

Complexity, Institutions and Public Policy: Agile Decision-Making in a Turbulent World. Graham Room. Edward Elgar Publishing Ltd, The Lypiatts, 15, Lansdown Road, Cheltenham, Glos GL50 2JA, UK. 2011. vii + 383 pp. Price not mentioned.

While disciplines have always had extensions, branches and paths that would enable a passage to the other areas of inquiry, the organization of disciplinary knowledge began showing a decisive shift in the 1970s. To start, this had consequences for the neatly stacked divisions of disciplines within the academic institutions. Moreover, such reorganization was also instrumental in reducing the distance between the ‘pure’ and ‘applied’ research, and between research, advocacy and policy. The changed landscape of knowledge production over the course of the last three decades has led to the formation of new disciplines and methods that have flourished on the borders of traditional disciplines. The book under review represents the post-1980s moment in knowledge production that is built on deliberate crossing over of disciplines in order to privilege solutions, making policy impact and supporting multiple ways to achieve effective intervention.

Situated at the interface of complexity theory, institutional studies and policy analysis, the book moves between these three broad arenas, though complexity science occupies large space. The author’s impetus for situating his arguments within these broad terrains stems from his dissatisfaction with the conventional approaches within policy studies, especially in their relation to contemporary contexts. Reflecting on the policy pro-

cess in the contemporary turbulent times, the book also pays attention to the compulsions of policy-making. Given that policy-making is shaped by several simultaneous processes at global, regional, national and sub-national levels, the author draws our attention to the growing influence of evidence-based policy interventions.

The opening chapters, largely conceptual in their nature, lay out the diverse multidisciplinary intellectual strands that come together in synthesis in order to structure a ‘combinational ontology’. Having a base in natural sciences, the new complexity paradigm has moved over to theorizing social systems, especially in ways that a diversity of institutions and actors participate in the complex social field. This theoretical endeavour is carried out in the hope of connecting the geometry of natural and social systems. Economy, in this respect, becomes a system that can be explained using evolutionary models. While complexity analysis can be applied to a wide range of phenomena, it lends itself easily to certain disciplines and areas of interest.

The conceptual discussion on complexity theory is extended in the second part of the book in order to advance a general methodological framework that opens up with discussions on mathematical modelling, network analysis, strange attractors and the deployment of metaphors. The crucial question is regarding the ways in which one can capture the systems and forces that are constantly in flux and away from equilibrium. In order to understand the social system in its complexity, and explain the patterns and regularities that underlie the vast, hard-to-predict social canvas, it is essential to turn to the qualitative accounts for subtlety and nuances. Imagination of social dynamics, therefore, needs to pay attention to the differential positional struggles of actors and the ways in which the interactions between the first movers and the inhibitors result in drawing up of new lines of symmetry. It is in this context that the concept of ‘agile decision making’ is introduced – something that is methodologically non-reductive, empirical, representative yet able to capture.

The theoretical arguments about complexity science in the first part and the methodological considerations in the second are then extended to the discussions on policy-making. The complexity paradigm moves away from one univer-

sal model and the (only) perfect design, thus leaving open the possibilities of several intermediary spaces and actors whose interactions often affect the policy landscape in substantial ways. Thus, the relationship among the various components of policy and their individual connection to the overall policy system are both important in the emergent system. It is in this context that the conceptual advancement of ‘agile’ policy-making – the kind that is responsive to its environment in anticipation of changes – is put forward. Empirical discussions of public policy involving social exclusion, school choice and decision-making in family allow readers to understand the different roles institutions play and the logics that accompany policy reforms. In this context, the treatment of knowledge economy and an appraisal of the indices of innovation are both useful in connecting to the current scenario of policy-making. In his articulation of policy landscape, the author constructs three metaphors: tuning, energizing and stewardship. While policy tuning involves switching and modifying the connections between various subsystems, policy energizing enables creative environments that facilitate movements for positional advantage. Policy spaces, however, are evened out and made more inclusive through stewardship.

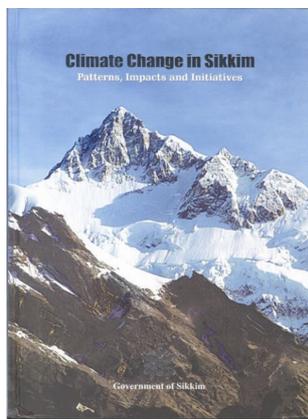
The final part consists of a few pragmatic, concrete tools that can be part of policy-making as well as analysis. These include broad instructive suggestions: mapping the landscape, identifying the protagonists, modelling the struggle, watching for tipping points, tuning the landscape, energizing the protagonists, civilizing the struggle and watching for predators.

In providing the ‘toolkit’ the author categorizes various successive steps that need to be checked in policy production. Incorporating such practical tools as part of an academic, largely theoretical work is quite an interesting exercise. Not only does it offer a correction to most conceptual research on policy process, it also enables disciplinary crossovers. The eightfold toolkit is not radically different from some of the existing strategies towards good policy. The tools often assume controlled/stable conditions and a rather linear progression from policy ideas to implementation. The difficult-to-enumerate components such as unstable political climate, the power of competing

interest groups and the impact of populist decisions weigh heavy on policy process. Covering a vast canvas, including policy theory, social dynamics, methodological choices, politics and guidelines for policy makers, this book is a useful intervention.

