and Control) Rules, 2000 were notified under the Environment (Protection) Act.

Recognizing the need for efficient use of energy and its conservation, the Energy Conservation Act, 2001 was enacted, which provided for the setting up of the Bureau of Energy Efficiency, with the primary objective of reducing energy intensity of the Indian economy. The Electricity Act of 2003 has tried to ensure better coordinate development of the power sector in India, seeking, among other objectives, to promote efficient and environmentally benign policies. It also contains key provisions relating to renewable energy.

This phase also saw a balancing of the needs of forests and development, with compensatory afforestation (CA)



The Municipal Solid Wastes (Management and Handling) Rules provided for waste management
Source http://www.environment.tn.nic.in/SoE/waste_gallery/municipal%20solid%20waste,%20velakal%20madurai.jpg



being an important mechanism to compensate for forests cleared for development purposes. This mechanism, developed as a consequence of the Supreme Court (SC) order dated October 2002 in T N Godavarman v. Union of India, mandates providing a comprehensive scheme, while seeking approval for proposals of de-reservation or diversion of forest land for non-forest uses. On 30 October 2002, in the T N Godavarman case, the Apex court passed an order for the creation of a Compensatory Afforestation Management and Planning Agency (CAMPA), to which funds received by states and union territories towards compensatory afforestation and penal compensatory afforestation, based on net present value were to be transferred. In 2004, CAMPA was established. The Compensatory Afforestation Fund comprises all the funds mentioned above, unspent balance of the same with state governments, net present value and other money recoverable pursuant to SC orders.

Fourth phase (2005 and beyond)

This phase is characterized by a marked pro-active rights based approach to social welfare, justice and equity and a high degree of integration between the different pillars of sustainable development. Post Rio, an active civil society and pro-active government has played a key role in the enactment of landmark legislation, which seeks to establish a legal regime that is socially just and equitable and in certain instances, has even gone beyond Rio principles. This rights based approach gained particular momentum with the enactment of the Right to Information Act in 2005. Even prior to it, commitment to human rights and to ensure justice for all is seen in legislation like the Human Rights Act of 1993, which provides for the constitution of a National Human Rights Commission, State Human Rights Commission in States and Human Rights Courts for better protection of Human Rights. A fairly recent legislation is the Gram Nyayalayas Act, 2009, which has been enacted to provide for the establishment of the Gram Nyayalayas at the grass roots level for the purpose of providing access to justice to the citizens at their doorstep.

Also, there have been a number of enactments, which have sought to provide legal rights to different sections of the society, particularly the marginalized

A pro-active rights-based approach to social welfare, justice and equity and a high degree of integration between the different pillars of sustainable development was further strengthened following the Right to Information Act of 2005.

and the disadvantaged and also reconcile the needs of these communities with the imperative for conservation. The rights of the traditional forest dwellers have been codified in the Forest Rights Act, 2006. Through amendments in 1991, the Wildlife (Protection) Act, 1972, enacted with the objective of protecting wildlife through creation of inviolate protected areas, has sought to provide an exemption for the activities of the Scheduled Tribes dependent upon forests. The amended Wildlife (Protection) Act, 2002 seeks to provide for participatory management of the buffers around the National Parks and Sanctuaries and introduces the concept of 'Community Reserves'. The Panchayats Extension to Scheduled Areas Act, 1996, has sought to facilitate the establishment of a decentralized structure of governance in the Scheduled Areas, conferring radical governance powers to the tribal community. It acknowledges the competence of the Gram Sabha, the formal manifestation of a village community, to safeguard and preserve the traditions and customs of the people, their cultural identity, community resources and the customary mode of dispute resolution.

The Right to Information Act, 2005 enacted with the objective to promote transparency and accountability in the working of public authorities, empowers the ordinary citizen of the country to play an important role in establishing good governance and functional democracy in the country.

The National Rural Employment Guarantee Act, 2005 provides a legal guarantee of a minimum 100 days of wage employment in a financial year to every rural household, whose adult members volunteer to do unskilled manual work, at the minimum wage rate notified for agricultural labour prescribed in the state or else an unemployment allowance. It aims to enhance rural food security and give



effect to the fundamental right of the rural poor to life and livelihood.

Commitment to the youth of the country has manifested in the form of legislation like the Right of Children to Free and Compulsory Education Act, 2009 and Commissions for the Protection of Child Rights Act, 2005. Legislation has been enacted to confer legal rights to the vulnerable members of society; the rights of the senior citizen to a dignified old age are the rationale for the Maintenance and Welfare of Parents and Senior Citizens Act, 2007. The rights of the disabled have been protected in India through legislation, primarily the People with Disabilities Act, 1995, which recognizes the right of the disabled to employment and the National

Trust Act, 1999, which seeks to set up a national level body to ensure the welfare of the disabled.

This period has also seen a continued focus on the environment with the Environment Impact Assessment Notification of 2006, and the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 being notified under the Environment (Protection) Act. E-Waste (Management and Handling) Rules, 2011 have been framed under the EPA, with the objective of ensuring the environmentally sound management of all types of e-waste and to enable the recovery and/or reuse of useful material from e-waste.

The National Green Tribunal Act of 2010 seeks to give effect to the promise made at Rio and to provide for the effective and expeditious disposal of cases related to environmental protection, forests and natural resources and provide relief and compensation for damages. The Act lays the framework for the setting up of a dedicated environmental dedicated adjudicatory forum – the National Green Tribunal for the same.

Table 1.4 is a broad attempt to present the major Indian legal enactments pertaining to sustainable development under the subheads: environment, social, economic, socio-ecological, distributive justice or social equity, and sustainable development.



NREGA provides a legal right to livelihood to rural people
 Source http://gumla.nic.in/nrega/nrega_success/3006.jpg

Table 1.4 Key Indian legislations relevant to sustainable development	
Environment	
Key acts	The Forest Act, 1927 The Wildlife (Protection) Act, 1972 Water (Prevention and Control of Pollution) Act, 1974 The Forest (Conservation) Act, 1980 Air (Prevention and Control of Pollution) Act, 1981 Environmental (Protection) Act, 1986 Motor Vehicles Act, 1988
Social	
Key acts	Protection of Human Rights Act, 1993 National Trust Act, 1999 Commissions for the Protection of Child Rights Act, 2005 Right to Information Act, 2005 Gram Nyayalayas Act, 2009 Right of Children to Free and Compulsory Education Act, 2009

Contd...

**Table 1.4 Contd...**

Economic	
Key acts	Foreign Trade (Development and Regulation) Act, 1992 Competition Act, 2002 Fiscal Responsibility and Budget Management Act, 2003 Micro, Small and Medium Enterprises Development Act, 2006
Socio-ecological (environment and social)	
Key acts	Public Liability Insurance Act, 1991 National Environment Tribunal Act, 1995 (Repealed) The National Environment Appellate Authority Act, 1997 (Repealed) National Green Tribunal Act, 2010
Social equity (economic and social)	
Key acts	Person with Disabilities Act, 1995(right to employment of the disabled) The Geographical Indications of Goods (Registration and Protection) Act, 1999 Protection of Plant Varieties and Farmer's Right Act, 2001 The Patents (Amendment) Act, 2005 Maintenance and Welfare of Parents and Senior Citizens Act, 2007
Green economy (economic and environment)	
Key acts	Energy Conservation Act, 2001 The Electricity Act, 2003
Sustainable development (social, environment and economic)	
Key acts	The (Wildlife Protection Act), 1972 and its amendments in 1991, 2002 Panchayat Extension to Scheduled Areas Act, 1996 Biological Diversity Act, 2002 and the Biological Diversity Rules, 2004 National Rural Employment Guarantee Act, 2005 Forests Rights Act, 2006

Source Compiled by authors

Conclusion

From the above discussion, it emerges that India has a plethora of laws, which deal with the three pillars of sustainable development—environment, social and economic (including trade and IPR legislation). Most of these show a high degree of integration or interrelationship between the different pillars of sustainable development, an important feature of sustainable development law. To cite an example, the Biological Diversity Act seeks to conserve bio-resources as well as provide legal entitlements to the communities who have maintained them over centuries as well as enables them to benefit economically from the resource. In a similar fashion, the Forest Rights Act recognizes social and economic rights of forest dwellers and forest dependent communities and reconciles it with the necessity of creating protected areas for wildlife. Similarly, NREGA sets out to achieve sustainable development in a comprehensive manner—

providing a legal right to livelihood to rural people. While eradicating rural poverty and ensuring food security, it also seeks to protect the environment with employment being suggested to deal with environmental issues like drought, deforestation and soil erosion. In fact, this trend to integrate two or more pillars is more discernible in post-Rio legislation than the earlier ones. For instance, the Wildlife Protection Act in its original form did not recognize the rights of forest dependent communities, but an attempt to have a more participatory and inclusive approach is seen in the later amendments.

While there has been remarkable progress in Indian legal provisioning on sustainable development, a few challenges continue to exist particularly with respect to implementation. It is well recognized that key to improved implementation is the capacity building and improved financial and technical resourcing of executing agencies.



1C. EVOLVING INSTITUTIONAL ARRANGEMENTS

Sustainable development requires that domestic institutions work in a coordinated manner rather than in organizational isolation. It requires not only cross-sectoral, but also multi-level coordination with the active involvement of all stakeholders. It is in recognition of this need, that India has in place a host of institutions and mechanisms both at national and state levels, each having different roles and responsibilities. India has also recognized the need to bring about more coordinated and integrated policy development and stakeholder engagement in decision making and action plans. Much more, however, needs to be done on the road to sustainable development.

This chapter discusses some of the institutions that play an important role in furthering India's journey towards sustainable development. The nature and quality of national institutions and the level of political commitment is crucial in providing development inputs (including public funds). Inter-ministerial and state-centre coordination is an imperative for efficient public delivery and effective functioning of the politico-administrative machinery in the country.

Ministries and departments

Institutions play a significant role in the designing of strategies and their effective implementation to achieve desired goals. These institutions could be sector-specific ministries and departments of the government, the judiciary, some objective specific commissions or councils or multi-sectoral authorities, and the research institutes and universities creating the knowledge support for moving towards sustainable development. With the increased emphasis on sustainable development, the government has also initiated several measures that promote inclusive growth and environmental sustainability as discussed in the earlier chapter. Figure 1.1 highlights the key ministries and departments that have the responsibility to coordinate in matters relating to sustainable development.

Activities and programmes of Government of India are organized and implemented through a number of

ministries, departments, and agencies at different levels. These ministries and departments across the sectors work individually as well as in tandem with each other to attain socio-economic development and environmental sustainability. These may vary in different states.

Institutions and coordination

India is clearly aware that achieving sustainable development requires effective coordination of institutions both horizontally and vertically, requiring a strong local focus. Some of the institutional mechanisms are discussed here.

Inter-ministerial

India has a quasi-federal structure with institutions at local, state and central level. The Cabinet and the Cabinet Secretariat serve to ensure effective and balanced coordination. The Planning Commission continues to play a key role in planning by assessing, prioritizing and allocating resources through FYPs. With the presence of a multitude of programmes and agencies, the Central government recognizes the need for inter-ministerial and multi-level governance coordination of programmes. Expert committees are also constituted to assist the government pertaining to issues of topical interest. In recent years, the role of e-governance has also been recognized for promoting inter-ministerial coordination. A National e Governance Plan (NeGP) involving the Prime Minister's Office is aided by an expert Committee under the chairmanship of the Cabinet Secretary and is promoted by the Department of Information Technology (DIT).

Centre-state and inter-state

In terms of facilitating deliberations, addressing contested issues and decision-making on development matters between the centre and the state, the National Development Council (NDC), and the Inter-State Council act as apex bodies. The NDC, chaired by the Prime Minister, is an institutional inter-state coordinating mechanism that has Chief Ministers of all states and union territories and key central cabinet ministers as members for providing overall guidance to the Planning Commission of India. The NDC functions as a principal political authority

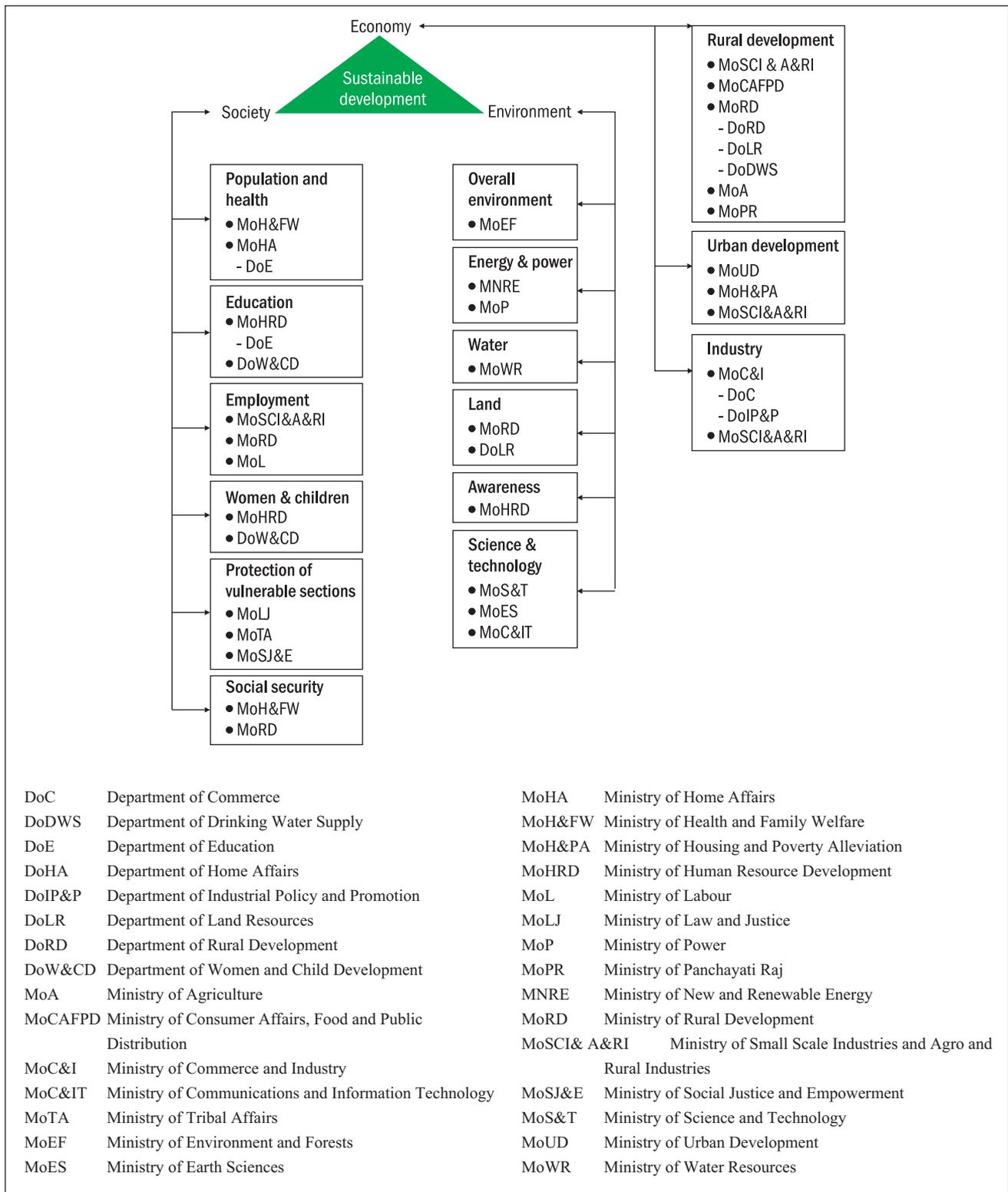


Figure 1.1 Major ministries and departments of the government related to pillars of sustainable development

for development policy-making at the national level. Apart from NDC, the Inter-State Council was set up as a recommendatory body²⁴ in 1990 under article 263 of

the Constitution for coordination of inter-state matters. The council serves as a body for inter-governmental consultations on several contested centre state issues

²⁴ <http://interstatecouncil.nic.in/>



and also for investigating and discussing inter-state disputes. It makes recommendations on subjects for the better coordination of policy and action between states. The body also deliberates upon other matters of general interest to the states. The Inter-State Council²⁴ consists of the Prime Minister as the chairman, Chief Ministers of all states and union territories, and six ministers of cabinet rank.

River Basin Authorities (RBA) are also constituted for coordination among agencies in states along the river for water resource management. An example is the National Ganga River Basin Authority (NGRBA) that derives function and power from the Environment Protection Act, 1986 and is expected to plan, monitor and coordinate the management of the river Ganga. The post-independence period witnessed an increasing concern for environmental protection and has led to the establishment of many central and state boards for prevention and control of pollution. An example of this is the CPCBs (Central Pollution Control Board) and the SPCBs (State Pollution Control Boards)—these bodies serve to ensure compliance with prescribed MINAS (minimum national standards) for liquid effluents and air emissions; they enforce compliance with relevant environmental laws.

Other institutional mechanisms

Local level institutions

Decentralized governance through local governments: The 73rd amendment of the constitution in 1992 paved the way for decentralization by involving the panchayats in preparation of plans for socio-economic development and their effective implementation in several aspects of governance. The 73rd amendment also made provisions for the three-tier Panchayati Raj system—village, block and district, with regular elections every five years to all these local governments. Almost all states have adopted the Panchayati Raj system, though the extent of devolution of power and finances varies.

The 74th amendment to the Constitution of India paves the way for more effective governance by the Urban Local Bodies. It provides for the constitution of three types of municipalities—Nagar Panchayats, Municipal Councils and Municipal Corporations with devolution of

greater functional responsibilities and financial powers to these by the state government. It has also tried to ensure adequate representation of weaker sections and women in municipalities, and regular and fair conduct of municipal elections. Several states have already amended their municipal legislation to bring them in conformity with this constitutional amendment.

Participatory institutions for management of forest and water: Ancient Indian state-craft had several references to property rights and the management of natural resources, such as common land, water, minerals and forests. However, many of these practices were discontinued with the centralized administration structure of the colonial rulers and also in post-independence India. The increased understanding of the importance of stakeholder involvement and the success of decentralized governance in different parts of world has also led to change in the natural resource management policies in India in the last few decades.

The 1988 National Forest Policy, for the first time, downplayed the importance of commercial forestry and emphasized the conservation of soil and environment as a part of forest protection initiatives. It recognized the role of local communities in protecting these precious natural resources. The policy recognizes the ecological value of forests and the stakes of its primary stakeholders, the forest dependent communities. In pursuance of this policy, Government of India issued a resolution in 1990 to involve people in the management of forests. Subsequently, a resolution was also issued to strengthen the role of participatory institutions. Several other programmes for the capacity building of community institutions were also initiated. Almost all major states have passed enabling resolutions to implement this participatory forest management regime that is now popularly called the Joint Forest Management (JFM) programme. Several studies have documented the positive impact of this management regime on forest conditions and also on the livelihood systems of the forest dependent communities.

Similarly, the National Water Policy of 1987 allowed for the involvement of farmers in the management of



the irrigation system, including water distribution and collection of water taxes. The Ministry of Water Resources issued guidelines for farmers' participation in water management, particularly in areas under the Centrally Sponsored Command Area Development Programme. The central government also issued guidelines to support legal backup and make suitable amendments in the existing irrigation Acts for states in subsequent years. Apart from this, several conferences at national, state and project levels were organized for creating awareness on participatory irrigation management (PIM) amongst farmers and officials. The government also initiated several capacity building measures like training programmes on PIM at different levels and also supported the state government in implementing similar measures in states. The National Water Policy of 2002 re-emphasized the participatory approach for the management of irrigation water. The central government has brought out a model Bill and encouraged the states to enact new legislation to formalize the PIM. As of 2010, thirteen major states have enacted legislations to formalize farmers' organizations at different levels, such as Water Users Associations, Distributory Committees and Project Committees for the management of irrigation systems.²⁵ Under PIM, the responsibilities of these farmer's association at different levels are: (i) maintenance of irrigation systems in their area of operation; (ii) distribution of irrigation water to the beneficiary farmers; (iii) assisting the irrigation department in the preparation of water demand and collection of water charges; (iv) resolving disputes among members of WUA; and (v) monitoring the flow of water in irrigation systems.

Pollution Control Boards (PCBs)

The Central Pollution Control Board (CPCB) was established as a key institution for pollution control, under the Ministry of Environment and Forests. CPCB is responsible for setting environmental standards, monitoring environmental performance, developing and facilitating abatement and pollution control for all parts of the country. To bring the mandate of the CPCB to fruition, regulatory and implementing agencies, such as

Pollution Control Boards (PCBs) and Pollution Control Committees (PCCs) at the state level have been set up.

