Integrating Social and Business Case Approaches to Implement Watershed Development Projects in India

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Abstract

In India, the rainfed agricultural areas, not necessary the water deficient ones, offer untapped potential for enhanced food production and food security. However, the policies adopted for rainwater harvesting in these areas have not integrated the private interests of the watershed community with public investment, and the farmers, at most of the times, remain aloof of such efforts. Strong access to tangible and direct benefits from rainwater harvesting measures and the opportunities for the watershed communities to contribute to such efforts are the prime requirements of the watershed development programmes. A support system for remunerative agriculture based on business principles needs to be a part and parcel of such efforts. Looking at the socioeconomic profile of the farmers in the rainfed regions, there is a need to create enabling institutional arrangements for them to become a part of it for effective implementation of watershed development projects. An autonomous two-tier village development society has been suggested for active participation of the local community and effective implementations of the projects. A closed chain business model is suggested to develop local partnerships for value addition and other business activities. However, institutional innovations have to be a continuous process which need to be experimented with to evolve an efficient and functional institution at the grass root levels.

Keywords: **rainfed areas, tangible and intangible outcome, governance, socio-business model, village development society, institutional innovations.**

JEL Classification: H7, O2, Q2

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The Indian agricultural sector grew at an average rate of 3.6% in the 11th Five Year Plan in comparison to 2.5% and 2.4% growth achieved in the Ninth and Tenth Year Plans respectively. However, the declining per-capita availability of food grains is still a major concern. The Global Hunger Index (GHI) Report 2011 placed 21% of the population in the country in the category of undernourished. Given a plateau of output levels in irrigated areas, the rainfed areas offer scope for additional output. In our country, out of the net sown area of 141101 thousand hectares, 54682 thousand hectares (38.75%) is net irrigated and the rest 86419 thousand hectares (61.25%) is rainfed area. Three states, namely, Haryana, Punjab, and Uttar Pradesh, which constitute the granary of the country, have 83.90%, 84.47%, and 72.76% of the net sown area under assured irrigation, respectively. In the rest of the country, out of 115699 thousand hectares of net cultivated area, only 35308 thousand hectares (30.51%) is under irrigation, and 80391 hectares (69.49%) is the rainfed area (Ministry of Water Resources, Government of India, 2007). Thus, the vast rainfed areas, but not necessarily water deficient, are the future source of further agricultural growth. It is said that yield in these areas can be doubled as compared to 10% increase in irrigated crops (Pretty & Hine, 2001).

It is not the shortage of water, but the shortage of water management governance, which is creating water shortages in the country. It has been estimated that the mean annual average rainfall in the country, over space and

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time, is 1170 mm. It generates a run-off equivalent to 400 million hectare meters (m ha-m) of water. Out of this nearly 180 m ha-m surface, run-off is available for harnessing, but most of it (150 m ha-m) flows to the sea, and a small quantity (30 m ha-m) is stored or used directly through diversions, and so forth (Raju, Narayanamoorthy, Kumar, & Amarnath, 2004) . Thus, depending upon the rainfall events and the land features, a good combination of rainwater harvesting and ground water recharge measures offer ample opportunities for attaining self-sufficiency in water resources in most of the regions in the country.

Keeping this background in mind, an attempt has been made in this paper to analyze the critical factors responsible for the successful implementation of watershed development programmes. The specific objectives of the study are : **(a)** To review the programmes and policies adopted in implementation of watershed development programmes and find out the sources of success and failure in the programme, **(b)** to suggest an approach to be adopted as well as also to suggest a structure of the grass root level institutions and other policy measures needed to develop an optimal governance model of the implementation process.

