

New Beginnings



Gravis



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Recollecting experiences from the Gender Equality through
Mitigating Droughts project in the Thar Desert, India





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Mitigating Droughts project in the Thar Desert, India**

Written & edited by
Jyotsna Sripada

Gramin Vikas Vigyan Samiti (GRAVIS)

3/437, 458, M.M. Colony, Pal Road

Jodhpur – 342 008, Rajasthan, INDIA

Phones: 91 291 2785 317, 2785 116, Fax: 91 291 2785 116

E-mail: email@gravis.org.in

Website : www.gravis.org.in

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Foreword

The Thar Desert of India spread across various States including Rajasthan is the most densely populated desert eco-systems in the world. Over 27 million people live in the Thar region of Rajasthan amid severe poverty and distress. Droughts are a regular part of life in Thar. Within these conditions, women and girls have particularly vulnerable living conditions in the region and there is gross gender inequality reflecting into all aspects of life.

GRAVIS, an NGO, has been working in the Thar desert villages for a long time to facilitate community development by promoting gender equality. Our efforts range in the spheres of water security to food security, healthcare to nutrition, and community mobilization to women leadership development. GRAVIS' community-based approach is reaching out to about 1.6 million people in rural India.

With the support of Vista Hermosa Foundation (VHF), GRAVIS has initiated “Gender Equality through Mitigating Droughts – (GEMD)” project in a set of needy villages of Thar. The last year, when the project was launched, was a particularly challenging year due to pandemic caused restrictions and hardships. Overall, the project aims at drought mitigation and poverty reduction in the leadership of women and girls. The project has now completed one year with positive outcomes and continues further with a long-term approach.

This learning document captures project's journey so far. We hope that the contents of the study are useful and help or guide different types of stakeholders at different levels. I express my gratitude to Jyotsna Sripada for leading the study, our communities and GRAVIS team for their support towards the study, and VHF for the financial support.

Prakash Tyagi
Executive Director, GRAVIS



Author's Note

Food systems across the world have been confronted with a gamut of challenges including increasing pressure on natural resources, climate change, fragmenting land holdings and environmental degradation. Greater emphasis is now on using locally available resources to sustain the longevity and productivity of agricultural land. Conforming to these tenets that are crucial to climate change adaptation and recognising the need to invest in empowering communities to be self-reliant, GRAVIS embarked on a noble journey nearly four decades ago. The fruits of this journey continue to build the lives of several families who were caught in deep rooted poverty and deprivation.

GRAVIS has empowered and uplifted several families belonging to the poor and vulnerable sections located in the most remote locations of the Thar. In the four decades of community development initiatives undertaken by this organisation, it has accumulated rich expertise in development of drought mitigation strategies that are completely based on the revival of traditional methods, traditional knowledge, and wisdom. Achieving gender equality through drought mitigation is an extremely challenging process that involves behaviour change, knowledge sharing and above all, acknowledging women as the custodians of this process and it is inspiring to see GRAVIS take lead in facilitating this transformation.

I am extremely grateful to the senior leadership and team members of the GEMD project undertaken by GRAVIS for their generous support, warmth and guidance. The insights drawn from our discussions, conversations, sharing of testimonials and case studies have been extremely important in developing this document. Although personal visits to the project region could not be undertaken due to the travel restrictions imposed under COVID-19, the team members have patiently taken me through every detail, process and observation, facilitating a virtual tour of the entire project. The team has been part of a dynamic process of curating and adapting to new means of project documentation, monitoring and reporting to ensure continuous engagement with the community and implementation of the project activities. This has been made possible despite the ravaging second wave of COVID-19. The number of families who have stood testimony to the benefits of interventions such as construction of *Taankas*, *Khadins*, AHUs, capacity building, health camps and COVID-19 relief work is enriching. It reflects the core strengths of empowering and enabling a community to take complete ownership and responsibility if managing key resources for the benefit of all.

This project paves way for many more opportunities to strengthen the community-based management of interventions in many villages that are in dire need of immediate and intense changes. Furthermore, it opens doors to explore a variety of new ways in which water conservation, water storage and restoration is made more gender equitable, breaking social barriers that have remained for years.

I earnestly hope that future endeavours of GRAVIS continue to make a lasting impact on the lives of people in the Thar.

Jyotsna Sripada

1. WOMEN, GENDER EQUALITY AND DROUGHT MITIGATION

Drought is a natural complex hazard that often has socio-economic aspects affecting communities across the world. The impacts of socioeconomic drought can affect men and women in many ways. The direct and indirect impacts of drought can be broadly categorised as economic, environmental and social. Economic impacts include failed or infected crops, loss of livestock production, loss of income, capital deficit and increase in prices. Environmental impacts can be in the form of fires, soil erosion, loss of biodiversity, wildlife and decrease in water quality, whereas social impacts may include health and public safety hazards, conflicts between water users, reduced quality of life and increased poverty.

Globally the world is seeing increasingly frequent droughts and floods, and women are often in the frontline in respect to the impacts of a changing climate. During drought, the drying up of nearby bodies of water increases the time spent fetching water. Therefore, the additional time spent to carry out this task cuts into the time available to engage in income generating activities, making women more vulnerable (United Nations Development Programme, 2014). Women are more vulnerable than men not merely because of the physiological differences but also because their social roles, responsibilities, limitations and capacities are different from those of men. In many of these contexts, women are more



Woman bringing water

vulnerable to the effects of climate change than men as they constitute the majority of the world's poor and are more dependent for their livelihood on natural resources that are threatened by climate change. Furthermore, they face social, economic and political barriers that limit their coping capacity. Women are often poorer, receive less education and are excluded from political, community and household decision-making processes. Such economic and social inequities translate into fewer assets and the means available to women for coping with the negative effects of the drought (United Nations Women Watch, 2009).

As India has experienced increasing incidence of droughts, the socio-economic cost of droughts have been found to be very high (Pandey et al 2010). The rural poor and women with inadequate access to food and water are the hardest hit. Iyer (2011) argued that intermittent, unreliable, unsafe, and inequitable water use, intractable water conflicts, poor performance of major and minor irrigation, and alarming depletion of aquifers contribute to inefficiency in water use and management in India. Women in the South are particularly vulnerable to the impacts of disasters due to skewed power relations and inequitable cultural and social norms. The women and people of Asia are currently at greatest risk with over 100 million people affected in this region annually.



