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HIGHLIGHT

Ten Things to Learn from the Dug Well Recharge Program

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Based on a presentation by IWMI researchers to the Finance Minister of India, in 2007 Government of India launched the Dug Well Recharge Scheme as a national program with an outlay of Rs. 1800 crore. Its aim was to educate and incentivize farmers in 100 hard rock districts of the country to modify their open dug wells for groundwater recharge. However, after around 3 years of operation of the scheme, our review found that it failed to achieve much success in the country. Analysis of the scheme's implementation provides us lessons that could be useful for any national groundwater program for the future.

This Highlight explores what went wrong with the Dug Well Recharge Scheme and provides several suggestions for any future program. It concludes that the idea of groundwater recharge itself needed to be broadened beyond dug wells; but even the success of such a broader idea would depend much on the quality of its implementation. Suggestions aim at making such programs more people-friendly, demand driven, enabling and locally flexible initiatives rather than a target driven subsidy-based measure. Key to success would also be excellent communication that is aimed at addressing individual farmer's issues as well as social concerns of a larger nature.

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Ten Things to Learn from the Dug Well Recharge Program[1]

Research highlight based on Krishnan et al. (2008); Mohandas and Gupta (2008); Shah (2008); Krishnan (2010)[2]

Introduction

The national scheme for Dug Well Recharge, launched in 2007-08 by the Government in India (GoI), aimed to encourage dug well owning farmers across the country to utilize their wells not just for pumping out water, but also for recharging aquifers. The program was based on a recommendation by IWMI scientists who had closely studied how modification of private dug-wells by farmers for groundwater recharge during late 1980's had kicked off Saurashtra's decentralized groundwater recharge movement during mid-1990's. In Government of India's Dug Well Recharge Scheme, dug well modification cost was subsidized to the extent of roughly, Rs. 4200 for small and marginal farmers and Rs. 2100 for larger farmers, bringing the entire outlay to Rs. 1800 crores[3]. The program mainly targeted 100 hard-rock districts of the country and areas that suffered groundwater over exploitation.

This Highlight reports a few studies which looked at the Dug Well Recharge Scheme (Shah 2008; Mohandas and Gupta 2008; Krishnan et al. 2008; Krishnan 2010) and attempts to tease out lessons from the experiences of this program. When one looks at the vestiges of the program from different dimensions, the impact seems to have been poor. What exist as namesake are a few thousand implemented recharge structures that represent a scale far smaller than was envisaged by the scheme. The lessons therefore pertain to why an idea which stemmed from both a mass community movement and several years of documented research by reputed institutions failed. What is it in this learning that can help us in the future to change the course of groundwater management in the country and for mass programs in general?

1. Lack of strong central leadership at national scale

The national program was managed by a core coordinated group with Central Groundwater Board (CGWB). This program was a first for CGWB in the sense that until then the only significant nationally coordinated activity conducted by the Board was for producing the periodic 'Status of Groundwater Reports'. These status reports which are brought out once in 5 to 10 years require coordination between CGWB and their regional/ state agencies entrusted with the task of groundwater data collection and analysis. Never before has any CGWB program had any significant community and people-contact on such a scale. The staff profile of the Board reflects this reality. Therefore, when the CGWB got the 'Dug Well Recharge' Scheme to implement along with the overall budget of Rs. 1800 crores, it involved a very steep learning curve for the Board. Additionally, the fact remains that the concept was entrusted to the Board rather than being developed as a consequence of internal research. Though there have been pilot projects of CGWB over the years for groundwater recharge, these pertained to surface dams or deep bore wells; the Board itself had limited experience with experiments on dug well recharge.

