

# Improved Water Security for Older People In the Thar Desert



**Gravis**



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## **Purpose of Study**

The main reason for the study is to describe to the wider audience the constantly developing problem of potable water scarcity in the region of Thar Desert in Western Rajasthan in India. The authors of the report present the everyday struggle of the inhabitants of these barren area, focusing especially on the situation of the most vulnerable groups of local communities like the older people, women and children. Moreover it delivers the description of the steps already taken and projects launched, that are supposed to increase the availability of water and consequently make the life of people in Thar easier and more convenient.

Hopefully, the issues and initiative mentioned in the study, are going to help in developing the similar conditions in other areas and enhance the cooperation between different organisations and regions.

## **Methodology**

The following report might be divided into two main parts. First one, giving more theoretical description of the current situation concerning water scarcity issue in the region of Thar Desert in Rajasthan, is mainly based on existing documentation available on the various problems pertaining to the Thar Desert in general and the 'Promoting older people led community action to reduce poverty among vulnerable groups in Rajasthan, India' project in particular.

In order to present how the activities conducted by the NGOs and local authorities in terms of Water State Policy actually influenced the life of targeted communities and especially the most vulnerable groups of the society, a broad framework was drawn based on which a field visit was conducted in the month of March 2010 to the GRAVIS headquarters in Jodhpur and selected villages of Baap block in Jodhpur district and Fategarh block of Jaisalmer district. This document is largely a result of the contribution made by GRAVIS community workers and the members of the VOPAs whom we met. Participatory tools such as key interviews, focused group discussions and transect walks were used to note the opinion of the people. This document reflects on the qualitative aspects of the project.

## **About HelpAge International**

HelpAge International helps older people claim their rights, challenge discrimination and overcome poverty, so that they can lead dignified, secure, active and healthy lives.

The organisation is driven by a fundamental understanding that older people have the wisdom and

the personal drive to contribute to their own wellbeing and that of their families.

Its work in over 75 countries is strengthened through global network of like-minded organisations – the only one of its kind in the world. HelpAge is governed by a board of trustees that includes representatives of network affiliates. HelpAge has offices in London and Brussels, six regional centres coordinating its work in Africa, East and South Asia, Latin America, the Caribbean and Eastern Europe/Central Asia, and a number of national programmes and emergency response programmes.

### **About GRAVIS**

Founded in 1983, GRAVIS is a development organization working for the empowerment of the Thar Desert communities, in Rajasthan, India. GRAVIS is based on the Gandhian philosophy of self-reliance and works toward the rehabilitation of drought affected and marginalized rural communities, enabling village ownership and control over its environment, institutions, and relations. Till date, GRAVIS has worked with over 50,000 desert families across 850 villages in Rajasthan reaching a population of over 1 million, and has established over 1,100 community Based Organizations (CBOs).

GRAVIS' actions focus on poor, backward and marginalized section of the community with particular emphasis on women, children and elderly and it believes in blending the traditional wisdom with new techniques to create long-term, sustainable and cost effective means for improving the lives of rural inhabitants. Further information can be found at <http://www.gravis.org.in>.

## Foreword

The study provides the reader with the information concerning the issue of water security improvements that have recently been taking place in the region of Thar Desert in Rajasthan. They result from the steps undertaken within the POC project of Gravis and help received from newly established VOPAs (Village Older People's Associations). Both initiatives are in compliance with the State Water Policy formulated by the Government of Rajasthan in 2010. As a result of activities of Project POC, there is significant development of potable water supply facilities, especially taankas and naadis, in the villages of Thar Desert.

The study begins with the description of general water supply condition in Rajasthan, focusing later especially on the western part of the biggest Indian state and region of Thar Desert. It depicts extremely difficult situation in terms of scarcity of such a basic resource as potable water for the communities living in this area and the serious consequences resulting from it. The special focus is put on the problems faced every day by the most vulnerable groups of the local society.

Afterwards, the report describes in details all the positive changes brought by the construction of new facilities and restoring of the ones that existed before the project had been launched as well. It highlights the incredibly positive influence on life of all the members of local communities, achieved as a result of POC activities. Again the authors underline the importance of the changes brought to existence of the mostly vulnerable people, who are the main beneficiaries of the entire programme.