Empty water pond due to drought

Despite women being disproportionately affected by climate change, they play a crucial role in climate change adaptation and mitigation. Women have the knowledge and understanding of what is needed to adapt to changing environmental conditions and to come up with practical solutions. But they are still a

largely untapped resource. The capacity to respond to drought is often influenced by decision-making power over the use of households' assets in case of a hazard – an approach that compromises the involvement of women in drought-related decisions. Restricted land rights, lack of access to financial resources, training and technology, and limited access to political decision-making spheres often prevent them from playing a full role in tackling climate change and other environmental challenges. At the same time, women are essential for developing sustainable adaptation options due to their knowledge, multiple and simultaneous responsibilities and as well as roles in productive areas. These include all sectors from agriculture, biodiversity and forests, households, income-generation, livelihoods and other sociocultural and political-economic institutions and relations. Climate change represents the most complex challenge in the present times and it requires a concerted, proactive and holistic response. Gender inequality may dramatically limit the resilience and adaptive capacity of women, families and communities. It may also restrict options for climate change mitigation.

The Thar Desert region of India in the State of Rajasthan is the most densely populated Desert ecosystem in the world, with a population density of 120 persons per square kilometre. This region is marred by extreme weather conditions and water scarcity that has severely impacted the lives of the population, who are largely dependent on agriculture and animal husbandry for survival. The western part of Rajasthan, comprising a significant portion of the Thar desert, is classified as an arid zone that has a high temperature, low humidity, low rainfall, erratic and poor textured soils. While perennial droughts have always been an issue that people living in deserts have faced, climate change has manifested in the



Dry farm in Thar

unpredictability and shifts in the rainy seasons in recent years. In the absence of structures that could store water, farmers have never been able to access or utilise sufficient quantities of water for agriculture and domestic purposes. The problems of water scarcity and inaccessibility are further compounded by the pressure to procure water from alternate sources, compelling them to spend huge amounts of money. A recent report of Central Arid Zone Research Institute (CAZRI) stated the Thar desert has been witnessing major climatic changes over past decades. According to the report, Thar witnessed about 17 thunderstorms annually in 1966, which has now reduced up to 2.5 per year. The trend of shifting sand dunes has also affected weather patterns.

The agrarian and pastoralist communities of Thar are entirely dependent on rainfall in the region. The depleting soil and flora cover have resulted in a direct threat to food security. Acute water scarcity in this region affects their agricultural produce while also impacting milk produce from cattle. While the rural communities in these regions have always borne the brunt of such conditions, climate change has deeply affected their livelihoods, water and food security, health and nutrition. Persistent drought has forced residents to migrate to other regions within the state while many others continue to cope with cascading effects of drought. Crop loss and low purchasing power have pushed the region into extreme poverty and deprivation.

Having recognised the role of women in climate adaptation and climate resilience, GRAVIS has been one of the first organisations to devise interventions enabling and empowering women to be key decision makers in their households as well as the community. The organisation has devised a comprehensive



Community meeting/resource mapping



approach with women anchoring key roles as change agents of the community, participating in community-based discussions, disseminating crucial information pertaining to traditional methods associated with agriculture, household management, health and hygiene, and acquiring important skills associated with micro-financing. Empowered with the necessary information and capacities, women in the Thar have certainly progressed towards becoming equal partners in the development of their households and the community at large.

2. ABOUT GRAVIS

Gramin Vikas Vigyan Samiti (GRAVIS) or Centre of People's Science for Rural Development was established in 1983 by a group of Gandhian development activists. The organization was formed in order to organize rural development activities in the remote parts of Thar Desert. As of 2021, GRAVIS operates through its main office in Jodhpur and 18 field centres throughout rural Rajasthan, Bundelkhand region of Uttar Pradesh and in Uttarakhand. Through its interventions, GRAVIS has reached out to 1.55 million people across 1,600 villages.



Thar desert, located in Rajasthan, India

The Gandhian philosophy of Sarvodaya - all rising, but the last person first - is the foundation for GRAVIS' vision and mission. Accordingly, GRAVIS works for the collective ascension of men, women, and children, regardless of economic situation, caste or religion. Addressing the situation through the empowerment of rural communities, GRAVIS also adheres to another Gandhian notion, Gram Swaraj, or village self-rule, when implementing its efforts. GRAVIS works toward the rehabilitation of the rural community, enabling village ownership and control over its environment, institutions, and relations.



GRAVIS focuses its efforts on the restoration of dwindling natural resources and on the promotion of marginalized groups. It believes in integrating traditional wisdom with modern techniques to create long-term, sustainable and cost effective means for improving the lives of rural inhabitants. In order to achieve its overall goal of creating self-reliant village communities, it strives to involve the local communities in its programmes and interventions, train and build their capacities further and develop community ownership. GRAVIS' actions focus on poor, backward and marginalized section of Thar Desert communities with particular emphasis on women, children and elderly. GRAVIS has a deep concern for the development of children, women empowerment and gender justice. Accordingly, the participation of women has been ensured in all the programmes and activities.

The organisation adopts an integrated approach to sustainable development, working to not only enable a secure and safe source of water for drinking and irrigation, but also transforming lives through education, healthcare, microfinance and advocacy for the rights of those more vulnerable in society. The organisation closely works with communities at a grassroots level ensures that deep change can be effected across all areas of life and for all members of society. In order to do so, community-based organisations (CBOs) like Self Help Groups (SHGs), Village Development Committees (VDCs), Village Older People's Associations (VOPAs) and Village Health Committees are formed. Together with these CBOs, GRAVIS plans and conducts the interventions below tailored to the needs of each part of the rural community. GRAVIS works primarily towards drought mitigation to protect, promote and rejuvenate rural livelihood opportunities of the desert communities. It engages with the most socio-economically backward sections in the rural areas including women, children and the elderly with an underlying ethic of compassion for their extreme vulnerability and marginalization.

GRAVIS is strongly driven by a comprehensive set of objectives. These include:

- Integrated development of humanity without discrimination of caste, religion, or gender.
- Creation of village institutions ensuring adequate representation of all sections of the community, including women, the elderly, and marginalized castes.
- Incorporation of better health behaviours and association of these behaviours with the overall development of rural society.
- Sustainable development of natural resources to increase productivity and income.
- Conservation and development of village commons.
- Improvement of education, with particular emphasis on educating girls.
- Promotion of financial savings at the individual, group, and community levels in order to increase familiarity with the economic system and to reduce dependence on outside capital.
- Empowerment of village communities, with emphasis on the poorer and weaker sections of society, in order to reduce economic and social disparity and to create a self-reliant and decentralized community system



- Coordination of training programmes to teach youth, women, and field workers on how to implement strategies of integrated development within their own communities
- Generation of awareness among rural communities, particularly the poor, so that under privileged group can benefit from development schemes.
- Conducting research projects and studies to make development programmes more effective and to improve community participation. Provision of humanitarian relief during calamities and other emergencies.
- Organization of campaigns on social issues, in accordance with Gandhian ethics Cooperation with partner organizations sharing similar objectives.

