

# TURNING A NEW LEAF



**Gravis**

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# Turning a new leaf

Older People's Contributions in  
Climate Change Adaptation





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**Older People's Contributions in  
Climate Change Adaptation**

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## CONTENTS

*Foreword*

*Author's Note*

*Executive Summary*

1.	Climate change and its impact on older people	9
2.	Role of older people in drought mitigation and in climate change adaptation	11
3.	About GRAVIS	12
4.	Water, Nutrition and Health in the Thar (WNHT) - Project interventions and impact	15
4.1	Enhancing water security	16
4.2	Ensuring Food and Nutrition Security	27
4.3	Augmenting health care services	30
4.4	Bridging the gap in delivery of services and entitlements	34
5.	Ideas for the future	37

*References*

*Acronyms*

*Glossary*

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## **Author's Note**

The older population across the world are today confronted with a diverse set of challenges, limiting their ability to respond or cope. These challenges include climate change, pandemics, inadequate support and care and neglect. With age, the ability to physically access essential services reduces and in some cases, comes to complete halt. The dependency on younger members of the family increases, often resulting in neglect, deterioration of health and isolation.

The older population in the Thar region have been particularly affected by climate change. Amidst soaring temperatures, arid, inhospitable and unpredictable weather conditions, inadequate rainfall and extremely poor living conditions, there is an urgent need to devise a climate change adaptation strategy that is focused on water, nutrition, and health of the older persons.

GRAVIS has been one of the first responders to the problems and challenges faced by older people of the Thar and have successfully devised a community centric, integrated approach to cater to their physical, social, economic, psychological and healthcare needs. Through the Water Nutrition Health in the Thar project, GRAVIS has been able to transform the lives of older people in a significant manner, empowering them to effectively respond to climate change, while also ensuring that they receive all the respect, regard, warmth and concern they deserve. Over a time period of three years, the project has been able to strengthen the capacities of older persons in the Thar while catering to their water, nutrition and health care needs of older people. The project has also heavily relied on traditional knowledge, skill and expertise of older people of the Thar region to effectively respond and adapt to climate change. The project has contributed to enhancing water, nutrition and health care security of older people and has led to the establishment of a robust network of village based committees that are sensitive, considerate and quick to respond. The pictures, case studies and experiences shared by the GRAVIS team are heart-warming and certainly pave the way for many more such models to emerge in the future.

I am extremely thankful to Dr. Prakash Tyagi and his team at GRAVIS for giving me an opportunity to look closer into the lives of older people in the Thar region. Having spent all their lives in one of the most hostile arid regions of the world, the resilience that older people of the Thar display is truly inspiring and deserves to be documented.

**Jyotsna Sripada**

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## Executive Summary

The world is witnessing a unique phenomenon where climate change and ageing are progressing at a very quick pace. Climate change has been associated with adverse health outcomes, and older people are disproportionately affected (Gamble et al., 2013; Haq & Gutman, 2014). The occurrence of extreme weather conditions is expected to become more frequent, intense and unpredictable. The average global temperatures are increasing; floods, heatwaves and droughts are exacerbating the threats and risks associated with global warming. According to the Intergovernmental panel on Climate Change (IPCC), floods, heatwaves and droughts are amongst the key risks threatening the future of human life. There is ample evidence to suggest that older people are more vulnerable to the effects of temperature extremes and have a significantly higher mortality risk in extreme weather events. They are at greater risk because of increased susceptibility to disease, reduced mobility and the effects of stresses on the food and water supply.

Although older people have special needs of care, one often fails to recognise the fact that they also possess unique skills, experience, and expertise that they have gathered over the years of surviving adverse situations. Older persons in regions such as Thar are known for their traditional knowledge, wisdom and skills required to respond to a local disaster, climate adversities, disputes, resource management, among others.

GRAVIS has been at the forefront of developing, implementing and advocating for interventions that focus on using traditional knowledge, wisdom and skills to adapt to climate change. The Water, Nutrition and Health in the Thar Desert (WNHT) project was first implemented between the years 2017 and 2019, and further extended till 2021. This project has successfully resulted in enhancing the health and living conditions of about 2,000 older people and their 12,000 families members (living in 14 villages) within the Thar Desert by focusing on water, nutrition and health aspects. It has also demonstrated the effectiveness of an older people led water, nutrition and health model.

The project essentially focused on strengthening the Village Older People Associations (VOPAs) and facilitating the setting up and renovation of several structures such as *taankas*, *khadins*, *naadis*, *beris*, Arid Horticultural Units (AHUs), supplemented with training and capacity building activities to promote sustainable ways of water conservation, promote food and nutrition security, supplement income security and ensure access to healthcare

The WNHT project has resulted in devising a successful climate adaptation strategy, anchored by older persons in the Thar region and has emerged as a model to reckon with.

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# 1. CLIMATE CHANGE AND ITS IMPACT ON OLDER PEOPLE

The world is witnessing a unique phenomenon where climate change and ageing are progressing at a very quick pace. Climate change has been associated with adverse health outcomes, and older people are disproportionately affected (Gamble et al., 2013; Haq & Gutman, 2014). The occurrence of extreme weather conditions is expected to become more frequent, intense and unpredictable. The average global temperatures are increasing; floods, heatwaves and droughts are exacerbating the threats and risks associated with global warming. According to the Intergovernmental panel on Climate Change (IPCC), floods, heatwaves and droughts are amongst the key risks threatening the future of human life.

There is a growing body of evidence that demonstrates that climate change affects the older population much more than the rest of the demographic composition. Older people are more vulnerable to the effects of temperature extremes and have a significantly higher mortality risk in extreme weather events. They are at greater risk because of increased susceptibility to disease, reduced mobility and the effects of stresses on the food and water supply.