Finally the study briefly describes the challenges and the way ahead for NGOs, the public authorities and local communities organised e.g. in VOPAs. Although much has been already done and achieved, there is still a lot to do and to improve in order to provide the communities in the villages of Thar Desert with sufficient water resources for the entire year in the future

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## Abbreviations

GLR	Ground Level Reservoir
MLA	Member of Legislative Assembly
OPA	Older People's Association
VOPA	Village Older People's Association

## Glossary

Aagore	Catchment area of village pond/taanka
Beri	Shallow, small diameter percolation well
Dhani	Dispersed settlements, with a cluster of houses based on lineal considerations
Khadin	Runoff based farming system constructed for individual or a group of farmers
Naadi	The village pond that serves the drinking water needs of human beings and the livestock.
Panchayati Raj	Local Self Government
Sarpanch	Head of elected members of a group of villages
Taanka	An indigenous water harvesting technique meant for water harvesting for a family or a small group of families.
Thar	Name of Desert in Western Rajasthan, India

## Background

### Status of water availability in Rajasthan

Rajasthan as the largest State of India, with more than 10,4% of the country's geographical area and more than 5,5% population has only 1,16% of the total surface water available in the entire country. Since over 60% of the State is a part of Great Thar Desert, one of the most arid regions in the world, the water supply situation in Rajasthan becomes even more difficult.

Rajasthan has always been a water deficit area with erratic rainfall. Average annual rainfall in the whole state is 531 mm, but it ranges from 100 mm in Jaisalmer to 800 mm in Jhalawar in Southern part of the state. Droughts and famine conditions are frequent in Thar. .

When it comes to the ground water condition, the situation is also becoming increasingly more alarming. The condition has significantly deteriorated in the last two decades or so, when the ground water exploitation increased from the level of 35% in 1984 to 138% in 2008.

Staggering population growth, rapid economic development and water-hungry farms are the main reasons for the Rajasthan heading towards absolute water crisis. Currently, the average water per capita availability reached the level of 780 cubic meter, against the minimum requirement of 1000 cubic meter. The future forecasts are even more depressing, since it has been predicted that by the year 2050 the availability will fall beyond the level of 450 cubic meter (international standards define 500 cubic meter as a level of absolute water scarcity).

**How western Rajasthan water availability is even worse in terms of rainfall, ground water sources, surface water availability, per capita water availability.** The Thar Desert in the western state of Rajasthan, India, is one of the most arid regions of the world. However, human endurance is such that the Thar Desert is a densely populated area by global desert standards, with over 22.5 million people calling this barren region their home. The Thar region occupies 12 districts out of 32 in Rajasthan and an area of 0.21 million square kilometres.

The region is characterized by high atmospheric aridity, scorching heat, sand storms and sparse vegetation. High sand dunes and sandy plains cover 70% of this region.

This region is devoid of any major river basin, apart from the Luni (salty) River in the south-eastern corner. It relies mostly on the low and erratic rainfall to feed its seasonal rivers and ponds.

The mean annual rainfall over the Thar varies from about 450 mm on the eastern margin to less than 100 mm to the west. The distance between the eastern and western margin of the Thar is about 450 kilometres with variations in terms of rainfall pattern, topography and vegetation.

About 90% of the rains that the Thar Desert gets are in the monsoonal months of July to September. These few spells are highly erratic and keep varying from year to year. There might be years of surplus rainfall, but then these are few and far in between years of high or moderate deficit.

The variability of rainfall, over the Thar, leads to greater incidence of drought over the arid zone than the other parts of the country. It has been seen that 46 to 68 percent of the years suffer from droughts of moderate to severe intensity.<sup>1</sup> It is also observed that many of the drought years tend to cluster together as has been seen in 1901-10, 1911-20, 1961-70, 1981-90 and 1998-2003.

### **Sources of potable water and hardship of people in getting potable water**

Certainly, there is an acute scarcity of potable water in the Thar Desert. This situation is accentuated during the severe droughts which cyclically occur every few years. The coping capacity of rural communities is limited due to acute shortages of food, water and fodder. There are government run relief schemes which provide limited and unsustainable support and are not always able to reach the poorest families, which are supposed to be their main target group.

There is a certain amount of sanctity associated with all water bodies in Thar region. Traditional rule and regulations as to the use and consumption of water govern such communal water bodies. Traditionally people have been cultivating the rain water runoff in order to tide over the many dry months. Since ages water conservation, harvesting and cultivating have been a lifestyle. In the Thar, water is used in a minimalist manner with its reuse in various manners is a traditional practice. These coping strategies have been experimented on for centuries together and have capacitated the communities to live in these very harsh terrains.