Guided by the principles of integrated development of rural communities, GRAVIS works across diverse development fields including water, health, education and agriculture and animal husbandry. A special focus is also laid on working on the entitlements of the mineworkers who form a large part of the labour population in the Thar Desert. Utilising a combination of traditional community knowledge and modern scientific technological innovations, the solutions have proved to be both financially viable, socially acceptable and sustainable in the long run. GRAVIS have been successful in changing lives of more than 1.4 million people ensuring environmental sustainability, economic stability and social equality thereby raising the overall quality of life of the desert minorities.

3. ACHIEVING GENDER EQUALITY THROUGH MITIGATION OF DROUGHTS: THE PROJECT OVERVIEW

Braving one of the most disturbing peaks of COVID-19 in the Thar desert, GRAVIS undertook the implementation of an integrated, community-centric project that primarily aimed at achieving gender equality through mitigating droughts. The project encompassed key components of enhancing food and nutrition security, water security and income security in a set of villages located in the Thar region of Rajasthan, India. The interventions were implemented successfully, through a short term of twelve months, despite challenges posed by the COVID-19 pandemic.

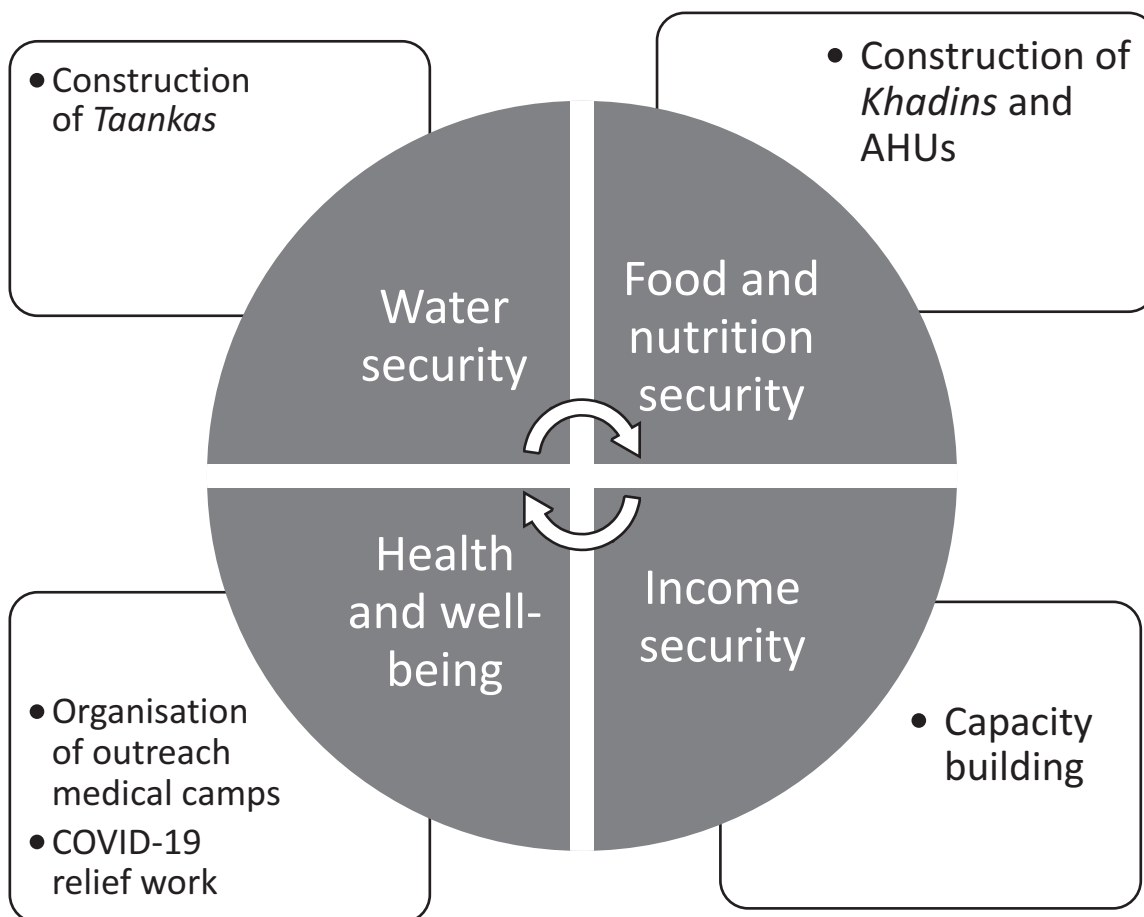
This project was designed with a larger goal of enhancing gender equality in five villages of the Thar Desert through activities focused on drought mitigation and community development. The objective of this project was to develop capacities of women and girls residing in a set of villages located in the Thar region. The key areas of focus included:

- Enhancing water security in the community
- Addressing food and nutrition security through a range of interventions
- Improving health status of communities by organising medical outreach camps
- Documenting and disseminating the learnings of discussions, trainings and meetings with stakeholders

The project aimed at enhancing and strengthening four key factors at the community level-water security, food security, nutrition security and income security, along with health and well-being of the beneficiaries. In order to achieve these, strategies were devised using traditional knowledge and techniques for water storage, moisture retention and soil retention. Locally available resources were identified and deployed in an efficient, effective and sustainable manner involving minimum maintenance, community mobilisation and periodic monitoring. As part of this project, key activities were designed and aimed at directly benefiting poor and vulnerable sections belonging to the Thar region. These included:

- Forming and training of Self Help Groups (SHGs)
- Forming and training Intergenerational Learning Groups (ILGs)
- Construction of drinking water storage tanks, which are also referred to as *Taankas*. A *Taanka* can store upto 25,000 litres of rainwater.
- Construction of farming dykes that are referred to as *Khadins*-A *Khadin* is a bund/dyke built on one side of farming land to retain rainwater and moisture

- Setting up Arid Horticulture Units (AHU)-An AHU is a small piece of land that is transformed into a unit that can accommodate twenty-five to thirty varieties of fruits and vegetables.
- Community based capacity building on water security, food and nutrition security
- Outreach medical camps and relief work undertaken during the second wave of Covid-19



Key components and interventions undertaken as part of the GEMD project

Through the GEMD project, several milestones have been achieved. The interventions undertaken as part of this project have significantly contributed to facilitating access, availability, ensuring adequacy and utility of key factors such as water and nutrition. Some of the key milestones achieved in this project include:

- **Enhanced water security through the construction of *Taankas*:** Clean water was made available, easily accessible and sufficient for as long as six months, for forty families. The water was stored in a carefully designed storage tank, equipped with a tight lid and locking mechanism and separate well-protected inlet and outlet channels to ensure water is safe from any form of infestation.