Social and economic factors may also increase the vulnerability of some older people. Two-thirds of people aged 60 or over live in low- and middle-income countries where disasters are more likely to happen. Older people are confronted by an array of challenges including susceptibility to chronic health problems, poor infrastructure, social isolation, lack of access and control over productive resources, and inability to contribute to the income levels of their households. In majority of the cases, older persons are dependent on the family to be able to meet specific needs. These challenges pose a huge threat to their ability to cope with climate changes. Older persons are often compelled to live with acute shortages of water, food and nutrition, causing severe damage to their physical, emotional and psychological health.

Furthermore, institutional mechanisms, in developing countries such as India, that are responsible for delivery of essential services such as food, nutrition, education and health are often designed in a manner such that they are accessible and available for a very small percentage of stakeholders. Although the implementation of services is expected to be carried out in an effective and efficient manner at the community levels, it is often observed that the older population is entirely dependent on another member of the family or the community to procure ration, water, medicines, pension, etc. Ensuring the availability of essentials for older persons would mean that the family member must forego an entire day of work and his/her daily wage. In some situations, it involves more number of days, resulting in a significant portion of the family income being lost out on. Owing to this, many members prioritise their needs and neglect the specific needs of the older persons. This results in further deterioration of their health and well-being. That apart, although older persons are equal stakeholders and have the right to access common property resources such as forests, community wells, ponds and rivers, their access to the same is limited. Amidst limited access, very little information and awareness of issues concerning their development, older population are left out of the realm of any policies, plans and interventions and are not viewed as direct beneficiaries of progress.

Given this, it is imperative to redesign the existing policies, programmes and services to prioritise the needs of older population so that they are well-equipped to deal with the challenges posed by climate change and other barriers that impede their development. Having understood the need for a paradigm shift in policies and plans for older population, GRAVIS has been at the forefront of developing, implementing and advocating for projects that focus on the making essential services easily accessible for the older population. That apart, through a wide range of interventions, GRAVIS has successfully established a network of community based working groups that are trained to capacitate poor and vulnerable groups to address climate change.

This document captures the key interventions introduced by GRAVIS as part of the project- Water, Nutrition and Health in the Thar (Phase II). The strengthening of village older people's associations (VOPAs) has been at the central focus of this project, while simultaneously focusing on addressing the water, health and nutrition needs of the older people as well as the community in the Thar.



*Older people in Thar*



## **2. ROLE OF OLDER PEOPLE IN DROUGHT MITIGATION AND IN CLIMATE CHANGE ADAPTATION**

Older people are disproportionately vulnerable to disasters and other types of emergencies. The impact of these disasters is predominantly borne by the older population, although they constitute a small percentage of the total population. For instance, when the Japan tsunami hit in 2011, 56% those who died were 65 years and over, despite accounting for only 23% of the population. The highest death rate from the 2004 Indian Ocean tsunami was among people over 70 years of age: 28% of this age group were killed (HelpAge International, 2016).

Older people in any society are often viewed as a burden to the family. With age, while their specific needs in terms of health, nutrition and care become more, many communities treat them as unproductive assets as they cannot contribute to the financial needs of the household. Although older people have special needs of care, one often fails to recognise the fact that they also possess unique skills, experience, and expertise that they have gathered over the years of surviving adverse situations. This is particularly relevant in the context of the Thar region where adapting to climate change has been a huge challenge. Older persons in such regions are known for their traditional knowledge, wisdom and skills required to respond to a local disaster, climate adversities, disputes, resource management, among others. Older persons can discharge a myriad set of roles and responsibilities at household and community levels. These roles differ according to gender, economic status and cultural practices. Within the household, older people, particularly women, play an important role as caregivers, and are often centrally involved in bringing up grandchildren. They also support the household with domestic chores and take on economic activities if they are fit and able to do so. Within the community, older people are seen as custodians of knowledge, and older men in particular play a key role in decision-making and mediating in disputes. In terms of emergency and drought responses, there is ample evidence to indicate that older people can be a valuable source of information on local hazards and risks (especially in rural areas, where data on previous disasters tends to be sparse), as well as in the development of appropriate and sustainable community-based mitigation strategies (BMZ, 2013). In many situations, older persons have emerged as the primary respondents of a crisis situation, handholding the rest of the members of families and the community to overcome such situations. These include dealing with acute water shortages, inadequate nutrition, migration, poor agricultural produce, to mention a few.

In order to adequately devise responses for climate adaptation and resilience, it is imperative to focus on the empowerment of older population so that they can anchor the process drought mitigation. The projects undertaken by GRAVIS, including the WNHT, have been instrumental in acknowledging the role of older population in drought mitigation and have successfully established a wide network of individuals, facilities and mechanisms that may be used for the overall upliftment of the community.





### 3. 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*

From the time of its inception, GRAVIS has been guided by two core principles—*Sarvodaya* and *Swaraj*. *Sarvodaya* essentially reflects the Gandhian philosophy of “all rising but the last person first”. This, along with *Swaraj*, which essentially means village self-rule, have been the driving forces of all the interventions undertaken by GRAVIS. GRAVIS works for the collective ascension of men, women, and children, regardless of economic situation, caste or religion through rehabilitation of the rural community, enabling village ownership and control over its environment, institutions, and relations.



