Integrated Water Resource Management for Business Sustainability

**White Paper on Water Management
by
Mainstay and EfficientCarbon**

Mainstay Development Consultants
YOUR SUSTAINABILITY PARTNER

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BUILDING THE LOW CARBON ENTERPRISE

Introduction

Water - is a ubiquitous natural commodity, or so it seems. While it looks plentiful, its availability has been under severe strain over the past few decades. It's a known fact that the use of freshwater has almost doubled over the past five decades and we are slowly coming to a point where it is not surprising that there is such a vast water shortage across various strata of society - the farmers, the businesses, and the consumers.

As businesses seek to secure long-term prosperity, maintain competitive advantage and brand differentiation, and secure stability and choice in supply chains, increasing water scarcity presents physical, financial, regulatory, and reputational risks. This makes the need to discuss the sustainable use of water all the more important in today's day and age. Heavily water-dependent businesses with the best-known brands will encounter the greatest reputational challenges. But many other businesses will face challenges and uncertainty due to the increasing scarcity of water.

The Need

For many Industries, freshwater is a basic ingredient for their operations, while effluents may lead to pollution of the local water system. Today, many companies recognize that failure to manage the issue of freshwater raises different sorts of business risks, including damage to the corporate image, threat of increased regulatory control, financial & social risks caused by pollution, and insufficient freshwater availability for operations.

Several organizations and industries now recognize that proactive management can avoid risks and contribute to their profitability, competitiveness, and respect. Thus, integrated water management is increasingly regarded as an essential part of sustainable corporate performance accounting.

Social License to Operate

Proactive organizations across the world, especially those operating in third-world countries where the water demand is higher are beginning to understand why they need to take a stand on water issues. There is an undeniable humanitarian angle to this issue that just can't be avoided by companies. The contemporary Indian social, and demographic context is witnessing a growth in demand for water resources and experiencing a crunch in its access and availability, clubbed with livelihood challenges like never before. On the contrary, meager policy instruments, inadequate institutional capacities, and lack of machinery in place to address or ensure the sustainability of its resources. Thereby, situation/s leading to exploitative, competitive demand among representative stakeholders for access, and stake over natural water resources.

These situations often result in equating with rights, posing a serious threat to long-term sustainability concerns and challenges more specifically for water resources. Further to a given context, allocation priorities (political decisions) are often undergoing rapid changes. Such a social environment may hamper business goals and growth potential, unless strategically aligned and engaged with the community, and key stakeholders, by managing social visibility through equitable and sustainable social benefits. The social /philanthropic - CSR base needs to be re-visited, re-aligned, and equipped with social processes effective to engage, converge, and build sustainable linkages consistently. Some corporations are learning this hard way when their water usage is indirect

competition for the right to access water for the local communities and they are losing the social license to operate in these communities.

Water Intensive Industries
Beverages & Bottling
Distilleries
Food Processing
Pharmaceutical
Pulp and paper
Steel
Sugar
Textiles
Power plants
Mining
Fertilizer

To secure and maintain a social license to operate, many companies have had to become acutely sensitive about where they site their water-intensive facilities. All this brings us to the need for companies to evaluate their risks of water depletion and how they can protect their sources such that the business is not affected. The environmental burden on water resources by corporate companies too should be calculated and efforts should be made to ensure that this burden is reduced.

Save Water or Suspend Business

One more reason why companies and corporations which rely on water actively in their business have to take water scarcity seriously is that their net profit is going to get affected by depleting water sources which can also lead to the suspension of production. A case in point is the temporary closure of the production plant of a textile company, a subsidiary of a large industrial conglomerate in Madhya Pradesh in 2011 and 2012 due to a water shortage. The company which produces fiber said that its production would be suspended till the onset of the monsoon.

Assessment - Need of the Hour

Most organizations that use freshwater for their processes have to constantly assess their water consumption and wastage and find ways to reduce both consumption and discharge. Many disciplines need to be involved to do a fair assessment of water risks at the source level. Varied factors like physical, social, and environmental aspects too should be studied. It's in this process, that we step in to help analyze the current risks and provide solutions.

In short, water is a resource that needs to be treated unlike other resources - such as Carbon or Energy. Water comes with not just environmental but also economic and social implications and water, unlike carbon is not exchangeable. That is, an organization cannot say that it is absolved of water issues by saving water in Tamil Nadu while depleting the groundwater in Rajasthan. Water remains a local and global issue at the same instance! As we say in the industry, water could be globally abundant by being locally scarce.