- **Enhanced food security** was achieved through increased availability of moisture in farm lands, that was made possible through the use of traditional methods of water and moisture conservation. Food production has significantly increased.
- **Enhanced nutrition security** was achieved through the setting up of AHUs that ensured sufficient production of seasonal fruits, vegetables and greens for household consumption.
- **Enhanced capacities of local women and girls** led by Self Help Groups (SHGs) and Intergenerational learning groups (ILGs): The formation of SHGs and ILGs proved to be an important milestone for the project as these groups anchored the entire process of knowledge sharing and dissemination of crucial information on financial literacy and banking, traditional practices, health and hygiene.
- **Improved health status** was ensured as a result of medical camps and through food and nutrition: The medical camps organised in some of the most remote villages located in the Thar have been instrumental in providing primary healthcare screening and referral services.
- **Documented learning for sharing and exchanges** was ensured as the project paved way for the documentation and dissemination of crucial insights captured in the form of audio-visual testimonials, case studies, photographs and reports.

Through the GEMD project, GRAVIS has reiterated the need to acknowledge the importance of traditional knowledge, wisdom and expertise to conserve natural resources amidst the fastening pace of depletion and deprivation of these resources. The following chapters capture some of the key details of the interventions and impact of these on the lives of the people of Thar.

S.No	Intervention	Number of beneficiaries
Physical constructions enhancing food and water security		
1.	Taankas (Water storage tanks)	40
2.	Khadins (Farming dykes)	40
3.	Arid Horticultural Units (AHUs)	40
Community empowerment and capacity building		
1.	Formation and training for Self-help groups	112
2.	Formation and training of intergenerational learning groups	243
3.	Trainings on water security	109
4.	Trainings on food and nutrition security	103
5.	Outreach medical camps	319
6.	COVID-19 relief work	30,252

4. BEST PRACTICES

4.1 Empowering communities to be resilient and self-reliant

Traditionally, societies have been permeated by several dividers that have resulted in inequities between individuals belonging to different genders, castes, religions, and economic groups. These inequities have been further exacerbated by restricted access to resources, knowledge, information, and capacities. The people living in the Thar have had to deal with a wide gamut of challenges including unfavourable climatic conditions, in addition to the socio-economic dividers, resulting in extremely poor living conditions. Despite these challenging circumstances, communities in the Thar have resiliently fought to overcome these hostile conditions, to successfully establish and manage resources effectively and sustainably.

Notwithstanding socio-economic or cultural barriers, the State of Rajasthan has a rich history of social reform movements including peasant movements between 1897 and 1941, National Rural Employment Guarantee Act (NREGA), Right to Food and Right to information. The state has birthed several key policies that were largely driven by strong community-based linkages and actors including women. These movements have opened doors for women to be empowered with access to information about crucial practices needed to run their households and simultaneously focus on their individual development as well. Women have been the custodians of traditional knowledge and wisdom associated with indigenous practices, household practices, health practices and hygiene. The efforts of women in managing their households amidst dwindling and inaccessible resources have been acknowledged and made more visible through the discussions and meetings organised as part of the ILGs and SHGs. The project has witnessed several instances where women were, for the first time, encouraged by their families to be part of discussions and meetings beyond the doorstep of their houses, breaking several barriers that were imposed on them previously. The project has facilitated several meetings and training sessions where men and women were present.

Over the past three decades, GRAVIS has relentlessly worked towards engaging with and empowering communities across the Thar region, Uttarakhand and Bundelkhand regions in India. The interventions undertaken by this organisation have been aimed at uplifting the most poor and vulnerable sections of the community from the shackles of poverty, deprivation, and harsh climatic conditions.

The Gandhian philosophy of *Sarvodaya*, which essentially means 'all rising, but the last person first', is the basis of GRAVIS' strategy and approach. Additionally, *Swaraj* or village self-rule, another important principle of the organisation, has aimed at empowering village communities to take complete ownership of the assets that have been created as part of GRAVIS' engagement with the community. It is these foundational principles that have helped the organisation work towards and successfully overpower socio-economic and cultural inequities and barriers that have hindered development in the Thar region.

The core strategies adopted by GRAVIS encompass water, food, nutrition, and income security. These components have formed part of crucial interventions that have significantly contributed to the transformation of communities from being deprived, dependent and sometimes even fatalistic about their existing circumstances into resilient, self-reliant and self-governing institutions. A large network of self-operating and self-governing institutions were identified and formulated to ensure that the interventions were being implemented in a sustainable, effective, and stable manner. These included village development communities, self-help groups and intergenerational learning groups.

Village development committees (VDCs) essentially comprise residents of villages, identified through the initiatives of *Gram Sabha/Panchayat*. These members are chosen to oversee the implementation of any given activity. These committees play a pivotal role in ensuring collective responsibility and ownership of resources and interventions. This, in turn, ensures proper utilization of funds and resources, accountability, transparency and efficiency in completion of projects. The GEMD project was implemented through VDCs that were formed and functional as part of the previous projects undertaken by GRAVIS.

Self Help Groups (SHGs) are another important asset to the project implementation and are formulated to ensure adequate representation of women across different socio-economic groups. The SHGs comprise 10-12 women members who meet to discuss their problems, exchange information and impart skills associated with micro-financing, village development and COVID-19. SHGs have proven to be a very crucial platform to encourage women to participate and put forth their concerns and problems. These meetings have been directed at encouraging women to develop entrepreneurial skills and women have



SHG training in progress

drawn strength, courage and motivation to mutually benefit from the common knowledge and traditional wisdom that is shared in these platforms. Women belonging to these groups also proved to be extremely resourceful, especially during the second wave of COVID-19. They braved the dangerous circumstances to undertake door to door campaigning for administering vaccinations, distribution of relief material and isolation kits. The mutual sharing of knowledge and traditional wisdom is further augmented through intergenerational learning groups (ILGs) comprising women from across different age groups including elderly women, middle-aged women and adolescent girls and socio-economic backgrounds. Initiated with a fundamental objective of transferring traditional knowledge about key practices concerning health and hygiene, ILGs have benefited more than 243 women and adolescent girls. In fact, these heterogeneous groups, comprising women across different castes and subcastes, proved to be an important channel to advocate against vaccine hesitancy. Many elderly men and women, who were sceptical about taking the vaccine were convinced by adolescent girls belonging to the same group.

