

Institutions and Credibility of Governance Structures

Institutional Change in Agriculture and Natural Resources
Institutioneller Wandel der Landwirtschaft und Ressourcennutzung

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**Institutions and Credibility of
Governance Structures**

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Aim and Scope of the Series

„Nothing endures but change“. Heraclitus the Ephesian (ca. 535–475 BC)

Institutions, defined as “the rules of the game”, are a key factor to the sustainable development of societies. They structure not only the multitude of human-human interactions of modern societies, but also most of the human-nature interactions. Poverty, famine, civil war, degradation of natural resources and even the collapse of ecosystems and societies often have institutional causes, likewise social and economic prosperity, sustainable use of resources and the resilience of socio-ecological systems. Agriculture, forestry and fisheries are those human activities where the interdependencies between human-human and human-nature interactions are perhaps most pronounced, and diverse institutions have been developed in history to govern them.

Social and ecological conditions are, however, ever changing, which continuously challenge the existing institutional structure at a given point in time. Those changes may be long-term, like population growth or climate change, medium-term, such as new technologies or changing price relations, or short-term, like floods or bankruptcies, but all of them pose the question whether the rules of the game need to be adapted. Failures to adapt timely and effectively may come at a high social cost. Institutional change, however, face a principal dilemma: on the one hand, institutions need to be stable to structure expectations and effectively influence human behaviors; on the other hand, they need to be adaptive to respond to the ever changing circumstance mentioned above. Understanding stability and change as well as developing adaptive institutions and effective, efficient and fair mechanisms of change are, therefore, of central importance for societies and an ongoing research challenge for social scientists.

If we want to improve the effectiveness, efficiency and adaptability of institutions, it stands to reason that we have to develop a good understanding of the causes, effects, processes and mechanism of stability and change. This is the aim of the series “Institutional Change in Agriculture and Natural Resources,” which attempts to answer the questions “How do processes and mechanism of institutional change actually work? What and who are the main determinants and actors driving, governing and influencing these processes? What are the economic, political, social and ecological consequences? How can adaptive institutions be designed and developed, and what governance structures are required to make them effective?” These are the questions at the heart of the series. The works published in this series seek to provide answers to these questions in different economic, social, political and historical contexts.

Volker Beckmann and Konrad Hagedorn

Ernst-Moritz-Arndt-Universität Greifswald und Humboldt-Universität zu Berlin

Focus of the *Governing Sustainability in India* subseries

Deep transformations of interconnected social, ecological and technical systems are taking place in many regions of the world, requiring complex processes of institutional change. In India, such processes of transformation are particularly intense. As in many other countries, the main drivers there can be found in population growth associated with demographic change and economic growth, closely interlinked with technological change. Especially in Indian society, this often occurs in contexts of high population density, extreme resource scarcity, weak carrying capacity of ecosystems and harmful pollution. The growing economy calls for reliable energy provision and increased energy efficiency while, at the same time, also needing to cope with climate change.

The ICAR subseries *Governing Sustainability in India* provides a collection of studies on such action situations in both rural and urban areas. Rural areas are increasingly affected by the above-mentioned problems, as people's livelihoods there often depend directly on well-functioning bio-physical systems. They suffer from soil erosion, declining water tables, loss of biodiversity, impacts of climate change and other crucial problems. In Indian cities meanwhile, particularly its emerging megacities, urbanization is proceeding rapidly, leading to increased demand on natural resources. Changing lifestyles and economic growth are increasing energy consumption and greenhouse gas emissions. Climate change impacts, worsened by such urban developments, are already causing extreme weather events such as floods, heat waves and droughts.

In such action situations, crafting institutions can be the key to achieving sustainable development. The young researchers presenting their analyses in this subseries have accepted this challenge and engaged in excellent, in-depth studies. A variety of related issues were analysed, including enhanced energy efficiency, power-generation efficiency, policies for renewable energy, political discourses for promoting biofuels, sustainable traffic solutions, sustainable food chains, localized food systems, food accessibility for the urban poor, electricity provision for irrigation, microcredit organisations to combat poverty, governance of water allocation, industrial water pollution abatement, collective action in watershed management, rehabilitation of displaced farmers, and local service delivery. We are very grateful to the authors for having employed well-developed analytical frameworks, enlightening theoretical approaches and multiple methods to contribute to our common knowledge base. They have been working together with many partners in India and elsewhere, to whom we also want to express our special gratitude.

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Berlin, March 2017

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Abbreviations

AP	Andhra Pradesh
APCPDCL	Central Power Distribution Company of Andhra Pradesh Limited
APERC	Andhra Pradesh Regulatory Commission
APIIC	Andhra Pradesh Industrial Infrastructure Corporation Ltd.
APTRANSCOS	Transmission Corporation of Andhra Pradesh Ltd.
ATE	Appellate Tribunal for Electricity
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CSO	Central Statistics Office
CSP	Concentrated Solar Power
DISCOMS	Distribution Companies
EA	Electricity Act
EPC	Engineering Procurement and Construction
EPD	Energy and Petrochemical Department
ESMAP	Energy Sector Management Assistance Program
FIT	Feed-in Tariffs
GEDA	Gujarat Energy Development Agency
GENCOS	Generation Companies
GERC	Gujarat Energy Regulatory Commission
GETCO	Gujarat Energy Transmission Company
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoG	Government of Gujarat
GoI	Government of India
GPCL	Gujarat Power Corporation Ltd.
GUVNL	Gujarat Urja Vikas Nigam Ltd.

GW	Gigawatt
IEGC	Indian Electricity Grid Code
INR	Indian Rupee
IREDA	Indian Renewable Energy Development Agency
JNNSM	Jawaharlal Nehru National Solar Mission
KW	Kilowatt
kWh	Kilowatt-hour
LC	Letter of Credit
MNRE	Ministry of New and Renewable Energy
MoP	Ministry of Power
MW	Megawatt
NAPCC	National Action Plan for Climate Change
NEDCAP	New and Renewable Energy Development Corporation of Andhra Pradesh Ltd.
NFS	Notice for Selection
NIE	New Institutional Economic
NREL	National Renewable Energy Lab
NTPC	National Thermal Power Corporation
NVVN	NTPC Vidyut Vyapar Nigam
O&M	Operation and Maintenance
PMGER	People's Monitoring Group on Energy Regulation
PPA	Power Purchase Agreement
RPO	Renewable Purchase Obligation
RPSSGP	Rooftop PV and Small Solar Power Generation Programme
SEA	Solar Energy Association
SEBs	State Electricity Boards
SERC	State Electricity Regulatory Commission
SLDC	State Load Dispatch Centre
SPO	Solar Purchase Obligation

SPV	Solar Photovoltaic
TERI	The Energy and Resources Institute
TRANSCOS	Transmission Companies
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change