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[2]This report is available on request from p.reghu@cgiar.org

[3]1crore = 10 million

2. Mismatch of state implementing organizations for the task

As the Central Ground Water Board (CGWB), a scientific and monitoring organization entrusted with the implementation of the Dug Well Recharge Scheme, lacked a national organization as well as capacity for implementing a mass-based program such as this, the onus came on to different state level institutions to which leadership of implementing the scheme was delegated. The regional offices of CGWB played a technical advisory role to the state level agencies. Some of these state level agencies, which were counterparts of CGWB at the state level, carried out groundwater surveys and published periodic reports. Their organizations was similarly ill-equipped with a few staff and limited experience to conduct such mass-based programs and implementing them as in Tamil Nadu. In Gujarat, the program was initially led by the District Rural Development Agency (DRDA) and later by the Gujarat State Watershed Management Agency (GSWMA). Even while GSWMA led the program, the DRDA still handled it at the district level. The Dug Well Recharge Scheme was never a high priority for either of these entities, barring some committed staff in a few districts. Though targets were continuously set by the central team and relayed over to the state and district teams, implementing the Scheme on the ground eventually fell to program officers of DRDAs, who were left clueless. In other states where the program went in fits and starts, it was handled by the Panchayat department, the Soil Conservation Agency, and such others. In some states like Andhra Pradesh, it was never clear which department was responsible for the Dug Well Recharge Scheme.

3. Loose institutional structure at lower levels

The design of the program was left open to different institutional mechanisms at the lower levels. There were no definite guidelines from the central program managers on this aspect which led to subsequent lack of clarity within each state.

At the district level, since things were quite flexible, a lot depended, for example, on the District Collector (DC) as in Dindigul, Tamil Nadu, where there was an attempt to constitute village level recharge committees by the DC. Further, attempts were made to obtain a clear compositional picture of the committees and its linkages to the Panchayat, local credit co-operative bank and other staff such as Village Administrative Officer (VAO). This was even in operation for a year or so. Also, there was a special provision in Tamil Nadu to have a field officer for the program who would be responsible to identify beneficiaries. In some districts, such as in Dharmapuri and Krishnagiri districts of Tamil Nadu, this role was played by local NGOs.

In Gujarat, a lot of communication, identification and monitoring were played out by one officer of the DRDA at the local level, the *Gram Sevak.* The *Gram Sevak* played an inspiring role for some time in some districts of Gujarat such as Kheda and drove the program single-handedly, but in the face of other teething problems, they eventually had to give up.

The lack of clarity in local implementation structure left it all to field level functionaries to figure out how to implement the scheme. In principle, this can work well where there already exists stronger energy and latent demand for the idea, but in this case it was mostly left to some enterprising local officials to innovate and, without much of a support structure, their energies dwindled after sometime.

4. Poor participation from NGO, civil society and research institutes

Dug well recharge is an idea which has had mass appeal for past two decades in India. In rural (Saurashtra, Gujarat) and urban (Chennai) India, the idea enjoyed a few years of mass support followed by organized activity from civil society and later by public policy. Apart from these, there have been many attempts over the years in Rajasthan, Madhya Pradesh, and other states to replicate the idea. Therefore, when the national Dug Well Recharge Scheme was announced by the central government, it was presumed that NGOs, civil society and research institutes would be interested and the CGWB would take initiative to elicit their participation and support. The scheme provided resources for NGO participation as well as for an Education, Information and Communication (EIC) campaign for which NGO support could have been vigorously enlisted.

However, barring a few local NGOs who participated in activities at a local scale as in Dharmapuri district of Tamil Nadu or some districts of Gujarat, there was not much excitement among larger, well established NGOs and grant making institutions. In comparison with other national programs that have excited civil society such as the Watershed Program, MGNREGS, National Rural Health Mission, which made financial provision to enable NGO participation, the Dug Well Recharge Scheme lacked the supporting environment and involvement of both these classes of institutions.

A combination of reasons could be relevant here: firstly, the ideas such as MGNREGS and Watershed Program

came out of a sustained campaign over years by many NGOs. This was not true of dug well recharge. Then, the apex coordinating group in the CGWB, which managed the Dug Well Recharge Scheme, did nothing to suggest that there was a space being created for civil society to play a role in implementing the scheme. There could have been roles defined for NGOs in communication, piloting and monitoring. Though this was done locally in smaller scales, it failed to get serious larger NGOs interested. Getting grant-making institutions to support these NGOs was another way to provide an impetus, but this was never explored by the CGWB.