Over the years, the role of CPCB has become more multi-disciplinary, which includes research and development activities, laboratory management, information database management and training. The State Pollution Control Boards (SPCBs) are the main implementing agency for implementation of prevention and control of pollution in respective states.

CPCB, in association with Indian Institute of Technology Delhi and other research organizations, has developed a comprehensive environment pollution index (CEPI)²⁶ in 2009 that helps in categorizing major industrial clusters in India in terms of priority of planning needs for interventions. The indexing has been carried out for 88 key industrial clusters in India using a series of objective criteria. Based on the scores, certain clusters have been identified as critically polluted and severely polluted areas.

Institutions related to the National Biodiversity Act

To realize the initiatives pertaining to access and benefit sharing (ABS) and the protection of traditional knowledge (TK) in compliance with the Convention on Biological Diversity (CBD), a three-tiered structure at the national, state and local level is to be established under the Biological Diversity Act of 2002. A brief description of the institutions is as follows:

- **National Biodiversity Authority (NBA):** The Authority deals with all matters relating to requests for access by foreign individuals, institutions or companies, and all matters relating to transfer of results of research to any foreigner
- **State Biodiversity Boards (SBBs):** All matters relating to access by Indians for commercial purposes are under the purview of the State Biodiversity Boards (SBBs). The Indian industry is required to provide prior intimation to the concerned SBB about the use of biological resource. The State Board has the power to restrict any such activity, which violates the objectives of conservation, sustainable use and equitable sharing of benefits.

²⁵ <http://mowr.gov.in/writereaddata/mainlinkFile/File421.pdf> last accessed on 06/07/2011

²⁶ <http://moef.nic.in/downloads/public-information/CEPI16022011.pdf> last accessed on 06/07/2011



- **Biodiversity Management Committees (BMCs):** Institutions of local self-government are required to set up Biodiversity Management Committees in their respective areas for conservation, sustainable use, and documentation of knowledge relating to biodiversity. Technical support and guidance is also provided to the biodiversity management committees for the preparation of people's biodiversity register.

Institutions for coastal management

The Notification on Coastal Regulation Zone (CRZ), 1991 (as amended from time to time) aims at protecting coastal stretches in India. India has created institutional mechanisms such as NCZMA and SCZMA for enforcement and monitoring of the CRZ Notification. These authorities have been delegated powers under Section 5 of the Environmental (Protection) Act, 1986 to take various measures for protecting and improving the quality of the coastal environment and preventing, abating and controlling environmental pollution in coastal areas.

Environmental Impact Assessment

Environmental Impact Assessment (EIA) is an important management tool for integrating environmental concerns in development process and for improved decision making. Environment Impact Assessment Notification of 2006 have categorized the developmental projects in two categories, i.e., Category A and Category B. 'Category A' projects are appraised at national level by expert appraisal committee. India has constituted the State Level Environment Impact Assessment Authority (SEIAA) and State Level Expert Appraisal Committee (SEAC) to decentralize the environmental clearance process. These institutions are responsible for appraising certain categories of projects, termed as 'Category B' projects, which are below a prescribed threshold level.

National Green Tribunal (NGT)

The Preamble of the act provides for the establishment of a National Green Tribunal²⁷ for the effective and expeditious disposal of cases relating to environmental protection and

conservation of forests and other natural resources, including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto (The National Green Tribunal Act, 2010).

With the establishment of the NGT, India has joined the distinguished league of countries that have a dedicated adjudicatory forum to address environmental disputes. The specialized architecture of the NGT will facilitate fast track resolution of environmental cases and provide a boost to the implementation of many sustainable development measures. NGT is mandated to dispose the cases within six months of their respective appeals and has its principal bench of sitting in New Delhi.²⁸

National Tiger Conservation Authority (NTCA)

India is the home to world's largest tiger population. Tiger is an endangered wildlife species in India despite its ecological importance and cultural significance, and enormous funds have been provided for its conservation and the protection of its habitat since the early 1970s. The major proximate reason for the endangered status of the tiger is the widespread loss of tiger habitats, decline in the density of prey animals, illegal poaching and killing. The government has initiated measures to protect tigers by creating national parks, protected areas and exclusive tiger reserves.

Tiger conservation programmes in India were initiated in 1973. Nine tiger reserves, with an area of 9374 sq. km. in 1973, subsequently increased to 39 tiger reserves with an area of 32137.14 sq. km. in 2010.²⁹ NTCA was established in December 2005 following a recommendation of the Tiger Task Force, constituted by the Prime Minister of India for reorganized management of Project Tiger and the many tiger reserves in India. NTCA is headed by the Minister of Environment and Forest as the Chairman and has representatives from various ministries and states with tiger reserves as members. NTCA is attached to the Ministry of Environment and Forests and has its headquarters in New Delhi, with three regional offices in Nagpur, Guwahati and Bengaluru.

²⁷ moef.nic.in/downloads/public-information/NGT-fin.pdf last accessed on 06/07/2011

²⁸ Four other regional benches are expected to be established in other parts of the country

²⁹ www.projecttiger.nic.in last accessed on 06/07/2011

National Disaster Management Authority (NDMA)

NDMA was established in 2006 to coordinate and institutionalize the disaster management responses as delineated in the Disaster Management Act, 2005. It works in tandem with state disaster management authorities (SDMAs) to attain the national vision of ‘a safe and disaster-resilient India by developing a holistic, proactive, multi-disaster and technology-driven strategy for disaster management’. NDMA functions as the apex body to design policies and develops guidelines and action plans for disaster management to facilitate timely and effective prevention and mitigation of both natural and man-made disasters. The Authority involves several agencies at national, state and local levels in formulating its policies and guidelines. Other core activities include the preparation of the national plan, technical support and approval of plans of different ministries of the national government and the SDMAs; initiate preventive measures for disasters, such as forecasting and early warning systems, awareness campaigns, mitigation strategies and activities for preparedness and capacity building. NDMA has inculcated several innovative approaches, such as community-based disaster preparedness programmes, mainstreaming disaster management into the development planning process, partnership with media and NGOs, making reconstruction an opportunity to establish disaster resilient structures in post disaster scenarios. The NDMA is headed by the Prime Minister and the SDMAs are headed by the Chief Ministers of respective states.

National Rain-fed Area Authority (NRAA)

NRAA was set up in 2006 to develop strategies to harness the potential of rain-fed areas. The core activities of NRAA include preparation of perspective plans for sustainable development of rain-fed areas, coordinate and bring convergence within and among agriculture and watershed development programmes. NRAA works in collaboration with several key ministries and departments like Agriculture, Rural Development, Water Resources, Environment and Forests, and Panchayati Raj at multiple levels and work towards development of potential of rain-fed agricultural and ecological systems. Figure 1.2 represents the enabling

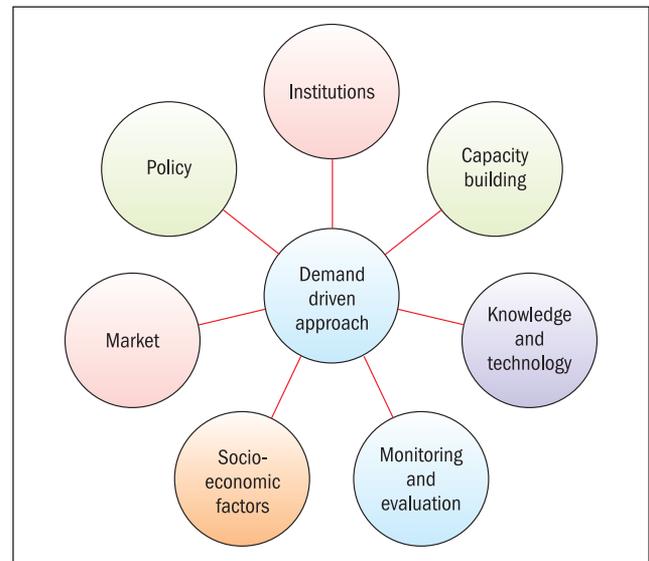


Figure 1.2 Areas of focus for NRAA

Source Compiled from <http://nraa.gov.in/areaoffocus.aspx>

framework for NRAA towards meeting the objectives of its focus areas.

Central Water Commission (CWC)

CWC aims at promoting integrated and sustainable management of country’s water resources by using state-of-the-art technology and by coordinating with stakeholders. The responsibilities of the Commission includes planning and implementing activities pertaining to flood control, irrigation, navigation, drinking water supply and hydro-power development in consultation with the state governments concerned. It also undertakes necessary surveys and investigations before project planning and construction work for river valley development. The commission also plays an advisory role for the central government for the inter-state rights over water and in disputes over water sharing. The commission is attached to Ministry of Water Resources. It has 13 regional offices located in different parts of the country, which facilitate better coordination with state governments.

Central Vigilance Commission (CVC)

The CVC was established in 1964 with the objective of prevention of corruption, increase in transparency and effective vigilance over the functioning of different agencies of the government. CVC works as the apex vigilance institution in the country and is free of control from any executive authority. The core activities of



CVC include the monitoring of the agencies of national government and providing technical support to all the agencies of government in planning, executing, reviewing and reforming their vigilance work. CVC is a statutory body with a vigilance commissioner as chairperson and two commissioners as members. CVC also acts as the designated agency to accept any complaint of corruption or misuse of office to recommend appropriate action and protect the identity of the complainant/whistle blower.

Prime Minister's Council on Climate Change

Realizing the significance of the global challenge of climate change, the Prime Minister's Council on Climate Change chaired by the Prime Minister, was formed to coordinate national actions for matters pertaining to climate change. It also provides oversight for formulation of action plans and key policy decisions pertaining to climate change. The National Action Plan for Climate Change (NAPCC) has eight missions as its core programme—National Solar Mission, National Mission for Enhanced Efficiency, National Mission for Sustainable Habitat, National Water Mission, National Mission for Sustainable Himalayan Ecosystem, National Green India Mission, National Mission for Sustainable Agriculture and National Mission for Strategic Knowledge for Climate Change.

Delivery Monitoring Unit (DMU)

DMU was constituted in 2009 and is based in the Prime Minister's Office. It functions at the central level with the key objective of reviewing large-scale centrally assisted government programmes and initiatives. These apart, special taskforces that include inter-ministerial groups and experts serve as focal points for activities pertaining to new initiatives. A recent example for this is the India Smart Grid Task Force, which would function under the stewardship of experts and leaders with an objective to evolve a future roadmap for the development of smart grids in India that would be aided by the most modern and latest technologies in the field.

Unique Identification Authority of India (UIDAI)

The Unique Identification Project was initially conceived by the Planning Commission as an initiative that would provide identification to every resident across the country and would be used primarily as the basis for efficient delivery and monitoring of various schemes/programmes of the government. The implementation of this ambitious initiative involves active participation of central, state, and local governments, as well as public and private sector agencies across the country. An *Aadhaar* (personal identification) number issued by UIDAI is expected to ensure that residents across India—including the poorest and the most marginalized—can access the benefits and services that are meant for them. UIDAI agencies include energy provisioning registrars, Life Insurance Corporation (LIC), MG-NREGS registrar, Ration Card registrars, Below Poverty Line (BPL) registrars, Old Age Pensioners, Women/Child Welfare registrars and Social Welfare registrars.

Research institutes and universities

India has a large network of research institutes and universities that serve as institutes of higher education and provide the knowledge support for sustainable development initiatives. There are 42 central universities,³⁰ 274 state universities,³¹ 85 private universities³² and 130 deemed universities.³³ Central universities are fully funded by the central government whereas the state universities receive partial funding from the central government and mostly funded by the state governments. The private universities are initiated by private enterprises and trusts and the institutes listed as deemed universities are a mix of both government-funded and privately-funded institutes. These universities are regulated and administered by the University Grants Commission.

Apart from these universities, there are 15 Indian Institute of Technology (IITs), 30 National Institute of Technology (NITs), 13 Indian Institute of Management (IIMs), 4 Indian Institute of Information Technology

³⁰ <http://www.ugc.ac.in/inside/centraluni.html> last accessed on 07/07/2011

³¹ http://www.ugc.ac.in/inside/StateUniv_total.pdf last accessed on 07/07/2011

³² <http://www.ugc.ac.in/inside/privateuniversity.html> last accessed on 07/07/2011

³³ <http://www.ugc.ac.in/inside/deemeduniv.html> last accessed on 07/07/2011



(IITs), 5 Indian Institute of Science Education and Research (IISER), and 1 Indian Institute of Science contribute significantly to the higher education, research and training activities in the country. There are also several autonomous research councils to promote scientific research in various disciplines. Some of the major councils are Council for Scientific and Industrial Research (CSIR), Indian Council for Agricultural Research (ICAR), Wildlife Institute of India (WII), Indian Council of Forestry Research and Education (ICFRE), Indian Council for Social Science Research (ICSSR), Indian Council of Medical Research (ICMR), Indian Philosophical Research Council (ICPR), Indian Council for Historical Research (ICHR) and National Council for Rural Institutes (NCRI).

CSIR, which was set in 1942, is the largest research and development organization in the country with 39 research institutes and 50 field stations spread across the country.³⁴ ICAR was established in 1929 and works as the apex body for co-coordinating, guiding and managing research and education in agriculture and allied sciences in the country. ICAR has the distinction of being the largest national agricultural research and education organization in the world with 97 ICAR research centres and 47 agricultural universities located across all parts of the country.³⁵

WII is an autonomous institution under the Ministry of Environment and Forests (MoEF), which carries out wildlife research in areas of study like biodiversity, endangered species, wildlife policy, wildlife management, wildlife forensics, spatial modelling, eco-development, and climate change. ICFRE is an autonomous organization under the MoEF that conducts forestry research; transfers the technologies developed to the states of India and other user agencies; and imparts forestry education. ICMR, one of the oldest medical research bodies in the world, was founded in 1911. It works as the apex body for the promotion and coordination of biomedical research and has 24 research institutes and regional centres in different

parts of the country.³⁶ ICSSR was established in the year 1969 with an objective of promoting research in social sciences in the country and has a network of 27 research institutes and six regional centres spread across different states in the country.³⁷ Along with these nationally-funded research institutes and universities, India also has several research and training organizations initiated by trusts, international organizations, corporate bodies and private enterprises that have contributed significantly to the thinking on sustainable development in the country. Some notable organizations in the field are The Energy and Resources Institute (TERI), National Council for Applied Economic Research (NCAER), Indian Council for International Economic Research (ICRIER), Centre for Science and Environment (CSE), Centre for the Study of Developing Societies (CSDS), Centre for Study of Science (CES), Technology and Policy (CSTEP), Ashoka Trust for Research in Ecology and Environment (ATREE), Centre for Ecological Sciences, and Centre for Environmental Education (CEE).

Conclusion

The institutional mechanisms discussed in this chapter illustrate only a few examples of government institutions that have evolved responding to the imperatives of



India has a large network of research institutes and universities
Source <http://www.svnit.ac.in/>

³⁴ http://rdpp.csir.res.in/csir_acsir/Home.aspx?MenuId=2 last accessed on 07/07/2011

³⁵ <http://www.icar.org.in/en/aboutus.htm> last accessed on 07/07/2011

³⁶ http://www.icmr.nic.in/About_Us/About_Us.html last accessed on 07/07/2011

³⁷ http://www.icssr.org/riandrc_main.htm last accessed on 07/07/2011



sustainable development in India. Part 4 of this book will discuss some collaborative mechanisms involving the formal state machinery as well as the informal groups including civil society and knowledge institutions.

1D. FINANCIAL PROVISIONING

Moving to more sustainable development pathways requires considerable financial mobilization and commitment, not only to address new concerns and issues linked with a sustainable development agenda, but also to accelerate positive development in traditional sectors of financial allocation. The Planning Commission in India is entrusted with the responsibility of allocating financial resources for growth and development of the various sectors in India. Over time, this allocation has grown substantially. For example, since the early 1970s, total planned allocation of resources has increased from INR 394.26 billion in the Fifth Five-Year Plan (1974–79) to INR 36447.18 billion during the Eleventh Five-Year Plan (2007–11). Figure 1.3 shows Plan outlays at nominal and constant prices from the period 1992 onwards.

These resources are provided to key economic sectors, such as agriculture and allied activities, rural development, energy, industry and minerals and social services. Two sectors in particular, whose shares have significantly

increased over the years are energy and social services. While the share of the social services sector in the total outlay between the Fifth and Eleventh Five-Year Plans increased from 15 percent to 30 percent of the total, the share for the energy sector increased from 18 percent to 23 percent during the same period. The increase in the former is due to India's emphasis on increased and better provision of basic and higher education, improved health care facilities, promotion of family welfare, and so on. India's growing energy requirement has also called for higher resource allocation in the latter, not only for development of energy from conventional energy sources, but also from new and renewable energy sources. Figure 1.4 depicts the percentage share of sectoral resource allocation in different FYPs.

Some recent programmes addressing sustainable development

India's planning focuses on development that strives for improvement in the standard of living and quality of life of the people. The period after the 1992 Earth Summit saw the introduction of various government programmes and schemes to address sustainability concerns as discussed in earlier sections. A list of key programmes along with the recent budget allocation is presented in Table 1.5.

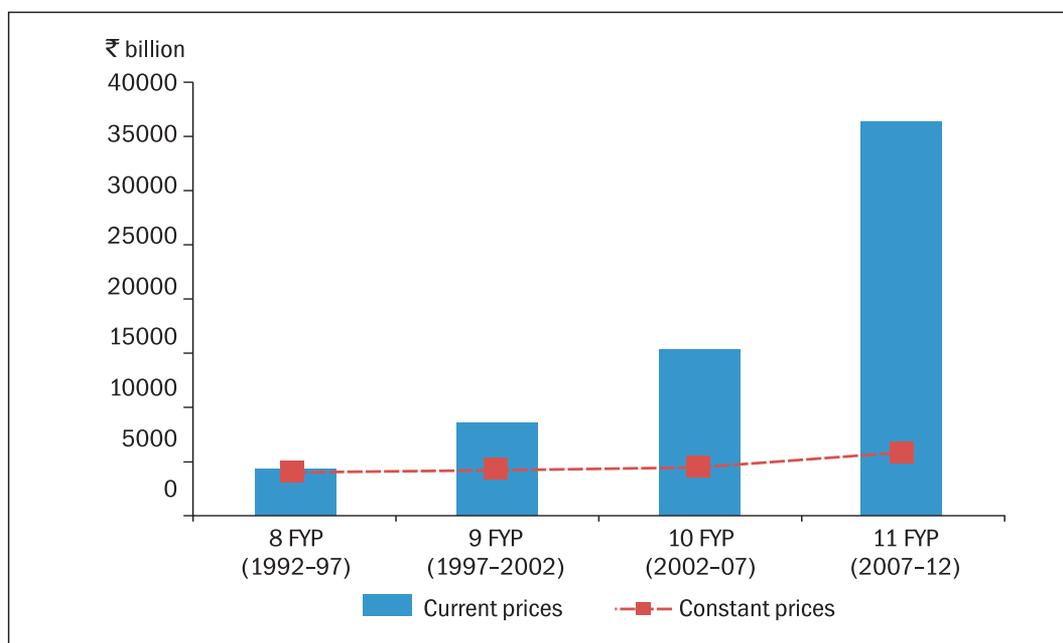


Figure 1.3 Total Plan outlay in different FYPs
Source Compiled from Economic Survey (2010–2011)

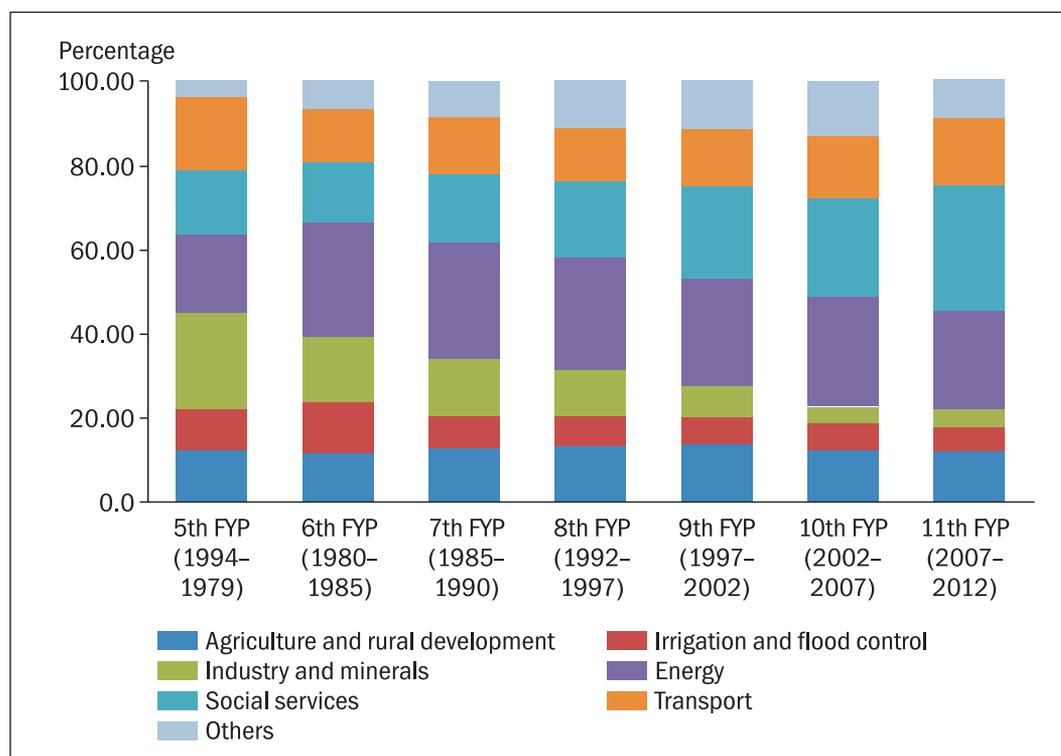


Figure 1.4 Share of sectoral resource allocation in different FYPs
 Source Economic Survey (2010–2011)

Table 1.5 Recent government spending on major sustainability programmes

Programmes	Actual (INR million)	Revised (INR million)	Budgeted (INR million)
	2009–10	2010–11	2011–12
Mahatma Gandhi National Rural Employment Guarantee Scheme (MG-NREGS)	335393.8	401000	400000
National Rural Livelihood Mission/Swarna Jayanti Gramin Swarozgar Yojana (SGSY)	22280.7	26830	26216
Indira Awas Yojana	87999	93335	89960
Provision for Urban Amenities in Rural Areas (PURA)	—	662	900
Renewable Energy for Rural Applications	137.7	1620	1760
Renewable Energy for Urban, Industrial and Commercial Applications	647.3	370	100
Integrated Low Cost Sanitation Programme	96.5	10	10
Jawahar Lal Nehru National Urban Renewal Mission (JNNURM)	200	200	800
Swarna Jayanti Shahari Rozgar Yojana (SJSRY)	4850	5362	0
National Rural Health Mission (NRHM)	147027.6	135402.6	161407.6
Forest Conservation, Development and Regeneration	820.6	567.3	567
National Afforestation and Eco-development Programme	3430.6	2595	2530
Prevention and Control of Pollution	7031.4	8075	8140.7

Source Compiled from Economic Survey and Union Budget documents (various issues)



Swarna Jayanti Shahri Rozgar Yojna, which was launched in 1997, with an objective to provide employment to the urban unemployed and underemployed through encouraging the setting up of self-employment ventures has seen growing importance and its budget allocation has increased from less than INR 2 billion in 1998 to almost INR 6 billion in 2010. Till 2010, a total of 6,80,325 persons have been benefitted from the programme.

