

the project. The dam was completed with alternative sources like Fixed Deposit Scheme, Market Borrowing, Cooperative Sector, State Public Sector Undertakings, Religious and Charitable Institutions, etc. Ultimately, it is the people of Gujarat who have a stake in the project. In chapter nine the author discusses about the environmental safeguards of the project. He argues that most development measures affect natural wealth – air, soil, water, forests, minerals and our wild ecosystem. It was recognised that all development activities impinge on the natural environment and create stress. But for the SSP Environmental Impact Assessment (EIA) was made according to the guidelines of MoEF – GoI. But the challenge lies in maintaining the environmental balance as development activities tend to disturb the natural resources.

The part – 3 discusses about the cost – benefit analysis of the project. The Sardar Sarovar Project (SSP) on the River Narmada is one of the most debated, most researched and most meticulously planned water projects in the world. The project has got caught in long drawn out legal disputes, political controversies, demonstrations and agitations. The proponents and the opponents of the project have used the cost-benefit analysis to derive support and comfort for their respective strong positions. It was ultimately found that the project turns out to be socially and economically highly viable. But it is extremely difficult to find developmental projects where everybody in society gains and nobody loses. In most cases, projects result in many people gaining, some people not affected directly or indirectly, but a few people definitely losing. In this situation the author suggests solution, based on the Kaldor – Hicks Compensation Principle i.e., the gainers should compensate (win over) the losers through mutually acceptable voluntary bargain before the project starts.

This book is informative and highly educative to the students, academicians, administrators, engineers, development professionals, sociologists, politicians, policy makers, environmentalists, NGOs and Research Scholars etc.

S. N. Rao

Sardar Sarovar Project on the River Narmada-Impacts so far and Ways Forward; Volume 3 is edited book by R. Parthasarathy and Ravindra H. Dholakia, 2011, published for CEPT University Press, Ahmedabad by Concept Publishing Company, A/15-16, Commercial Block, Mohan Garden, New Delhi-110059, pp960.

The Sardar Sarovar Project (SSP) on river Narmada has a long, interesting and also controversial history. Few issues were sharing of water, rehabilitation of the project affected persons, planning of use of water etc. Keeping this as background, this three volume series has been taken up by the authors as the documentation of the process of evolution and the contribution of Sardar Sarovar Project on the river Narmada in Gujarat. All the contributors of these volumes were directly involved in the project one time or the other.

The first volume provides historical perspective on design, planning and appraisal of the project. The second volume draws attention to the implementation challenges like the process of resettlement and rehabilitation. The third volume discusses the impacts of SSP so far and the ways forward including aspects of water distribution, management options and policy issues. All three volumes put together it was the compilation of 31 articles of which 10 constituted in the first volume and another 9 in volume 2 and other 12 in volume 3.

Volume three is divided into two parts and part VI focuses on Impacts so far and part

VII studies ways forward. The editors of the book, R. Parthasarathy and Ravindra H. Dholakia give a overview on 'Sardar Sarovar Project: Performances so far, Plans and Opportunities'. They felt that the water is a critical resource as well as a product significantly augmented by SSP for a country as a whole and particularly for four States of Gujarat, Rajasthan, M.P and Maharashtra. In Gujarat the drinking water needs of several municipalities, villages and habitations are met with SSP water and in fact, when the plans are implemented, SSP would be the irrigation system that truly takes cognizance of water management, going beyond mere distribution.

N.B. Desai in his article 'Irrigated agriculture through Sardar Sarovar' focuses on the aspects of irrigated agriculture due to SSP and describes the way the command area was planned for the purpose of irrigation. He also dwells on plans such as canal automation, micro irrigation, strategies for conjunctive use of water and the framework for vertical and horizontal drainage to tackle the problem of waterlogging.

Through the article 'Impacts of Narmada water on Agriculture Gujarat' Amit Garg *et al.* present the impacts of Narmada water on agriculture in three districts of Gujarat- Ahamdabad, Gandhinagar and Vadodara- which started receiving the canal water from 2005 onwards. The key question of the study is whether the timely availability of Narmada water had caused an increase in crop yield and net area sown (NSA). The results show that the Narmada water has significantly increased the average crop yields and NSA of wheat, oilseeds and pulses in all the three districts. The authors claim that in aggregate the farmers have been benefited economically.

