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BOOK REVIEW

Kummu, M.; Keskinen, M. and Varis, O. (Eds). 2008. *Modern myths of the Mekong - A critical review of water and development concepts, principles and policies*. Helsinki, Finland: Water & Development Publications - Helsinki University of Technology.

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by Rajesh Daniel

Unit for Social and Environmental Research (USER), Faculty of Social Sciences, Chiang Mai University, Thailand; rajesh@sea-user.org

Constructing story-lines by packaging a set of assumptions or beliefs – story-telling in a more perverse form – is widely used in development arenas by a range of institutions and actors including governments, businesses, development banks, and nature conservation organisations.

The story lines construct causal links between events, phenomena or problems; they appear commonsensical; and, seemingly make plain many complex social or natural phenomenon. However, closer scrutiny reveals how they present one-sided projections of reality, misrepresent facts, hide deep-seated institutional or ideological agendas, and often distort truth and history.

Modern myths of the Mekong - A critical review of water and development concepts, principles and policies, edited by M. Kummu, M. Keskinen and O. Varis attempts to scrutinise a set of commonly believed myths – termed Modern Myths to distinguish them from the traditional myths or stories from particular cultures – of sustainable water resources management in the Mekong River Basin. The book challenges these story-lines through scientific analysis, in order to, in the words of the editors, "address the problems and biases that have resulted (or may result) from the simplified picture portrayed by the Modern Myths".

The book is one of the products of a 3-year (2005-2007) research project by the Helsinki University of Technology, Finland that analyzed Integrated Water Resources Management (IWRM) in the Mekong River Basin.

The project invited research papers and organised annual workshops that brought together the scientific community of water and development researchers working in the Mekong region. The first workshop assessed the state of knowledge of nature and societies, and the governance system, with a focus on the Tonle Sap lake, Cambodia; the second workshop looked at breaking down simplistic concepts related to water management and fuel discussion to move onwards from a yes-no argumentation; the third and last of the workshops looked to the action and the challenges and choices in the future.

This book is the outcome of the second workshop, a peer-reviewed collection of chapters each taking up particular myths – Why are ecological paradigms that integrate terrestrial and aquatic processes not used in environmental impact assessments (EIAs)? Did traditional Khmer societies in Angkor live in harmony with their environment? Are fish catches declining in the Mekong Basin? – and dismantling or unpacking them.

The chapters comprise a wide range of issues including contemporary assessment practices, gender mainstreaming in community fisheries, causes of river-bank erosion, perceptions of declines in Mekong fish catch, upstream and downstream tensions around dams, population and development questions, and viability of community resource-use organisations.

While ignorant of new ecological paradigms that could help better understand ecosystems, modern myths favour conventional ways of assessing and studying ecological processes, and lead decision-makers to believe that they are adequately informed.

The chapter "Little impact, much damage: The consequences of Mekong River flow alterations for the Tonle Sap ecosystem" shows how present-day Environmental Impact Assessments (EIAs) are flawed; a highly instructive chapter in the light of the surge in infrastructure plans for the region.

The traditional EIA approach for large projects in the Mekong is to assess direct and indirect impacts on discrete components of the environment such as air quality, surface and groundwater, soils, vegetation and wildlife. But they fail to assess integrative, cross-sector processes such as the "flood pulse".

The flood pulse ecosystem is a lateral exchange of water, nutrients and organisms within the "flood pulse" or succession of periodic flooding or drought that determines ecosystem productivity of the rivers and lakes – a well-known example is the Tonle Sap lake – in the Mekong region. The different characteristics of flood pulse – all of which have important ecological significance – include its modality (one or more peaks), predictability, amplitude, duration, smoothness and rapidity of change. Predictable pulsing favours the adaptations of organisms and increases primary production and efficiency of nutrient use.

The nutrient status of the floodplains depends on the amount and quality of dissolved and suspended solids of the parent lake or river.

The Cumulative Impact Assessment (CIA) for the Nam Theun 2 dam project in Lao PDR, claimed to be one of the most comprehensive assessments of the impact of any project on the Mekong basin, failed to assess the flood pulse ecosystem processes.

The CIA studied downstream impacts and reported a dry season water level rise of 2,870 centimetres at Chaktomuk, the junction of the Mekong and the Tonle Sap Rivers. The chapter says the CIA "assesses only one characteristic of the flood pulse with respect to fisheries production and that is based on the ill-informed belief that fisheries 'are favoured by the high wet-season water levels'. All other parameters that determine fisheries productivity (...) are disregarded in the assessment".

The chapter explains that a rise in dry season water levels at the Tonle Sap-Mekong junction will lead to a rise in the permanent water level of the Tonle Sap Lake, which would result in a massive die-off of terrestrial vegetation in the new permanently aquatic area. The negative impacts of this process, which could be felt for several years, would impact ecosystem productivity and the resource-based livelihoods of thousands of people.

The chapter in the section on development, "Did traditional cultures live in harmony with nature? Lessons from Angkor, Cambodia", offers a fascinating look at the early Angkor civilisation and how the Angkorian 'engineers' diverted water from existing river systems, sometimes resulting in entirely new catchments.

The Siem Reap river, which passes through Central Angkor, is not a nature-made river but a water channel dug and modified from the Puok River that originally flowed southwest from the Kulen Hills to Lake Tonle Sap. As the book explains, "Parts of this [Siem Reap] watercourse are still straight today, unlike the other natural rivers running down through this same alluvial fan".

By analyzing the pattern of growth and decay of the infrastructure – its road and water network – the chapter shows that the adverse environmental effects of these diversions including sedimentation, bank erosion and changes in water levels, may even have contributed to destabilising Angkor, leading to its collapse.

One thorny issue in the Mekong region is China's plans to build dams on the upstream Mekong. The chapter "Do the downstream countries oppose the upstream dams?" analyses the energy plans of

China, Thailand, Vietnam, Laos, Cambodia and Myanmar to show that not only China but also the Mekong region governments and development institutions are pushing for hydropower expansion; the Asian Development Bank's (ADB) Greater Mekong Subregion (GMS) program has been one of the strong promoters of regional electricity trade.

The chapter shows the complexities in governments' regional energy plans while people are led to believe that downstream governments oppose China's dams. Thailand, for instance, has complained about the negative effects of China's dams while at the same time asking to buy power from Yunnan; Vietnam will buy hydropower from Laos; Thailand and Myanmar intend to develop the lower Salween dams to generate 12,700 MW of electricity.

In the Mekong region, large numbers of people still depend for their livelihoods on ecosystem services from forests, wetlands, and fisheries. The book says the conventional Gross Domestic Product (GDP) assessment makes little sense as the GDP undermines the role of ecosystem services in people's lives and livelihoods, while simplistically equating development to making money. The book calls for a comprehensive life quality index to be used as the main criteria for development. The book's foreword describes as "perhaps the most dangerous" this myth: the oversimplified perception that economic growth reduces poverty.

Overall, the book brings scientific results a bit closer to "non-scientist" readers and actors, and gives slightly more popular, and even more provocative, ways of discussing these issues.

The book's one small weakness is its lowland plains and valley focus. Inclusion of a chapter examining upland water myths – for example, the pejorative even racist storyline prevalent among many lowland forestry departments and development institutions in the region that "upland ethnic minorities are destroying watershed forests and causing droughts (and floods)" – would have strengthened the collection.

As the Mekong region is going through rapid development changes, and while science and knowledge as well as environmental governance struggle to keep up, the *Modern myths of the Mekong* is a valuable effort to keep the practice of science and natural resources governance in the region honest and democratic.

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