Another programme similar in objective in rural areas is the Swarnajayanti Gram Swarozgar Yojna (SGSY), introduced in 1999 with a total outlay of INR 9.50 billion. As of 2010, four million SHGs have been formed under the SGSY. During this period, a total of approximately 1.5 million swarozgaris have been assisted with bank credit and subsidy.

The Mahatma Gandhi National Rural Employment Guarantee Scheme (MG-NREGS), introduced in 2005, began with an initial outlay of INR 113 billion, rising to INR 400 billion by 2010–2011. Over a span of five years, 1.45 billion person days of employment were created under the scheme. Of the employed people, 23 percent and 17 percent were from the SC and ST population respectively. Women comprised 50 percent of those employed.

Recognizing that economic development without environmental conservation can cause serious environmental damage, India has adopted necessary measures towards environmental protection and global climate change concerns. India’s strategy for enhancing environmental quality and promoting adaptive capacity

to climate variability is reflected in many of its social and economic development programmes. India’s expenditure on adaptation oriented schemes has increased from 1.45 percent of GDP in the year 2000-01 to 2.84 percent during 2009-10 (Table 1.6).

India’s commitment to addressing global climate change is evident from the fact that an indicative target of increasing energy efficiency by 20 percent by 2016-17 has already been included in the Eleventh Five Year Plan. A landmark fund for the regeneration and sustainable management of its forests with an initial corpus of USD 2.5 billion, and an annual budget of about USD 1 billion has been set up under ‘forest conservation, development and regeneration’ and ‘national afforestation and eco-development programme’. In the Union Budget 2010-11, the setting up of the National Clean Energy Fund (NCEF) for funding research and innovative projects in clean technologies was announced. To build the corpus of the NCEF, a cess is levied on coal produced in India at a nominal rate of USD 1.08 per tonne. This cess is also applied on imported coal.³⁸

To address the increasing demand for energy to sustain its economic growth, India has given importance and priority to clean and renewable energy. ‘Renewable Energy for Rural Application’ and ‘Renewable Energy for Urban, Industrial and Commercial Application’ programmes are two such measures under Ministry of New and Renewable Energy. The 2011–2012 budget has made the following allocations towards greening the

Table 1.6 Total expenditure on adaptation-oriented schemes

Year	Gross domestic product (INR billion)	Grand total of expenditure budget (INR billion)	Adaptation-oriented prog. (INR billion)	Adaptation-oriented prog .as a percentage of total exp.	Adaptation-oriented prog. as a percentage of GDP
2000–01	18643.01	3355.23	270.28	8.06	1.45
2003–04	22227.58	4742.54	397.92	8.39	1.79
2005–06	32542.16	5087.05	620.71	12.2	1.91
2008–09	41625.09	9009.53	1064.63	11.82	2.56
2009–10	44937.43	10215.46	1260.28	12.34	2.80

Source Economic Survey (2010–2011), Table 12.15

³⁸ <http://www.cbec.gov.in/excise/cx-circulars/cx-circulars-10/circ-cec01-2k10.htm> accessed on 12/08/2011



economy: an allocation of INR 2 billion for the Green India Mission; INR 2 billion for launching Environmental Remediation Programmes under National Clean Energy Fund. Additionally, reduction of basic customs duty on solar lanterns from 10 percent to 5 percent; and a proposal for duty exemption for electrical and hybrid vehicles and its parts to incentivize the use of green vehicles (MoF, 2011).

India is also planning significant investment in 'prevention and control of pollution' of national rivers, water and air. Further, special allocation of INR 2 billion was proposed for clean-up of some important lakes and rivers other than the river Ganga.

Domestic resource generation

In order to meet the growing financial needs of the above sectors, India has put in place various measures for improved collection of resources. A Task Force set up in early 2004 to address the growing fiscal challenges made major recommendations for improving government revenues. Measures identified included those to enhance direct taxes by two percentage points of GDP and to widen the revenue base of indirect taxes to include a greater share of services. With its implementation, gross tax revenue, as a proportion of the GDP, rose from a level of 9.2 percent in 2003–2004 to reach a peak level of almost 12 percent in 2007–2008, after which it decreased to 10.8 percent and 9.6 percent in 2008–2009 and 2009–2010, respectively.

Two significant developments in the recent past in terms of composition of taxes have been the growth in direct tax revenues, particularly corporate income tax, and in service tax revenues. At the same time, government introduced reform initiatives in expenditure. Some of them include the discontinuation of the issuance of bonds for financing under-recoveries of petroleum marketing companies, and the nutrient-based subsidy for fertilizers and the dismantling of the administered pricing mechanism.

Broader and deeper financial markets are crucial for mobilizing higher savings and utilizing them efficiently to finance higher investments and growth. India's financial markets continued to gain strength in recent years in the wake of steady economic reforms since 1991. The Indian banking sector has a highly intricate

multi-tier structure, which enables it to effectively cater to the diverse consumer demographics. This sector has seen significant transformation through deregulation, technological advances, and globalization as discussed earlier. The economic reforms, introduced in the early 1990s, also brought about a comprehensive change in the business strategy of industry, leading to mergers and amalgamations, which enhanced firm size, efficiencies, and competitive strength. The growing importance of the banking sector is reflected through higher deposits and commercial lending. The scheduled commercial banks' deposits as a percentage of Gross National Product (GNP) stood at a high of 78 percent in fiscal year 2009, increasing from 60 percent in 2005. However, the share of savings as a percentage of GNP has remained almost constant with an incremental increase from 32.9 percent to 33.3 percent for the same period. However, if compared with that of 1990 levels, of 20 percent to 21 percent, there has been a significant growth. Bank deposits have always formed one of the largest shares of household assets in India. However, with improvement of the capital market, other asset classes, such as life insurance products, shares and debentures, too gained prominence replacing the earlier-dominance of provident and pension funds. But, since the global financial crisis and increased risk aversion, shares and debentures as asset classes have seen a sharp decline, leading to further increase in the share of bank deposits.

Intergovernmental transfers

To support the state government initiatives for sustainable development, there are three routes through which funds flow from the Centre to the states. The first route consists of devolutions made under the recommendations of the Finance Commission. The second category consists of Plan grants covering central assistance for state plans as decided by the Planning Commission, as well as the Plan grants given by the central ministries for implementation of Plan schemes. The third type of grants, which is much smaller in magnitude, consists of discretionary grants given by the central ministries to states on the non-Plan side. Since there exists multiplicity of channels, it is important to look at the total transfers. Figure 1.5 provides an illustration of the centre-state transfers including

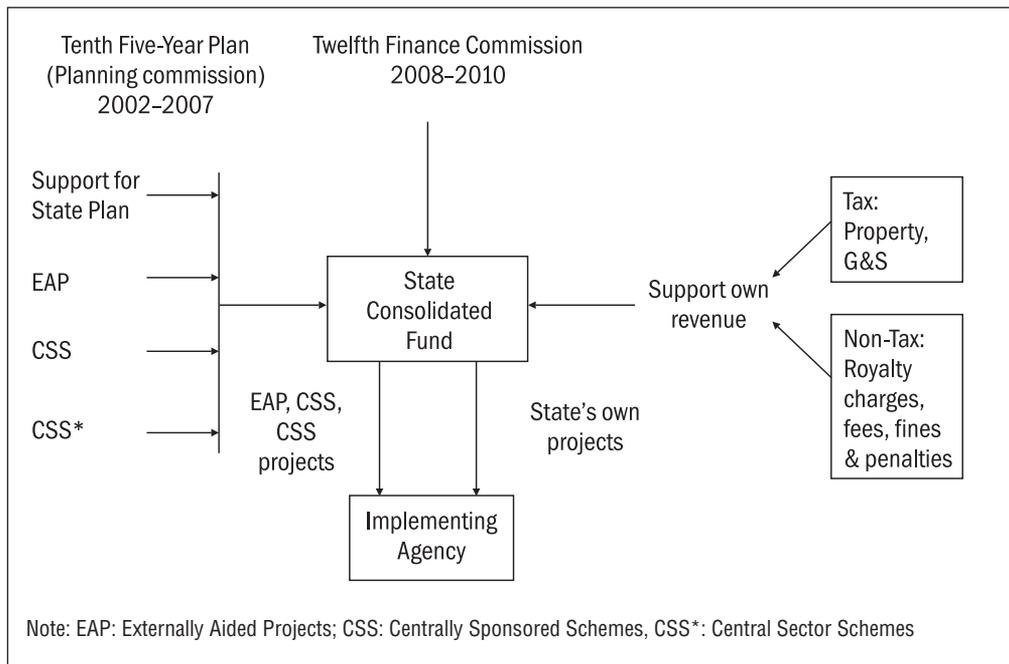


Figure 1.5 Centre-state fiscal transfers relating to environmental and natural resource management —Tenth Five-Year Plan and Twelfth Finance Commission
Source TERI (2008)

environmental and natural resource management (ENRM) under the Twelfth Finance Commission and the Tenth Five-Year Plan.

The Thirteenth Finance Commission (TFC) in its recommendations sought to promote sustainable development through awarding of conditional grants. Table 1.7 presents a summary of these grants. These include grants for improving outcomes of social welfare schemes, advancing elementary education, reducing infant mortality rates, progressing in administration of justice, promoting alternate dispute resolution mechanisms like Lok Adalats (citizen courts), and stimulating innovation through establishment of Centre for Innovation in Public Systems (CIPS). In the environmental domain, grants have been awarded for the preservation of forests and wildlife, achievements in grid-connected renewable energy, and water sector management. Special grants have been awarded to strengthen local bodies that include both Panchayati Raj Institutions (village governing bodies) and urban local bodies. An additional grant for disaster relief has also been proposed.

External assistance

One of the goals of Agenda 21 was to raise additional external funds for support of sustainable development

Table 1.7 Grants-in-aid to states proposed by the Thirteenth Finance Commission (TFC)

Grant item	Amount (in INR billion)
Local bodies	875.19
Disaster relief (including for capacity building)	263.73
Post-devolution non-plan revenue deficit	518.00
Performance incentive	15.00
Elementary education	240.68
Environment	150.00
Protection of forests	50.00
Renewable energy	50.00
Water sector management	50.00
Improving outcomes	144.46
Reduction in Infant Mortality Rates	50.00
Improvement in supply of justice	50.00
Incentive for issuing UIDs	29.89
District Innovation Fund	6.16
Improvement of statistical systems at state and district level	6.16
Employee and pension database	2.25

**Table 1.7 Contd...**

Maintenance of roads and bridges	199.30
State-specific needs	279.45
Implementation of model GST	500.00
Total	3185.81

Source TFC (2009)³⁹

activities by increasing bilateral and multilateral official development assistance (ODA) to 0.7 percent of GNP of donor countries. The ODA received is used to help meet various developmental objectives. From the trend in ODA flow to India, it is evident from Figure 1.6 that the flow of resources has not been uniform. In the period 2000–2003, there was a decline in ODA followed by an increase in 2004–2007. However, in the years post the global financial crisis in 2008, ODA has seen a decline in recent years. The average share of ODA to India's GDP was 0.68 percent in the period 1995–2000, which declined to 0.48 percent in 2000–2009. One of the key reasons for this decline in average share is also the significant rise in India's GDP.

Most of the ODA received by India is in the form of loans (Figure 1.7). During 2005–2010, the loan

component in ODA was 63 percent of the total, with grants comprising 36 percent.

As is evident from Table 1.8, most of the resources received under ODA were directed at improving social and economic infrastructure programmes and this share averaged 80 percent over the last five years. Fund allocation in social infrastructure development programmes has increased compared to other components in the period 2000–08 and a small decline was observed in 2009 after the global economic recession. Education, health, and water and sanitation are three key areas that received most of the resources under social infrastructure category with a combined share of more than 60 percent in the last five years. The water and sanitation sub sector has received particular attention, which is evinced by the fact that the share of this sector in the total social infrastructure expenditure increased from 27 percent to 42 percent between 2000 and 2009. However, expenditure share for education has come down from 35 percent to 20 percent during the same period.

Moreover, the percentage share of expenditure on economic infrastructure in total ODA received may have increased, but the share of expenditure on energy

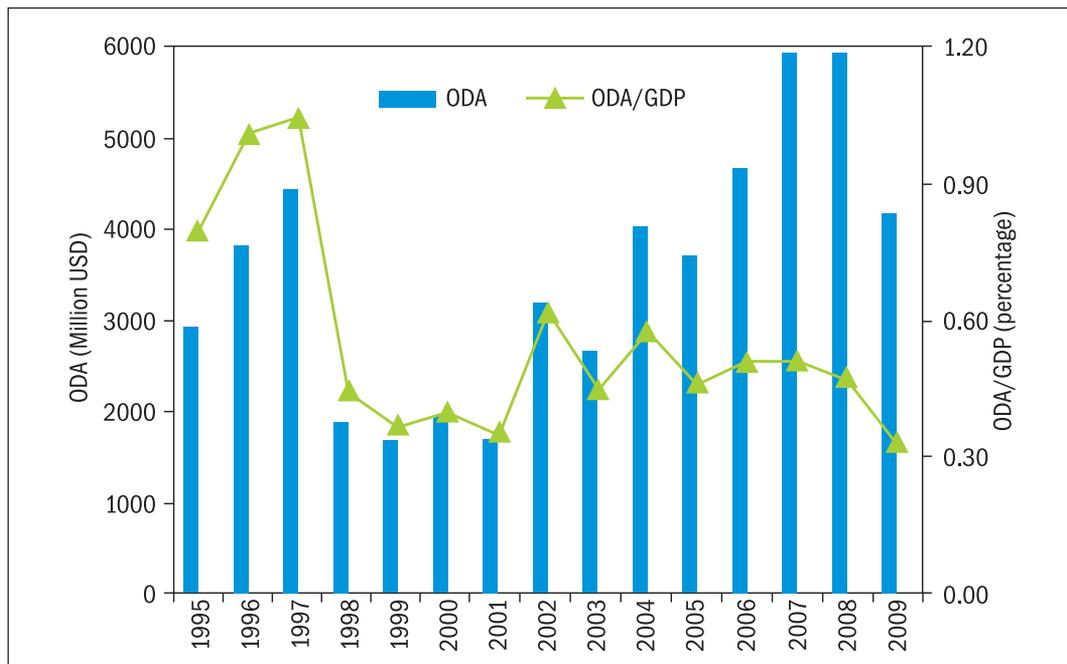


Figure 1.6 ODA to India as percentage of its GDP
Source OECD statistics (2011) and World Economic Outlook (2011)

³⁹ TFC (2009). "Thirteenth Finance Commission Report" Thirteenth Finance Commission (TFC), Government of India

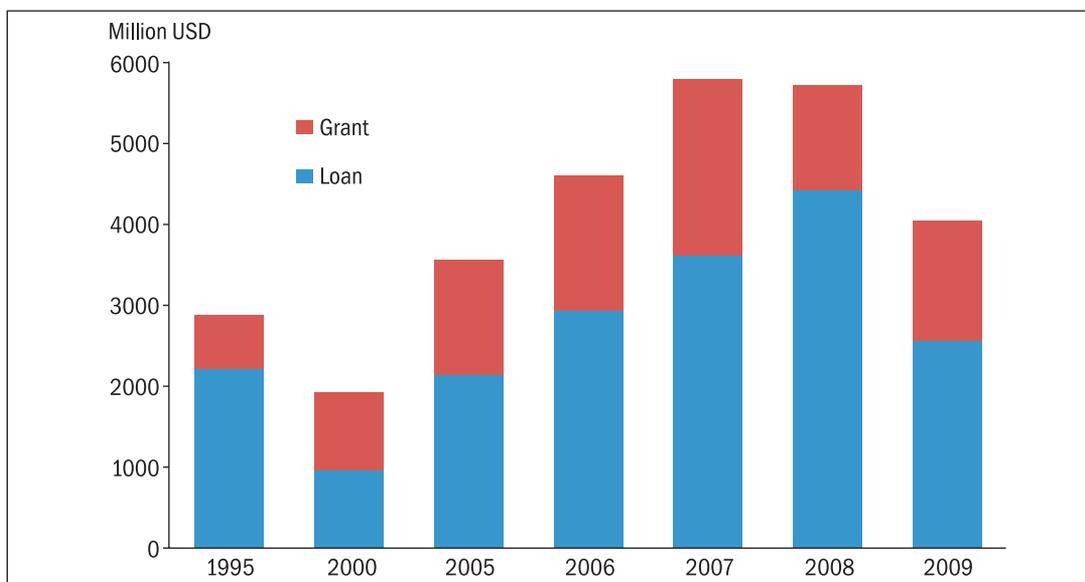


Figure 1.7 ODA to India by type of flow
 Source OECD Statistics (2011)

Table 1.8 Sectoral composition of ODA in India			
Sector	2001	2005	2009
ODA on economic infrastructure (USD million)	333.60	617.77	1345.53
Share of economic infrastructure in total ODA	0.19	0.17	0.32
Expenditure on energy (USD million)	222.43	317.27	234.80
Share of expenditure on energy in total economic infrastructure	0.67	0.51	0.17
ODA on social infrastructure (USD million)	837	2066	1899
Share of social infrastructure in total ODA	0.49	0.56	0.46
Share of expenditure on education to total social infrastructure	0.35	0.04	0.20
Share of expenditure on health to total social infrastructure	0.13	0.19	0.14
Share of expenditure on water to total social infrastructure	0.27	0.28	0.42
Share of others to total social infrastructure	0.25	0.48	0.24

Source OECD Statistics (2011)

sub-sector under the total economic infrastructure category has decreased.