Since it is an element essential for all biological activity, for many in the Thar Desert life revolves around the daily collection of water. Over the past few decades, the Government has

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<sup>1</sup> GRAVIS, Harvesting the Rains in the Thar, 2003, p. 20.



made efforts in ensuring some measure of water security in the region. It has introduced tube wells in areas with reasonable quantities of water, from where water is carried through pipelines to various villages.

However, piped water is still a novelty at the majority of places and the supply falls far short of the needs of the communities living in the Thar. The taps usually run dry during the summer months and the end users have an irregular supply of water.

Potable water especially becomes scarce during such periods of drought. The knowhow of storing rain water, over the years, has diminished and many of the traditional water harvesting systems lie in a state of neglect and disuse. The dependency on the state run water supply system suffers from various ills; leakages resulting in limited water to the end users being just one of them.

A good example is Baap block of Jodhpur district, one of the project areas, where there is practically no community based source of water. Groundwater is at a depth of about 700 to 1000 feet. People in the villages are totally dependent on rainwater which caters to their needs for about 3-4 months in a year. For the rest of the year people have to get water from a government built bore well or carry from a distance of over 5-20 kilometres depending on where their village is located.<sup>2</sup>

Many of the people living in scattered cluster of houses, called *Dhanis*, still have to walk for at least 2-5 kilometres to a tap supply point or a pond to collect water in either earthen pots or if possible travel on animal drawn carts. Though there is some source of collection of water for every village the situation is far from satisfactory. A specific dry summer means that the water supply becomes scarce and the demand far exceeds the limited supply.

### **Impact on people of the scarce resource in economic and social terms**

Fetching the water by foot is not always possible for all, because of incapacity or distance involved. Many families therefore have to hire tankers to carry water for them up to their homes. This means an additional expenditure, often amounting to 20% of the total house hold income. This is a huge cost which further accentuates the existing vulnerabilities in the region.

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<sup>2</sup> GRAVIS, Drinking Water Crisis in Rural Rajasthan, 2001, p. 26.

The dynamics of a social life in a desert region is very closely related to the availability of water. Since there is never enough water supply in such societies, there is a lot of overt and latent friction that keeps taking place at very levels. It is possible to observe such dynamics with regard to access to water by various categories of people. It is often seen that the dominant castes and the economically well off in the village have better access to adequate water than the others.

Potable water security is sadly not always true for many in rural Rajasthan. These people have to suffer from severe scarcity of water in the lean season. This is because they might not have access to and/or resources to construct household tanks, tube wells, wells and ponds. This makes them dependent on the mercies of people who own such resources. In such a situation, much is at stake.

It can be seen that it is a vicious cycle of lack of a basic resource like potable water leading to the condition of the downtrodden worsening leading to a further lack of access to resources.

### **How water effects especially vulnerable groups like women, children, and older people**

The focus of GRAVIS's work in the Thar Desert has been the most marginalised sections of the society, including the older people in the area. There are few interventions, the world over, which target the older people and work for their betterment. This intervention is one of the few.

It has been observed that it is usually the older people who have to first bear the brunt when there is a scarcity of water in the household. At such times, when there is acute shortage of water the old aged are many a times looked at as an additional burden. Community and family members, many a times, do not take into consideration the productive capacity and roles that the elderly play in the running of the affairs in their families and their communities.

Many of the older people also lead lonely existences having lost partners and other family members. It often is a physical challenge for many of them to secure water for themselves on a daily basis. The older people often have special needs and might require a constant source of potable water to rehydrate them, to take medicines and sustain their energy levels. This becomes difficult to get in times of scarcity of water.

The other mostly affected by the water scarcity problem groups of the Indian rural society are for sure women and children. It is their role in the vast majority of cases to provide the drink-

ing water for the entire family. Their daily trek, of 2-5 kilometres, to fetch water is invariably done in the scorching heat of the summer months, since the temperatures in the Thar during the summers could easily vary from 45-50 degrees Celsius. One can only imagine the hardship that the women and children of the region have to undergo on a daily basis to get something as essential as potable water. Consequently women frequently do not have enough time and strength to deal with their other household chores. Children, especially girls, are even in the worse situation, since time spend on fetching such a basic resource as potable water, deprives them of the privilege of attending school classes. Obviously this leads to their poor educational background and does not allow them to have better prospects for future and avoiding poverty of their parents.

## Water security through Taankas

Taankas are primarily underground tanks that are used in the Thar to collect and store rainwater. This tank is normally connected through channels with a natural or artificially prepared catchment which harvests rain water. There is a silt catcher in the catchment area of the Taanka. It normally comprises of a tank which is 10 feet in diameter and 10 feet deep. Taankas are constructed with stone masonry and internally lined with lime mortar. The Taankas can hold 20,000 litres of water at a given point of time.