Given the fact that the Thar region is one of the most arid and inhospitable desert regions in the world, the residents of this region are constantly faced with acute shortages of critical resources such as water, nutrition, and healthcare. GRAVIS focuses its efforts on the restoration of dwindling natural resources and on the promotion of marginalized groups. The organisation 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, GRAVIS leverages traditional knowledge and wisdom of resource management and 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.

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 affected across all areas of life and for all members of society. All interventions undertaken by GRAVIS are implemented through a strong network of community-based organisations (CBOs) like Self Help Groups (SHGs), Village Development Committees (VDCs), Village Older People's Associations (VOPAs) and Village Health Committees (VHCs).

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 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, 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 scan 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, nutrition, 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 has been successful in transforming the 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.



## 4. WATER, NUTRITION AND HEALTH IN THAR (WNHT) - Project interventions and impact

GRAVIS had launched the first phase of the **Water, Nutrition and Health in the Thar Desert (WNHT)** project between the years 2017 and 2019 with the support of SAG funding of Age International, UK. In a span of two years, the project benefitted over 1500 older people and their 9,000 family members directly. In order to reach out to several other older persons and communities located in remote and far off regions in the Thar, a second phase of the WNHT project was implemented between 2019 and 2021.

The **overall primary goal** of the WNHT project was to strengthen the VOPAs in rural India leading to drought mitigation and poverty reduction and also ensure replication through learning, documentation, exchanges and capacity building. The **sub-goal** of the project was to contribute in improving the health and living conditions of about 2,000 older people and their 12,000 families members (living in 14 villages) within the Thar Desert by focusing on water, nutrition and health aspects, and to demonstrate the effectiveness of an older people led water, nutrition and health model.

### **The WNHT project envisaged the following interventions:**

- To strengthen the capacities of existing Older Peoples Associations created by GRAVIS and Help Age, and to develop the skills of newly formed OPAs
- To enhance water availability through rainwater harvesting techniques
- To ensure food and nutrition security through farming and horticulture
- To improve the health status of OP and other members of the community through community based health interventions
- To bridge the gaps between Government programmes and communities through the leadership of OP
- To document OP lead water, nutrition and health interventions and advocate for replication and leverage Government resources.
- To impart training and capacity building to relevant civil society organizations and to government agencies for wider replication of OPA model, and to encourage OP's participation in various programmes

The above mentioned interventions were executed under the guidance of technical advisory committee of GRAVIS and by a well-trained team of field investigators, project coordinator and administrators who were responsible for conducting trainings, awareness generation, community engagement, engagement with members of local government, documentation and reporting. The interventions undertaken as part of the WNHT project have benefitted over 2,500 older persons, and indirectly benefitted about 25,000 community members across 15 villages in 2 districts of the Thar region in Rajasthan.



**Table: List of interventions and number of beneficiaries as part of the WNHT project**

S.No.	Intervention	Number of beneficiaries
<b>Physical constructions enhancing food and water security</b>		
1.	<i>Taankas</i> (Water storage tanks)	235
2.	<i>Khadins</i> (Farming dykes)	234
3.	Arid Horticultural Units (AHUs)	272
4.	<i>Naadi</i> (Pond)	4
<b>Community empowerment and capacity building</b>		
1.	Strengthening of existing Older Peoples Associations (OPAs)	472
2.	Formation and capacity building of new OPAs	111
3.	Trainings on water security	705
4.	Trainings on health and nutrition security	591
5.	Outreach medical camps	2204
6.	Self-care trainings	1984
7.	Health safety trainings	325

#### 4.1 Enhancing water security

Water is an extremely precious resource for the people of the Thar region as its availability is often marred by a sense of unpredictability. Amidst depleting ground aquifers and acute scarcity of rainwater, the pursuit for sufficient quantities of water is an arduous one. The older people of the Thar have constantly been at crossroads with unfavourable weather conditions, further exacerbating their struggle for basic amenities such as water. With an annual rainfall not exceeding 500mm, the residents of Thar find themselves in constant search for water that is good enough for human consumption as well as domestic purposes. This search, in many instances, takes the young and older women of families to anywhere between one and five kilometres on a single day. The primary responsibility of fetching water for the families falls on the older and younger women. This herculean task of fetching water leaves them with barely any time, energy and strength to carry out any other responsibilities or even pursue their interests. Women, for generations together, have borne this burden of bringing drinkable water from the farthest of distances, and even today, continue to undergo this drudgery. This process has resulted in severe damage to the physical and emotional health of women, thereby making it extremely difficult for them to cope with an already overwhelming list of responsibilities that they are bound by.



From scarcity stems a desperate need to devise or identify means through which resources can be stored, judiciously used and saved for the future generations. The residents of Thar are observed to follow a rotational form of consumption of food and water where one or more members of the family skip their turn to eat and drink on few days of the week so that there is sufficient food remaining for all to eat. In this process, the older people of the family, especially women, are compelled to give up their share of food and water for the others who are considered to be more productive and thus need more amount of energy. Although there is a fundamental need to provide adequate food and water for all members of the family, based on their age and developmental needs, the needs of the older persons of the family are given least priority. Ironically, the ones who are armed with valuable experience and expertise in dealing with scarcity of resources are today facing disturbing levels of deprivation, with no one to extend a supporting arm.

It is in these circumstances that GRAVIS has come forward to prioritise the water, nutrition and health needs of the older persons of the Thar, while also benefitting their families, through a well-designed integrated approach for resource utilisation. Focusing on the three most fundamental elements essential for survival, that is water, nutrition and health, GRAVIS has been reaching out to the older persons across .. villages in the Thar to enable them to lead a strong, resilient and healthy life.