Conclusion

It is evident that transitioning to a more sustainable development pathway requires considerable financial support. Along with the central government, state

government and local bodies are also responsible for financing sustainable development in India. Current sources of revenue at state or local levels have been very limited and these levels of government have been largely dependent on the assistance of the central government to finance their component of sustainable development.



PART 2

Achievements and challenges



PART 2

ACHIEVEMENTS AND CHALLENGES

2A. ACHIEVEMENTS

The Indian economy has grown fast since 1991 and has also been able to weather the global recession, with only a limited and short-lived slowdown. The average growth rate in India was 5.7 percent during 1991–2000, which increased to an average of 7.2 percent during 2001–2010, with the period 2005–2006 to 2009–2010 witnessing an average growth rate of as high as 8.25 percent (Figure 2.1). Tertiary sector in particular has

played a significant role in these growth trends. There has also been a decline in the poverty rate over the last two decades. Figure 2.1 shows the performance in terms of GDP and poverty indicators.

Wide ranging reforms in the economic sector and increased investment in the social infrastructure have lifted the potential growth estimates to almost nine percent. Increasing efforts are being made to make this growth inclusive. Part 2 of the book discusses some

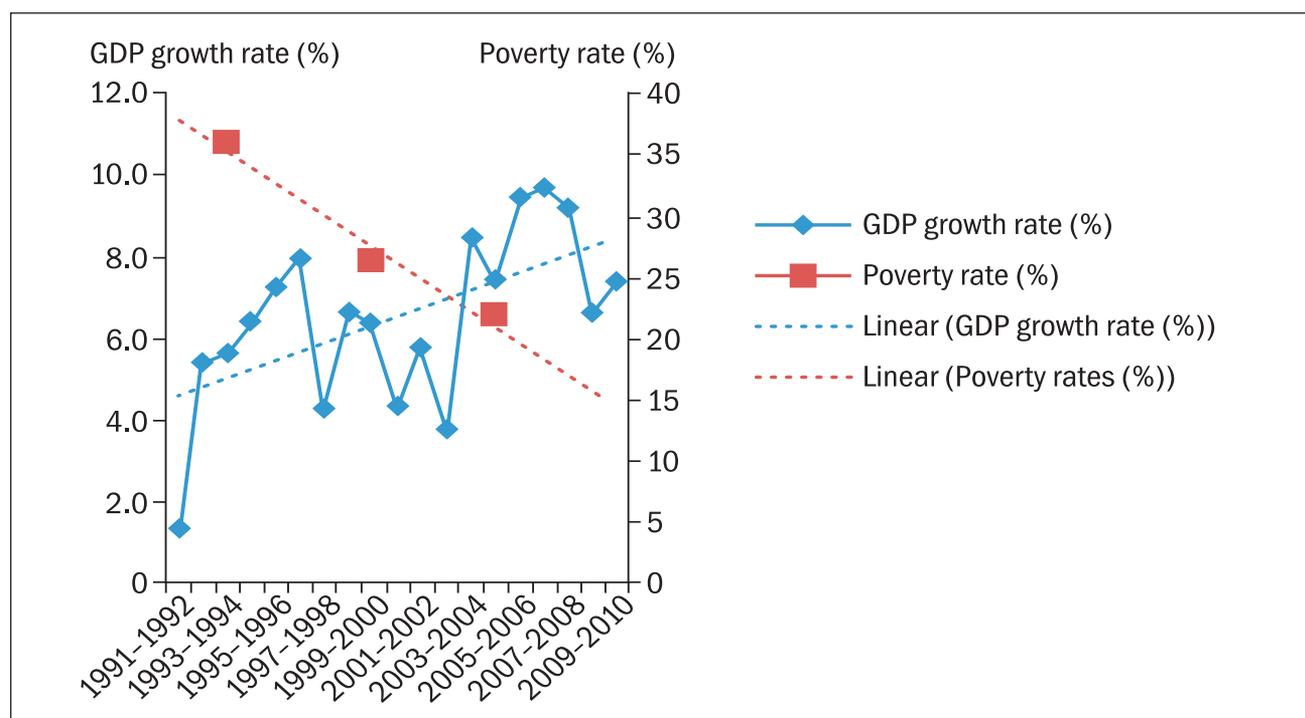


Figure 2.1 Economic growth and poverty indicators with trends

Source Compiled from Reserve Bank of India website¹

¹ <http://www.rbi.org.in/scripts/AnnualPublications.aspx?head=Handbook%20of%20Statistics%20on%20Indian%20Economy>

of the achievements of India across the three pillars of sustainability in the last two decades.

Economic

Growth has been accompanied by a changing sectoral composition of India's gross domestic product (GDP). The share of agriculture has seen a decline, while the relative share of industry and services has been increasing over the last two decades. In 1990, the income share of agricultural and mining sectors to total income was estimated to be more than 30 percent. This share declined to about 25 percent in 2000, and further to 18 percent in 2008–2009. India is the second largest producer of rice and wheat in the world. Other crops grown include pulses and coarse grains, major commercial crops like groundnut, mustard, cotton, jute and sugar cane. Agricultural output has increased over time to cater to the growing population as well as adding to the exports of the country. The increases in major products are given in Table 2.1.

Table 2.1 Production of selected agricultural products (in million tonnes)

Agricultural product	1991–1992	2009–2010*	CAGR (%)
Rice	74.7	94.01	1.22
Wheat	55.7	81.47	2.02
Coarse cereals	26.0	40.08	2.30
Pulses	12.0	16.51	1.69

* 2nd Advanced Estimates for 2010–2011

Source Based on Economic Survey (various issues)

The tertiary sector has witnessed rapid growth since the early 1990s after the economic reforms. Its share in GDP has increased from 50 percent in 1990 to close to 65 percent in 2009 (GoI, 2008). Within the services sector, information technology (IT) and IT-enabled services (ITeS) have emerged as sources of strength to the country, generating income and facilitating employment and growth. In particular, there has been exponential growth in the telecom sector mainly due to the policies that have been pursued by the government to expand coverage in the last two decades. The government

has planned to raise the internet subscriber base to 100 million and provide internet connectivity to all villages in the country by 2014. Currently, India has about 45 million internet users. Common service centres with broadband facility in 100,000 Panchayats have been proposed to be set up in three years, of which 70,000 are already in place. The overall tele-density has increased sharply from 0.67 per 100 population in 1991 to 18.22 per 100 population by March 2007 and further to 36.98 per 100 population in March 2009. The overall tele-density in India reached 52.74 percent by end of March 2010².

Table 2.2 gives the sector-wise growth rate of the Indian economy since 1990–2010.

Table 2.2 Annual sectoral growth in recent plans (%)

Sector	Eighth Plan (1992–1996)	Ninth Plan (1997–2001)	Tenth Plan (2002–2006)	Eleventh Plan (2007–2011)
Agriculture	4.72	2.44	2.30	4.0
Industry	7.29	4.29	9.17	10-11
Services	7.28	7.87	9.30	9-11
Total	6.54	5.52	7.74	9.0

Source Planning Commission, Eleventh Five-Year Plan, 2007–2012 Volume 1

Within the secondary sector, the micro, small and medium enterprises (MSME) have done significantly well. The MSME sector has grown to 26 million units and has provided employment to about 60 million persons, contributing about eight percent of the GDP, about 45 percent of manufactured output and about 40 percent of exports (Economic Survey, 2010–2011). One of the factors behind this trend has been private investment, which has been supported by buoyant corporate sector profitability and a rising national saving rate, which has reached the levels of the East Asian economies during their periods of rapid growth. The Foreign Direct Investment (FDI) increased from \$148.0 million in 1991–1992 to \$18,800 million in 2009–2010. Exports in India also increased

² <http://www.trai.gov.in/WriteReadData/trai/upload/PressReleases/744/qpressrelease22jul.pdf>, last accessed on 12/08/2011



from 6.2 percent in 1990–1991 to 12 percent in 2010–2011 (Economic Survey, 1993–1994 and 2010–2011).

The economy is also beginning to benefit from improved infrastructure and connectivity, though there is still a significant deficit in the sector that needs to be met. Reforms have improved incentives for private infrastructure investment, particularly in sectors like telecommunications, aviation, which is being transformed, while the highway system is undergoing major expansion and upgradation. The private sector has played an important role in these improvements and their role will need to be incentivized and encouraged if the infrastructure needs of the rapidly developing Indian economy are to be met.

There has been a shift in employment patterns in India as well. The share of broad sectors (primary, secondary and tertiary) in employment is given in Table 2.3. It can be seen that the percentage of population in the primary sector reduced from 64.5 percent in 1993–1994 to 55.9 percent in 2007–2008, while there was an increase in the secondary and tertiary sector during the same period.

Sectors	1993–1994	2004–2005	2007–2008
Primary	64.5	57.0	55.9
Secondary	14.3	18.2	18.7
Tertiary	21.2	24.8	25.4

Source Economic Survey (2010–2011)

The Indian business sector has also played a key role in promoting sustainable development in India. Indian companies are increasingly incorporating sustainability in their core business agenda. For leadership to succeed in transforming enterprises into sustainable businesses, recognizing employees as key stakeholders is absolutely critical. Their engagement is reflected through human resource management, building their knowledge and competencies, recognizing and empowering sustainability leadership, identifying and resolving human rights, and providing employee benefits and services. Indian companies are also changing their business models in order to address the sustainable development agenda

at the core of business strategy. As a result, they are investing in research and innovations to create efficient and greener products through processes that are environmentally compatible. At the same time, they are greening the supply chain. Companies are also involved in development work with communities. Development activities range from education, vocational skills, and health services, to providing basic amenities like roads, lighting and drinking water. Understanding the increasing degradation of the environment, many companies in India are working with government departments and scientific or research institutions, to restore sections of environment that are degraded (CII, 2011).

Social

India is in the process of a demographic transition from high fertility, high mortality to low fertility, low mortality rates, with the average annual growth rate of population declining from 2.2 to 1.9 percent during the period 1994–2001 (GoI, 2001). The total fertility rate between 1990 and 2010 has come down from 3.9 to 2.8³.

Major health indicators are given in Table 2.4. The life expectancy has increased while the infant mortality rate and the under-five mortality rates have declined. There has been growth in the medical infrastructure in the country with the number of medical hospitals rising from 11,174 in 1991 to 35,071 in 2009 (Economic Survey, 1993–1994 and 2010–2011).

Health indicator	1991	2009
Life expectancy (at birth)* (years)	55.9	63.5 (2002–2006)
Crude Birth Rate (per thousand)*	29.5	22.5
Crude Death Rate (per thousand)*	9.8	7.3
Infant Mortality Rate (per thousand live births)*	80	50
Under Five Mortality Rate (Per thousand Live Births)**	109.3	69.4 (2005-06)
Maternal Mortality Rate	440**	254*

Source *Economic Survey (1993-94), (2010-11); **National Family and Health Survey III

³ <http://www.rbi.org.in/scripts/AnnualPublications.aspx?head=Handbook%20of%20Statistics%20on%20Indian%20Economy>

Malnutrition, which is a serious problem in India, has witnessed a decline over the last two decades. The three National Family and Health Survey (NFHS) rounds show that the number of underweight children below the age of three has gone down from 53.4 percent in 1992–1993 to 45.9 percent in 2005–2006. Although the drop in percentage terms is not very high, the absolute numbers are large. The Eleventh Five Year Plan showed that the percentage of people covered by water supply facilities in the country has seen an increase from 78 percent in 1981 to 91 percent in 2004.

Number of underweight children below the age of three has gone down from 53.4 percent in 1992–1993 to 45.9 percent in 2005–2006.

The sex ratio, which is number of females per thousand males has improved somewhat. The sex ratio was 927 in 1991, which increased to 933 in 2001 and further increased to 940 in 2011 (Census of India, 2001; Census of India, 2011). Although this is an improvement, the recent estimates have shown a decline in the child sex ratio (0-6 years), which has been the lowest since independence at 914 (as per the Census 2011), and is a drastic drop even when compared to 2001 levels, when it was 927.

Maternal mortality rates have also declined in the country, which can be attributed to the many programmes that have been introduced to improve maternal health care. The popular *Janani Suraksha Yojana* (Maternal Care Programme), under the National Rural Health Mission (NRHM) that was launched with the main aim of reducing the maternal mortality rate has done significantly well and has been able to target 34 million women by 2010 (Economic Survey, 2010–2011).

Literacy rate has been constantly rising for India as a whole as well as for women and men (Table 2.5). The increase in literacy rates have been higher for women than men, however, the gap between women and men is still high, at 16.68 percent.

Table 2.5 Literacy rates in India (%)

Year	Total	Male	Female
1991	52.2	64.13	39.29
2001	64.83	75.26	53.67
2011	74.04	82.14	65.46

Source Compiled from Economic Survey (1993-94) and GoI (2011b)

While India has achieved significant economic growth, some social indicators are still unsatisfactory, especially with regard to the MDGs. There are some improvements in terms of a reduction in people below the poverty line and a rise in ratio of girls to boys enrolment in primary school. However, performance in achieving the health-related goals (MDG targets for infant and maternal mortality) has been sluggish. Table 2.6 summarizes India's progress in meeting its MDGs.

Table 2.6 India's progress on MDGs

Target No.	Target description	Progress signs
1	Halve, between 1990 and 2015, proportion of population below national poverty line	B
2	Halve, between 1990 and 2015, proportion of people who suffer from hunger	E
3	Ensure that by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary education	A
4	Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015	B
5	Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	C
6	Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio	C
7	Have halted by 2015 and begun to reverse the spread of HIV/AIDS	B

Contd...



Table 2.6 Contd...

Target No.	Target description	Progress signs
8	Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	C
9	Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources	A
10	Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	D
11	By 2020, to have achieved, a significant improvement in the lives of at least 100 million slum dwellers	F
12	In cooperation with the private sector, make available the benefits of new technologies, especially information and communication	A

Key: A: On-track or fast considering all indicators; B: Moderately or almost nearly on track considering all indicators; C: Slow or off-track by some indicators, but fast by other indicators (including cases where composite targets are involved); D: On track or fast by one main indicator, but slow by other main indicators (including cases where composite targets are involved); E: Slow or almost off-track considering all indicators; and F: Pattern of change not discernible due to lack of sufficient data.

Source Based on MOSPI (2009)

Environment

As per the ‘India State of Forest Report 2009’, forest and tree cover shows a net gain of 728 km² in forest cover and 1,106 km² in tree cover as compared to 2005. In terms of percentage of total geographical area, the forest cover in India is estimated to be 21.02 percent (FSI, 2009)⁴. The Indian government has taken initiatives to involve local communities in natural resource management, notably through the Joint Forest Management (JFM) programme, Green India Mission and MG-NREGS. Till 2006, around 100,000 forest protection committees (FPCs) had been constituted across the 28 states and union territories and

these FPCs manage about 22 million hectares of forest area, constituting 28 percent of the total forest area. JFM covers 60 percent of the 170,000 forest fringe villages (MoEF and WII, 2005).

India is a megadiverse country with only 2.4 percent of the land area accounting for 7–8 percent of the recorded species of the world, including over 45,500 species of plants and 91,000 species of animals. India has made efforts at conserving its biodiversity in protected areas (PA) under IUCN categories I–V; approximately 4.74 percent of the total geographical area of the country is under in situ conservation of habitats and ecosystems (MoEF, 2008). Enormous biodiversity exists outside the PAs also. PAs includes 100 national parks, 514 wildlife sanctuaries, 43 Conservation Reserves, and 4 Community Reserves (all together 661 protected areas). These cover terrestrial and freshwater ecosystems, cold deserts and coastal and marine protected areas. Further 16 biosphere reserves have been constituted for landscape conservation.

Transportation sector has witnessed significant growth in the last decade and there have been efforts to make this growth green. In particular, rural connectivity held the key to achieving the Millennium Development Goals. Last 10 years has seen close to 180,000 rural habitations being connected with all-weather roads in the country. On a related issue, that of cleaner fuel technologies, the city of Delhi has the largest fleet of busses operating on compressed natural gas, which is a successful example of low-carbon sustainable transport.

Since India became party to the Montreal Protocol in 1992, it has also ratified the Copenhagen, Montreal and Beijing Amendments to the Montreal Protocol in 2003. As per Article 7 of the Montreal Protocol, India maintains and reports ozone depleting substance (ODS) data on year to year basis. India signed the Montreal Protocol on 17 September 1992, and its per capita consumption of ODSs is at present less than 3 grams and did not cross 20 grams between 1995–1997 as against 300 grams permitted under the Protocol. India is self-sufficient in the production of CFCs and mainly produced and used

⁴ http://www.fsi.nic.in/india_sfr_2009/india_sfr_2009.pdf last accessed on 12/08/2011

⁵ <http://www.mse.ac.in/trade/pdf/Compendium%20Part%20B/4.%20Kavi-MP.pdf>



seven of the 20 substances controlled under the Montreal Protocol⁵. The country is in the process of phasing out ODS both in the end-use consumption sector and in the production sector. As on 31 August 2009, India has 299 ODS phase out projects to phase out 47,085 ODP tonnes. As a consequence of the on-going measures, consumption of ozone depleting CFCs in ODP tonne has started coming down sharply after the year 2000. Between 1992 and 1996, the consumption of CFCs continued rising before gradual decline setting in from the year 1997 (CSO, 2010).

In India, the Central Pollution Control Board (CPCB) has over the years been executing a nation-wide programme of ambient air quality monitoring known as National Air Quality Monitoring Programme (NAMP). Annual average concentration of SO_x levels today are within the prescribed National Ambient Air Quality Standards (NAAQS) in almost all the locations. This reduction from earlier levels is due to various measures taken, including for example, the use of CNG in public transport in Delhi, the reduction of sulphur in diesel and use of LPG instead of coal as a domestic fuel. A mixed trend is observed in NO₂ levels due to various measures taken for vehicular pollution control, such as stricter vehicular emission norms being partially offset by increased NO_x levels due to the use of CNG in urban transport. Total suspended particulates, however, are still a matter of concern in several urban and peri-urban areas.

India has some major achievements in the area of clean energy. The energy elasticity (total primary energy supply with respect to GDP) of India for the period 1980–1981 to 1990–1991 was estimated to be 1.08, while the same for the period 1990–1991 to 2003–2004 was estimated to be 0.82 marking a significant reduction (TERI, 2006). There has been an increase in the renewable grid capacity and it amounts to about 11 percent⁶ of the total grid installed capacity in the country as on March 2011. Off-grid applications are major renewable energy priorities that also address social concerns of energy access. In 2009, it was estimated that the total financial investment in clean energy in India was at INR 135 billion⁷. India has also become one

of the leading CDM project host countries in the world with projects being undertaken at various levels. As of October, 2010, a total of 2437 projects were registered with the CDM Executive Board, out of which 22.12 percent (539 projects) are registered in India. Projects are in the sectors of energy efficiency, fuel switching, industrial processes, municipal solid waste, and renewable energy.

While progress is evident in all of the three pillars of sustainable development, it is at the interfaces that much more work is required: a greater focus on social equity, green economy, and social ecology. This is where current thinking in India is now focused: how to make development and conservation more inclusive. The next chapter discusses existing and emerging challenges.

2B. EXISTING AND EMERGING CHALLENGES

Rapid economic growth in the last two decades has lifted many out of poverty, but has been accompanied by depletion of natural resources and deterioration in environmental quality. The two decades have also seen an increased concern with climate change and its potential to magnify existing stresses. The last decade has in addition seen the outbreak of new and re-emerging diseases. Identifying and addressing the existing and emerging challenges that are likely to affect most significantly India's prospects for sustainable development is important to increase resilience at the national level. This section discusses some of these major challenges.

Urbanization and migration

India has witnessed rapid urbanization in the last few years. The urban population has been growing and is projected to grow at a much faster rate than the rural population (Figure 2.2).

The increase in urban population has been attributed both to natural growth and push migration from villages. In some states, urban poverty seems to be greater than those in rural areas. Among urban areas, poverty rates in small towns are markedly higher than those in large metropolitan areas. Since a disproportionate share of

⁶ http://www.powermin.nic.in/indian_electricity_scenario/introduction.htm

⁷ <http://www.mnre.gov.in/pdf/mnre-paper-direc2010-25102010.pdf>

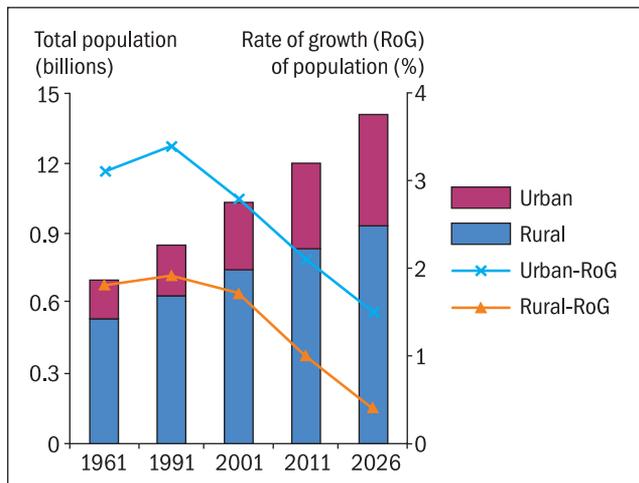


Figure 2.2 Population growth - rural and urban
Source Census of India (2001), GoI

India’s urban population resides in small and medium-size cities, the urban poor are also found to be greater in these smaller places.