Programmes and the Policies Adopted in Rainfed Areas

Programmes, such as the National Watershed Development Project for Rainfed Areas (NWDPRA), Watershed Development in Shifting Cultivation Areas (WDSCA), Drought Prone Areas Programme (DPAP), Desert Development Programme (DDP), Integrated Watershed Development Project (IWDP), The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), and the Employment Assurance Scheme (EAS) were in vogue and were recommended for implementation on the basis of the watershed approach. However, the vast number of mid-term reviews, impact evaluation, and exploratory studies suggested that the programs implemented by the state departments in partnership with local communities have not been a success story. The effectiveness of the programmes is low across States and the problem of poor delivery is endemic (Fan, Hazell, & Thorate, 2000 ; Jodha, 2002 ; Kerr, Pangare, Lokur-Pangare, George, & Kolavalli, 1998; Mitter, 2005 ; Planning Commission, 2012 ; Shah, 2001a ; Shah, 2001b ; World Bank,1998). In general, there is no significant difference in maintenance of natural resources and crop production technologies in watershed villages and rest of the villages. These models of decentralizing management have some serious flaws.

The schemes are planned and executed by district level officers who, in most cases, are also Project Implementing Agencies (PIAs). Under a hierarchical bureaucratic set up, the capability of these officers to do planning and involve masses at the grass root level is extremely limited. The decision making power rests with those at the apex of the organization and project activities simply required delivery of off-the shelf technological activities. The ability to respond to clients' needs is hardly built up in the procedures, and they are not accountable to the local community. Their interest is limited to financial expenditure alone. Once money is spent, physical progress is automatically taken for granted. Many structures are abandoned because of lack of post-project maintenance.

➲ **Watershed Development Programme and the Public - Private Interface :** The public initiatives need to be converted into private enterprises for their effective implementation and continuous maintenance and sustenance. The various measures introduced at the grassroot levels so far have not achieved this state. In this context, it is very important to understand what we mean by watershed development. Watershed development measures are manifested in a number of tangible and intangible outcome forms. While an increase in bio-mass production, including food grains, fodder, raw material for industrial use and medicines are direct economic outcomes and provide enough incentives to individuals to implement these measures, but the intangible benefits like fresh water availability in ponds or underground aquifers, flood control, soil conservation, suitable living space for both human beings and animals, and other socio-cultural services to the society are mainly public goods, which provide benefits to the whole of the society collectively but are not traded in markets. Furthermore, the time lag and scale effects of interventions do not allow the benefits to manifest themselves immediately, and it is also difficult to relate changes in ecological parameters to human welfare. For example, water harvesting

structures check soil erosion and have a favorable impact on groundwater availability and their impact may extend to a much larger area. These improved ecosystems offer a number of ecosystem services of value to the society.

Thus, both the direct and indirect benefits from watershed development programmes are intertwined. The former require a strong property right regime and the second, though the direct outcome of the first, require conditioning of the minds to appreciate the role and responsibility of individual's actions. The first one alone, implemented based on economic relations alone, including subsidy contributions, would make the task extremely capital intensive, which is very hard to find and implement on such a large scale.

➲ **Public Policy on People Participation in Watershed Management Programmes :** The Government of India formulated the Guidelines for Watershed Development (Ministry of Rural Development, Government of India, 1995) and these guidelines were put in operation with effect from w.e.f. April 1995. In a continuous process of evaluation and change, these guidelines were subjected to modifications in order to bring about convergence among various departments and making these guidelines functionally more useful and efficient. The latest version of the guidelines has sought the partnership through constitutionally recognized Panchayati Raj Institutions (PRIs). These reports contain suggestions, which could be called revolutionary with far-reaching consequences. These reports recommended participatory approach at the grass root level.

Local inhabitants, in partnership with the Project Implementing Agency (PIA), are empowered to initiate activities, which they consider most appropriate to meet their requirements and also involve the implementation ability of the beneficiary population at the local level. Therefore, the watershed development activities need to be in consonance with local economic, social, or ecological conditions. It is a holistic approach. However, Farrington and Lobo (1997) reported that, in the Indian context, 99% of the watershed development projects are still based on conventional approaches emphasizing physical planning without attention to local economic, social, or ecological conditions. Despite the apparent potential, the Panchayati Raj Institutions (PRIs) have not proven to be very effective institutions to ensure effective implementation of watershed development programmes. The autocratic functioning of the Gram Panchayats has relegated them to a position of the lowest rung of the bureaucratic delivery system.