The construction and use of Taankas is an indigenous water resource management practice that has been promoting self-reliance of rural people in the Thar. Taankas can secure the drinking water needs of a family or a small group of families. Though Taankas were originally found in desert towns they have now been well accepted in the rural areas of Rajasthan.

### Changes brought about by the Taankas

GRAVIS as an organisation has been working with the communities in the Thar Desert for the past 27 years. The organisation has been experimenting and innovating on technology that the people would use in their daily lives. GRAVIS tries to ensure that the technology is simple so that the people can be involved in the entire process and low cost so that it can be afforded by even the most marginalized.

GRAVIS has made similar innovations with the construction of the Taankas. Using low cost technology it has redesigned the traditional Taankas so as to increase its longevity, capacity to hold an optimum amount of water and to retain the water quality for a longer period of time.

The ownership of the Taankas lends a high degree of social, economic and physical security to the people. GRAVIS through its work with the poorest of people in the Thar Desert helps communities, particularly the older people in the villages to construct and own Taankas.

The selection of the beneficiaries is done by the people themselves, usually by the Village Older People's Associations (VOPAs), and is based solely on grounds of need. The Taankas are constructed with local contribution, as GRAVIS believes in making partners out of people. When people contribute partly in terms of labour and cost in the construction of their Taankas, the sense of ownership is enhanced and the dependency factor is vastly reduced.

The changes brought about by the Taankas can be looked into from certain other dimensions

too; societal, family and multi-dimensional.

### ***Societal changes***

The construction of Taankas has brought about various kinds of social changes and has benefitted the target older people the most. Some of the changes are:

- **Empowerment**

The older people, who were target beneficiaries, got Taankas constructed and transferred in their names by GRAVIS. This has given them ownership rights over a valuable resource. The ownership of a Taanka empowers the person economically, socially and physically.

The Taankas provide potable water security for 4-6 months in a year. This goes on to save at least 20% of the person's income which would otherwise be spent on buying water through tankers. Such is the significance of potable water in the Thar Desert that the social status of a Taanka owner goes up as he or she is the owner of an essential asset.

Taankas also save the owner from securing water from far distances in the heat of the Desert on a daily basis. The physical conditions of person, in terms of health and hygiene are far better once the person starts owning a Taanka.

#### **Gauri Devi, Chipasariya Village, Block Fategarh, District Jaisalmer**

Gauri Devi is about 83 years old. She came from Amarkot, now in Pakistan, at the time of partition of the country. Soon after she became a widow and had to survive on her own and cater to the needs of her small children. Her life has been full of hardships. As of now there are no male members in her family. There are no earning members in the family either. She had to face immense difficulties with regard to potable water. The GLR was about 5 kilometres from her house and she had to fetch water from it on a daily basis. This took a heavy physical toll on her. Now that she has a Taanka she has a reliable source of water at her doorstep.

- **Acceptance of older people**

The acceptance of older people, by the community, is perceptibly more, as because the entire family tends to gain from the Taanka owned by the older person. The older persons can assert their right over the resource and the family acknowledges the enhanced status of the older

person in their day to day lives. This naturally enhances the status of the older person in the village.

The older persons, through the Village Older People’s Association, have started thinking and implementing projects to secure water for the entire community. They are ensuring this by getting Naadis and wells desilted, and Taankas constructed for the most marginalised and vulnerable.

They have secured an enhanced status in their communities which is recognised by the villagers and the Panchayati Raj representatives. This enhanced status of the older people has also increased their ability to negotiate better with local functionaries like the sarpanch and the MLA.

### ***Changes at the Family level***

There are many changes that are witnessed at the family level through the construction and transfer of the Taankas to the older people;

- **Higher level of interactions with older people**

The involvement of older people in the decision making at the household has been enhanced due to their ownership of Taankas. The perception of older people in many of the families has undergone a radical change. While earlier they were looked merely as an additional mouth to feed, now they are seen as providers and decision makers.

#### **Nizammudin from Degawadi**

Nizammudin has got three daughters who are already married and one son, name Ahmed who lives in the same household. The major benefit for him is the reduce of gap generation and better understanding that recently developed between him and his son. *“After having my taanka constructed my son has more respect for me as his father and we*



*became real partners in terms of decision making in the family. Ahmed actively participated in the construction of the taanka and now both of us take care of the level of water clearness”* – Nizammudin describes positive influence of the taanka construction on his situation.