Acute water shortages in the Thar region is an adversity that the residents are very familiar with and have, over the years, developed many ways through which it can managed. One of the key interventions introduced by GRAVIS as part of the WNHT project is to construct water storage tanks or *taankas* near the houses of beneficiaries. *Taankas* are underground drinking water storage tanks that have the capacity to store 20,000-25,000 litres of water that is captured through rain water harvesting. *Taankas* are designed in a simple, yet scientific manner to ensure cleanliness, safety and utility of water. The *taankas* capture rainwater during the monsoon season and can cater to the domestic needs of families for as long as six months during a year. These underground storage units are equipped with slit catchers to prevent the entry of harmful chemicals into the unit. Furthermore, the inlet and outlet channels are kept separate to ensure that the water is clean and not infested with any insects. The *taankas* are also equipped with a lid and a locking mechanism to ensure that the water is stored safely.

As part of the WNHT project, about 235 older people were identified as beneficiaries and owners of *taankas*. That part, the construction of *taankas* was also facilitated for 235 families who were identified as those with immediate and compelling needs. The members of the communities across the Thar are adept with all the necessary measures that need to be undertaken in order to construct as well as maintain the *taankas* all families have been trained to build *taankas*, thereby empowering them with the necessary skill. Additionally, the community has jointly identified measures that may useful to maintain the *taankas* and the entire catchment area in a clean and hygienic manner. This includes removal of footwear before entering the catchment area. Measures such as these have reduced contamination of water resources, thereby reducing the exposure to water borne diseases. The project witnessed several

testimonials where residents stated that the occurrence of diarrhoea and vomiting amongst children has considerably reduced due to the consumption of clean drinking water.

The construction of *taankas* has benefitted close to 1,500 persons in total, including older persons whose needs are of utmost importance. It was observed that close to Rs. 1000 per month was saved in every household that was equipped with a *taanka*. That apart, the *taankas* have saved precious productive time of men and women, who can now use it for other income generation activities and interests. The storage units have certainly resulted in an improved physical and emotional health of older and younger women. Through the WNHT project, the residents of the Thar are a step closer to enjoying uninterrupted access to adequate amount of clean drinking water for longer periods of time.



*Kasim with his newly built taanka in Bohranada village, Jodhpur district of the Thar*



### **Case Study: Reviving a hope to find water in the Thar**

Ambu Devi is a 65 year older woman who hails from Taratra village in Barmer district of Rajasthan. She is part of an eleven member family and owns livestock. Ambu Devi has faced a financial crisis for a significant part of her life and has been confronted with several challenges threatening the survival and growth of her family members.

Ambu Devi was primarily responsible for fetching water for consumption and cleaning purposes. She would walk every day to the community pond for the same. On days when the pond was dry, she would walk almost three to four kilometres in hope of fetching water from the nearby villages. Braving scorching heat and heavy wind storms, Ambu Devi's arduous trek for a pot of water was an endless struggle. She barely managed to procure a pot full of water and this had to be adjusted between all the eleven members of the family, while also making sure there was enough water for cooking, cleaning, bathing and livestock. While drinking and cooking were prioritised, personal hygiene was compromised upon, thereby impacting the physical and emotional health of Ambu Devi and her family members. This situation was further worsened because of dwindling employment opportunities for the family.

Ambu Devi attended a meeting organised by the Village Older People Association (VOPA) and Village Development Committee (VDC) in her village and requested the members to facilitate construction of a *taanka* near her house. The members immediately considered her request and ensured the same. Ambu Devi no longer has to walk long distances to fetch water. The *taanka* is located next to her house and provides water sufficient for six months for her entire family. She now utilizes her time in going for labour work and also contributes in fulfilling the needs of her family.

Her grandchildren can go to school without worrying about water. They now also are able to maintain sanitation and personal hygiene unlike before. The *taanka* has enabled them live a cleaner and a healthier life.

*“My life has completely been transformed, thanks to the VOPA/VDC members, GRAVIS and HelpAge International”, says Ambu Devi*

#### **4.1.1 Promoting water and food security through the construction of farming dykes or *khadins***

80% of the population in the Thar is engaged in agriculture as their primary source of income. The viability of agriculture as a profitable mode of engagement is solely dependent on the amount of rainfall in the region as major sources of water for the purposes of agriculture and livestock such as ground water tables, canals and private sources that are either unavailable, insufficient or extremely expensive. In such circumstances, it becomes extremely important to devise ways through which the limited amount of resources available can be used judiciously, sustainably and with least maintenance involved.



As in many other challenging circumstances, GRAVIS and the team has relied extensively on traditional knowledge, wisdom and techniques to ensure and promote water security. One such method is the construction of a farming dyke or *khadin*. 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.

A *khadin* is essentially bund is made out of the soil around the land against the slope on the contour line. The rainwater collected inside helps in keeping the soil moisturized producing organic manure and other the minerals inside the *khadin*. Villagers from the project region are identified and support with the necessary material, skill and technical support to build *khadins*.

These bunds have been instrumental in reviving several stretches of farm land that could not be used earlier for agricultural purposes due to lack of adequate water and moisture necessary to promote growth of crops. Additionally, channels (spillways) were constructed to ensure that excess water, during a continuous spell of rainfall, does not overflow and damage the bund of *khadin* and crops. The increase in the moisture content has resulted in improving the yield of crops like green gram (*moong*), Moth beans (*moth*), sesame (*Til*) and millet (*Bajra*), cluster beans (*guar*), mustered (*sarson*), chickpea (Chana), sorghum (*Jwar*), melon, cucumber, citrus fruits and desert plums. The produce from these farm lands equipped with *khadins* is also an important source of income for the community and has significantly contributed to facilitating a steady flow of income. The construction of *khadins* has not only helped in promoting crop growth but also resulted in promoting nutritional security for all, especially those belonging to the poor and vulnerable sections of the Thar.