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Climate Change in Sikkim: Patterns, Impacts and Initiatives. M. L. Arrawatia and Sandeep Tambe (eds). Information and Public Relations Department, Government of Sikkim, Gangtok. 2012. 424 pp. Price: Rs 2000.

The book under review is the best example of how a group of knowledgeable people belonging to the wide spectrum of society can develop a database in the form of a coffee-table book. It has happened mainly because of the direct encouragement and help from the state government of the day. The plethora of knowledge is put in the form of an easy reading consisting of high-resolution photographs, tables, figures and sketches. The happening of a book of this type today demonstrates that the science of climate change has reached the homes of the common masses. It is heartening to learn that the book is conceptualized by none other than the Chief Minister of the state, Pawan Chamling and also published by the Government of Sikkim. The book is divided into four parts: Patterns and evidence of climate change, Impacts of climate change, Climate change related vulnerability assessment and cli-

mate change initiatives in Sikkim. In total there are 23 chapters written by eminent personalities consisting of scientists, academicians, scientific officers and current and former bureaucrats. These authors belong to institutions from across the country, including Sikkim. A couple of articles are also contributed by experts from outside India.

The first part deals with the climate change in the capital city of Gangtok, analysis of past three decades of weather in the mid-hills of Sikkim and the historical perspectives on climate change in the whole of Sikkim in general. Although it sounds alarming, it is important for everybody to note that the warming over the Himalayas is much more (about three times) than the global average value. Based on the data archived by India Meteorological Department (IMD), the first paper infers that the maximum and minimum temperatures during 1957–2005 have annually decreased and increased by 0.02°C and 0.06°C respectively, compared to the baseline period of 1961–1990. Warming is found to be more pronounced during winter months. In the recent past, during 2006–2010, there has been a decrease in rainfall, decrease in maximum temperature and increase in minimum temperature by 9%, 2% and 1.6% respectively. The second paper is based on the observations during 1981–2012 made at the Met observatory in Tandong. Analysis of data shows that the increase in the minimum temperature during October (0.04°C/yr) and November (0.07°C/yr) may affect germination of rabi crops like wheat and barley. The expected insufficient rainfall at 50% and 80% in November and December respectively, may give rise to the need for supplementary irrigation in Sikkim. The third paper highlights the good aspects of the age-old practice of conserving the ecosystem and thereby contributing to the mitigation efforts.

The second part of the book dwells on the impacts of climate change and therefore rightly constitutes a major part the book. This part includes the retreat of the East Rathong glacier in the Rangit basin in the west Sikkim; monitoring the seasonal snow cover in Sikkim Himalaya; the phenomenon of glacier lake outburst floods (GLOFs); alpine flora; characteristics of forests in general; birds and butterflies; biodiversity in the Kangchenjunga landscape; biogeographic response of rhododendrons; sustainability of agro-

diversity in traditional farming; adaptation measures in dairy sector and forest fire events. This part encompasses almost all important aspects of an impact study in a state like Sikkim. East Rathong glacier is a small glacier of 5.12 km length and average width of 1.5 km. It is south facing and its accumulation zone is on steep slope. It has retreated by 460 m during 1976–2009. If one considers the later period of 1997–2009, it shows faster retreat of 234 m in 12 years. On the other hand, the larger glacier Zemu, which is about 12 times larger than East Rathong, does not show consistent retreat, since it has east-facing aspect and gentle slope. Study of distribution of snow cover in Teesta Basin during 2004–2008, indicates that in Sikkim the maximum snow cover of 50% is in February, which is attributed to the western disturbances. Even in summer there is high extent of snow up to 40% because of the advantageous location of Sikkim. The snow pattern in Sikkim suggests different accumulation and ablation patterns compared to other places in the western Himalayas. The study of satellite imageries during the period 1965–2010 indicates that many glacier lakes have expanded leading to potential cause for GLOFs. Since our knowledge of GLOFs is limited, advanced research needs to be undertaken to predict and reduce their destructive effects. Alpine flora exhibit great variety of plant diversity in Sikkim, representing nearly 30% of the total flora. The warming of Sikkim during the last century has resulted in upward migration of the species from the lower altitudinal alpine zone AB1, shifts in the distribution of species across a broad range and late flowering.

About 82.3% of the geographical area in Sikkim is covered by forests. The paper dealing with the Sikkim forests based on climate model output indicates that the forest sector is unlikely to be adversely affected by climate change in the short and medium terms. However, considering the uncertainties in the climate model output, it is essential to examine the output of several other models. The study on Sikkim fauna indicates that many species have extended or shifted their range upwards along the elevation gradient. Since higher temperature suits the female snakes, a biased ratio has been observed towards them. Study shows large migration of birds and butterflies. The study on the linkage