Before the POC project was launched the family was facing serious problems with fetching potable water. Degawadi village lacks in sufficient drink water resources, there is no GLR in the village and the nearest one is 4,5 km away from their house. Apart from that the economic situation of the family was rather difficult since they did not possess any agricultural land they could have cultivated. Ahmed works as labour in the salt mine, but obviously it is not a source of sufficient income for the entire family.

There is more interaction among the family members as to how best the Taankas could be maintained and used. The family tends to consult the older people on important matters, including that on how best to secure potable water for the entire family.

This enhanced status in the family has also spurred the older people in taking an active part in all the day to day affairs of the running of the family. Their knowledge and experience is now being acknowledged and utilized by all family members.

- **Asset building**

### **Hava Devi and Mota Ram, Chipasariya Village, Block Fategarh, District Jaisalmer**

Hava Devi and Mota Ram are elderly persons belonging to the Meghawal community, which falls under the Scheduled Castes category. They have a Taanka to their name after being identified as beneficiaries by the VOPA. Mota Ram says that *'we were allocated a Taanka by the VOPA as we were really very poor and had to fetch water from far. Our household income wasn't such that we could procure water on a regular basis. Now that we have sweet water from the Taankas we can drink to our hearts content. This water is also better for cooking food in. Our children have also benefitted from the Taanka and they respect us a bit more for that reason. The Taanka also ensures that we can regularly water our small horticultural unit. The horticultural unit keeps us engaged. Since we can keep our plants happy, God is also happy and provides us with rain.'*



Taankas can be seen as an extremely valuable asset for the entire family. The essential purpose of the Taankas is to store rain water in order to provide water security during the leaner months. The Taankas, through water security save the entire family, and particularly the women, a lot of trouble.

Since the need for potable water is fulfilled through the Taankas, the family members can use surplus water for other purposes.

### **Multidimensional benefits**

There are quite a few obvious benefits through the construction of the Taankas that can be noticed for older persons and other individuals owning them:

- **Drinking water**

Depending on the amount of rainfall in a particular year and the size of the family, the Taankas assures a certain number of month's worth of fresh water supply. Once the freshwater stock is exhausted it is replenished through tankers and acts as a good storage.

#### **Kesari Devi, Chipasariya Village, Block Fategarh, District Jaisalmer**

*'Earlier we used to face acute shortage of water. We would normally bathe in our own sweat and take a proper bath only once a week and even then had to reuse the water for other purposes! We could hardly look after ourselves in the heat.*

*Now that we have the Taankas constructed to our names, we can store God's water (rainfall) and save a lot of time which we use to spend fetching water on a daily basis. We now have more time for our children and can send them to school, bathe them regularly and clean their clothes.'*



- **Personal Hygiene and influence on health**

Since drinking water is secured because of the Taankas, the surplus water can be used for other purposes, including health (e.g. to clean, wash injuries and wounds) and hygiene. This has immensely benefitted all, especially women who need more water for hygiene. The older



people also take much advantage of the additional water resources, since because of the poor health condition and the received medicines or medical treatment, they simply have to drink more. Insufficient water consumption might be also dangerous for the health of children, who desperately need it for the sustainable development. In case of emergencies, like body injuries or wounds the usage of water is also highly recommended and sometimes inevitable, since sometimes it can even save human life.

### Raku Devi

Raku Devi is an approximately 70 years old widow. Her husband died in the accident. She has got one son and four daughters, all of whom are already married. She had serious health problems, which made her life in the desert extremely difficult.



During an interview she especially focused on the health benefits that she noticed after

the desiltation of Naadi and receiving her personal taanka within the POC project. She mentioned frequent problems with stomachaches that she used to face before, but now, thanks to the possibility to drink sweet water without higher amounts of salt and other poisonous substances they stopped. Moreover she added: *“I do not have joints pain caused by the salty water any more.”*

She indicated also the positive economical aspect of the project. She used a chance to work as labour by the desiltation of the naadi and with the money that she earned she gained economic independence and could pay back her debts. It would have never been possible before the project launch, since she had spent all her money on everyday expenses, especially on fetching such a basic resource as drinking water (1500 Rpi per month). Thanks to the awareness rallies organized during the project she became also much more aware of economic issues, like e.g. inflation. She is concerned, whether her savings are enough to fight the inflation and allow her to live better in the future.