These networks have been instrumental in the successful implementation of some of the most important interventions of GRAVIS and these have been achieved through careful coordination with stakeholders across all relevant sectors.

Conforming to the foundational principles of *Swaraj* and *Sarvodaya*, participatory rural appraisal, social and resource mapping have been key methods to identify beneficiaries of interventions. Through these methods, VDCs helped identify the beneficiaries who were in actual need of physical interventions such as *Taankas*, *Khadins* and AHUs. Interventions were implemented through the lens of community development by enabling and empowering the ones with least access to resources. The community meetings were essential in ensuring that beneficiaries across all poor and vulnerable backgrounds were adequately represented, provided with an unrestricted access and opportunities to participate. In majority of the cases, the needs and demands of communities with respect to establishment of physical structures, themes and topics covered during training sessions or capacity building and vocational training, have emerged from the communities themselves through aggressive engagement and needs based assessments. This network of community-based organisations has been crucial in retaining the trust of communities and residents as all the processes and procedures that were adopted as part of identifying the beneficiaries and implementation of activities were done in a fair and transparent manner.

An integrated community-centric and community owned approach has indeed resulted in a deep impact on the life of the beneficiaries. For many families, this project provided them an opportunity to voice their needs, which formed the basis of designing and finalising certain key interventions of this project. Many women, who otherwise were silent spectators and bound by traditional practices, used this opportunity to speak up and surprisingly, found support from their partners and families. The patriarchal structures and norms that traditionally governed families were found to be put aside as many men and women consciously became equal partners in the public meetings and discussions. The project witnessed several milestones wherein women, who were often silenced by the garb of their veil, began to vociferously put

forth their needs and demands. Women learnt to introduce themselves in public meetings and learnt to sign by the end of the project term. These signatures were a powerful step towards empowering women in the project area towards development and enhanced standard of living. This was crucial because women were now confident that their needs and demands were also of equal importance and that it deserved to be addressed.

The GEMD project has been instrumental in overcoming food, nutrition, and water scarcity by way of using traditional methods of water storage, soil retention and plant growth. Traditional knowledge and practices have been extensively relied upon to appreciate the value and enhance the utility of resources in the region. Through these activities, the project has cemented many paths to achieving gender equality, women empowerment, and community mobilisation.

Pushpa Devi - an emerging leader

Pushpa Devi is 39 years old and is a resident of *Narayan Hari* village of the Thar Desert in India. She has seven children and belongs to one of the most poor and vulnerable communities of the Thar. Her family owns two hectares of farming land and live in a thatched house. Pushpa's family is engaged in farming, and they earn a very meagre income. Her primary responsibilities include fetching water for household consumption, cooking meals and taking care of children. She has never had the time for herself and has had no opportunity to participate in any of the decision-making processes associated with her family or the community. She has limited writing and reading abilities.



When project GEMD was launched a few months ago, Pushpa participated in some of the discussions organised by the intergenerational learning group that was formed in the village in which her family was residing in. She soon became an important asset to the group and participated collectively in taking crucial decisions such as selection of beneficiaries and community development. She also played a very important role in identifying beneficiaries of food and hygiene kits and isolation kits as part of the COVID-19 relief work that was undertaken. That apart, Pushpa played a pivotal role in advocating against vaccine hesitancy.



Her resilience to contribute to the community has been acknowledged by her family and she is now considered an asset for her family as well as the community. Pushpa is keen on saving rainwater and protecting trees. She is keen to contribute to several more activities and interventions that focus on community development.

“I always try to help in supporting the needy families. The project has trusted me. I need to do my work sincerely” – says a confident Pushpa.

4.2 Fostering traditional water conservation systems to enhance water security in Thar

The impact of the extremely tough weather conditions in the Thar are often invariably borne much more by the women and adolescent girls. Women have, for decades together, undertaken arduous treks to fetch a pot of water for their households to survive. In some cases, women are compelled to walk miles together, from one source to another, to collect enough for the entire family. The pursuit for this pot of precious water is compounded by scanty and unpredictable rainfall, depleting ground water sources, poor quality of ground water and diminishing ground water levels.

GRAVIS, along with the support and cooperation of several stakeholders, has constantly strived to facilitate easier access to clean water and has successfully identified methods that are sustainable, effective, and reliable. Traditional water conservation methods, water storage mechanisms and moisture retention techniques have been relied upon to ensure that an enabling environment is created, especially for women. All these interventions are consciously directed at empowering women, specifically in terms of promoting women-led, women-owned, and women-centric activities. Several interventions undertaken as part of this project are aimed at collectivising women, facilitating platforms to discuss their need and concerns associated with their households and community as well. The platforms facilitating discussions for women are aimed at encouraging women to participate in the decision-making process associated with the household and the community. In fact, the demand for construction of water storage units and dykes has emerged from the women themselves through various platforms that are available at the community level, including VDCs, SHGs and ILGs.

More than 90% of the residents of the Thar are dependent on rain-fed farming. That apart, in many villages, the community ponds and ground level water reservoirs are either defunct or can provide water for only a couple of months. In such circumstances, it becomes extremely important to capture rain water and store the same in a clean and safe manner.

Taankas or water storage tanks are useful, easily constructed, accessible and sustainable storage units that can easily store up to 25,000 litres of rainwater. A single harvest of rainwater can be stored for as long as four months and the water stored in these units are used for domestic purposes and to support the AHUs. The *Taankas* are built at an elevated level of one foot and are also equipped with a fool-proof



Water security training session in progress

locking mechanism to ensure that it is safe from any form of infestation. These units have been extremely useful in ensuring convenient, uninterrupted access to clean water. The *Taankas* are built very close to the households of the beneficiaries, because of which productive time of women is saved. Built with separate and adequately covered inlet and outlet channels, rainwater is collected in a safe and hygienic manner. Extracting water from *Taankas* is less laborious and less time-taking, enabling women to devote the additional energies and resources towards themselves, their families, and the community. The benefits of this intervention undertaken as part of the GEMD project have been made available to forty families residing in the Thar region. This intervention has paved way for several women to prioritise their needs and interests and with the additional time available. Women were able to participate in meetings and discussions, capacitate themselves about several themes and topics concerning the village, explore ways to diversify and augment household incomes, and contribute the community development. More importantly, it has also contributed to enhanced savings of households, which can now be used for more important expenditure such as health care, education, etc. Through these *Taankas*, the water security of households has been assured, enhanced and the quality of water has been retained. Residents of these villages, who previously were compelled to consume fluoride contaminated water, are now drinking clean water. The chances of contracting water borne diseases has also been significantly reduced with the establishment of these structures.