5. Challenges in subsidy transfer and monitoring

When it was announced, the Dug Well Recharge Scheme along with MGNREGS was one of the few programs in which money transfer was to be done directly into beneficiary bank accounts. This was never done in India on such a wide scale before except for MGNREGS in some locations. Excellent database systems at all levels supported the MGNREGS program. However, the Dug Well Recharge Scheme had no such wide support in terms of database systems and dedicated program staff. To begin with, most beneficiaries did not have bank accounts. Even if they had, it was in local banks with no computerization in those days, so direct transfer of money was really a tough ask.

Therefore, NABARD, which was handling the subsidy transfer along with many banks, was put into a tough situation. Firstly, the initial verification of bank accounts filtered out many applicants. Further, the specific purpose of the Dug Well Recharge subsidy transfer could not be distinguished from other subsidies and loans. Thirdly, receipt of Dug Well Recharge subsidy by the beneficiary could not be verified. These factors in combination with poor local institutional structure led to confusion in the first two years of the program and in part led to dampening of spirits amongst all involved.

These challenges were exacerbated by a clause which stipulated that farmers were to return the subsidy with 8 percent interest in case they failed to modify their Dug Wells for recharge. This clause required close monitoring of implementation of the Scheme. This was done by village-level recharging committee and the field worker in Tamil Nadu, *Gram Sevak* in Gujarat and local NGOs in some other cases. However, the monitoring of wells which were so spread out proved hard; and the design of the scheme overlooked this proverbial 'devil in the detail'. The effort involved in monitoring scheme implementation at farmer level and the difficulty in confirmation of adherence to the required standard of work was a major hindrance. For example, one needed to ensure quality of recharge structure and the usage. In many cases even pits were getting accepted as recharge structures. Slowly it was evident that, without a vigorous EIC campaign to expose farmers to benefits of dug well recharge, they were only interested in pocketing the subsidy by doing the bare minimum to show implementation. Monitoring became very difficult and slowly went out of control. Even the subsidy-return clause was having little effect on farmers since they were convinced that the clause would never be enforced. There was an impression that this subsidy was an election dole-out amongst many farmers in Tamil Nadu. All this led to an atmosphere in which even willing farmers were not participating much.

6. Poorly coordinated and almost absent communication strategy

The Dug Well Recharge Scheme was designed as a program intended to support willing farmers. EIC of potential gains of dug well recharge was the main work that Scheme - implementation involved; the subsidy was meant to be merely a sweetener. The premise was to lay the seed of the idea in the farmers' mind and give a small subsidy to encourage them. Inherent within this thinking is that the idea actually reaches the farmer. Hence, the communication strategy was crucial to success.

Construction of "demonstration recharge structures" at the block level for the farmers' orientation program is all that was done to communicate the idea to the farmers and this was far from a well designed communication strategy. State implementation agency officers found communication and transmission of ideas to farmers impossible, lacking the skills or the experience of implementation. Clearly, the functions of gathering and collating information (which were part of the skill sets of these officers, especially from CGWB and groundwater departments) left them unprepared and undertrained for carrying out such large scale communication campaign that the scheme required. Budgets for communication went unspent except in a few districts of Gujarat and Tamil Nadu. The funds were spent on centralized meetings and seminars which hardly got the message through to the beneficiaries - the farmers. There were advertisements in newspapers which, unintentionally, gave the wrong impression that some 'easy subsidy' can be obtained for just digging a pit, and this did more harm than good.

The Saurashtra dug well recharge movement, on which Government of India's Dug Well Recharge Scheme was modeled, on the other hand, was driven by mass appeal.