- **Better quality of life due to economic benefits**

Since there is a continuous deficit of water in the Thar region, any assurance of water security for a substantial part of the year, improves the quality of the life of the communities. Water security definitely reflects on the treatment meted out to older people and also improves their quality of life. The economic benefits of having a Taanka at home are both tangibly and intangibly immense. Since there is potable water available readily at home, for much of the year, the people do not have to hire camel carts or motorized vehicles to buy and carry it from the next available point. This adds up to a substantial amount of savings over a period of time which can be used for a better quality of life and further asset building.

### Haroon Khatun - Jaitedesar

Haroon Khatun did not yet benefit from the project because she is 58 years old now and the older people (above 60) are directly granted with the construction of personal taanka in the first place. She has got 3 sons, 2 of whom are living separately from her though. She is married but her husband does not do anything to make a living for the family. He used to work as labour in the



salt mines, but currently he is not able to do it longer and continue his profession. Therefore Haroon Khatun is the only one who has to take care of all the household chores too. Her youngest son still lives with her in her house, he is not able to earn much money though. She is very interested in receiving help from the project, especially by having personal taanka constructed. She looks forward to it, since it is highly probable that she will be benefited in the next year edition of the project.

Definitely she fulfills the criteria for that, since currently she has to fetch on her own 4-7 pots of water on the daily basis and it is a huge challenge for the old person as she is. She notices the huge benefits that the people who own personal taankas have recently gained, because before the project was launched they had to fetch water from approximately 4 km away resource, which took them 4-6 hours daily.

The project has already influenced her life in a positive way and significantly changed her attitude. She became the member of the SGH and began to save some small sums of money. It was only possible because she found a job by the construction of the khadin

within the project. *“It gave me a great feeling of security and hope for the future”* – she told in the interview. She already takes advantage of the water from the taankas of her neighbours, especially when she has got health problems and is not able to fetch water for her family on her own.

The project influenced her opinion concerning social life in the community and casteism as well. As an uneducated person she did not have much knowledge concerning this issues and therefore did not understand other people in her village, their believes and behavior. Now it has significantly changed, especially after she attended trainings organized within the project. *“I started to communicate with the people having other social background in my village and I am able to better understand their feelings and motivation and I appreciate this possibility very much”* – she concluded.

Traditionally it has been the women who have to go and fetch water for the family on a daily basis in rural Rajasthan. Now, women who have Taankas at home have more time for their daily chores and small enterprises as they do not have to go and fetch water. This has greatly reduced the physical strain on women and also provides mental assurance.

Girl children, who earlier would accompany their mothers to go and fetch water, now can afford the time to go and attend school. This has brought up the educational level of these villages. This initiative is further being encouraged by all the VOPA members.

Taankas are also beneficial to the older people as they do not have to spend time to get water. They can better utilize the time saved in organizing themselves through the VOPAs.

- **Alternate use of animals and water for livestock**

Since the requirement of transporting water over long distances has diminished because of the Taankas, household animals such as donkeys and camels that were used to fetch water in tanks on carts can now be used for other purposes. In addition many households, instead of the donkeys and camels, can now invest in cows and goats, which provide them with a source of nutrition and income.

Apart from that, since there is a sense of security as to water for the family, it is a bit more freely available for the household animals. The water that is used to for personal hygiene is allowed to settle down and this is then made available to the domestic animals and horticultural units.

The VOPA's have seen this as a window of opportunity to increase household income levels and have provided many older people who have been living on the fringe with cows. This has further enhanced the economic and social condition of the older person.

- **Availability of 'sweet water'**

The household can drink 'sweet water' that is rainwater stored in the Taankas as opposed to saline water that is a part of the brine of the desert sub-strata. There are about 14, 415 salinity affected villages in the Thar amounting to about 42% of the salinity affected villages in the entire country.

#### **Mangi Devi and Mohan Kanwar from Rawara village**

During an interview they mentioned many benefits they gain thanks to the project. They admitted that they used to spend a lot of money for purchasing drinking water (between 500-1200 Rpi per month). They talked about hygiene issues as well. Previously they were not able to do their washing regularly because of the water scarcity. When they did though, they had to wash many clothes in the same water in order to save it for other purposes and in consequence their clothes were never properly washed and clean.



They could never dream of having their own taanka before: *"We could never build the taanka ourselves, since we did not know how to do it and had no sufficient funds. Thanks to the GRAVIS project are life changed in a very positive way. Apart from the safe source of clean drinking water, we gained also other people respect"*.

They really appreciated the quality of water from taanka, since earlier the only source of sweet water for them was the rainwater during the monsoon period. Now they enjoy the sweet taanka water, which is much better than the one from naadi, because they do not have to share it with the livestock.