The Critical Balance of Water Demand

Lack of access to safe drinking water is an indicator of poverty - groundwater supplies drinking water to an estimated 1.5-3 billion people — and in most areas groundwater is recharged through functioning wetlands; therefore sustaining its supply is a biodiversity related issue. Without improved water resources management, the progress towards poverty reduction targets, the Millennium Development Goals, and sustainable development in all its economic, social and environmental dimensions, will be jeopardized.

- UN RIO Calendar, 2013

So what is needed from organizations is to move beyond simple water management and take leadership in water conservation and protection.

Responsible Approaches to Integrated Water Management

Water management needs a multi-disciplinary approach from organizations that include Hydrology, Geology, and Environmental mapping along with a deep insight into the Social & Sustainability aspects of water and the impact of Climate change on water availability over time.

Water management is a multi-disciplinary subject

The starting point in any effective water stewardship program is to do a comprehensive audit across the value chain of an organization. Then, the approaches to Water Management Integration and Water Neutrality will come into play. The value chain approach to a good water audit is shown below:
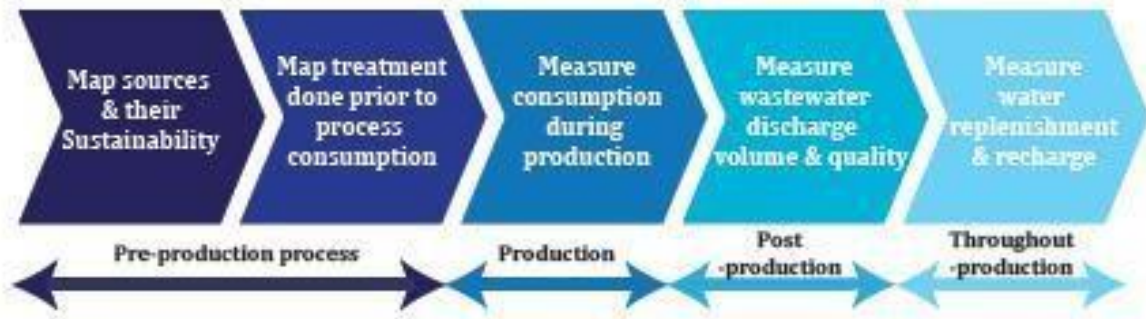
Identification of sources of supply and consumption enables organizations to set targets for the reduction of consumption, discharge, and better management of social & sustainability aspects. We recommend the following five areas for water stewardship:

- Water Neutrality
- Source Water Protection and Sustainability
- Watershed management
- Community interventions
- Stakeholder engagement

An organization looking for integrated water management can either pick up any activity that is relevant to it or it can implement different activities in each of the above areas. The key here is to evaluate which are the most relevant areas for the organization's sustainability and successful growth and then implement activities in those areas first. Then one could look at implementing projects in other areas in the order of their priority. For example, a food and beverage company that is dependent on water being the major input for its process could first look at programs in Source Water Protection and Community Management areas. On the other hand, a company with more wastewater discharge could look at Process Management to implement zero-discharge programs that can positively affect the water balance of the watershed.

Water Neutrality & Positive Water Balance

Water neutrality is defined as a concept or process which aims to ensure that there is enough water to support new development without requiring additional water resources. The aim is to bring down the wastage of water and use and reuse the available water to the maximum extent. The idea of the water-neutral (or water-offset) concept is to stimulate individuals and corporations that undertake water-consuming activities to make their activity 'water neutral' by investing in water-saving technology, water conservation or environmental protection measures, wastewater treatment, and water supply to the poor that do not have proper water supply within the operational hydrological unit. In other words, water-neutral consumption or production offsets the adverse environmental and social consequences of the consumption- or production-related water footprint.

The Water-Neutral Concept Being Proposed

Water neutrality, as practiced conventionally by industries will not help in delivering benefits to the stakeholders affected by particular operational boundaries. Water neutrality cannot be treated as Carbon neutral concept where water depletion or pollution in one river basin cannot be neutralized by water-saving or pollution control in another basin. Offsetting is to be done within the hydrological unit where the impacts take place. As mentioned previously, a company can't claim to be saving water or being 'water neutral' by saving water in one region while consuming or depleting water resources in another region. There is, therefore, a need to be water neutral at the local level. This can be done by focusing on watershed programs or recharging groundwater at the local level where a company's factory might be located.