One of the key features of this intervention is the fact that the older persons of the family, for which the *khadin* has been constructed, are identified as owners. This way, they are in a position of greater control and access to fundamental resources such as water. This ensures that the concerns and needs of older persons are taken care of putting aside any scope for neglect or isolation. The establishment of *khadins* has ensured that the older people of the Thar are not just beneficiaries but custodians of the same. This way, their access to essential resources, produce and income from the sale of produce is assured.

The project period has witnessed 234 older people benefitting from the construction of *khadins*. With enhanced water, food, nutrition and income security, the older population of the Thar has certainly regained their lost hope of leading a life with respect, care and self-reliance.

The WNHT has also facilitated the distribution of local variety of seeds such as green gram (*Mung bean*) and Pearl millets (*Bajra*), Cluster bean (*Gavar*), Chickpea and mustard. This intervention was undertaken to encourage the farmers to achieve enhanced and sustainable production of crops. The distribution of seeds has been executed through four community seed banks that were initiated as part of this project. The distribution of local variety of seeds has provided an impetus to the farmers to cultivate and harvest a much larger amount of crops, thereby ensuring enhanced food, nutrition and income security for all.





*A newly constructed khadin as part of the WNHT project*



*Lush produce obtained after construction of khadin*





### **Case Study: Reviving farm lands through *khadins***

Pannaram is an old farmer who lives with in Taratra village of Barmer district of Rajasthan. Although Pannaram owns a sizeable amount of land, he and his family, comprising eight members, are mostly engaged as daily wage labourers. This is primarily due to the lack of sufficient soil and water to promote crop growth.

Previously, during the rainy season, the soil in Pannaram's farmland, along with the natural fertiliser would be washed away due the lack of an appropriate mechanism or structure that prevented erosion from run-off water. Consequently, the unwanted materials and stones were retained in the field, resulting in severe damage to his farmland.

Pannaram requested the Village Development Committee (VDC) to construct a *khadin* in his farmland to retain the soil, water and moisture. The VDC immediately considered his request and constructed a *khadin* in his farm land. This has resulted in restoring Pannaram's land with sufficient rainwater being retained and moisture being conserved, thereby promoting agricultural production. Furthermore, the *khadin* has improved the ground water levels by a significant margin enabling Pannaram as well some of the farmers whose farm lands are located nearby to produce larger quantities of crops. With the presence of *khadin*, Pannaram and the other farmers have been able to grow crops such as wheat, cumin, chipkpea and mustard during the Rabi season as well. Fodder availability has also improved significantly. Pannaram's farmland is able to generate excess produce that is now sold in the market, thereby contributing to enhanced income security for Pannaram and his family.

*“My son no longer has to work in other farmlands as a labourer. The construction of a khadin in my farmland has helped me and my family to a great extent”, says Pannaram.*

#### **4.1.2 Strengthening community based water resources such as *naadis***

Water security in the Thar is further augmented through the restoration of community ponds or *naadis*. *Naadis* are surface based rainwater harvesting basins that can store between 700 m<sup>3</sup> and 40,000 m<sup>3</sup> of rainwater. These structures are extremely useful especially during the non-monsoon period when there is not sufficient rainfall. The water stored in these ponds is used to refill *taankas* thereby eliminating the need to depend on private sellers or sources of water.

The revival and maintenance of community based resources is extremely important to ensure accessibility and availability of water for all residents, including children, women, older persons, and others belonging to the poor and vulnerable sections of the region. These *naadis* are also used for providing water to the livestock for drinking purposes. Given this, GRAVIS has worked towards desilting of the ponds and building embankments around the ponds to ensure safe and secure storage of water. The *naadis* are built in such a manner that they can provide water for 8-12 months in a year. The revival of

four such community ponds in the Thar region has facilitated water security for nearly 800 residents, belonging to different social groups, experiencing varying levels of vulnerability and deprivation.

Through the WNHT project, the residents of several villages have developed a sense of responsibility and collective ownership of important community-based resources such as the *naadis*. The Village Older People Associations (VOPAs) play a pivotal role in disseminating traditional knowledge and wisdom in terms of identification of appropriate areas for development of *naadis*, maintenance of these surface-based structures, prevention of contamination of water and ensuring equitable access for all residents of the villages. The WNHT project has resulted in enhancing water security for over 20,000 humans and 50,000 livestock as well. The *naadis* has emerged as an important lifeline for the residents and livestock of the Thar, paving way for a ray of hope amidst parched and dried up water bodies. These *naadis* have empowered the residents of the Thar to be self-reliant and self-sufficient.



*Ratandi naadi restored in Boharnada village of Jodhpur district in the Thar*

#### **4.1.3 Construction of masonry check dams near *naadis***

Unpredictable and irregular rainfall in the Thar is also sometimes accompanied with flash floods that result in erosion of the top soil, washing away whatever little amount of moisture that has been conserved for the purpose of promoting crop growth. That apart, flash floods also result in causing excessive damage to the nearby hamlets, thereby leading to life-altering scenarios. Coping with such sudden changes in the weather can be quite difficult, especially for the older persons who are engaged in agriculture.

Masonry check dams are an important way to ensure that soil in farm lands is secured and protected from any form of erosion or damage due to flash floods. As part of the WNHT project, four check dams were built across different villages of the project area, under the guidance of technical experts who are well adept with the water situation in the Thar region and have sufficient expertise in using traditional methods of rain water harvesting techniques. The masonry check dams are constructed using locally available materials including sand stone bricks, gravel, and cement.

