

# Chapter 8

## Water Resources Management: Case Study

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### ABSTRACT

*This chapter explores grassroots interventions by forging partnerships with stakeholders in improving the management of water resources at the community level. In order to gain insight into the nuances of managing water resources in partnership, a pilot study was instituted in the State of Rajasthan, India. The efficacy of the partnership approach in ensuring equitable water management is demonstrated. The analysis is supported by data collected through the administration of a questionnaire for five different stakeholders. The impact of the intervention reiterates the positive social, economic, and environmental outcomes in a more sustainable manner.*

### INTRODUCTION

Water is an essential resource required for sustaining life and livelihoods: safe water is required for drinking, hygiene and providing food; and adequate water to produce energy and support economic activities such as industry and transportation. Water in the natural environment ensures the provision of a multitude of ecosystem services to meet basic human needs and support economic and cultural activities. For too long water has been an issue that is at once everywhere and nowhere: it is

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the lifeblood of our planet and of the human societies that flourish upon it, but is frequently taken for granted, with decisions at all levels and across all sectors made without full consideration of the potential impacts on water resources and other water users. (UNESCO-2003)

However, the availability of water in the planet Earth is finite. With the tremendous rise in population, a proportional relationship has also been witnessed in the rate of consumption of this scarce resource. Non-availability of water can force the populace to walk long distance to fetch the same for their daily needs, even paying exorbitant price as compared to the better-off; can cause recurrence of disease, insufficient food and in overall terms affect livelihood. The growth of cities, flamboyant urbanized life style, setting up industries for sustaining economic growth and even preservation of ecology are bound to demand extra amounts of water, thereby putting tremendous pressure on the dwindling resource. (UNDP 2006) It is well known that a mere 2.5% of global water resources is potentially available for human, animal and plant consumption; the remaining 97.5% resides in the oceans. Adding to this limitation is the fact that freshwater is highly uneven in its spatial distribution; thus, it is not uncommon that regions habitable for human settlement find themselves with insufficient freshwater. (UNESCO-2006)

Today, the world faces a significant challenge – that of ensuring water security. There is an emerging gap between safe freshwater availability and water demand in many developing and fast-growing economies around the world. The gap between water supply and demand is projected to be of 40% in 2030. In many places, the demand is already exceeding the sustainable supply, causing an imbalance and depletion of water resources at a faster rate than can be replenished. Asia will also need on average 65% more freshwater withdrawals for their industry and energy sectors by 2030 in order for their national economies to grow as forecast. (WRG 2012) India, China, the United States, Pakistan, Japan, Thailand, Indonesia, Bangladesh, Mexico and the Russian Federation are the ten major water users in the world in terms of volume. Countries such as India use 646 km<sup>3</sup> of water a year whereas it is exceedingly minimal amounting to 30 million cubic meters a year in the case of some tropical African countries (Cape Verde and the Central African Republic. (UNESCO 2009)

India's finite and fragile water resources are stressed and depleting, while sectorial demands (including drinking water, industry, agriculture, and others) are growing rapidly in line with urbanization, population increases, rising incomes and industrial growth (Government of India, 2001). India is the largest user of groundwater in the world with an annual extraction of 210 billion cubic meters. The groundwater today provides more than 60% of net irrigated area. It accounted for over 85% of the addition to irrigated area in the last 30 years. As per NASA study groundwater depletion in Rajasthan, Punjab, Haryana and Delhi was equivalent to a net loss of

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