- **Freedom from loans**

Loans from local moneylenders were taken by various households at times of stress; especially because of water and food insecurity. Water security, through Taankas, further leads to

fodder and food security. Hence the household with Taankas are nowadays not getting trapped in the vicious cycle of loans from moneylenders who charge exorbitant rates of interest. This has a direct impact on the economic security of an individual.

- **Caste Dynamics**

Caste dynamics have always played a role in the social setup of rural Rajasthan. The so called 'lower castes' were not allowed to fetch water from the Taankas of other castes. Since these downtrodden people have had no resources of their own, they had to survive on the mercies of others. The project through its interventions has tried to look into and address such factors by targeting the downtrodden, especially the poor and incapable among the older persons.

### **Hopalaram from Ghator**

He belongs to the Scheduled Caste and has to face many difficulties in his everyday life therefore. Previously he was not allowed to live in the centre of the village and had to stay in the outskirts. He was forced to fetch water from Baap at the approximate cost of 1500 Rpi per month. *"I benefited a lot from the project. Not only thanks to the personal taanka I received, but from the naadi that was constructed in Ghator as well. Now I am able to get water at much lower cost"* – he says.



As far as his family situation is concerned, there are 6 members of the family. He has got 2 sons, but one of them lives already separately. The other one lives with him, but he is still at school. Moreover, according to Hopalaram he suffers from mental disability problems and consequently although he is 14 he attends 5 standard at primary school.

### **Identification of beneficiaries of Taankas through VOPAs**

Mariam ammo is a frail old lady who lives in Ghator village, is Baap block of Jodhpur district. It is understood that she is about seventy seven years old, when one calculates from the traditional dates she mentions as her year of birth. She is a widow and

has no one to take care of her, apart from a daughter who is also widowed. Life has been difficult for her all through, with the death of her husband and six of her children. It has been fairly difficult for her to manage her day-to-day affairs. Such was at such a state of affairs that she had to fetch water for herself by walking for an hour to the ground level reservoir each day. Four of her goats died, last year, due to the prevailing drought like conditions. She has had to depend on the charity of her community members for food and medicines.

The VOPA in Ghatore village took special cognizance of her case and has been proactively trying to help her on various counts the construction of a *taanka*, being one, which she is the proud owner of, thanks to GRAVIS. This ensures that she has enough water for herself and the few goats and sheep she has, even in the lean season.

### Water security through constructing new Naadis and desilting of the already existing

#### Heera and Aadu Ram from Rawara village

In the interview Heera focused on the benefits that his family gained after receiving their personal *taanka*. He said: *"After having my taanka constructed I can save a lot of time and money on collecting drinking water. Before the project was launched we had to spend between 500-1200 Rpi per month on the water only. Earlier in order to earn money and be able to buy drinking water I had to do much labor work. Now my situation has significantly improved and instead of working I can finally rest more."*



Heera confirmed that during the rainy season his *taanka* is 3-4 times fully refilled with the clean and safe water. Aburam on the other hand described the positive changes brought by the development of the *naadi* in their village. He mentioned the difficulties they had to face with taking regular baths and doing the cloths washing. *"We had been taking baths once per a week before. Now when we have upgraded, deeper naadi in our village our hygiene situation has significantly improve."*

The problem with the naadi in the Rawara village was that it had not been sufficiently deep. Within the project it undergone complete renovation and now can supply villagers with water of good quality. They do not have to walk 6-8 km in order to fetch the water for their cattle, as they used to do before. Aburam indicated also much lower costs of fetching water from the village naadi to personal taankas, which enables the villagers to spend money on other goods. *“There is sufficient water supply for our village in the naadi for 6-8 months”* - he finished.

The Naadis are traditional village ponds that serve the potable water needs of human beings and livestock. Naadis usually have a large catchment area and vary in size. The larger Naadis have a catchment area of 200 to 500 hectares. A spell of 75 to 100 mm of rainfall is usually sufficient to fill the Naadis. Once filled the Naadis cater to the drinking water needs of the entire village for varying periods depending on the rainfall and the capacity of the Naadi.

There are community norms that govern the use of these Naadis. These norms are supposed to protect the quality of the water and there are sanctions associated to any infringement. Traditionally norms say that none of the trees near a Naadi would be cut down under any condition. Livestock are generally not allowed to enter the Naadi and people also are not allowed to defecate or urinate in its catchment area.