Making every drop of water count

Fooli is a 70 year woman who resides in a remote village of Jodhpur district, Rajasthan. She lives with her son and daughter in-law. Fooli, along with her daughter in law, walks long distances every day to fetch water for drinking, cooking and cleaning purposes. This has resulted in extreme physical exhaustion and has impacted her mental health. Fooli heard about a community meeting that was being organized for women and adolescent girls. After enquiring about the same, Fooli was informed that the meeting



was being organized by an intergenerational learning group (ILG) and that the purpose of the meeting was to encourage women and adolescent girls to put forth key issues and problems faced by them while accessing resources and information. Fooli used this as an opportunity to describe the drudgery endured by her and her daughter-in-law. She requested the members of the group to consider her problem and support her family with a solution that can put an end to their ordeal.

The members of the ILG were quick to respond and collectively decided to build a *Taanka* near Fooli's house, as part of the GEMD project. The construction was completed and has resulted in unrestricted access to clean water for Fooli and her family. The *Taanka* can store almost 21,000 litres of water and is sufficient to take care of the needs of the family for six months. The health of all her family members has considerably improved due to the consumption of clean water.

Fooli, along with her daughter-in-law, now have additional time to devote to agricultural work, income-generation activities and participating in community meetings. The family has been able to save Rs. 3,500 due to the availability of water in the *Taanka* that was built for them. The productive time gained was directed towards engaging in income generation activities. With the additional income gained, the family intends to buy a milch animal that provides adequate milk for the small children in the family.

“My life has been transformed and I will live longer, now that my mental stress has been taken away. I am grateful to the GEMD team and their supporters for making this possible for me and my family”, says Fooli.

4.3 Reinvigorating the barren lands to enhance food security

Achieving food security in an arid region, facing variable and unpredictable rainfall is extremely challenging. Poor rainfall directly impacts the yield/ produce of farmers, because of which families are often compelled to give up on the quantity of food that is consumed. Insufficient produce limits farmers from accessing markets and in many cases, members of households are left to starve. The lack of availability of adequate food, especially for children and women of the households sometimes leads to irreversible situations, worsening the vicious cycle of hunger, poverty and deprivation.

Rajasthan has been a poor performer in terms of health and nutritional indicators and the effects of dwindling ground water tables, unavailability of nutritious sources of food, and diminishing income levels is quite pertinent amongst children and women. As per the National Family Health Survey-5¹, conducted during the first wave of COVID-19, Rajasthan was one of the five states with the highest rates of stunting among children under five (32.6%). The prevalence of anaemia amongst children and women has also increased. The survey indicates that the anaemia levels amongst children under five has shot up by 8.5%. The period between 2016 and 2019 has witnessed a massive increase in the percentage of children who are anaemic, despite a wide array of policies and programmes that have been launched by the State Government.



A khadin/farming dyke built on agricultural land to prevent soil erosion and conserve moisture

¹The National Family Health Survey is a large-scale, multi-round survey conducted in a representative sample of households throughout India



Inspired by the lasting impact of traditional methods and techniques on water and food security, GRAVIS has promoted the construction of *khadins* or farming dykes that serve a crucial purpose water and moisture security for farm lands. A *khadin* is a traditional build that serves as a method of collecting water by building an earthen embankment at the end of an upland plot of land to prevent water run-off. This method was developed by *Paliwal Brahmins* in Jaisalmer hundreds of years ago, however, it continues to be an effective and sustainable method for improving soil moisture.

In the absence of adequate and consistent rainfall, *khadins* serve the dual purpose of retaining moisture from rainfall, however scanty it may be, while also protecting the top layer of soil from run-off water. The moisture captured using these techniques have proven to be extremely useful in promoting higher yields of crops for the residents of the project region. This has further improved the access to markets, enabling income generation by way of selling surplus yield. The technique has rejuvenated several barren lands and has transformed them into cultivable lands, thereby paving way for a viable vocation for the residents. In the presence of these enabling conditions, many households have chosen against migrating to other regions for an income and have preferred to stay back to revive and utilise their agricultural lands, using these traditional methods. Additionally, *khadins* have paved way for employment generation as many of the residents, who do not own land or seek augmentation of their incomes, join other farmlands to support them in activities such as ploughing, sowing, and threshing. The income gained with the support of this intervention has helped several families pay off their debts. Families are now equipped with enhanced finances to devote to key priority areas such as health care, education, transportation of produce to markets, engagement of labour, etc. Overall, the standard of living of beneficiaries in the project area has certainly improved. As part of the GEMD project, during the period of January 2021 and December 2021, forty *khadins* were constructed. Crops such as sesame, pearl millet and beans have been cultivated in lands equipped with *khadins*.

Reinforcing traditional methods to promote food production



*Moisture conservation achieved through khadin construction,
resulting in enhanced crop production in Thar*

65-year-old women Samu lives in Rayda village of Jodhpur district in Rajasthan. She has 4.5 hectares of land, and her family has been engaged in rain-fed farming for many years. The family is often confronted with food and fodder scarcity due to the lack of sufficient rainfall in the region. This is compounded further with poor top-soil quality due to erosion.

Samu met with members of the village development committee (VDC) and shared her concerns with them. Having understood the immediate need to restore the top-soil of the land as well as ensure long-term availability of moisture to enhance crop growth, the VDC members discussed and decided to build a Khadin on the farming land owned by Samu. The Khadin ensured that a significant amount of rainwater was harvested. Samu was able to reap benefits of multiple crops such as pearl millet, sesame and cluster beans.

For the first time in many years, Samu witnessed a significant amount of yield from her field. 100 kgs of sesame and 325 kgs of cluster beans were sold in the market enabling her to gain almost Rs. 17,625 from the sale. This amount was used to pay off her debts. She hopes to grow mustard in the winter season and expects a yield of 1200-1500 kg, which may fetch returns as high as Rs. 40,000. Her land has also generated employment for several members living in her village.