➲ **Successful Watershed Development Programmes – Some Facts and an Insight into the Process :** Bunds on seasonal streams, contour trenches, field bunds, check dams, and percolation tanks; strengthening and renovation of traditional but abandoned water management schemes; and extensive treatment of the catchment areas were the measures adopted in most of the famous endeavors in the country. Rejuvenation of dry wells, seasonal streams, village ponds, and rise in sub-surface storage were the resultant outcome of these measures. However, it was the organization of beneficiaries and the implementation processes which were the key innovations which led to their successful implementation. In all these experiments, as important as the activities to the people have been the processes and the manner in which these activities were implemented. The watershed management activities started as a collective effort in response to common constraints. Implementation processes were based on local socioeconomic conditions, sound delivery mechanisms owned by the local community, and commitment from the project implementing agencies, which happened to be the local committees working under the guidance of a local leader. Projects created forums for collective decision making and ensuring representation of all the stakeholders. These forums enjoyed autonomy, had resources of their own or were entrusted with public money, and worked to address their immediate constraints. It demonstrated that improved watershed management is not so much a matter of monetary allocations, as of processes and governance.

Making Watershed Development a Part of Farmers' Business Model

➲ **Improving the Business Model of the Farmers in Rainfed Areas :** A look at the demographic profile of the farmers, especially those in rainfed areas, is necessary to comprehend their needs and to put a mechanism to fulfill

them. Mostly, the farmers in these regions are very poor and without subsidiary sources of income. They have fragmented and small holdings, lack resources to buy inputs, and are not served by infrastructural services in the form of technology dissemination and organizations dedicated to support and organize them. The rural development programmes implemented in the country since independence tried to transfer resources to them (top-down approach), and the recent efforts of decentralized watershed management gave them the opportunity for active involvement in project formulations and implementation processes (bottom-up approach). However, in both the approaches, the beneficiaries themselves could not get the control of the implementation process and were always dependent on external agencies. Thus, creation of enabling conditions to make the local community to occupy the central stage in management of their own resources as business enterprises is the prime requirement. Furthermore, poor implementation of the projects and their poor impact do not attract beneficiaries to take an active part in the management, and a vicious circle is created. However, when economically benefited, the beneficiaries find themselves too weak and devoid of institutional channels to participate in the maintenance activities.

➲ **A Socio-Business Framework for a Grass Root Level Institution for Watershed Management and Agricultural Development :** Interdependence of natural resources and their management and commercial agriculture pose problems, which need to be tackled both socially and through market forces. Given the scale of resources, including soil, water, and the population, the administration of water management activities on market and economic relations alone will require a strong property right regime. This would make the task extremely capital intensive, which is very hard to find and implement on such a large scale. The watershed activities have a strong social perspective , which needs to be reflected in:

(1) Planning, implementation, and post-project maintenance of physical water harvesting structures in watershed areas in a socially sustainable manner,

(2) Converging programs of various government departments and other organizations with watershed development programs.

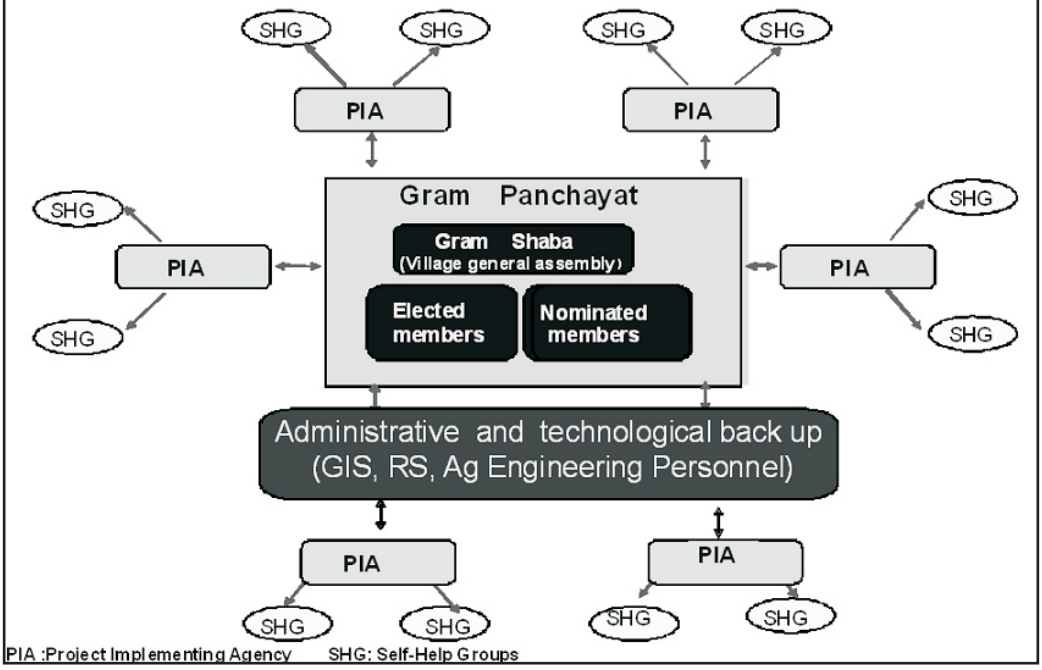
Simultaneously, this needs to be integrated with a commercial environment encompassing whole agricultural production processes and post production activities. It is suggested that these perspectives can be operationalized in two institutional environments (Rao, 2006):