Naadis essentially provide potable water security to entire villages even in times of extreme drought. The project aims at restoring many of these traditional water harvesting systems so as to ensure water security. The traditional wisdom of the older people is being used and also being promoted by the VOPAs to revive and restore many of these Naadis in the process of desiltation, by which many members of local communities may find a temporary occupation. These measures are for the benefit of all in the villages and also reduce the dependency on external sources of water

### Satyanarayan, Padli Village, Fategarh Block, District Jaisalmer

*'Once the water level in the Taankas starts diminishing we replenish it by getting water from the Naadi. People who do not have Taankas also get water from the Naadi. The older people benefit along with everyone else involved in the process. The water in the Naadi lasts us for 6 months at least. We have our rules that govern the use of the*



*Naadis, for instance, no one is allowed to take a bath in the Naadi. Moreover the Naadi is cleaned every 12 months. There are other villages who also use the same Naadi; Tibliya, Jhadkhali and Mandali.'*

*'The desilting of the Naadi has increased its capacity to retain water. The process of desilting generated work for many of us for 40-45 days.'*



## Challenges and Way Ahead

It is a very demanding challenge to restore many of the traditional water harvesting structures. Many of these structures have been out of use for a long period of time and consequently the traditional knowledge and ethos pertaining to structures like Taankas and Naadis is slowly fading.

Involvement of the people is essential in reviving the rich traditional know how on water harvesting in Rajasthan. People are slowly realising the benefits of these structures. The credit for this goes largely to the older people in the villages who have impressed on their community members the fact that potable water security in the Thar can only be ensured through these time tested mechanisms.

Credit also goes to GRAVIS for all the innovation and low cost community centred scientific inputs that it has provided in order to revive and restore all these traditional water harvesting mechanisms.

The enthusiasm that the people have shown in the whole process is very encouraging. The spirit of the older people in forming VOPAs, working tirelessly for the benefit of their people and attempting to secure water for all is a great initiative and bodes well for times to come.

## Summary of findings and statistic achievements of the project

	District, block		Total
	Jodhpur, Baap	Jaisalmer, Fatehgarh	
No. of constructed taankas	150	75	225
No. of constructed naadis	1	1	2
No. of constructed khadins	128	64	192
No. of desilted naadis	5	2	7

**Table 1. Development of water security facilities in Jodhpur and Jaisalmer districts**

The table above presents the undoubtedly significant achievements in terms of development of water security facilities in the region of Thar Desert within two years of the POC project. Gravis and VOPAs focused especially on the construction of taankas, in order to improve the situation of the poorest families and older people in the local communities. Improved availability of water through water tanks helps older people and their families enhance their nutritional status and overall health. Older women will be relieved from the ever-day-water-fetching-drudgery of several kilometres. Since potable water is an extremely scarce asset in Thar, the new owners of taankas gained much respect among local community.

According to the data presented in the table a numerous number of khadins was also constructed within the project in order to overcome the problem of erratic and heavy rainfall resulting in fertile top soil being washed away and consequently reduced crop production. 192 recently constructed khadins, traditional rain water runoff-based farming systems using a bund/dyke to harvest rainfall used to store and disperse water throughout an agricultural field rendering the soil more conducive to cultivation are certainly going to improve the situation of local farmers.

Apart from constructing taankas and khadins for individuals and their families, there were also larger water security facilities (naadis, village ponds) built, which can supply with water the inhabitants of entire villages. A naadi or village pond acts as a major source of water in the time of droughts. It has a natural catchment area of 100 to 500 hectares with a collecting pit of 200 meters across and be four to six meters deep with a capacity of 20,000 to 40,000 cubic meters. Once constructed, it remains functional over several years and is able to serve as a great water resource for the villages meeting the drinking water needs of over 4,000 humans and over 8,000 cattle. Gravis with major help and support of local communities succeeded not only in constructing two new naadis, but also managed to desilt seven already existing water ponds, which had been hitherto out of use because of many different reasons.

## Conclusion

Since water is a very scarce resource in the region of Thar Desert, it is very important to continuously improve water security facilities in order to make the existence of local communities easier and more convenient. Therefore the achievements of recent years must be perceived as very important and successful. The construction of new taankas and khadins undoubtedly helped to improve the situation of the poorest families living in the most difficult conditions by supplying them with sufficient potable water resources and giving the better opportunity for individual farming. On the other hand development of naadis positively influenced the situation of entire villages and their communities.

Although there is still a lot of targets to reach and many challenges to be looked into, the achievements till date must be viewed as an important step towards better water availability in the Thar region. It is essential to continue the Water State Policy programme and gain as much involvement of local communities as possible in order to avoid more serious problem with potable water supply in the near future.