The growth generates pressure on public infrastructure, including basic health and sanitation services creating a disorganized urban landscape, and constitutes a social crisis that can result in major health risks and pose threats to sustainable development. This growth in urban population leads to the creation of urban slums⁸, which are at high risk from outbreaks of contagious diseases, such as tuberculosis, malaria, dengue, cholera, typhoid and plague resulting from poor environmental conditions.

The urban sprawl also creates the mobility challenge—access to transportation that is required to meet the broad scope of economic and social needs. Mobility within cities has been identified as a key factor to economic growth in the developing world.

Urban sprawl also creates a mobility challenge—access to transportation that is required to meet economic and social needs. The growing transport demand in India accompanied by massive urbanization, increasing vehicular density and growing consumption of

energy (mostly fossil fuels) raises several issues of concern around energy security and environmental quality. Government has undertaken various initiatives to promote sustainability in the transport sector. These initiatives include the National Urban Transport Policy, National Highway Development Project, and implementation of strict emission norms and development of vehicle efficiency standards. Much more needs to be done to address sustainability concerns at the urban level through working with local bodies and other stakeholders.



Urbanization is an emerging challenge in developing countries
Source <http://www.urbanindia.nic.in/images/image3.gif>

Production and consumption patterns

In global debates pertaining to climate change, unsustainable production and consumption patterns in the developed world have been highlighted (GoI, 2009; PMO, 2007). Even in the domestic context, environmental degradation is linked closely to unsustainable production and consumption patterns.

According to a study carried out by TERI on Environmental Kuznets Curve (TERI, 2008), India's total SO₂ and NO_x emission had increased from almost 7.12 million metric tonnes to 9.82 million metric tonnes between 1995 and 2005 with a CAGR of 3.63%. However, despite India experiencing an overall increase in the total emission, inverted U-shaped relationships were observed between income and SO₂ emission per capita for the three

⁸ The United Nations Human Settlement Programme reports that 43 percent of urban residents in developing countries, such as Brazil and India live in such slums.

energy consuming sectors—residential, transport and industrial—analysed in the project. With regard to NO_x , an inverted U-shaped curve was observed only in the transport sector. This is primarily due to various policies like use of improved automotive engines, better fuel quality (e.g. use of low sulphur content gasoline), and cleaner use of fuels in residential sector. Greendex, an indicator developed by the National Geographic Society and GlobeScan ranks India and Brazil as first in terms of environmentally sustainable consumption and lifestyles (NGS-GlobeScan, 2008). With rising middle class, developing countries are taking initiatives to promote sustainable consumption. However, the continuation of unsustainable patterns of consumption and lifestyles still need to be addressed adequately by developed countries (GoI, 2010).

Several traditional practices that are sustainable and environment friendly continue to be a regular part of the lives of people in developing countries. With increasing purchasing power, consumption linked to market driven consumerism is stressing the resource base of developing countries further. Moreover, subsidies often lead to wasteful and unsustainable consumption by distorting the value of a resource. In this regard, to ensure greater efficiency, cost effectiveness and better delivery for commodities like kerosene and fertilizers, the Government of India is examining a shift to direct transfer of cash subsidy to people living below poverty line. India has also introduced mechanisms, including eco-labeling, which needs to be encouraged along with other appropriate mechanisms, including education, incentives and legislation. On the production front, whereas domestic measures like Perform Achieve and Trade (PAT) will target energy efficiency, for cleaner production, technology transfer and financing will be required.

Health challenges

Though the government spending on health has increased over the last years and has been an important element in reducing poverty, much more attention is required for the poverty-health linkage. Child malnutrition and under-nutrition, in particular, remains high, and improvements have been much lower than what would be expected



Access to improved health care in India will be critical

Source <http://nirtar.nic.in/image/hospital-femaleward.jpg>

given India's pace of GDP growth. Besides inadequate access to public sector health facilities, there are also concerns with the quality of the services provided. This has resulted in an increase in the demand for private health care services, which create their own concerns given the wide differences in quality of private health care, high prices, which makes it unaffordable for many and high medical costs, which push many people into poverty. What is needed to meet this challenge is the complementarity between the high government spending in the health sector and reforms to improve accountability in service delivery, both by the private and public sector. Better regulation and oversight of private providers will play an important role. The design of the health insurance scheme, which the government is planning to roll out in the near future to improve access to health care will be very critical to improved outcomes.

Regional disparities

Low-income states of Bihar, Odisha, and Madhya Pradesh are behind other states on most social indicators. The Multidimensional Poverty Index (MPI) study report indicates that eight Indian states, namely Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Uttar Pradesh, Rajasthan, Odisha, and West Bengal are home to 421 million multidimensional poor persons (OPHI, 2010). Similarly, disparities are evident in India at the inter-state and rural-urban level in the provision of basic services, which include water supply, sanitation and clean energy. Table 2.7 shows selected indicators pertaining to urban-rural disparities in India for various years.



Table 2.7 Rural–urban disparities in India: some indicators	
Indicators (units)	Performance in percentage (year)
<i>Population below national poverty line</i>	
Urban (percentage)	26 (2009)
Rural (percentage)	28 (2009)
<i>Proportion of population using an improved drinking water source</i>	
Urban (percentage)	96 (2008)
Rural (percentage)	84 (2008)
<i>Proportion of population using an improved sanitation facility</i>	
Urban (percentage)	54 (2008)
Rural (percentage)	21 (2008)
<i>Infant Mortality Rates</i>	
Urban (per 1000 live births)	38 (2003)
Rural (per 1000 live births)	66 (2003)
<i>Literacy</i>	
Urban (percentage)	80.06 (2001)
Rural (percentage)	59.21 (2001)

Sources World Development Indicators, available from <http://data.worldbank.org/>; <http://un.data.org>; Dummer, T. and I. Cook (2008). "Health in China and India: a cross-country comparison in a context of rapid globalisation." *Social Science and Medicine* 67(4): 590-605 and detailed India report; World Health Organization (WHO) from http://www.whoindia.org/LinkFiles/MDG_Chapter-03.pdf; Census (2001)

Sanitation and drinking water-related challenges

India still faces challenges especially in rural areas in terms of sanitation, access to drinking water. Rural sanitation is a state subject and the Central government provides technical and financial assistance to supplement the efforts of the states. Initiatives like the Total Sanitation Campaign (TSC) have been made under the Central Rural Sanitation Programme (CRSP) that envisages greater involvement of implementing agencies like Panchayati Raj Institutions and NGOs (MoRD, 2011). In the case of rural drinking water, plan allocations relating to the rural water supply sector was INR 85.64 billion in the Eighth Plan, INR 165.24 billion in the Tenth Plan

and INR 394.90 billion in the Eleventh Plan. However, the challenge of availability as well as quality in the distribution of drinking water still persists across various areas in the country.

Education access and quality

There has been a significant increase in absolute public and private spending, which has resulted in a marked expansion in the number of teachers and educational infrastructure. There has been considerable progress in increasing enrolment rates and reducing gender disparities, especially at the primary level. However, the problem of high drop-out rates and low student attendance continues. Enrolment rates at secondary and tertiary levels compare poorly with international levels and are particularly lower for females than males.

Learning outcomes among Indian school children are very low, relative to their curriculum, and inequality in learning levels is high. One of the reasons for this is the low teacher effectiveness particularly in public schools, which needs to be enhanced through strengthening of incentives and accountability. Teacher absenteeism has been a persistent problem despite recent revisions in remuneration. This calls for a need to reform the terms of employment for teachers. Another issue of concern is the high student-teacher ratio, which reduces the teaching time available to each student.

While the country clearly has the opportunity to avail dividends from the changing demographic structure, benefits from this can be reaped only when the skill levels of the population is significantly improved and they are employable. This will require large outlays in vocational education and skill development by both the public and private sector.

Making growth inclusive

A major concern of policy-makers is that despite the significant acceleration in growth in the period since the Earth Summit, the benefits of economic growth have eluded large disadvantaged sections of the population. Much of the growth has occurred in the industrial and service sector, with the agricultural sector being stagnant. Some of the poorer states, with large sections of their population in the agricultural sector have shown low growth rates resulting in increasing regional disparities.

The states with developed markets and good physical and social infrastructure have grown at a much faster rate than the others⁹. As India's government prepares to submit its approach paper for its Twelfth Five-Year Plan (2012–2017), the Planning Commission's focus on instilling 'inclusive growth' is assuming importance. The Plan is expected to be one that encourages the development of India's agriculture, education, health and social welfare through government spending.

Infrastructure shortages

India has infrastructure shortages, a consequence of its economic growth outstripping infrastructure availability. This has impeded investment flow and constrained economic growth in the country. For ensuring sustainability of the growth process, it is imperative that infrastructure constraints are removed particularly in energy, roads, ports, airports and urban and rural infrastructure. While in some areas, such as roads and airports, it has been possible to have the private sector participate in infrastructure investment, in many other areas the progress has been slow. Many new projects, including the \$50 billion Delhi-Mumbai industrial corridor, high-speed rail links between main cities, and improved cargo handling at ports have been initiated, but there continues to be a massive gap (IBEF, 2007).

Public private partnerships (PPP) to execute infrastructure projects will be essential in the years to come. Projected investment required for infrastructure development during the Twelfth Plan period (2012–2017) is INR 40.99 trillion; half of this is expected to come from the private sector.

Environmental quality concerns

The key environmental concerns in India relate to air, water, land and soil, energy, biodiversity and ecosystem services. There are issues not only with availability of these resources, but also their quality.

Urban air quality

Increased vehicular fleet, industrial expansion, persistence of older vehicles and technology, and lack of effective regulatory enforcement have contributed

towards rising pollution levels in almost all Indian cities. This has severe health implications. Figure 2.3 shows the trends in air quality for SO_x, NO_x, SPM, and RSPM.

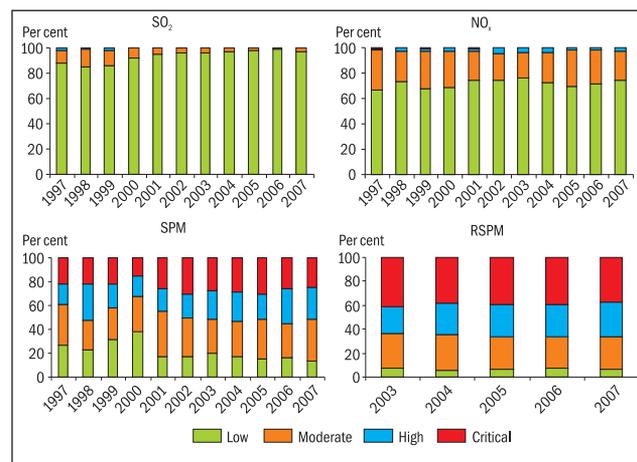


Figure 2.3 Indicators of air quality in India (1997–2007)
Source Compiled from cpcb.nic.in

In India, National Ambient Air Quality Standards (NAAQS) were notified in the year 1982, duly revised in 1994 based on health criteria and land-use. These were revisited and revised in November 2009 for 12 pollutants, which include SO₂, NO₂, PM₁₀, PM_{2.5}, Ozone, Lead, CO, NH₃, Benzene, arsenic, benzopyrene, and nickel.

Water quality

Urbanization and development activities, land degradation, and inadequate infrastructure for wastewater disposal are major reasons that lead to rapid deterioration in water quality in the majority of rivers, streams, and lakes in India. According to CPCB during 2005–06, of 115 sewage treatment plants in major Indian States 35% continued to discharge polluted water beyond the stipulated norms. Inter-sectoral impacts may also arise when industrial effluents flow directly to agricultural land, affecting soil and groundwater while possibly contaminating drinking water wells.

Apart from the above, seawater intrusion into freshwater aquifers in coastal regions impact freshwater availability and usage. Surface water sources like rivers and lakes face a greater danger of biological contamination due to high pollution loads.

⁹ In 2004–2005, 28 percent of people in rural areas and 26 percent of people in urban areas lived below the poverty line (NSS 61st Round)



Increase in solid waste and e-waste

One key challenge is the rapidly increasing amount of municipal solid waste (MSW) in Indian cities. The annual estimates from various studies suggest that MSW generation in India ranges between 40 MT and 55 MT (TERI, 2009). Along with the increase in waste generation there is also change in the composition of waste generation (CPCB, 2005). Plastic waste is a growing environmental concern. The plastic consumption in India, as per estimate in 2008 by CPCB was 8 MT/annum, out of which about 5.7 MT of plastics are converted into waste annually i.e. 15,722 tonnes of plastic waste is generated per day with a per capita generation of 5.7 Kg/annum (MoEF, 2010a).

According to recent estimates (CPCB, 2009), 6.23 MT of hazardous waste are being generated by 36,135 units in the country, as compared to 4.4 MT reported for 26,566 waste generating units in 2006. Additionally, changing lifestyles, increase in economic status and activities, has resulted in increased generation of e-waste,¹⁰ which is negatively affecting India's ecological system and posing a significant challenge to sustainable development. One related issue in this regard is the transboundary movement of e-waste. These wastes contain lead, cadmium and mercury, which end up in landfill and water resources contaminating soil, air and groundwater, and if not properly recycled pose adverse impact to human health. The current practices of e-waste management in India face a new set of challenges that need serious attention.

Resource security

Water, land and food security

Demand for water for multiple uses has been increasing. This is especially so in agriculture for irrigation, industry and for domestic consumption. India is witnessing a decline in per capita availability of water over the past few decades. Population increase, rising incomes and industrial growth has also resulted in decrease of water availability per capita. Water availability on a per capita



Access to clean drinking water is essential for human development

Source <http://mpphed.gov.in/images/phe6.jpg>

cubic metre basis is estimated to decline from 1730 to 1240 in case of India¹¹.

The decline in water availability, combined with reducing quality and productivity of land (and its ability to perform various functions), poses a challenge to the availability of food and biomass in the country.

Schemes of the government that have been introduced to tackle the issue of food security in recent years include National Food Security Mission (NFSM), Rashtriya Krishi Vikas Yojna, National Horticultural Mission, Pulses and Oilseeds Villages, Eastern India Initiative and Extension Reforms.

In early 2010, the India also became the first country in the world to propose a National Food Security Bill under its agenda of the Right to Food, which envisages, among other things, that every below poverty line (BPL) family in the country shall be entitled to 25 kg of wheat or rice per month @ INR 3/- per kg. The law is also proposed to be used to bring about systemic reforms in the public distribution system (PDS). Discussions and debates are on regarding the Bill and it is scheduled to be tabled in the upcoming winter session of the Indian Parliament.

¹⁰ E-waste is a collective terminology for the entire stream of electronic equipment, such as TVs, refrigerators, telephones, air conditioners, computers and mobile phones that has reached its end of life (EOL) for its current user. Such devices are generally considered toxic when disassembled or incinerated and are typically targeted for hazardous disposal or are slated for recovery and reuse. As a result, the e-waste industry is emerging with markets that need to be assessed for growth potential.

¹¹ <http://www.rsis.edu.sg/nts/resources/db/uploadedfiles/Himalayan%20Challenge%20ES.pdf>, last accessed on 12/08/2011

Energy security

In addition to the above mentioned resource and environmental concerns, high energy needs pose serious challenges. In order to attain its developmental goals, India needs to grow at a fast pace for which energy remains an integral input. Rapid urbanization, industrialization, rising incomes and the growing use of energy intensive products are driving India's demand for energy. Lack of access to modern energy services and its implications for human well-being mean that energy supplies need to grow to reach the unserved population. In India, 35.5% of the population still live without access to electricity (International Energy Agency database). Addressing growth and energy poverty could have significant implications for energy supplies.

Though there are significant coal reserves they are mostly located in environmentally sensitive areas and are inferior in quality. India's reliance on coal for more than half of its power needs is an issue of great concern for energy security. The country is relatively poor in oil and gas reserves and due to stagnating domestic crude production, India imports approximately 70 percent of its oil. India's dependence on oil imports is expected to grow to approximately 90 percent by the year 2030 (WEO, 2009¹²). Keeping this in view, India is seeking to increase the use of renewable energy sources to meet the projected economic growth rate since these would be non-exhaustible. Initiatives are also directed towards energy efficiency and demand side management, with a view to control the growth in energy demand. Some of these will be discussed in Part 4 of this document.

Climate change, natural disasters and hazards risks

Climate change and natural disasters pose a key challenge to sustainable development. Different ecological and climatic zones in India have made it differentially vulnerable to the impacts of climate change. These impacts range from changes in temperature, precipitation and humidity to increase in the frequency and intensity of extreme events like floods, droughts and cyclones. Changes in climatic conditions can have serious

implications on agricultural production, agriculture-dependent livelihoods and food. Freshwater availability is also at risk due to potential glacial melt and changes in river flows along the Himalayan range.

Vulnerability to climate change and natural disasters also has a strong linkage with poverty and has the potential to create multiple stresses over the stresses that already exist. It is, therefore, imperative that the country adopts measures aimed at building resilience to such risks. The most important measure of adaptation is development itself and acceleration of inclusive growth is the key to combat expected adversities.



Preparedness for disaster risk reduction and recovery is essential for developing countries

Source <http://indiannavy.nic.in/Photos26Aug10/disaster300a.jpg>

Biodiversity related challenges

India is a mega diverse country, with about eight percent of the world's biodiversity, high percentage of endemic floral and faunal species, and four biodiversity hotspots. This biodiversity is under severe threat both within and outside the protected area (PA) network, due to the loss and/or fragmentation of its habitat to competing uses. The global struggle against poverty and hunger cannot be won without enhanced conservation, and sustainable natural resource management. The Biodiversity Act of 2002 provides for access and benefit sharing related to traditional knowledge and biodiversity.

India has taken a number of proactive measures related to biodiversity conservation. Since 1991, the

¹² <http://www.iea.org/W/bookshop/add.aspx?id=388>, last accessed on 16/08/2011



Biodiversity hotspots have been under pressure due to development activities

government has committed funds, particularly in the field of PA management, for eco-development (integrated conservation and development), along with site specific package comprising measures for conserving biodiversity

through local community development. There have been some successful examples of the eco-development programme like the Periyar Tiger Reserve.

In recognition of the need to protect the Western Ghats, a biodiversity hotspot, the MoEF set up a Panel in 2010 to study its ecological status and recommend improvements. The Panel has recently submitted its report.

Conclusion

Though India has made significant progress in terms of its achievements across the pillars of sustainable development, many problems continue to persist. New threats are also posing new challenges to the country. Though there has been reduction in poverty levels in the country, there is a need to step up efforts for further poverty eradication and inclusive development. The depletion of natural resources and deterioration in environmental quality needs to be addressed on an urgent basis.



PART 3

International agreements and India



PART 3

INTERNATIONAL AGREEMENTS AND INDIA

Since the United Nations Stockholm Conference on the Human Environment in 1972, the international environmental legal regime has experienced manifold progress. At a broader level, the agreements regime has expanded in scope since environmental issues are no longer considered in isolation to social and economic concerns. With economic growth and development, issues related to ecological sustainability and social equity have also been receiving growing importance.

India has remained at the forefront of global sustainable development policy formulation and has supported the development of global agreements and policies that are fair and equitable. In this chapter, some of the major international agreements that India has been a signatory to and their relevance to the context of sustainable development are discussed.

KEY AGREEMENTS

Economic

Global trade agreements

India was one of the initial signatories to the General Agreements in Tariffs and Trade (GATT) that came into existence in 1947, post the Second World War. GATT was later replaced by the World Trade Organization (WTO), which was established in 1995. Subsequent to India's WTO membership, the country took significant steps towards strengthening its economic growth and development.

India is also a member of the World Intellectual Property Organization (WIPO), based in Geneva, which

administers treaties in the field of intellectual property. Department of Industrial Policy and Promotion is the nodal Department in the Government of India for all matters concerning WIPO. India is also a member of two major treaties, namely, Paris Convention for the Protection of Industrial Property (relating to patents, trademarks and designs) of 1883 and the Berne Convention for the Protection of Literary and Artistic Works (relating to copyright) of 1886. Apart from these, India is also a member of the Patent Cooperation Treaty (PCT), which facilitates obtaining of patents in several countries by filing a single application¹.