(1) An open chain network with dynamically evolving partners and local communities,

(2) Closed vertical activity based chain network within clearly defined participatory agri-business enterprises.

➲ **The Open Chain Network Organizational Model and Watershed Management :** The open chain network model allows the existing institutional framework to embrace both a decentralized and knowledge based management of watershed development activities. The existing constitutional network of Panchayati Raj Institutions, especially the Gram Panchayats at grass root levels offers excellent opportunity to develop them into people's own institutions. However, programs under these guidelines have demonstrated the need for more changes in the existing set up for it to become effective and play the role earmarked for them. Already, some initiatives like Panchayat Empowerment and Accountability Incentive Scheme implemented by the Ministry of Panchayati Raj for more devolution of funds, functions, and functionaries (3Fs) to Panchayats, is the step in this direction. Gram Swaraj Act of Madhya Pradesh state was introduced to curb some of the authoritarian powers of the Sarpanch and allowed the subsidiary committees in a village to address specific action based targets. However, a comprehensive analysis of the functioning of grass root level institutions points to a need for more changes and evolution of a metamorphic version of these institutions. Some of the characteristics of such organizations may be called Village Development Society (VDS), (Kalra & Mishra, 2006) and are contemplated as follows:

Figure 1. VDS: An autonomous village level organization
A new organizational format for Gram Panchayats



➲ **Village Development Society - Two Tiers of Management :** The VDS may consist of a core group of personnel and a peripheral one (Figure 1). The core group personnel will be the elected representatives and some nominated persons of repute with impeccable record of honesty and devotion for rural development, preferably from the local area. They will be technically competent persons capable of manning the office of high authority. Small group of such persons will together provide leadership and overlook the managerial and coordinating functions of the VDS. The position will be voluntary, and the office is not likely to offer any material benefits. There is no dearth of public-spirited individuals in any region, who are voluntarily prepared to contribute in such efforts. A mechanism may be devised to include such persons in VDS. To further strengthen such organizations, rules and procedures can be incorporated to make it transparent and accountable in its working.

The other group of persons will consist of technical officers derived from different functional areas. Each one will be the program leader for the program proposed and planned by him/her or their departments. Persons from all walks of life like industry, banking, administration, police, law, and religions may be extended incentives to become members of VDS and push their programs. Absence of maps and land records and semi-literate villagers make the task of participation of masses an onerous one, and watershed activities remain confined to the bureaucratic domain. Use of commonly available GPS devices in marking watershed activities and preparation of maps of micro watersheds will bring watershed development at the doorsteps of the villagers. The Gram Panchayat, having intimate knowledge of the local topography and other associated features, can produce fully authenticated documents and end dependence on government departments. A strong technologically backed-up office is necessary for effective implementation of the watershed projects.