Prerana Desai Vaidya in their paper on 'Irrigation Impacts of Sardar Sarovar Project; A field evaluation' discusses the results of an empirical study carried out to understand the

impact of Narmada water. The study villages are from five districts- Narmada, Bharuch, Vadodara, Panchmahal and Kheda. Based on survey of more than 1,000 households along with interviews and focused group discussions, the author concludes that access to Narmada water for irrigation has resulted in higher agriculture production and hence income.

Subhrangshu Goswami in his paper on 'Revisiting Sardar Sarovar Canal Based Drinking Water Project in Gujarat' presents that the allocation of water for Gujarat from SSP has two distinct components- water for irrigation and water for domestic use and industry. While the irrigation component is well researched and debated by the planners and policy makers at different levels, the drinking water component which can meet the drinking water needs of 55 per cent of the villages and 65 per cent of the urban centres of the state has been in the limelight. The author also discussed the issues and challenges involved in implementing the project and achieving its objectives in the context of it's built-in weaknesses, which arise from its concept and design on one hand and the socio- cultural and administrative capabilities of the state on other.

Dinesh Metha and Meera Metha in their paper on 'Urban drinking water security and sustainability in Gujarat' address key challenges of urbanisation in Gujarat. According to authors, provision of drinking water to large part of the state is a big challenge. The paper is an attempt to show that Narmada water is reaching the interiors of Kachchh, North Gujarat and Saurashtra.

Part VII focuses on Ways Forward by analysing six papers. In the paper 'Social Limits and economic partnership potentials in SSP command' by R. Parthasarathy covers two distinct aspects, one development of command area as outlined in the *Planning for Prosperity* by Sardar Sarovar Narmada Nigam

Limited (SSNNL) in 1989. The second aspect is the other school of thought of involving private players in water distribution and management.

Tushaar Shah and others in their paper 'A case for pipelining water distribution in the Narmada irrigation systems in Gujarat, India' advocate ten strong rationales for pipelining water distribution in the Narmada Irrigation System instead of constructing open channels. In support of their arguments they discuss the successful experiences of irrigation development in various districts in the Upper Krishna Basin in Maharashtra and the investments made in many villages of Gujarat.

Dinesh Kumar and Nitin Bassi in their paper on 'Maximising the social and economical returns from Sardar Sarovar Project: Thinking beyond the convention' discuss the potential indirect benefits from SSP which were not envisaged at the time of project planning. Some of these benefits are sustainable well irrigation, reduced cost of energy for pumping groundwater in the region and improved quality of groundwater resulting from enhanced recharge. Samar Datta in his paper on 'exploring institutional alternatives to tap fishing potentials of Sardar Sarovar Reservoir' explores and proposes a model. Given both the technical and socio-economic complexities in fisheries development over a vast water body, the Narmada Water Disputes Tribunal (NWDT) has not given any formula for cost and benefit sharing in the context of fisheries.

M.B. Joshi and K.D. Acharya in their paper on 'Challenges Involved in Operations of SSP Canal Conveyance system and use of State of the art of Technology' present the uniqueness of the operational aspect of SSP canal network, which over the time has become increasingly important to achieve the desired level of performance. S. Jagadeesan by 'Connecting the last mile', sums up the gigantic project called SSP and highlights the plans of SSNNL.

By reading the articles in the book, an individual develops contemporary knowledge on the issues related to the irrigation projects. The authors should be highly appreciated for focusing on the practical issues relating to construction of a project and its impact on irrigation and drinking water. The book is full of critical analysis of Sardar Sarovar project. Thus in a nutshell the book is reference manual for every social science researcher, academics, NGO activists, practitioners and policy researchers, who are interested and keen in irrigation and drinking water projects. The language used by the different authors is simple and the style of presentation is good. The authors also used exhaustive examples and the book has rich bibliography. However, in the overall assessment, the book is good resource book on various aspects pertaining to irrigation projects and their impact on people. The present volume has great relevance of time to the rural development too.

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