These check dams have been instrumental in protecting the soil of farmlands, while also recharging the underground water tables. The farmers are now able to produce larger quantities of crops, thereby improving the food security situation in the region, especially for the older population and the community at large. That apart, these check dams have ensure water availability for livestock in the region for 2-3 months at a stretch.



*Construction of masonry check dam in progress*



#### 4.1.4 Renovation of *beris*

As part of the WNHT project, GRAVIS has strived to revive several surface based and sub-surface based water storage structures in order to enhance the availability of water for the beneficiaries of the project region. This includes restoring *beris*, which are essentially traditional sub-surface percolation wells that store rainwater. *Beris* are a pitcher-shaped shallow wells that are generally half a metre wide at the top and three metres wide at the bottom. While setting up a *beri*, people stop digging once they encounter a layer of clay or gypsum. These layers prevent further percolation of the stored rainwater, while the narrow mouth prevents loss through evaporation. *Beris* can hold up to 500,000 litres of water, sufficient to meet the needs of 10 families for a year. These structures are covered with an iron lid on top to prevent any form of infestation or encroachment by animals.

*Beris* cater to a variety of water needs including drinking, cleaning and for livestock purposes. More importantly, these structures provide sufficient water for maintaining kitchen gardens. The surplus amount of vegetable produce from the kitchen gardens are sold in the market, thereby enhancing the income levels of the family. *Beris* have proved to be extremely resourceful and have benefitted over 100 families as part of the WNHT project.



*A renovated beri as part of the WNHT project*

#### 4.1.5 Bio-sand water filters

Consuming pure and clean water is essential for survival. However, the residents of the Thar region has always faced an almost indomitable task of procuring clean and safe water for drinking and domestic purposes. Amidst dwindling water tables, infested with alarming amounts of saline and fluoride contents, availability of clean and pure drinking water in the Thar region is a rarity. Lack of clean drinking water results in extensive damage to the health and well-being of individuals as well as families. This particular problem especially poses a greater danger to the older population of the Thar as they are more vulnerable to communicable and water-borne diseases, often resulting in higher chances of mortality. 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.



*Bio-sand water filter installed in one of the beneficiaries' homes in the Thar region*



One of the key interventions of the WNHT project has been to set up bio-sand water filters across several households in the Thar region. These filters are essentially an adaptation of traditional community based water treatment methods. These comprise a multi-layer filter, made of either sand or gravel is inserted into a concrete or plastic based external structure. The sand removes pathogens, heavy metals, bacteria and suspended solids from contaminated drinking water. All materials used as part of the bio-sand filter are locally sourced, affordable and of good quality. The filters have resulted in reducing the extent of water borne diseases by almost 70%, thereby contributing to a significant improvement in the health and well-being of households, especially those with older population.

As part of the WNHT project, 250 bio-sand water filters have been installed and have benefited over 450 men and women aged above 60 years.

## 4.2 Ensuring food and nutrition security

Achieving food security in the Thar region is an extremely challenging task given the hostile climatic conditions with which the residents are compelled to deal with. In the absence of adequate amount of rainfall, which is a direct requirement for sufficient crop produce, majority of the residents in the Thar, who are engaged in agriculture and livestock cultivation as their primary source of income, are left in lurch. The farming community in the region is compelled to deal with unpredictability, unavailability, inaccessibility and inadequacy of resources and crucial inputs such including water, seeds and fertilizers that are essential for farming. The impact of such adversities is directly reflected in the nutritional and health status of the residents, especially women, children and older persons.

In order to combat such adversities, the people of the Thar region have constantly adapted to the changing environmental conditions and have evolved using methods and measures that are sustainable, self-reliant, effective and involve minimal use of locally available resources. The WNHT has redirected the energies and efforts of the community towards setting up small sized kitchen gardens, also known as Arid Horticultural Units (AHUs) in agricultural lands that are barren or are no longer viable for agriculture. These units have transformed the food and nutritional security situation in the Thar region by ensuring the availability of a diverse set of seasonal fruits, vegetables, and greens for households. The AHUs produce sufficient quantities of produce that are adequate to meet the nutritional needs of all members of a family, thereby ensuring that the needs of vulnerable members such as older persons are not compromised upon. The WNHT project has helped establish 272 AHUs in the project region, enabling unrestricted and easy access to food and nutrition for all. These units draw water stored from the nearby *taankas* thereby reducing the time and money required for maintenance. Majority of the units are also equipped with small sand clay ponds that can hold water, farmyard compost made of neem cake and bone meal. In order to protect the units from any form of encroachment, they are fenced with barbed metal wire with hooks, stone slabs and a wire mesh.

The AHUs have helped overcome acute shortages of nutritional requirements of older persons, especially with respect to micronutrients such as Vitamin A and Vitamin C. Some of the plants grown in these units such as Drumstick (*Moringa oleifera*), pods, gum have medicinal properties that are especially useful for older persons. Apart from ensuring food and nutritional security for all, the AHUs have also ensure in enhancing income security. On an average, households are able to gain Rs. 1500 every month through sale of excess fruits and vegetables grown. This is in addition to what is used to meet the nutritional



requirements of the family. The additional income gained through this is used to support the family needs for close to six months in a year.

### **Case study: Achieving food and nutritional security through Arid Horticultural Units**

Sampat Kanwar hails from Gadna village of Barmer District. She is a seventy-year-old woman and owns eighteen bigha of farm land. She also has five cows and seven goats. Sampat Kanwar has two sons, of whom one is not married. Her older son is the sole earning member of the family. The family owned land does not adequately support the needs of the family owing to poor rainfall and low agricultural produce. Sampat earns a meagre living through the livestock she owns.