The Doha round of negotiations is the current trade-negotiation round of the WTO, which commenced in November 2001. The overarching objective of these negotiations is to achieve major reforms of the international trading system through the introduction of lower trade barriers and other trade measures. Key areas of negotiations include agriculture, non-agricultural market access (NAMA), services, intellectual property, trade and development, trade and environment, trade facilitation, WTO rules and dispute settlement, essential for achieving larger goals of sustainable development.

Although the Doha Development Agenda includes several issues aimed at promoting development in LDCs and developing countries, the discussions so far at the WTO have, concentrated mainly on agriculture, NAMA and sometimes services. More recently, WTO rules have also received some attention. Unfortunately, except

¹ Also see <http://dipp.nic.in/ipr.htm>, last accessed on 12/08/2011

for public health related challenges, which were sorted through the TRIPS Agreement, other key developmental issues, introduced in the 2003 round of negotiations, such as debt and finance, technical assistance and capacity-building, and technology transfer have not been attended to in these discussions. Henceforth, there have been no proposals on such developmental issues. Even on agriculture and NAMA, there has been a lack of progress in terms of developing a consensus. Such poor progress in the negotiations tend to create a breakdown of trust between developed and developing countries. Although India has always supported a multilateral trading system, the slow pace of negotiations and fulfilment of developmental needs of the economy, has forced India into a number of regional trade agreements.

Regional trade agreements

Apart from South Asia, India has expanded its relations in trade related aspects with the economies of East and Southeast Asia. India signed a RTA with Association of South East Asian Nations in the year 2009. It has also several bilateral agreements with East Asian countries, including Comprehensive Economic Cooperation Agreement (CECA) with Singapore in 2005 and a FTA with Thailand in 2003. Recent initiatives include the economic partnership agreement with South Korea in 2009, along with Japan and Malaysia in 2011. Such agreements are expected to give a major boost to India's trade and exports. India has also signed a Preferential Trade Agreements (PTA) with Mercado Común del Sur (MERCOSUR) or Common Market of the South that is aimed at increasing trade, including the mutual granting of tariff preferences. Apart from MERCOSUR, it has also signed a PTA with Chile in 2006. India is a party to the Global System of Trade Preferences (GSTP) among developing countries that came into existence in 1988; GSTP lays down rules, principles and procedures for conduct of negotiations and for implementation of the results of the negotiations. The coverage of the GSTP extends to arrangements in the area of tariffs, para-tariff, non-tariff measures, direct trade measures,



India has signed a number of Free Trade Agreements

Source http://commerce.nic.in/publications/image_Annualreport_2010/ch8-6.GIF

including medium and long-term contracts and sectoral agreements.

Bilateral investment treaties

With liberalization of India's foreign investment policy, India has entered into Bilateral Investment Promotion and Protection Agreements (BIPAs) with many countries. BIPA is defined as an agreement between two countries for the reciprocal encouragement, promotion and protection of investments in each other's territories by the companies based in either country (or State)². The investment treaties have been signed with an expectation to provide a favourable investment climate to foreign investments in India, while simultaneously protecting Indian investments abroad. Till 2007, India had signed BIPAs with 68 countries, with 53 BIPAs already being enforced and rest in the process of being implemented³.

Multilateral investment treaty

The Multilateral Investment Guarantee Agency (MIGA), a member of the World Bank Group, promotes foreign direct investment (FDI) in emerging economies to support economic growth, reduce poverty and improve people's lives. India is also a member of the MIGA, that encourages developmentally beneficial investment by providing political risk insurance (PRI) against the risks of currency inconvertibility and transfer restrictions;

² http://business.gov.in/doing_business/bipa.php, last accessed on 12/08/2011

³ *ibid*



expropriation; war, terrorism, and civil disturbance; breach of contract; and non-honouring of sovereign financial obligations. Since its inception, MIGA has provided more than \$22 billion in guarantees (PRI) for more than 600 projects in over 100 developing countries. MIGA currently has an outstanding guarantees portfolio of \$8.4 billion⁴ and provides for new green-field investments. New investment contributions are associated with the expansion, modernization, or financial restructuring of existing projects, acquisitions involving privatization of state enterprises, and existing investments with high development impact when the investor demonstrates a long-term commitment to the project⁵.

Social

India is a charter member of the United Nations and participates in all of its specialized agencies. India's representation has provided an opportunity for leadership in world affairs. India was at the forefront of the UN's struggle against colonialism and apartheid, its effort towards global disarmament, and towards the creation of a more equitable international order⁶.

India was at the forefront of the UN's struggle against colonialism and apartheid, its struggle towards global disarmament and towards the creation of a more equitable international order.

Over the years, India has contributed significantly to the core resources of UNDP, UNFPA and UNICEF and the World Food Programme. India has also contributed to the UNCTAD Trust Fund for least developed countries, as well as to the ITC Global Trust Fund since its inception in 1996. It also makes substantial voluntary contributions

to multilateral programmes, including UNEP, UN-HABITAT, UN Drug Control Programme, UNRWA, UNIFEM and UN Volunteers. India has been a major contributor to the UN peacekeeping efforts globally and has continuously responded to calls for peacekeeping operations. As a member of the UN, India is committed to the realization of the International Conference on Population and Development (ICPD) Programme of Action as well as the MDGs. The ICPD draft Programme of Action builds on UNCED's outcomes, Agenda 21 and the Rio Declaration, as well as on the agreement reached at the 1990 World Summit for Children and the 1993 World Conference on Human Rights⁷.

International Labour Organization (ILO) conventions

India is one of the founder members of the International Labour Organization (ILO). The influence of ILO Conventions as a standard of reference for labour legislation and practices in India has been significant. There are in all eight core conventions of ILO, which are presented in Table 3.1. The first four core conventions have been ratified by India, while the latter four are yet to be ratified. India has always ensured that domestic laws and practices are in conformity with the relevant ILO conventions that it has ratified. Although ILO has a group of eight core conventions, India has in total signed 43 conventions belonging to four of these core group conventions.

Under the Child Labour (Prohibition and Regulations) Act, 1986 and through the National Policy on Child Labour, ILO has financially supported preparation of certain industry specific projects in India. The implementation of the International Programme on Elimination of Child Labour (IPEC) in India has created a positive impact towards understanding the problem of child labour and highlighting the need for elimination of child labour. A major contribution of the IPEC programme in India has been the generation of critical

⁴ <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,contentMDK:20040648~menuPK:34480~pagePK:34370~theSitePK:4607,00.html>, last accessed on 08/09/2011

⁵ Also see <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20040648~menuPK:34480~pagePK:34370~theSitePK:4607,00.html>, last accessed on 12/08/2011

⁶ http://www.un.int/india/india_un.html, last accessed on 11/08/2011

⁷ <http://www.un.org/ecosocdev/geninfo/populatin/icpd.htm>, last accessed on 11/08/2011

**Table 3.1 List of core conventions of International Labour Organization**

No.	Core conventions	Ratified/ Non-ratified
1	Forced Labour Convention (No. 29)	Ratified by India
2	Abolition of Forced Labour Convention (No. 105)	
3	Equal Remuneration Convention (No.100)	
4	Discrimination (Employment Occupation) Convention (No.111)	
5	Freedom of Association and Protection of Right to Organize Convention (No. 87)	Not ratified by India
6	Right to Organize and Collective Bargaining Convention (No. 98)	
7	Minimum Age Convention (No.138)	
8	Worst forms of Child Labour Convention (No.182)	

Source Compiled from www.ilo.org

consciousness for taking necessary measures to eliminate child labour in the country.

Human rights conventions

India is also party to a number of major international treaties on human rights. These include International Convention on the Elimination of All Forms of Racial Discrimination (1968), International Covenant on Civil and Political Rights (1979), Convention on the Elimination of All Forms of Discrimination against Women (1993) and Convention on the Rights of the Child (1992). With regard to international criminal law, India is party to Slavery Convention of 1926, Genocide Convention of 1948 and the Convention on the Non-Applicability of Statutory Limitations to War Crimes and Crimes Against Humanity of 1968.

Environment

India has been very active in all the international forums relating to environmental protection and has signed all

the multilateral agreements relating to the environment with a few exceptions. In 2002, India reaffirmed its commitment to sustainable development in the World Summit on Sustainable Development at Johannesburg India is a part of 94 major multilateral environmental agreements (MEAs) as listed in Environment Treaties and Resource Indicators⁸. Twenty major MEAs, in which India plays an active role are listed in Table 3.2.

Table 3.2 Major international environmental conventions and India

No.	MEA
Nature conservation	
1	Ramsar Convention on Wetlands
2	Convention on International Trade in Endangered Species of Fauna and Flora (CITES)
3	The Wildlife Trade Monitoring Network (TRAFFIC)
4	Convention on the Conservation of Migratory Species (CMS)
5	Coalition Against Wildlife Trafficking (CAWT)
6	Convention on Biological Diversity (CBD)
7	International Tropical Timber Organization (ITTC)
8	United Nations Forum on Forests (UNFF)
9	International Union for Conservation of Nature and Natural Resources (IUCN)
10	Global Tiger Forum (GTF)
Hazardous material	
11	Cartagena Protocol on Biosafety
12	Strategic Approach to International Chemicals Management (SAICM)
13	Stockholm Convention on persistent organic pollutants (POPs)
14	Basel Convention on the Control of Trans-boundary Movement of Hazardous Waste and their Disposal
15	Rotterdam Convention on Prior Informed Consent (PIC) for certain Hazardous Chemicals and Pesticides in International Trade

Contd...

⁸ <http://sedac.ciesin.columbia.edu/entri/countryProfile.jsp?ISO=IND>, last accessed on 07/09/2011



Table 3.2 <i>Contd...</i>	
No.	MEA
Atmosphere	
16	United Nations Framework Convention on Climate Change (UNFCCC)
17	Kyoto Protocol
18	Montreal Protocol (on Ozone Depleting Substances)
Land	
19	United Nations Convention to Combat Desertification (UNCCD)
Marine environment	
20	International Whaling Commission (IWC)

Source MoEF (2008)⁹

United Nations Framework Convention on Climate Change (UNFCCC)

India signed the UNFCCC on 10 June 1992 and ratified it on 1 November 1993. It acceded to the Kyoto Protocol in August 2002. Under the UNFCCC, developing countries, such as India do not have binding Green House Gas (GHG) mitigation commitments through application of the Principle of Common, but Differentiated Responsibility and Respective Capability (CBDR). As agreed in Copenhagen, India communicated to the UNFCCC Secretariat, its voluntary mitigation actions to reduce the emissions intensity of GDP by 20–25 percent by 2020 in comparison to the 2005 level,¹⁰ excluding the agriculture sector. The Government’s stand on climate change is in accordance with the principles of equity, and common, but differentiated responsibilities and respective capabilities as enshrined in the UNFCCC. The National Action Plan on Climate Change (NAPCC), released on 30 June 2008, outlines India’s strategy to meet the challenge of climate change. The National Action Plan provides for eight missions that will enable the country to adapt to climate change and enhance the ecological sustainability of India’s development path.

United Nations Convention to Combat Desertification (UNCCD)

The Convention came into effect in 1997 and all member countries affected by the problem of desertification have an obligation to prepare an action plan to address all issues concerning desertification and drought. Eradication of poverty is a key concern in dry lands, hence, it is important to protect the land from deforestation, fragmentation, degradation and drought that could exacerbate the vulnerabilities of the population in these areas.

India has been designated as the host country by the UNCCD for the Asian Regional Action Programme on Agroforestry and Soil Conservation, under the Thematic Network Programme (TPN). This network facilitates cooperation between countries with respect to combating desertification and associated efforts towards joint forestry management, including forestry in the arid and semi-arid regions. Two national level institutes, namely Arid Forest Research Institute (AFRI) and Central Arid Zone Research Institute (CAZRI), located in Jodhpur, are globally renowned institutions engaged in development and dissemination of appropriate technologies for the arid and semi-arid areas of the country.

The Convention on Biological Diversity (CBD)

India became a signatory to the Convention on Biological Diversity (CBD) in December 1993 and ratified the convention in February 1994. CBD addresses biodiversity conservation, habitat preservation, intellectual property rights, bio-safety, and indigenous peoples’ rights. Since India signed the agreement, it has been submitting regularly its reports to the CBD Secretariat on the progress of implementation of the decisions taken by successive Conference of Parties (COP) meetings.

In the recent meetings held in Nagoya in 2010, the Parties (including India) successfully concluded the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits (ABS). Under the

⁹ MoEF (2008). “India and Multilateral Environmental Agreements (MEAs): A Summary.” Ministry of Environment and Forests (MoEF), Government of India. Accessed from moef.nic.in/downloads/public-information/2010-08-28-Note%20on%20India%20and%20MEAs.pdf, last accessed on 20/07/2011

¹⁰ moef.nic.in/downloads/public.../UNFCCC%20Submission_press_note.pdf, last accessed 08/09/2011



Protocol, Parties will be legally obliged to follow rules designed to prevent bio-piracy and provide benefits, including financial benefits, to other Parties when their genetic resources are accessed. In addition to the Protocol, COP10 agreed on other biodiversity-related issues, including a strategic plan to reduce biodiversity loss by 2020, measures to fight invasive alien species, especially those introduced as pets, aquarium and terrarium species, as live bait and live food, besides prevention of deforestation. The decade from 2011–2020 was also declared as the UN Decade of Biodiversity.



India is one of the mega biodiversity rich countries
 Source http://envfor.nic.in/report/9899/ar_fig41.jpg

India is one of world's 17 mega biodiversity rich countries and accounts for 7–8 percent of the recorded species of the world (MoEF, 2010b). One of the key initiatives in this regard has been the development of the Biological Diversity Act, 2002. The act was developed to realize the objectives under the UN CBD of 1992, which recognizes the sovereign rights of states to use their own Biological Resources. The biological diversity Act, 2002 and the rules framed under it seeks to give effect to the two key principles of the Convention on Biological Diversity: the sovereign right of countries of origin over their genetic and biological resources and the need to share benefits flowing from commercial utilization of biological resources with holders of indigenous knowledge.

Ramsar Convention

India became a contracting party to the Ramsar Convention in 1981 and has been implementing

conservation programmes for wetlands, mangroves and coral reefs. Until 2007, 25 wetland sites in India were designated as Ramsar Sites of International Importance. There is close coordination between implementing units of Ramsar with that of CBD at the national level. India took a lead role in the formulation of Ramsar guidelines on integration of wetlands into river basin management. As a follow up to this, CBD-Ramsar River Basin Initiative was undertaken and a joint programme was developed for integrated management of wetlands, biological diversity, and river basins.

Several wide-ranging policies, strategies, and action plans have been formulated nationally for promoting wetland conservation. The National Conservation Strategy and Policy Statements on Environment and Development (1992) and National Water Policy (2002) highlight conservation and sustainable development of wetlands. There are effective linkages across various ministries and government agencies, including Ministry of Environment and Forests, Planning Commission, Ministry of Agriculture, Indian Board for Wildlife, Forest Research Institute, Institute of Wetland Management and Ecological Design among others.

Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)

India became a party to the CITES Convention in 1976. It hosted the 3rd Conference of Parties at New Delhi in 1981. Trade in wild flora and fauna, including the species listed in CITES are regulated in India through the Wildlife (Protection) Act, 1971, the Import and Export Policy and the Customs Act (1962). The Wildlife (Protection) Act was designed with the objective of effective control of poaching and illegal trade in wildlife and its products. The Act has been amended in 1982, 1986, 1991, 2002 and in 2006 to make the provisions more stringent. Hunting of all species was banned in 1991. Hunting of wild animals is prohibited except in exceptional circumstances, such as when rogue animals kill humans and destroy homes. India has signed a Protocol with Republic of China for taking up joint measures to crack down on poaching of tigers, smuggling and selling of tiger body parts and their derivatives. A Memorandum of Understanding has been signed with Nepal to establish



a Joint Task Force to check Trafficking across borders as well.

Vienna Convention

India became a Party to the Vienna Convention for the Protection of Ozone Layer on 19 June 1991 and the Montreal Protocol on substances that deplete the ozone layer on 17 September 1992. Consequently, it ratified the Copenhagen, Montreal and Beijing Amendments in 2003. A detailed Country Programme for phasing out ozone depleting substances (ODSs) was prepared in 1993, supported by regulatory and fiscal measures as specified in the Montreal Protocol with financial and technical support received from the Multilateral Fund (MLF).

The Ministry of Environment and Forests established an Ozone Cell and a steering committee on the Montreal Protocol to facilitate implementation of the India Country Programme for phasing out ODS (ozone depleting substances) production by 2010. The steering committee is supported by various standing committees like the (i) Technology and Finance Standing Committee (ii) Standing Committee for Small Scale, Tiny and Unorganized Industries (iii) Standing Committee on Implementation of ODS phase out projects and (iv) Monitoring and Evaluation Committee. In order to meet the objectives of the Protocol, the Indian government has granted full exemption from payment of Customs and Central Excise Duties on import of goods designed exclusively for non-ODS technology. India has also been facilitating implementation of the Montreal Protocol in South and South East Asia and the Pacific regions.

Rotterdam Convention

One of the key conventions developed to protect countries from use of hazardous materials is the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. This convention was signed in 1998 and became effective from 2004. It is a multilateral treaty

to promote shared responsibilities in relation to import of hazardous chemicals. The Convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labeling, include directions on safe handling, and inform purchasers of any known restrictions or bans. India ratified the Convention on Prior Informed Consent Procedure for certain Hazardous Chemicals and Pesticides in International Trade in 2006¹¹.

Basel Convention

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal is the most comprehensive global environmental agreement on hazardous and other wastes. The Convention has 175 Parties and aims to protect human health and the environment against adverse effects resulting from the generation, management, trans-boundary movements and disposal of hazardous and other wastes. The Basel Convention came into force in 1992. India ratified the Basel Convention in 1992, shortly after it came into force. The Indian Hazardous Wastes Management Rules (2009) encompasses some of the Basel provisions related to the notification of import and export of hazardous waste, illegal trafficking and liability¹².

Stockholm Convention

The Stockholm Convention on Persistent Organic Pollutants (POPs), was adopted in 2001 with the objective of protecting human health and the environment from POPs, and came into force in 2004. Under the Convention, the Parties are required to develop national implementation plans (NIPs) to demonstrate how their obligations to the Convention will be implemented. The NIPs need to be submitted to the Conference of the Parties (COP) within two years of the date on which the Convention enters into force for the Party. India signed the Convention in 2002 and ratified it in 2006¹³. Global Environment Facility (GEF) sanctioned \$ 3,074,700 for India's NIP in 2008.

¹¹ <http://www.pic.int/TheConvention/Overview/TextoftheConvention/tabid/1048/language/en-US/Default.aspx>, last accessed on 11/08/2011

¹² <http://www.basel.int/> last accessed on 11/08/2011

¹³ <http://www.unido.org/index.php?id=6277>, last accessed on 11/08/2011



Conclusion

As the global economy has grown and developed, issues related to sustainable development are receiving increased importance at the international level. One of the ways in which India has shown its increased commitment towards sustainable development is through its growing participation in various international agreements. India was one of the initial signatories to the GATT that was created with the key objective of promoting global free trade. With liberalization of India's foreign investment policy, India has entered into several bilateral investment

promotion and protection agreements (BIPAs). India has also strengthened its global position towards social development and is a charter member of the United Nations and participates in all its specialized agencies. Further, India has been active in all international forums relating to environmental protection and has acceded to almost all major multilateral environmental agreements and has established domestic policies and legislations complimenting these international obligations and pledges.



PART 4

Innovative approaches for sustainable development



PART 4

INNOVATIVE APPROACHES FOR SUSTAINABLE DEVELOPMENT

Poverty eradication, entrepreneurship development, empowerment of women, managing water resources and forest management are challenges that require interventions at many levels. Complexities of these challenges require multidimensional and multi-sectoral responses that are adaptive and require sustained social mobilization. The emergence of an empowered civil society is reflective of the vibrant democratic set-up in India. This Part is structured around two chapters: recent economic instruments used and the engagement of major groups. The chapter on economic instruments discusses some market-based initiatives in India in response to issues, such as climate change, clean energy and deforestation. The chapter discusses the incentive structure and policy framework in India that has enabled these instruments to function. The chapter on major groups illustrates the various ways in which the state and non-state actors have collaborated in responding to sustainability issues.