There are multiple ways of becoming water neutral & reduce the pollution of watersheds. Most of the solutions are well documented but some solutions that organizations can focus on within the watershed are:

- Improving per capita water efficiency in the process
- Rainwater Harvesting
- Stormwater Management
- Zero Discharge

Once the activities that are relevant to the particular plant/company/location are identified, a program must be drawn to implement them successfully and the impact should be measured. **Positive water balance**, when claimed by organizations, is claimed mostly at a national level. It should rather be at a watershed level. That's when the amount of water we are replenishing into the watershed is more than the amount of water drawn from it. That would be the best example of

positive water balance and an impactful watershed management program. For that to happen, the organizations need to map out their watershed and draw their areas of influence well.

Watershed Management

The most successful source of water protection and watershed management programs worldwide have been based on a participatory and partnership approach. In this approach, stakeholders across the watershed are full partners in the assessment process at all the stages of identification, design, implementation, and evaluation; and technologies are offered as a range of choices to be adapted rather than as prescriptive solutions to problems.

A Watershed is an area that supplies water by surface or subsurface flow to a given drainage system or body of water, be it a stream, river, wetland, lake, or ocean. The characteristics of the water flow and its relationship to the watershed are a product of interactions between land and water (geology, slope, rainfall pattern, soils, and biota) and its use and management. A watershed is thus the basic unit of water supply and the basic building block for integrated planning of land and water use. The watershed management strategy addresses water quantity, quality, and social engagement. It's clear that sustained water quantity is an accepted problem and is impacted by multiple pollution sources, including stormwater runoff; urbanization; non-point runoff of nutrients, sediments, and pesticides from agricultural practices; and industrial operations.

Effective watershed management integrating upstream and downstream serves as a guide to the water user by providing all probable physical and social threats to the long-term sustainability of the water source. To be effective, it must have a comprehensive strategic plan to reduce or mitigate the mapped risks. The integrated watershed management plan is used as a blueprint for managing and protecting surface and groundwater.

Stakeholder engagement – Social Risk Management

As the figure above shows, as soon as we move away from absolute science to social sciences, more and more issues become intertwined, and intangibles like Perceptions, Prejudices and Personal agendas come into play, complicating the community & stakeholder management process further. An unbiased and clear method of operation and communicating activities, their impacts, and programs took up to minimize negative impacts are essential for any organization involved in Stakeholder Engagement or Community Interventions.

The process of community engagement deals with the identification of a key representative individual, group, or institution, and aligning them with common concerns and challenges. Community engagement builds 'Social capital' - social ties, networks, and support - which is associated with better community participation, ownership, and well-being. Engagement with existing institutions builds trust and mechanisms for joint action.

A broad range of possible participation levels is possible and can be visualized as a progression of levels of control over program decisions and resources. In general, the aspirations, concerns, needs, and values of stakeholders and communities are incorporated at all levels as strategy, planning, decision-making, service delivery, and assessment.

- Building community support structures for sustainable source water management initiatives
- Develop community models and mechanisms for community implementation and ownership with a gender perspective
- Building institutional linkages for convergence and linkages to sustain the PWB approach

The effective engagement process in place will manage perception, and visibility by imparting equitable, and sustainable social benefits. Therefore, it becomes inevitable for business houses to assess their social vulnerabilities and mitigate such vulnerabilities through effective social risk management place will ensure social branding leading to added competitive advantage.

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The influence of the stakeholders in a project's success or failure is maximum at the start of the project. As the project goes on, the influence of stakeholders is reduced. The vice-versa applies to the cost. The cost of making changes

to a project's methods and aims will be lower at the start while the costs to make changes increase drastically when the project progresses. Hence it is always good to consider stakeholders' expectations while starting a project rather than later when the costs of changing the methodologies or project success factors are prohibitively high.
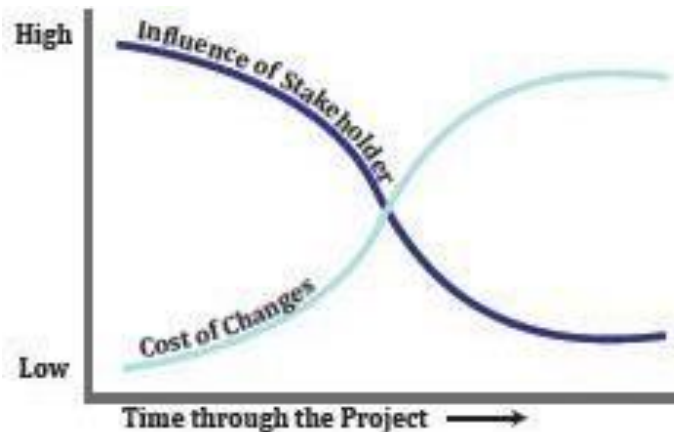
Source Water Protection

Though water is considered to be a renewable resource, the quality and quantity of water can be degraded by human activity at a rapid pace. Source water is untreated water from streams, rivers, lakes, or underground aquifers that is used to supply private wells and public drinking water. To protect our source water against overexploitation and contamination, we must manage the human activity that creates these threats.