In 2020, Sampat requested the Village Development Committee (VDC) for to set up an AHU in her courtyard. The VDC approved her request considering her situation and her willingness to grow plants. In her AHU, she planted a total of twenty plants that included plums, citrus fruits and vegetables. The AHU has resulted in a significant amount of vegetable and fruit produce, enhancing the consumption of nutrients for the family.

*“I hope to grow enough vegetables and fruits in my AHU so that I can sell the excess in the market and support my family with income gained”, says Sampat*



*AHU set up in the project region as part of the WNHHT project*





*AHU produce comprising seasonal and local varieties of fruits and vegetables in the project region*



*Older person in an AHU*



### 4.3 Augmenting health care services

Access to quality healthcare is extremely important for the health and well-being of an ageing population. However, in an arid and hostile region like the Thar, remoteness and inaccessibility are a common sight. The poor and vulnerable population is highly scattered and there exists a huge gap in the delivery of essential services. With age, the health concerns tend to increase due to increasing vulnerability to different types of diseases, disorders and conditions. The older persons in this region are perpetually trapped in a vicious cycle of poverty, malnutrition and disease that cause severe damage to their health and well-being. These are further compounded by the inability to afford appropriate diagnostic services, treatment or even support systems. The Thar region is characteristic of very hostile and inhospitable climatic conditions that make it almost impossible for older persons to cope. In the absence of affordable and accessible health care services, many of those who are in dire need of care and treatment are left with no choice but to inch closer to morbid and debilitating states of being.

Given this, GRAVIS has endeavoured to prioritise the health care needs of the community by way of setting up a community hospital and by organising periodic outreach medical camps.

The GRAVIS hospital, located in Jodhpur district, is one of the first health care facilities to have been set up in the Thar. The GRAVIS hospital, which has served close to 2,00,000 persons in the community so far, is well equipped with trained doctors, surgeons, specialists, auxiliary nurses, administrators,



*Outreach medical camp organised as part of WNHT project in the Thar region*



technicians, ambulance and a pharmacy. This network of service providers has tirelessly worked to reach out to poor and vulnerable populations who need medical interventions of varied nature. These include dealing with seasonal illnesses, age related complications such as knee pain, poor eyesight, mineral and vitamin deficiencies, and increased vulnerability to communicable diseases.

The WNHT project was implemented at a time when the pandemic was at its peak in India, ravaging through all sections of the population. The health care interventions executed as part of this project are particularly important as they dealt with prevention, management, treatment, and recovery from COVID-19. While addressing health care conditions associated with old age, challenging environmental conditions, water scarcity and malnutrition have always been a priority for GRAVIS, the WNHT project spearheaded a well-designed approach to enable awareness generation and dissemination of information on COVID-19 appropriate practices and care.

### **Training sessions-Enabling the older population to be self-reliant**

Amidst failing crop production and dwindling resources, many families in the Thar are compelled to hold onto a single ray of hope for survival. Very often, this ray of hope lies in finding work in regions away from their homes and family members. Driven by a desperate need to make an earning good enough to take care of necessities such as food, clean water and safe and hygienic place to live in, majority of the households in the Thar region incline towards migrating to mining jobs and intense labour work that jeopardises their health and state of being. Mining is viewed as the second most viable occupation for the residents of the Thar, after agriculture and livestock cultivation. While the productive male members of the family leave in pursuit of better paying economic opportunities, the burden of managing agricultural land, livestock and household duties falls entirely on women and older persons. The drudgery faced by women, young and old, in procuring water for the family members is a common sight in every household in the Thar. The older persons are often left to deal with the daunting responsibility of managing resources and agricultural produce, despite their limited ability to be mobile, agile and productive. This in turn causes severe damage to their physical and emotional well-being. On the other hand, those engaged in activities such as mining are constantly at the risk of developing life-threatening conditions and diseases such as silicosis and tuberculosis, for which there are barely any services, treatment or facilities that are easily accessible. In many cases, interactions with the field team revealed that households are compelled to forego treatment and medicines due to the high costs involved. Mine workers, who develop conditions such as silicosis have no ray of hope as this condition cannot be treated or reversed, leading to death.

Having recognised the need to empower and assure the older population with a secure access to resources, GRAVIS has brought to fore several platforms such as the Village Older Peoples Associations, Village Development Committees, inter-generational learning groups and self-help groups. These groups are trained and well equipped with the necessary amount of knowledge and skill to be able to manoeuvre



around any challenge associated with household and community development. Some of the key issues covered as part of the discussions organised by the above-mentioned platforms include personal health and hygiene, optimal usage of locally available foods, medical properties of plants available in the region, recipes appropriate to boost immunity and overall health status of individuals, nutritional practices, mobility assistance during old age, to mention a few. The WNHT project has covered a wide gamut of themes associated with the health and well-being of older persons. Several such self-care training sessions were organised across the project region to educate beneficiaries about crucial practices that may be useful in preventing, protecting, managing and recovering from ailments and diseases. These sessions have been very helpful especially during the first and second waves of the COVID-19 pandemic as they ensured that all the members of the community were informed about COVID appropriate behaviour and care. GRAVIS was instrumental in handholding several members of the poor and vulnerable communities, ensuring that they are confident enough to brave the pandemic.