“The Khadin has been very helpful for me and my family. I am relieved that my family does not have to migrate to other districts in search of food, water and a consistent source of income”, says Samu

Arid Horticultural Units

Another important component of the multi-dimensional approach of the project is the establishment of AHUs. AHUs are important intervention introduced to support, ensure and sustain food and nutrition security as well as food diversity. In lands where agriculture is no longer viable, or in unused or barren lands, AHUs can be considered as a very useful alternative as they are not labour intensive, require very less maintenance, promote self-reliance, are self-sufficient and sustainable. Located close to the houses of beneficiaries, these AHUs are set up with appropriate fencing, to prevent animals from foraging into the space. The AHUs are similar to small kitchen gardens that can be used to grow close to thirty plants in one season. The AHUs offer a myriad variety of benefits for families, with its fundamental objective being to achieve food and nutritional security, combating the nutritional deficiencies especially in children and women. A typical AHU is located just a few metres away from the house of the beneficiary and promotes the use of local variety of seeds, which is crucial to climate adaptation and building climate resilience. The plants grown in these lands follow inter-cropping practices, require small quantities of water and are grown entirely using bio-pesticides. AHUs are crucial to ensuring equitable access to seasonal fruits and vegetables for all the members of families, and has proved helpful, especially during the first and second waves of COVID. Families were able to harvest adequate quantities despite restricted access to markets due to the lockdowns imposed. Through the GEMD project, the produce from the AHUs have ensured a diverse basket of nutrients for forty households. AHUs also offer an opportunity



Arid Horticultural Unit built for one of the beneficiaries located in the Thar region



for families to augment their incomes by way of selling excess produce of fruits and vegetables in the markets. Sometimes, these are also distributed amongst the residents of the villages, thereby contributing to the enhancement of nutrition security at the community level as well. The establishment of AHUs is well supported by the construction of *Taankas* in the project region. The water sourced from these storage units, in majority of the cases, is used to maintain the AHUs, thereby resulting in lesser costs for maintenance. Families are no longer compelled to depend on or purchase water from external sources, thereby helping them save a huge part of their income.

The setting of AHUs is significantly supported by stakeholders with rich expertise in identifying the right variety of seeds that are suitable for the persisting climatic conditions in the project region. Beneficiaries who have set up AHUs in lands closer to their homes are trained to manage the units in terms of laying the fencing, watering techniques, rotation of plants, use of bio-pesticides etc. Specific training sessions on water, food and nutrition security have been organised as part of GEMD project to empower beneficiaries with the necessary knowledge, information and skills to manage their AHUs effectively.

4.4 Enabling access to quality healthcare

The people of the Thar are constantly at the risk of being trapped in the deadly cycle of malnutrition and disease. These two conditions are deeply interconnected and are determined significantly by the underlying food-nutrition-water scarcity of the region. Access to clean drinking water, nutritious food and a clean sanitation facility is still an unfulfilled dream for many. The underground water is heavily saline and unfit for consumption or any other domestic purposes. As a result of this, the pursuit for clean drinking water often stretches anywhere between three to forty kilometres away from home. A burden that invariably falls on the women of the household, the drudgery associated with fetching water from miles away is not always fruitful. In such circumstances, families are forced to spend even the last penny on procuring clean water from other sources such as private tanks, pipeline water, open ponds etc. that are often contaminated. For many families in the Thar, procuring even basic elements for survival such as clean drinking water is a very expensive affair, so much so that it exhausts whatever income they have, leaving nothing behind for other critical expenses such as health or education.

The gravity of the situation in the Thar is evident from the fact that a very dismal percentage of the households have access to tap water from treated sources and water from well covered sources. Majority of such households are compelled to consume water from uncovered sources. Given the poor quality of water and hygiene, the threat of water borne diseases looms large. According to the WHO, roughly 50% of all malnutrition is associated with repeated diarrhoea or intestinal worm infections as a direct result of inadequate water, sanitation and hygiene. Consumption of poor quality drinking water further adds to the vicious cycle of disease, malnutrition and poverty.



Outreach medical camp organised by the project

The residents of Thar have had to deal with an abominable set of challenges due to droughts, water and food insecurities. Although the NFHS-5 indicates that 96.5% of the households in Jodhpur district have improved access to drinking water, the situation at the field level narrates a very different picture. The statistics often mar the huge disparities in access and availability of resources amongst communities, villages and sometimes even households. Majority of them are dependent on rainfall for drinking, cooking and cleaning purposes and in the absence of rain or even scanty or erratic rainfall, they cannot afford the means to store this rainwater. Community reservoirs and ground level water reservoirs, in most cases, run out of supply and cannot support communities for more than five months in a year. In many villages, these reservoirs are defunct and devoid of any supply. Further, several families are located in isolated and far-off regions, unable to access water sources. This is further compounded by the fact that health care infrastructure and services are dismal. In the absence of water, healthcare and financial means to address their problems, families are pushed further into deep rooted poverty and deprivation.

Recognising the need to bridge the gap between families and essential services, GRAVIS has introduced several interventions including facilitation of outreach medical camps, organisation of training camps focusing on maternal and child health and geriatric health and diagnosis. Over the years, GRAVIS has formed a large network of doctors, specialists, auxiliary nurses, pharmacists, administrators and

technicians through whom the above mentioned services are being provided to the most poor and vulnerable communities in the Thar. The services have been made available with the support of VDCs, SHGs and ILGs and have proved to be extremely important, especially in terms of early diagnosis of conditions such as cataract, glaucoma. Timely referral, treatment and follow-up with the patients has enabled many of the residents to get back to their normal routines. As part of the GEMD project, ten outreach medical camps were organised. 319 beneficiaries were reached out to and subjected to basic health screening. Patients with complications were referred to a well-equipped hospital as well.

4.5 COVID-19 relief work undertaken by GRAVIS

This network was especially helpful during the project period between January 2021 and December 2021 when India witnessed the second wave of COVID-19. Jodhpur district reported nearly 1,10,000 cases, comprising 12% of the total number of cases in the State. There was a clear disparity in the number and functionality of testing facilities in urban and rural areas, thereby impacting the accessibility of health care services for those affected with COVID-19. During this hour of crisis, GRAVIS immediately mobilised resources to cater to the needs of those who were located in remote areas of the Thar and had no



Distribution of food and hygiene supplies kit as part of COVID-19 relief work

access to critical services and equipment to combat the ravaging second wave of COVID-19. The COVID-19 relief work undertaken by the organisation was anchored by VDCs, SHGs and a vast network of community-based volunteers who braved against the deadly virus and more importantly, broke all barriers to comfort those who were debilitated and deeply affected. The case studies emerging from the field are testimony of the exemplary strength, courage and adeptness demonstrated by every stakeholder, a hallmark characteristic of the organisation and community. A combination of kits were curated and distributed to beneficiaries based on inputs from the VDCs in terms of who is in dire need of such benefits.