➲ **VDS - An Autonomous and Accountable Body :** VDS will be an autonomous society of all stakeholders having interests in agriculture and rural development. It will include government officials, technical experts, industry representatives, and NGOs. The local population, directly and through selected representatives, will be the key constituent of this organization. All the stakeholders will also be the constituents of the Gram Sabha. The Sarpanch may act as the president of the Gram Sabha with an understanding that the decision making process will

be facilitated by the Gram Sabha and the executive functions will be performed by the VDS. The VDS will be a focal point institution to coordinate efforts of all the agencies interested in rural development. This approach will facilitate collaborations with business groups, key NGOs, and other agricultural experts around commonly agreed framework, action plan, and outcome. To impart a local characteristic to VDS, it will have the power to make rules and bye-laws for its conduct, and amend, add, and delete them time to time. The programs in the villages will be implemented through individual household or user groups or self help groups. VDS will ensure capacity building of the local community by facilitating organization of farmers into associations and cooperatives in marketing, agro-processing, and other agricultural related activities. VDS will device methods to stand surety and negotiate on behalf of these farmers.

➲ **The Closed Vertical Chain Business Model :** VDS can successfully endeavor to create an environment to build partnerships locally with other organizations active in rural services and development. Such partnerships, with defined participating local and business groups and value adding business activities, are amenable to closed vertical business supply chain networks. The demand aggregation and increased market penetration will provide the incentive for rural infrastructure development like food processing, storage and transport, and so forth. The higher cost of infrastructure will be absorbed through this business model, which will help lowering transaction costs and achieving higher business volumes. The business models also provide technical support and advice to produce quality farm output and supply of good quality farm input. The technical support for limited or specific activity may also be obtained through outsourcing to experienced resource persons/ organizations identified by VDS. However, the pre-requisites for this closed-chain business model to be viable and sustainable, are sound business plans and strategies based on all conceivable value addition and distribution practices. The intimate understanding of social and economic conditions and mutual trust fostered by VDS will help integrating rural masses with mainstream economic activities.

The umpteen numbers of successful programs in rain water harvesting implemented by the social leaders or local organizations have demonstrated the amicability of the business model to this sphere of activity too. In comparison to the major dam and canal based irrigation projects, the cost of watershed development is very low, and in many cases, the local community of the watershed raised the whole amount through their personal contributions and donations in cash and kind. In the absence of cumbersome procedures and rent seeking elements, the local community could accomplish the task at a much lower cost with superior quality of construction. The immediate solution provided by such measures made such investments quite attractive, and the local society reaped the benefits immediately. However, such experiments have not shown much interest in generating revenue and maintaining and improving the capacity of such endeavors, possibly due to the absence of institutional and legal backing. Such institutions need to be viewed as a platform for providing services in irrigation and common property resources like pasture lands and minor and major forests produce. PRIs have the provision for collection of fees for such services, but this option has not been explored so far and needs to be developed and strengthened.

Research Implications

More and more responsibilities and powers are likely to be transferred to the Panchayati Raj Institutions in the near future in implementation of watershed development programmes. However, these institutions must provide the opportunity to powerless people to organize themselves at the village level and prepare them to take up the responsibility for management of local water resources. It is the pre-requisite to successful implementation of watershed development plans. In the changed scenario, the line departments and the research institutions are also expected to work in a partnership mode with them. The proposed organizational model will help evolving institutional mechanism of working of grass root level village institutions and the institutions with expertise in the partnership mode. However, the core management issues in watershed management are quite limited, and implementation solutions to most of the problems need to have recourse through market mechanisms. However,

these mechanisms need to be evolved organically as a consequence of efficient decision making at the core and synthesizing all available non-market resources and incentives. A beginning in this direction will help to evolve an operational model for application on a national scale.

Conclusion and the Way Ahead

At times, VDS may sound a fuzzy idea that does not admit of a precise definition, but the process has to be evolutionary in the absence of such an order existing already. A policy taking care of all these aspects is very difficult to formulate. A typical outcome is measures based on direct benefits, and under this approach, some critical aspects are left out, which impede the progress with the resultant vicious circle of dissatisfaction and slow implementation processes. The social and business models discussed have the potential to break it and create a high growth trajectory. A general liberal policy framework in public domain, like easy access to capital, creation of alternate marketing channels in procurement, processing, storage, and trans-border movements will also be important requirements for this model to be successful. Fully defined and clear property rights and entitlement to benefit from public land will help in creating necessary capital resources in the rural sector.

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