Along with many inspiring newspaper articles, farmer leaders toured the countryside for months. Religious leaders absorbed the idea and converted the message in terms of people's beliefs. This component of mass appeal was missing in the implementation of the Dug Well Recharge Scheme. Several farmers were even unaware from where the subsidy amount came in their bank accounts and what it was meant for. Many farmers could not fully grasp the concept. Thus the idea was inadequately communicated.

7. Teething local technical issues with implementation

The idea of dug well recharge itself needed some refinement in terms of technical aspects and ground realities. Dug well recharge needs more than just a technical diagram to make it meaningful and relevant to a farmer. First and foremost, little attention was paid to local planning in the location of wells within the aquifer and whether the local hydrogeology allowed for good recharge in that well. Secondly, some wells do not have good catchment areas from where runoff water can flow in. Many wells will be located in the high point of a farm making this difficult. Thirdly, for many farmers, the dug well is also a source of drinking water apart from irrigation. In such case, farmers are unwilling to let runoff water seep into the well for fear of contaminating drinking water supply. Fourthly, the filtration pit can be designed in many ways as has been done in urban Chennai. An enclosure for the recharge well can also help sometimes. These ideas were never brought out and discussed in the implementation of the program. Fifth, some farmers feared the possibility of the well caving in with high speed of runoff water falling into the well, a problem that is easily taken care of if farmers are properly educated about it. Lastly, for many wells, the rate of infiltration in wells during rainfall is not fast enough. This further reduces during monsoon, when aquifers are highly saturated with shallower depth to the water table. This reduces the potential for recharge in many wells.

These concerns were clearly not insurmountable. Local level planning of an aquifer can identify better recharge spots. Innovations happened in the program to overcome cost overruns. In Vellore district of Tamil Nadu, for example, local officials along with community developed a ring structure for the recharge pit. This was done to minimize efforts of individual farmers and standardize the design of recharge structures. However, such innovations did not spread wider. In Kheda district of Gujarat, DRDA officials suggested desilting of dug wells under MGNREGS to enable better recharge. In sum, wherever a modicum of energy and intelligence were applied to scheme implementation, innovative ideas were tried. But most such ideas never saw the light again nor were they replicated at any scale.

8. Challenges to individual action on common pool resource

Each well accesses water from an aquifer. The water that could be recharged from a well can be available to other wells in the same aquifer. 'My recharge effort benefits another who doesn't recharge' is the classic case of 'free-riding' on a common pool resource. Especially when the idea is to encourage individual extractors to enhance the resource, there is always the fear of free-riders partaking of a new common-pool resource created without contributing to it. Our surveys amongst farmers surely reflected this concern. Many farmers we interviewed felt that their recharge effort would benefit their neighbors (Krishnan et al. 2008). Secondly, most farmers felt confident of recharging only if 10 nearby farmers recharged too. In short, most farmers are wary of being lone-rechargers whose effort would benefit mostly other farmers who refuse to recharge themselves.

This is natural. Groundwater pumping in India is mostly an individual effort. It is one of the last resorts of survival mechanisms in which an individual can make do without any help, except from the electricity boards. Even without that help, individual diesel pump sets make farmers more independent. In such a situation, farmers are not likely to think of transforming into 'rejuvenators from extractors'.

However, what happened in Saurashtra is exactly opposite. For a short period of time in early 1990s, Saurashtra was under the grip of mass movement, guided by civil society, religious organizations, media, all playing over the paranoia of water. After a few consecutive years of drought, the idea that pumping was *"Paap"* (Karmic sin) and recharge was *"Punya"* (karmic merits) was engrained. One can hear the echoes of this sentiment even after 20 years.

It is hard to say whether a mass government program can engrain such thinking to overcome issues of common pool resource. Surely such programs cannot bring in the aspects of religion or of social-ethics as effectively, but incentives or cross linking with other benefits could work. Incentivizing group efforts by farmers doing dug well recharge together may have been an effective strategy, but it is hard to tell now since such incentives and strategies were never experimented with.