When water is one of the key inputs in the organization's process, identifying, conserving, and protecting water sources in collaboration with the local communities is key for the sustainability of the business at a local level and creating long-term community goodwill at the organizational level. Source water protection plan should include not just protection against over-withdrawal but also protection against contamination or quality degradation.

A good source water protection plan should consist of five primary steps:
- Make a person/committee responsible for the operation
- Demarcate the boundaries for the source water that needs to be protected
- Make a risk assessment plan of all the threats to the source water within the boundary
- Create solutions to mitigate the risks and identify a road map for constant supervision
- Implement solutions, monitor regularly, and make improvements

Bringing it all together - A model and approach

Integrated Water Management practices offer the flexibility of taking up any or all the 6 activities as relevant to the organization. So companies need not worry about activities that are not relevant to their business. However, when taking up any related activity mentioned in this paper, one needs to be prepared well enough in terms of the scale of the project they are taking on and allocate appropriate resources. A surefire recipe for disaster would be a project that has been taken up without an objective assessment of the resources required for the organization to execute the project in terms of the internal capabilities, finances, or the time allocated.

Another important factor for the success of water management activities is the support for these projects, both internally, within the organization and externally, with the communities or stakeholders, they are interacting with. While the activities in themselves bring in a lot of business continuity, revenue generation & cost-saving benefits, communicating these activities can also bring inherent branding benefits to project organizations as responsible and caring towards communities and the planet. Globally, there are a lot of independent watchdogs and alliances that have their entire focus on the sustainable use of water. These independent pressure groups such as Global Reporting Initiative (GRI), World Business Council for Sustainable Development (WBCSD), and Carbon Disclosure Project's forthcoming Water Disclosure Project (CDP) reporting mechanism hold a lot of influence on funding agencies and governments, which puts them in a very responsible position of determining standards for organizations on Water Stewardship and applying pressure on organizations that deviate from the set standards. Integrated Water Management provides opportunities to organizations that want to be benefited from prudent water management and make a mark as committed and caring corporate citizens.

To engage with stakeholders and communities in a better way, while keeping risk assessments objective and developing high-quality reporting of the integrated water management practices, we have developed a model that could be adopted by organizations in any sector and of any size. This could be modified, depending on the relative importance and relevance of each aspect.

Sustainable Integrated Water Management Model

Integrated Water Management can establish Sustainability in organizations at the very core due to its scope which encompasses the environmental, social, and economic aspects of running any business or charity. Water is the most precious commodity on earth and we hope that by using Integrated approaches to responsible water management; organizations can conserve, preserve, and grow the quality and quantity of water available for future use.

About Mainstay Development Consultants

The Mainstay Development Consultants is a registered Company established in 2009, that offers strategic support to facilitate and manage change in modern organizations, promoting and enabling partnerships, stakeholder, and institutional capacities, to integrate business processes and organizational culture for sustainable development. Mainstay also invests in innovative practices; value-added interventions to promote its social and business partners.

Our work is to support, enable, and facilitate the development goals of social partners/organizations and their deliverables continually. We conduct research, process documentation plan, assess, monitor, and evaluate the impact of collaborations, bilateral partnerships, and other ventures in development programs. We undertake developing projects and programs with a focus on reducing risk and vulnerability, tackling social exclusion, designing social protection measures, and promoting gender equality while working with civil society and corporate initiatives.

Mainstay works in partnership with, Government Agencies, Institutions, NGOs, Donors, Corporate and private companies, and philanthropic and charitable entities in achieving partner's social and development goals, through offering customized services and solutions with critical value-added innervation, combining innovative techniques with well-tested strategies.

As a catalyst, we hope to make a change where it matters. In delivering this, we anchor through a panel of well-established consultants and advisors including those from academia, practitioners, the not-for-profit sector, change management leaders, and subject experts in their capacities and collectively. Thus, we empower the process of change.

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About EfficientCarbon

EfficientCarbon is a consulting firm focusing on providing specialist advisory solutions to companies in the areas of Sustainable Development, Climate Change Strategy, Carbon Management, and Renewable Energy. With integrity, efficiency, and diligence, EfficientCarbon strives to help its client's companies manage their environmental and social impacts and become sustainable organizations in the truest sense.

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