Food supply kits were provided to families with no access to the Public Distribution System (PDS) and those who did not have any means of procuring items from the market. Food items including wheat flour, pulses, edible oil and spices were distributed and these were sufficient to meet the needs of a family of about 8 people for about a month to 6 weeks. 5,000 such kits were distributed benefitting 5,000



Distribution of hygiene supplies kit as part of COVID-19 relief work



households and 30,252 family members. The organisation also undertook distribution of hygiene kits comprising soaps, face masks, sanitizer, toothpaste to 5,000 families. This ensured that the families have enhanced access to essential hygiene supplies, which are otherwise not easily available in the remote villages. In the face of the rising need of critical oxygen supply crisis across India, GRAVIS hospital and its cadre of medical professionals have been particularly instrumental in catering to the oxygen and other medical needs of rural communities. Aiming to ensure the safety of the medical team and frontline workers, distribution of PPE kits at the village level for frontline workers, including doctors, nurses, hospital staff directly dealing with COVID-19 patients, was undertaken. PPE equipment was distributed to support 100 medical and frontline workers. The kits comprised N95 equivalent masks, nitrile gloves, PPE kit (full body suits), disposable goggles and hand sanitisers. Additionally, 400 COVID patients were provided with home isolation kits comprising pulse oximeter, thermometer, vitamin C and Zinc tablets along with sanitizer and masks. In addition to distribution of kits, door-to-door campaigning was done to generate awareness on COVID-19 on prevention, protection and vaccination. Pamphlets were distributed to emphasis on the importance of COVID-19 appropriate behaviour.

5. CONCLUSIONS

The detrimental effects of climate change have already begun to unfold across the world. Increasing temperatures, unpredictable, scarce, and erratic rainfall coupled with untimely floods, desertification, are some of the phenomena that are beginning to occur more frequently and more widely, in different regions of the world. Given this, there is a compelling need to quickly devise a plan to ensure climate adaption and climate resilience are on track.

The GEMD project was undertaken by GRAVIS during one of the most challenging times of COVID-19 and has been executed in a resilient manner. The interventions, focusing on enhancement of water, food and nutrition security in a set of villages located in the Thar region of Rajasthan, India, have been implemented with a fundamental objective of achieving gender equality through drought mitigation. The construction of *Taankas*, *Khadins* and AHUs have resulted in the enhancement of water, food and nutrition security of a hundred and twenty families in the Thar region. Furthermore, more than three hundred individuals have benefitted from the outreach medical camps organised in remote areas, enabling timely medical interventions, including diagnosis, provision of medicines, treatment, and referral services. GRAVIS was also quick to devise a comprehensive plan to combat the deadly effects of the second wave of COVID-19 in the Thar region. Relief work undertaken by the organisation has impacted more than thirty thousand individuals who were provided food and hygiene kits, isolation kits and protective equipment.

Through this project, larger number of communities have been added to the growing list of those who are now motivated, empowered, self-reliant and equipped with the right amount of knowledge, information, and skill to pursue to core objectives of community development. Strengthening the core principles of collective decision making, enabling access, and facilitating platforms to ensure sustained engagement on these topics are crucial insights from this project and it is hoped that this list will be augmented further with the testimonials from the ground.

The project has certainly flagged off an important shift towards acknowledging women as equal partners in the process of development. Furthermore, having recognised the importance and role of women as the key custodians of traditional knowledge and wisdom, GRAVIS has evolved an excellent approach to ensuring that this knowledge is passed on to the coming generations via intergenerational learning groups. This is extremely crucial to ensure that the future generations are well prepared to adapt to ever-changing systems and factors that directly impact their food, water, nutrition and income security.

With a new set of challenges stemming from economic and ecological dimensions, adding to the existing range of problems posed by socio-cultural barriers, GRAVIS now faces a daunting task of re-inventing its strategies, devising new methods and progressing towards an ecologically compliant food system in the Thar region and it is strongly believed that this will be achieved with exemplary resilience, truly reflective of the spirit of the people of Thar.

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ACRONYMS

AHUs	-	Arid Horticultural Units
CAZRI	-	Central Arid Zone Research Institute
CBOs	-	Community Based Organisations
GEMD	-	Gender Equality through Drought Mitigation
ILGs	-	Inter Learning Groups
NREGA	-	National Rural Employment Guarantee Act
PDS	-	Public distribution system
PPE	-	Personal Protective Equipment
SHGs	-	Self Help Groups
VDCs	-	Village Development Committees
VOPAs	-	Village Older People's Associations
UNDP	-	United Nations Development Programme
UNEP	-	United Nations Environment Programme



GLOSSARY

Gram Sabha-It is a democratic structure at the grass-roots level in India. The Gram Sabha is a platform to discuss local governance and development, and make need- based plans for the village

Gram Swaraj- A principle that promotes conversion of every village into a self-efficient autonomous entity where all the systems and facilities for a dignified living are available

Khadin- It is an ingenious construction designed to harvest surface runoff water for agriculture. These are embankments built across the lower hill slopes lying below gravelly uplands.

Sarvodaya- It essentially means 'Universal Upliftment' or 'Progress of All'

Taanka-It is a traditional rainwater harvesting technique, common to the Thar desert region of Rajasthan, India. It is meant to provide drinking water and water security for a family or a small group of families



NOTES

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3/437, 458, M. M. Colony,
Pal Road, Jodhpur - 342 008,
Rajasthan, INDIA
Phones : 91 291 2785 317, 2785 116
Fax : 91 291 2785 116
E-mail : email@gravis.org.in
www.gravis.org.in

Gramin Vikas Vigyan Samiti (GRAVIS) or Center of People's Science for Rural Development is a non-governmental, voluntary organization that takes a Gandhian approach to rural development by working with the poor of the Thar Desert to enable them to help themselves. Since its inception in 1983, GRAVIS has worked with over 68,000 families across over 1,600 villages reaching a population of over 1.6 million, and has established over 3,800 Community Based Organizations (CBOs).



GRAVIS is registered under Rajasthan Societies Registration Act and under section 80 (G) and has tax exemption under section 12 A of IT Act, 1961 of Govt. of India.