4A. POLICY INSTRUMENTS

Policy instruments, such as economic and informational policy instruments have played a key role in incentivizing consumers and producers to move towards the path of sustainable development.

The Rio conference emphasized the key role of economic instruments in the context of sustainable development. Principle 16 of the Rio Declaration, which is about internalization of environmental costs, states that *'National authorities should endeavour to promote the internalization of environmental costs and the use of*

economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment'.

The National Environmental Policy of 2006 notes that economic instruments work by aligning the interest of economic actors with environmental compliance, primarily through the application of the 'polluter pays' principle.

Informational policy instruments can play an important role towards realizing Agenda 21 and abiding by the Rio Principles, particularly Principle 8 that focuses on reducing and eliminating unsustainable patterns of production and consumption.

Economic instruments

Over the last decade, many economic instruments have been used to put sustainability into practice. This chapter primarily discusses the use of these 'economic instruments' and their contribution to sustainable development. Economic instruments can help to achieve sustainable development by creating the financial incentives to influence behaviour in favour of more sustainable consumption and production patterns. Agenda 21 has also recognized the potential role of economic instruments in financing and promoting sustainable



development and called for their wider use. In taking stock of trends in sustainable development financing since Rio, it is appropriate to ask what progress has been made towards wider application of economic instruments. The National Environmental Policy (NEP) of 2006 notes that Economic Instruments (EIs) work by aligning the interest of economic actors with environmental compliance, primarily through application of the 'polluter pays' principle and recommends an action plan for preparation and implementation of the use of EIs for environmental regulation in specified contexts.

Water cess was levied under the Water (Prevention and Control of Pollution) Cess Act of 1974; modified in 1991 and also in 2003. Under this Act, a cess is collected on water consumed by 16 specified categories of industries and also by local bodies, mainly with a view to augment resources of the Central Pollution Control Board (CPCB) and the State Pollution Control Boards (SPCBs).

The Expert Committee on Auto Fuel Policy, 2002, has laid down a road map regarding vehicle and fuel norms. The aim is to encourage fuel economy and this is being done through levy of differential tax on two wheelers and passenger cars/jeeps.

There has been growing recognition of the fiscal and environmental implications of subsidy policies in the energy, water and agriculture sectors. In the energy sector, the government has taken steps towards removing price controls on oil and coal and lowering subsidies on energy. Coal prices were decontrolled in the year 2000; however, due to subsidies on rail transportation, delivered coal prices do not reflect the true cost of the resource. With the dismantling of the administered pricing mechanism (APM) in April 2002, subsidies on all oil products were removed barring liquid petroleum gas and kerosene, which are mainly used by households as cooking fuel and substitute for fuelwood, whose large-scale use promotes forest degradation.

Levy of user charges for various urban services provided by local municipalities like solid waste management, and drinking water is being encouraged across the cities in the country. Some cities like Shimla and Varanasi already levy municipal charges for solid waste management.

Some municipalities (Mahabaleshwar in the state of Maharashtra being the first one) have introduced a

pollution tax to successfully create funds for tackling civic issues. The Maharashtra government had also decided to impose an environmental cess for five years, on old public and private vehicles in use to curb vehicular pollution. The proceeds from the tax would be used for implementing various pollution control measures, providing clean fuel and introduction of advanced pollution check tests.

Renewable Purchase Obligation (RPO): RPO is the legally mandated percentage of electricity to be procured by distribution companies from renewable energy sources. Under the Electricity Act of 2003, the National Electricity Policy, 2005 and the Tariff Policy, 2006, it is obligatory upon State Electricity Regulatory Commissions to fix a certain percentage of purchase of power to be sourced from renewable energy sources in the area of distribution licenses. Regulators in many states have issued orders for RPOs varying from 1–10 percent. The latest RPOs for different states in India are presented in Annexure 4.1.

In November 2010, India's Central Electricity Regulatory Commission (CERC) introduced Renewable Energy Certificates (REC) to enable distributors to meet their RPOs and at the same time incentivize green energy generation in India. The REC scheme is a policy, whereby renewable energy producers are granted a REC per megawatt of renewable energy that they contribute to the electricity grid. These RECs can be traded on exchanges, whereby renewable energy producers can sell them to buyers. Renewable energy deficient entities/states can buy these RECs in order to meet their renewable energy targets. RECs, thus, allow utilities to meet their RPOs through a unique market-based mechanism via a transparent and efficient exchange platform. The scheme creates a winning proposition for the renewable energy producers also by providing them an opportunity to access a wider nation-wide market on the exchange, which ensures timely settlements and helps in supporting their overall cash flows.

For supporting the scheme and for generation of power from renewable sources, fiscal incentives and promotional measures initiated by the government both at the centre and state level have helped accelerated renewable energy power development in the country. For example, the Ministry of New and Renewable Energy (MNRE)



has put into place a package of incentives available for wind energy projects, including tax concessions, such as 80 percent accelerated depreciation, tax holiday for power generation projects, loans from Indian Renewable Energy Development Agency (IREDA), customs and excise duty relief and liberalized foreign investment procedures. Preferential tariff is also being reviewed by the State Electricity Regulatory Commissions (SERCs).



Wind turbines installed at Chitradurga in Karnataka
Source http://www.mnre.gov.in/annualreport/2004-2005_English/images/50.1.jpg

Currently, trade in RECs take place from two exchanges i.e. (i) India Energy Exchange where trading started in February 2011, and (ii) Power Exchange India Ltd (PXIL), where trading commenced from 30 March 2011. There are primarily two categories of certificates that are traded i.e. solar and non-solar. Solar certificates are issued to eligible entities for generation of electricity based on solar as renewable energy source, and non-solar certificates issued to eligible entities for generation of electricity based on renewable energy sources other than solar. Trading for the REC scheme, which currently occurs once a month, has picked up as more projects participate. With the government proposed to increase solar power generation to 20 gigawatts by 2022 more such projects will participate in the future¹. The National Load Dispatch Centre (NLDC), which is the central nodal

agency for India's REC scheme, has issued the largest ever batch of RECs, a record 12,156 non-solar RECs on 31 May 2011. NLDC had earlier issued 6,569 and 9,545 non-solar RECs in two batches in May. Annexure 4.2 presents a summary of issuance and trade in REC in two exchanges.

Perform Achieve and Trade (PAT): The mounting pressures on conventional energy sources have brought attention to energy conservation. In India, the Energy Conservation Act of 2001 provides a legal mandate for the implementation of the energy efficiency measures. The Government of India has launched the National Mission for Enhanced Energy Efficiency (NMEEE) under the National Action Plan on Climate Change (NAPCC) with an objective to improve energy efficiency and reduce green house gas emissions. NMEEE is being institutionalized by the Ministry of Power through the Bureau of Energy Efficiency (BEE).

One of the initiatives under NMEEE is the Perform, Achieve and Trade (PAT) mechanism². PAT is a market-based mechanism—through tradable energy saving certificates (ESCerts)—to enhance energy efficiency in the 'designated consumers' that are large energy-intensive industries and facilities. The nine designated consumers currently covered under the PAT scheme include aluminium, cement, chlor-alkali, fertilizer, iron and steel, pulp and paper, railways, textiles and thermal power plants. The designated consumers are supposed to furnish report of energy consumption to the designated authority of the states as well as to the Bureau of Energy Efficiency (BEE). In order to facilitate implementation of energy efficiency projects across different industries, the Ministry of Power has also set up Energy Efficiency Services Ltd (EESL), a joint venture of four public sector undertakings i.e., National Thermal Power Corporation (NTPC), Power Finance Corporation Limited (PFC), Renewable Energy Corporation (REC) and Power Grid, which will lead the market related actions of National Mission of Enhanced Energy Efficiency.

¹ <http://india.gov.in/allimpfrms/alldocs/15657.pdf>, last accessed on 11/08/2011

² The four initiatives under the NMEEE include Perform, Achieve and Trade (PAT), market transformation for energy efficiency (MTEE), energy efficiency financing platform (EEFP) and framework for energy efficient economic development (FEEED); see Para 4.2 of NAPCC (GoI 2008)



The National Clean Development Mechanism Authority of India evaluates and approves projects in accordance with guidelines issued by the Clean Development Mechanism Executive Board of the UNFCCC.

Coal cess: In 2010, the Government of India introduced a nationwide cess on coal of INR 50 (\$ 1 approx.) per metric tonne of coal, both produced and imported into India. India's Finance Ministry is considering a plan to use part of this year's INR 25 billion (\$ 0.57 billion approx.) coal cess receipts to invest in new power transmission lines that will help in distributing electricity from clean energy projects. It would provide viability funding to those states to extend their transmission networks to solar plants, wind farms and other clean-energy projects being currently built in India.

Clean development mechanism (CDM): India acceded to the Kyoto Protocol in August 2002, and thereby became eligible to be a host country for CDM³ projects, in accordance with national sustainable development priorities. The National Clean Development Mechanism Authority, established in the year 2003, receives projects for evaluation and approval as per the guidelines and general criteria laid down in the relevant rules and modalities pertaining to CDM, in addition to the guidelines issued by the Clean Development Mechanism Executive Board and Conference of Parties serving as Meeting of Parties to the United Nations Framework Convention on Climate Change.

In the initial stage of CDM development in India, biomass utilization projects, waste gas/heat utilization projects and renewable energy (wind, hydro) projects were mainly being implemented. Other than these projects, India has various types of registered CDM projects that include energy efficiency (for example in cement and steel industries), fuel switching, HFC reduction, N₂O decomposition, afforestation and reforestation and transportation. Recently, a number

of wind power projects were registered. Sector wise performance of CDM in India is listed in Annexure 4.3. Figure 4.1a and Figure 4.1b depict the performance in terms of CDM sector wise break-up in India.

CDM promotion cells have been established at a state level. They conduct supportive activities, such as information dissemination on CDM and coordination between local and national governments.

Compensatory Afforestation Fund (CAF): The Forest (Conservation) Act of 1980 provided for compensatory afforestation for land diverted for non-forestry use. Compensatory Afforestation Fund Management and Planning Authority (CAMPA) was initiated in 2004 to manage the funds generated from the diversion of forest lands for the development projects.

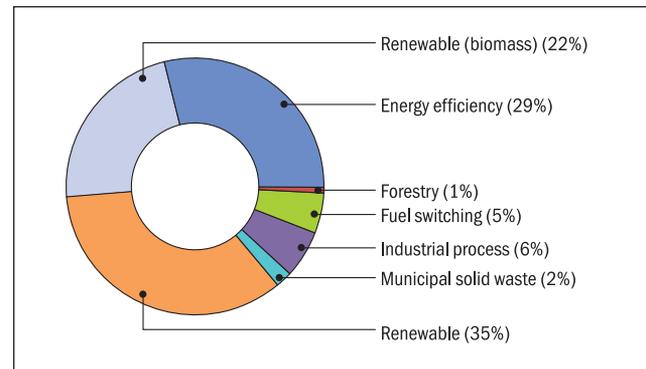


Figure 4.1a Sectoral breakup in terms of number of CDM projects

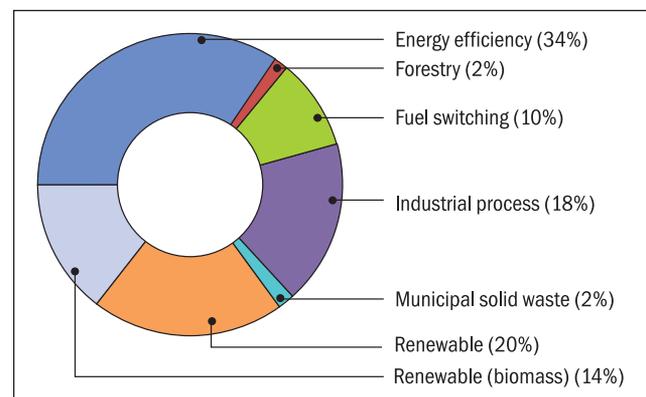


Figure 4.1b Sectoral breakup in terms of number of Carbon Emission Reduction (CER)

Source http://www.cdmindia.in/reports_new.php, Accessed on 7 September 2011

³ The Clean Development Mechanism (CDM), defined in Article 12 of the Kyoto Protocol, allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries. Such projects can earn saleable certified emission reduction (CER) credits, each equivalent to one tonne of CO₂, which can be counted towards meeting Kyoto targets. (<http://unfccc.int/>)



The total corpus available under CAMPA will be utilized for enhancement of forest resources and wildlife conservation activities.

A Compensatory Afforestation Fund (CAF) pools the money received from the user agencies towards compensatory afforestation, additional compensatory afforestation and penal compensatory afforestation based on NPV. The money to be recovered from the user agency is approximately INR 0.8 million⁴ per hectare. As per the latest Supreme Court order in 2009, state-level CAMPA would receive funds accruing on account of compensatory afforestation and Net Present Value (NPV). These state CAMPAs are intended to accelerate activities for preservation of natural forests, management of wildlife, infrastructure development in the sector and other allied works.

The total corpus available under CAMPA will be utilized for enhancement of forest resources and wildlife conservation activities. The money available with the state CAMPA will be used towards meeting the following:

- Expenditure towards the development, maintenance and protection of forests and wildlife management;
- The non-recurring as well as recurring expenditure for the management of the state CAMPA, including the salary and allowances payable to its officers and other employees;
- The expenditure incurred on monitoring and evaluation; and
- Disbursement on such other projects related to forest conservation.

There is an increasing recognition in India that existing regulatory frameworks and the creation of new institutions along with technological support could help facilitate market-based mechanisms in India. All this, enshrined in the ‘polluter pays principle’ could prove

vital for transformation of India towards low emission sustainable development.

Informational Policy Instruments

Environmental education or awareness programmes are used to influence behavioural patterns of economic agents and encourages the formation of voluntary agreements between firms and local authority/community. Public disclosure of information on polluting activities of industries can promote ‘environmental/green labeling’ of products, which creates pressure in the market to manufacture environment-friendly products. To increase consumer awareness, the Government of India had launched the eco-labeling scheme known as ‘Ecomark’ in 1991 for easy identification of environment-friendly products and it is being increasingly promoted in recent years. Under this scheme, any product which is made, used or disposed of in a way that significantly reduces the harm it would otherwise cause to the environment, could be considered as environment-friendly product. The criteria follow a cradle-to-grave approach, i.e. from raw material extraction, to manufacturing, and disposal. The ‘Ecomark’ label is awarded to consumer goods, which meet the specified environmental criteria and the quality requirements of Indian Standards. Ecolabels are voluntary methods of environmental performance, certification and labeling that are practiced around the world and increasingly being popularized in India. An energy labeling programme for appliances, mandatory for air-conditioners and refrigerators by the Bureau of Energy Efficiency seeks to encourage energy efficient consumer products.

Conclusion

There is an increased recognition in India that traditional approaches of command and control need to be supplemented by economic instruments, together with increased education and information for the citizen to create more informed consumer and producer choices.

⁴ <http://pib.nic.in/newsite/erelease.aspx?relid=38630>, last accessed 07/09/2011



4B. MAJOR GROUPS AND INNOVATIONS

Section III of Agenda 21 recommends a participatory process with regard to projects that potentially affect the communities in which they live and work. Agenda 21 also recommends that governments promulgate or strengthen measures necessary to enable the involvement of major groups to protect the public interest. Moreover, as recognized by the Commission on Sustainable Development, facilitation of stakeholder partnerships between major groups, both governmental and non-governmental, is an important process towards the implementation of Agenda 21. This chapter will discuss some of the key policy drivers that have enabled the engagement of major groups and some initiatives that illustrate engagement of a diverse set of stakeholders in India.

Engaging major groups

The establishment of Council for Advancement of People's Action and Rural Technology (CAPART) in 1986, is an important milestone in India. CAPART became an apex developmental agency for voluntary action in rural development. Since then, there has been unprecedented growth of voluntary organizations in the country working in rural development programmes. This also gave impetus to post-liberalization voluntarism in India. Another important milestone in the Indian context has been the Right to Information Act of 2005 that has helped civil society by strengthening access to information for public interest.

To further the engagement of major groups, the National Policy on the Voluntary Sector, 2007⁵ was formulated by the Voluntary Action Cell of the Planning Commission (Government of India). The policy recognizes that voluntary sectors (including community-based organizations, non-governmental organizations, charitable organizations, support organizations and networks federations) serve as an 'effective non-political link between the people and the government' and affirms the need for collaboration between the voluntary sector, government bodies (including *Panchayati Raj* institutions and municipalities), academic institutions and private sector organizations at the local, provincial

and national levels. The policy is aimed at evolving a new working relationship between the government and major groups within the country, while creating an enabling environment that stimulates enterprise and effectiveness, without affecting the autonomy and identity of voluntary organizations. The policy recognizes that the voluntary sector has contributed significantly to finding innovative solutions to poverty, deprivation, discrimination and exclusion, through means, such as awareness raising, social mobilization, service delivery, training, research, and advocacy⁶. Section 6 of the National Policy on the Voluntary Sector of 2007 outlines the strategy by which the government will work towards strengthening the voluntary sector by mobilizing financial resources from philanthropic institutions and private foundations, rewarding good governance, building capacity, recognizing innovative and pioneering work, and strengthening access to government information pertaining to the performance of various programmes.

The National Advisory Council (NAC) has been set up as an interface with civil society with an objective of providing policy and legislative inputs to the government with special focus on social policy and the rights of the disadvantaged groups. In addition, the NAC reviews key social delivery programmes of the government and suggests measures to address issues in their implementation. NAC comprises distinguished individuals drawn from diverse fields of development activity who contribute their expertise and experience. Through the NAC, the government also seeks to reach out to a larger network of research organizations, NGOs and social action and advocacy groups.

The Planning Commission has also set up a 'NGO Partnership System', which is a web-based portal that provides NGOs with a host of facilities, including facilitating interaction of NGOs with the government regarding grants, and to help NGOs to access information on various government schemes (see Figure 4.2 for snapshot of the NGO Partnership System). During 2009–2010, as many as 27,752⁷ NGOs had signed up with the NGO partnership system.

⁵ Voluntary Action Cell, Planning Commission Government of India

⁶ Para 1.2, National Policy on the Voluntary Sector 2007, Government of India

⁷ PMO report to the people, see <http://www.pib.nic.in/newsite/erelease.aspx?relid=62240>, last accessed on 20/07/2011



Figure 4.2 NGO partnership system
Source <http://ngo.india.gov.in/>

Innovations and major groups: a showcase

This subsection will showcase some examples of innovations involving collective actions of major groups towards realization of sustainable development in India.

Innovations in MG-NREGS

There have been various examples of innovations under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MG-NREGS)⁸. Social audits—involving Panchayat representatives, civil society organizations, as well as village communities help in ensuring transparency by enabling monitoring of the programme by citizens. Social audits can be seen as an important tool to mobilize awareness among the programme beneficiaries. Grievance redressing mechanisms under the MG-NREGS include Ombudsman at the district level and a National Helpline.

The establishment of district level Ombudsmans involving citizens in monitoring MG-NREGS is another example of innovative evolution in the existing social audit system. More recently, Panchayat Ghars are proposed for 0.252 million Gram Panchayats across the country. The Panchayat Ghars will serve as a mini-forum for the rural people to meet. Bharat Nirman Rajiv Gandhi Sewa Kendra will be a single window for providing the information on the MG-NREGS and provide feedback on the quality of implementation of the programme.

International organizations like the United Nations Development Programme (UNDP) have also partnered with the Government of India⁹ on MG-NREGS. These initiatives have been geared towards providing technical support towards strengthening the government’s capacity to implement the programme, and have helped raise awareness about the Act among potential beneficiaries. These apart, ICT-related innovations have helped in improving transparency in payment of wages and efficiency in administration by introducing innovative technologies like smart cards, biometric devices, automated teller machines (ATMs), and by digitizing information.

National Green Corps (Eco-clubs)

National Green Corps (NGC)¹⁰ is a programme of the Ministry of Environment and Forests, Government of India, covering around 120,000 schools in India with NGC Eco-clubs. The main objectives of this programme are educating children about their environment and imparting knowledge about eco-systems, their inter-dependence, and the need for conservation, through visits and demonstrations, and mobilizing youngsters by instilling in them the spirit of scientific inquiry into environmental problems, and involving them in conservation efforts.