9. Lack of idea ownership among implementing departments

Basic implementation problems that occurred in Gujarat and Tamil Nadu, when the program was piloted led to

unwillingness and reluctance on the part of agencies in other states to take up the Dug Well Recharge Scheme. In states such as Andhra Pradesh, the program never started. In Madhya Pradesh, it was also announced as part of a package for MGNREGS-driven dug wells, but there were few takers for it within the development administration.

Once the reputation of the program spread to other states, there were few takers after 2009. Money transfer and monitoring were major bottlenecks. The scale of the effort required put off new states from joining in. Once in a while, a motivated State Secretary of a department would give a push to the program which was the case in Tamil Nadu. The Tamil Nadu Public Works Department (PWD) Secretary taking personal interest in the program pushed it top down for a while. But even such incessant top-down pressures were unable to drive a department that was not meant to implement such programs.

10. Incompatibility and low reference in other related national and state policies

Efforts on groundwater and recharge front in the past and future hardly focus on dug well recharge. The CGWB has current plans for groundwater recharge, but it mainly prefers 'basin recharge' on a large scale. Most watershed programs count the benefit of the program in terms of groundwater recharge, but that it is mostly from afforestation, catchment treatment and impounding water in check dams. However there are a few exceptions.

The Bundelkhand Drought Mitigation Package of 2009-10 spoke of dug well recharge. The 'Kapildhara' sub-scheme of Madhya Pradesh's MGNREGS allowed fund utilization for dug well recharge. One NGO effort known as 'Mazhapolima' in Thrissur district of Kerala carried out dug well recharge on a large scale for a few years. A few isolated efforts on bore well recharge are going on in cities such as Bengaluru, Chennai and Pune. As the benefits of community based recharge on a large scale became evident, even Saurashtra farmers moved on from dug wells to larger community level recharge structures such as check dams, percolation ponds and sub-surface dykes. Still, the idea of dug well recharge has not gained wider acceptance in policy or civil society.

Overall summary

The lessons from the experience of the Dug Well Recharge Scheme range from a lack of central leadership, mismatch of skills, poor institutional design, weak participation from civil society/ NGOs, daunting fund management and monitoring challenges, weak to non-existent communication strategy, unresolved technical issues with ground-level implementation, free-riding issues with common-pool resource, lack of ownership among implementing agencies and incompatible policies that were related to this program. The Scheme may have worked better if :

i) The central program secretariat were a *mix* of government department, NGOs and research institutes;

ii) The overall strategy focused on just a *well-crafted communication* at all levels and minimized levels of implementation instead of specifying a detailed administrative structure and protocol for implementation;

iii) Instead of a direct subsidy, farmers were given *benefits every season* they recharge, from a common fund, after demonstrating well recharging for two seasons;

iv) *A basket of options was* given to farmers and innovations were encouraged for *'on-farm recharge'* instead of just 'dug well recharge';

v) Coordinated action of *neighborhood farmer groups* was encouraged and incentivized;

vi) Civil society and independent grant making institutions were assigned roles *for independent monitoring and reporting* about the program;

vii) *Knowledge and information base was developed* which might then becomes the basis for better groundwater data and fine-tuning of future such action;

viii) *The strategies were re-evaluated every three years* using experience of the program and collected knowledge-base.

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About the IWMI-Tata Program and Water Policy Highlights

The IWMI-Tata Water Policy Program (ITP) was launched in 2000 as a co-equal partnership between the International Water Management Institute (IWMI), Colombo and Sir Ratan Tata Trust (SRTT), Mumbai. The program presents new perspectives and practical solutions derived from the wealth of research done in India on water resource management. Its objective is to help policy makers at the central, state and local levels address their water challenges – in areas such as sustainable groundwater management, water scarcity, and rural poverty – by translating research findings into practical policy recommendations. Through this program, IWMI collaborates with a range of partners across India to identify, analyze and document relevant water-management approaches and current practices. These practices are assessed and synthesized for maximum policy impact in the series on Water Policy Highlights and IWMI-Tata Comments.

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