Each NGC School Eco club has 30 to 50 NGC Students or NGC Cadets who form the National Green Corps. These NGC Students participate in activities related to biodiversity conservation, water conservation,



Social audit under MG-NREGS
Source <http://himachal.nic.in/hipa/images/nrega3.JPG>

⁸ See <http://pib.nic.in/newsite/erelease.aspx?relid=52021>; nrega.nic.in, last accessed on 20/07/2011

⁹ http://www.undp.org/poverty/projects_india.shtml, last accessed on 14/07/2011

¹⁰ http://www.envfor.nic.in/divisions/ee/ngc/index_ngc.html, last accessed on 14/07/2011



NGC activity in Himachal Pradesh

Source: http://envfor.nic.in/divisions/ee/ngc/index_ngc.html

energy conservation, waste management and land use planning and resource management. Locale specific issues, including water harvesting, plantation and composting of biodegradable waste are popular activities in the NGC School Eco-clubs. These NGC Eco-clubs are provided with an annual grant of INR 2500. Each Indian state has a nodal officer who implements this programme.

Waste Minimization Circles (WMC)

WMC¹¹ helps Small and Medium Industrial Clusters in waste minimization in their industrial plants. This initiative is assisted by the World Bank with the Ministry of Environment and Forests acting as the nodal ministry. The project is being implemented with the assistance of National Productivity Council (NPC), New Delhi. Figure 4.3 depicts the diverse set of stakeholders in the WMC initiative.

The initiative also aims to realize the objectives of the Policy Statement for Abatement of Pollution (1992),¹² which states that the government should educate citizens about environmental risks, the economic and health dangers of resource degradation and the real economic cost of natural resources. The policy also recognizes that citizens and non-governmental organizations play a role in environmental monitoring, therefore, enabling them to supplement the regulatory system and recognizing their expertise where such exists and where their commitments

and vigilance would be cost effective. The WMC programme also envisages engagement with research institutions.

National Knowledge Network (NKN)

The idea of setting up a NKN¹³ first emerged through deliberations between the office of Principal Scientific Advisor to the Government of India and the National Knowledge Commission. This was followed by extensive discussions with key stakeholders, including experts, potential users, telecom service providers and educational and research institutions, which resulted in the design of the National Knowledge Network. Globally, research and development activities and innovations are increasingly multidisciplinary and collaborative, and require substantial computer resources. The key to successful research today demands live consultations, data sharing and resource sharing. Therefore, in order to optimally utilize the potential of institutions engaged in generation and dissemination of knowledge in various areas, it is important to connect them through the NKN. The NKN will enable scientists, researchers and students from different backgrounds and diverse geographies

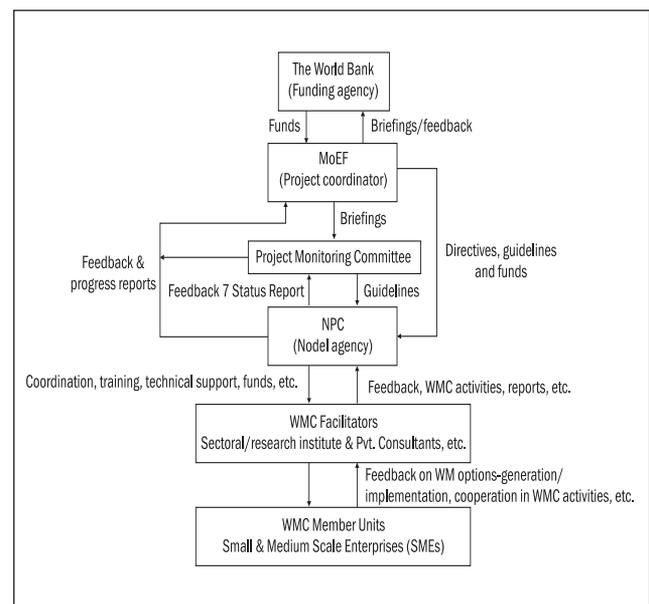


Figure 4.3 Waste Minimization Circle: a multi-stakeholder initiative

Source <http://wmc.nic.in>

¹¹ <http://wmc.nic.in/about-wmc.asp>, last accessed on 14/07/2011

¹² <http://wmc.nic.in/govtstatement-polices.asp?Select1=Preamble&Image2.x=12&Image2.y=19>, last accessed on 14/07/2011

¹³ <http://www.nkn.in>, last accessed on 17/07/2011



Figure 4.4 National Knowledge Network
Source <http://www.nkn.in>

to work closely for advancing human development in critical and emerging areas (Figure 4.4 depicts screenshot of the NKN website).

Women empowerment under Integrated Infrastructure Development (IID)

The government gives grants to training institutions/NGOs for imparting training to women entrepreneurs. An example is the Association of Lady Entrepreneurs of Andhra Pradesh (ALEAP), an NGO comprising women, which has successfully completed an IID¹⁴ project at Gajularamaram village in the Rangareddy district of Andhra Pradesh. As a result of this initiative, 75 units have been established generating employment for 1500 women. In the ALEAP project, the government provided grants totalling INR 13.9 million (\$ 310,000 approx.).

Swajaldhara

According to the Indian constitution, ‘Water’ is a state subject, and a need was felt to jointly manage the resource by the government and communities. Swajal started as World Bank-aided pilot projects establishing a tripartite partnership between the government water department, NGOs and the village communities. The pilot projects demonstrated that partnerships between Gram Panchayats, village communities, NGOs and government, where the government takes the role of facilitation and co-financing could work successfully. Since then, reforms in the rural drinking water sector

that were adopted through Sector Reform Project (SRP) on pilot basis have been scaled up throughout the country in the form of Swajaldhara launched on 25 December 2002.

The programme¹⁵ is a paradigm shift from supply driven to demand driven, centralized to decentralized implementation, and alters the government’s role from service provider to facilitator. The fundamental reform principles in Swajaldhara are adhered to by state governments and implementing agencies by adoption of a demand-responsive approach with community participation. It is based on empowerment of villagers to ensure their full participation in the project through a decision-making role in the choice of the drinking water scheme, planning, design, implementation, control of finances and management arrangements, including full ownership of drinking water assets. Communities contribute towards capital cost, and operations and maintenance cost, if they are involved in planning and implementation of the schemes. This innovative initiative has demonstrated that communities can efficiently and effectively resolve disputes and undertake material procurement, financial transactions and do book keeping in a satisfactory manner when properly trained. An integrated service delivery mechanism is also promoted, which includes taking up conservation measures through rainwater harvesting and ground water recharge systems for sustained drinking water supply.

Lighting a Billion Lives (LaBL)

LaBL¹⁶ is a campaign by TERI that promotes the use of solar lanterns specially designed and manufactured on a decentralized basis. LaBL has been able to engage with government interventions under Sarva Shiksha Abhiyan, Madhya Pradesh Rural Livelihood Project, Rasthriya Gramin Vikas Nidhi, and has facilitated the spread of mobile telephony with support from Department of Telecommunications, Government of India. LaBL has successfully engaged the private sector and leveraged Corporate Social Responsibility (CSR).

¹⁴ <http://msme.gov.in/AR2008-09-Eng-Chapter-13.pdf>, last accessed on 15/07/2011

¹⁵ <http://ddws.nic.in/swajaldhara.htm>, last accessed on 15/07/2011

¹⁶ http://www.teriin.org/index.php?option=com_featurearticle&task=details&sid=665, last accessed on 15/07/2011



This initiative has the potential to contribute towards the realization of the Millennium Development Goals (MDGs) by improving energy access for the rural poor. Formation of more than 100 women-led Self Help Groups (SHGs), and strengthening of around 150 SHGs are among the impacts of this initiative. The campaign has demonstrated how Public-Private-People partnerships can support rural development schemes, particularly in the areas of health, education, environment and women's empowerment. The campaign has drawn support from public sector units and corporates, among its various partners, to aid the execution of the programme at the scale at which it exists today.

Joint Forest Management (JFM)

JFM¹⁷ is an initiative to institutionalize participatory governance of country's forest resources by involving the local communities living close to the forest. This is a co-management institution to develop partnerships between forest fringe communities and the Forest Department (FD) on the basis of mutual trust and jointly defined roles and responsibilities with regard to forest protection and regeneration. JFM started in consonance with the National Forest Policy 1998, which has recognized the importance of involving the local communities and the government has issued necessary resolutions and guidelines subsequently to initiate such institutions and strengthen it further. Most of the states in India have adopted JFM and issued resolutions permitting such partnership as per the prescribed guidelines though the institutional structure varies across the states.

Under JFM, both forest departments and local communities come to an agreement to form the committee to manage and protect forests by sharing the costs and benefits. Forest departments take the initiative to form such committees directly by talking to the local community or through the help of NGOs working in specific areas. NGOs are also involved for capacity building, information dissemination, monitoring and evaluation and often act as the facilitators in constituting these participatory institutions. One of the key objectives of the JFM programme is the rehabilitation of degraded forestlands

with people's participation involving Forest Protection Committees (known by different names in different states viz. Vana Samrakhyana Samiti (VSS) in Orissa and Andhra Pradesh, Joint Forest Management Committee (JFMC) in Karnataka and so on). JFM brings a win-win situation for both forest departments as well as the local communities in terms of greater access to minor forest produces from these regenerated forests.

Green Rating for Integrated Habitat Assessment (GRIHA)

GRIHA is an example of an initiative that has involved collaboration of the scientific community with the government. GRIHA, the national rating system for green buildings was conceived by The Energy and Resources Institute (TERI). It the first green building design and evaluation system for India, and is suitable for all kinds of buildings in different climatic zones of the country. The rating was adopted by Ministry of New and Renewable Energy (MNRE), Government of India. ADaRSH, Association for Development and Research of Sustainable Habitats, is an independent platform for interactions on scientific and administrative issues related to sustainable habitats in the Indian subcontinent. It was founded jointly by TERI and MNRE, alongwith experts in the sustainability of built environment from across the country. ADaRSH undertakes capacity building on Green Buildings and the GRIHA rating system for all the registered project teams. ADaRSH also conducts in-house awareness/training sessions for government and private organizations.

Figure 4.5 shows the mapping of the above showcased innovations according to the Agenda 21 major group typologies and CSD partnerships. These innovations are just a few illustrative ones that demonstrate the wide variety of initiatives and stakeholders that have been engaged in the Indian democratic setup.

Conclusion

Despite an increasing recognition of the pivotal role that major groups have to play in the process of sustainable development of the country, these groups (especially at the local level) face managerial, technical and financial

¹⁷ <http://envfor.nic.in/divisions/forprt/terijfm.html>, last accessed on 15/07/2011

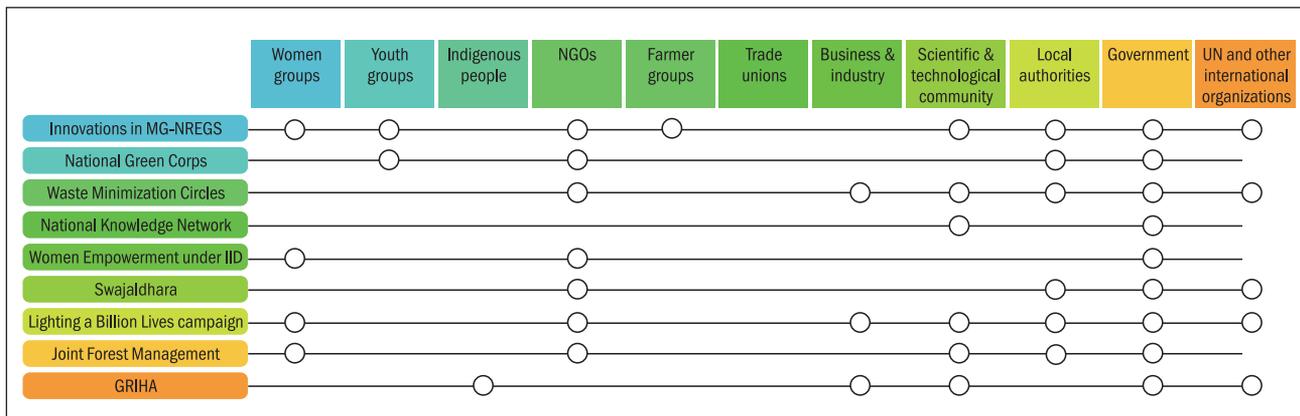


Figure 4.5 Illustrative innovations in India and Agenda 21 major groups

Source Constructed by authors

constraints. India has taken measures that include the National Policy on the Voluntary Sector, 2007, and the establishment of an NGO Partnership System. Examples

in India demonstrate engagement among various major groups that have led to innovations, and contributed to the sustainable development agenda.



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Annexures

Annexure 1.1 Progress on MDGs in India

Goal	Target	Indicator	Year	Year	Year	Year
			1993	2004	2009	2015(Target)
Goal: Eradicate extreme poverty and hunger	Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	Population below the national poverty line	36	27.5		18
			1992–1993	2005–2006	2009	2015 (Target)
	Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	Children under 5 moderately or severely underweight	51.5	45.9		25
			1991	2005–2006	2007–2008	2015 (Target)
Goal 2: Achieve universal primary education	Ensure that by 2015, children everywhere, boys and girls alike, will be able to complete primary schooling	Net Enrolment Ratio (%)		84.53	95.92	100
			1991	2006–2007	2009	2015 (Target)
Goal 3: Promote gender equality and empower women	Eliminates gender disparity in primary and secondary education, preferably by 2005, and to all levels of education, no later than 2015	Ratio of girls to boys enrolments in primary and secondary school (%)*	76 (P)			
60 (S)	94 (P)					
82 (S)		100				
			1990–1991	2005	2009	2015 (Target)
Goal 4: Reduce child mortality	Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	Mortality rate for children under five per 1000 live births	125.06	74.3		41.68
		Infant Mortality Rate (Number of Infant deaths in less than a year per 1000 live births)		57 (2006)	53 (2008)	
		Immunization Against Measles (%)	42.2 (1992-93)	58.8		

Contd...



Annexure 1.1 Contd.						
Goal	Target	Indicator	Year	Year	Year	Year
			1991	2005–2006	2009	2015 (Target)
Goal 5: Improve maternal health	Reduce by three-quarters, between 1990 and 2015, the material mortality ratio	Maternal mortality ratio per 100 000 live births	437	254 (2004–2006)		109
		Deliveries attended by skilled health staff (%)	33 (1992–1993)	47	52 (2007-08)	
				2004	2007	
Goal 6: Combat HIV/AIDS, malaria, and other diseases	Have halted by 2015 and begun to reverse the spread of HIV/AIDS	HIV/AIDS prevalence rate for pregnant women (1%): 15–24	–	0.46	0.49	–
			1990	2005	2009	2015 (Target)
	Have halted by 2015 and begun to reverse the incidence of malaria and other diseases	Malaria death rate per 100,000, for all ages		963	754 (till Sept, 2009)	–
			1990	2006	2009	2015 (Target)
		Malaria incidence, notified cases per (%)		1.74	1.52 (till Sept, 2009)	–
			1990	2007	2009	2015 (Target)
		Tuberculosis incidence rate per 100 000 population	586	283		–
		Mortality due to Tuberculosis per 100,000 population	42	26		
			1990	2006	2009	2015 (Target)
Goal 7: Ensure environmental sustainability	Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources	Proportion of land area covered by forests (Percentage of the geographical area)	20.99 (2005)	21.02 (2007)		

Contd...

Annexure 1.1 *Contd.*

Goal	Target	Indicator	Year	Year	Year	Year
		Ratio of area protected to maintain biological diversity to surface area (Percentage of the geographical area)		4.74		4.83 (in March, 2009)
		Per capita CO ₂ emissions (MT)	0.80		1.31	
		Per Capita Energy Consumption (KWH)	2337.47 (1989–1990)		3928.16 (2007–2008)	
	Halve, by 2015, the proportion of people without access to safe drinking water and basic sanitation	The proportion of households without access to safe drinking water sources (%)			Target achieved in 2007–2008 (16%)	17
		Households using improved sanitation facilities (rural and urban) (%)	22.9 (R) 77.0 (U) 40.6 (T) (2005–2006)		26.2 (R) 75.9 (U) 42.3 (T) (2007–2008)	38
	By 2020, to have achieved a significant improvement in lives of at least 100 million slum dwellers	Slum population as a percentage of urban population			23.1 (2001)	
			1999	2006	2009	
Goal 8: Develop a global partnership for development	In cooperation with the private sector, make available the benefits of new technologies, especially information and communications	Internet users per 1000 population	0.21	6.96	13.54	
		Telephone lines and cellular subscribers (telephones per 100 population – Tele-density)	7.02 (2004)	18.31 (2007)	36.98 (till 31 March 2009)	

Source MDG Country Report 2009



Annexure 4.1 RPOs for different states in India (in percentage unit)							
State	RE Source	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016
Gujarat	Wind	4.50	5.00	5.50			
	Solar	0.25	0.50	1.00			
	Others	0.25	0.50	0.50			
	Total	5	6	7			
Maharashtra	Solar	0.25	0.25	0.25	0.50	0.50	0.50
	Non-solar	5.75	6.75	7.75	8.50	8.50	8.50
	Total	6	7	8	9	9	9
Uttaranchal	Solar	0.25	0.50	1.00			
	Non-solar	3.75	4.50	5.00			
	Total	4	5	6			
Manipur	Solar	0.25	0.25	0.25			
	Non-solar	1.75	2.75	4.75			
	Total	2	3	5			
Mizoram	Solar	0.25	0.25	0.25			
	Non-solar	4.75	5.75	6.75			
	Total	5	6	7			
Jammu and Kashmir	Total	1	3	5			
Uttar Pradesh	Solar	0.25	0.50	1			
	Non-solar	3.75	4.50	5.00			
	Total	4	5	6			
Tripura	Solar	0.10	0.10	0.10			
	Total	1	1	2			
Jharkhand	Solar	0.25	0.50	1			
	Non-solar	1.75	2.50	3.00			
	Total	2	3	4			
Himachal Pradesh	Solar	0	0.10	0.10			
	Non-solar	10	11	12.50			
	Total	10.10	11.1	12.10			
Orissa	Solar		0.10	0.15	0.20	0.25	0.30
	Non-solar	1.00	1.20	1.40	1.60	1.80	2
	Co-gen	3.50	3.70	3.95	4.20	4.45	4.70
	Total	4.50	5	5.50	6	6.50	7
Assam	Solar	0.05	0.10	0.15	0.20	0.25	
	Total	1.40	2.80	4.25	5.60	7	

Contd...



Annexure 4.1 *Contd.*

State	RE Source	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016
Tamil Nadu		14					
Delhi		1					
Andhra Pradesh		5					
Karnataka		11					
West Bengal		10					
Rajasthan		9.50	9.50				
Madhya Pradesh		10					
Punjab		4					
Haryana		10					

Source NLDC

Annexure 4.2 Trade in REC since its inception

Month (year)	Opening balance	REC issued	REC redeemed	Closing balance
March 2011	0	532	424	108
April 2011	108	4,503	260	4,351
May 2011	4,351	28,270	18,502	14,119
June 2011	14,119	27,090	16,385	24,824

Source Renewable Energy Certificate of India, CRISIL

Annexure 4.3 Sector wise performance of CDM in India

Name of sector	No of projects	CER upto 2012
Energy efficiency	455	217,421,223
Forestry	10	10,411,540
Fuel switching	81	61,281,198
Industrial process	95	111,780,559
MSW	35	11,526,169
Renewable	547	129,658,846.39
Renewable (Biomass)	355	91,322,012
Total (No. of projects)	1578	633,401,547.39

Source http://www.cdmindia.in/reports_new.php

Speed is irrelevant if you are
going in the wrong direction.

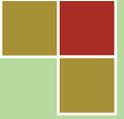
—Mahatma Gandhi

Development is one of the primary means of improving
the environment for living, or providing food, water,
sanitation and shelter, of making the deserts green and
the mountains habitable.

—Indira Gandhi
at plenary session of the UN Conference on the Human Environment, Stockholm, June 14,
1972

Sustainable development concerns in the sense of enhancement
of human wellbeing, broadly conceived, are a recurring theme in
India's development philosophy.

—National Environment Policy, 2006



Sustainable Development in India: Stocktaking in the run up to Rio+20



As the global community prepares for the United Nations Conference on Sustainable Development (UNCSD), also popularly known as the Rio+20 that will be held in Rio de Janeiro in 2012, taking stock of national initiatives in addressing sustainability concerns is important. With this rationale, the Ministry of Environment and Forests (MoEF), Government of India undertook a study to track key initiatives in India towards the promotion of sustainable development in the years following the 1992 United Nations Conference on Environment and Development (UNCED). The book discusses key policies, programmes, legal, financial provisioning, institutional mechanisms, and engagement with major groups that contribute to the objective of sustainable development. The document also assesses gaps and challenges faced by India as a developing country.

भारत में धारणीय विकास
रियो + २० के दौरान एक आकलन



जहाँ है हरियाली।
वहाँ है खुशहाली।।

Ministry of Environment and Forests
Government of India