To specifically cater to the needs of mine workers, the WNHT project included health safety training sessions. These training sessions were primarily designed to empower mine workers with knowledge and capacities concerning safety practices in a mining area, type of safety equipment to be worn by mining such as reflector-based jacket, gum shoes, goggles, helmets and first aid care. GRAVIS also facilitated diagnosis and treatment for those engaged in mining so that diseases such as silicosis and tuberculosis can be diagnosed at a preliminary stage and relevant treatment may be prescribed. Through its wide network of community based organisations, GRAVIS has organised intensive awareness generation and information dissemination campaigns to support the community in addressing health related adversities.

GRAVIS has ensured training of the VOPAs through the WNHT project so that they may be better equipped to deal with the problems faced by the community and older persons, in specific. The training sessions have also prioritised key interventions such as construction of *taankas*, *khadins*, restoration of *naadis*, masonry check dams and AHUs. While these interventions are centred on leveraging traditional knowledge and wisdom of first-generation agriculturalists and pastoralists in the region, they have also enabled them to adapt to innovative methods and technology that further contributes to effective and efficient usage of resources. All these interventions and training sessions are ably guided by experts in the field and the ownership is upon the older population, to assure them of control, respect and direct benefit.

The training sessions have transformed the older population of the project region into independent, self-reliant and self-sufficient groups of persons who are proactively gathering all their resources to adapt to the dynamic and ever-changing environment.





*OPA training in progress*



*Health safety training in progress*





#### 4.4 Bridging the gap in delivery of services and entitlements

The State of Rajasthan has a rich history of social policies that were introduced to uplift the most poor and vulnerable communities, especially in the Thar region. A list of programmes were directed at the economic, social, nutritional wellbeing of beneficiaries including children, pregnant and lactating mothers, and senior citizens. Some of the programmes include integrated child development scheme (ICDS), maternity benefit scheme (MBS), *Mukhyamantri Chiranjeevi Yojana* (health insurance scheme) and old age and widow pension schemes. Although these programmes are in operation for a considerable time, there are several challenges associated with the implementation of the same at the community level. Some of the key concerns include lack of information and awareness about the entitlements being provided, cancellation of ration cards due to erroneous details and absence of transparent and accessible grievance redressal mechanisms.

GRAVIS has been at the forefront of engaging with community and community-based organisations to develop, implement and strengthen an integrated approach towards achieving water, health, nutrition, and income security for all in the Thar region. In its journey encompassing more than three decades, GRAVIS has meticulously put together several village based committees, associations, intergenerational learning groups, older people's associations, self-help groups and a large network of community based volunteers to reach out to the most deprived, communicate their concerns and challenges to those in charge of service delivery and extend support to address such concerns. In the process, GRAVIS has empowered several communities with the necessary information, processes, rules and channels through which their concerns can be addressed.

As part of the WNHT project, GRAVIS has endeavoured to be the bridge between the rightholders, stakeholders of various schemes and service delivery. Through the course of the project, GRAVIS has introduced several interventions such as dialogues with the local government, multi-stakeholder consultations, mobilisation of civil society organisations and celebration of key events such as world elder abuse awareness day, international day of older persons, world health day and international women's' day. Through the organisation of such events, GRAVIS has been able to highlight the issues faced by stakeholders, especially older persons and their families in the Thar region.

The dialogue with local government is a crucial platform that engages with Panchayat members, functionaries such as Anganwadi workers, ASHA workers, officials of departments governing water, health, nutrition, and livelihood related issues. The participants of the dialogue also include members of VOPAs, who are encouraged to liaison with members of the local government to address problems and challenges faced by the stakeholders. They are provided with insights on the socio-economic profiles of residents of the village, concerns associated with community-based resources, roles and responsibilities of local bodies and details of welfare schemes that have been introduced to uplift persons belonging to the poor and vulnerable sections.



A detailed list of topics covered as part of this dialogue include: 2

- Transport facility available for senior citizens aged above 60 years
- *Sukanya Samriddhi Yojna* for skill development (Scheme for skill development of adolescent girls)
- Scholarships for education
- Free books for school going children
- Remuneration on promoting institutional delivery to reduce the mortality rate of pregnant women and neo-natal children
- Family planning
- Adolescents' girls' health and hygiene, entitlements available at ICDS centers
- *Mukhyamantri Chiranjeevi Yojana* (Insurance scheme)
- Vaccination for pregnant and children below two years at ICDS centres
- Vaccination drive for protection from COVID-19
- Older persons and window pension schemes
- Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) for 100 days labour employment by Gram Panchayat (GP)

Through the multi-stakeholder consultations and mobilisation of civil society organisations, GRAVIS has been able to add impetus to the movement highlighting the need to redirect and redesign policies concerning older persons in the Thar, in the context of climate change. These consultations have been crucial to help disseminate and mobilise resources associated with traditional methods of water conservation, moisture retention, soil conservation and use of bio-fertilizers. 5 number of consultations were organised as part of the WNHT project.

Events highlighting the importance of older persons, health and well-being of women were also organised as part of this project. These include International Day of Older Persons (IDOP), International Women's Day, World Water Day, to mention a few. These programmes focused on a variety of issues such as gender equality, leadership among women in the context of COVID-19, importance of conserving community-based resources, importance of acknowledging specific needs of older persons in the context of dwindling resources in the Thar, and health and nutrition-based interventions. Through the organisation of such events, GRAVIS has been able to mobilise sufficient support to raise the concerns of the older persons and the community in a larger scale, across several districts. The outcomes of such programmes have resonated across multiple levels of governance and implementation.



*Awareness generation on World Elderly Abuse Awareness Day*



*Dialogue with local government in progress as part of the WNHT project*



## 5. IDEAS FOR THE FUTURE

The world is witnessing a significant rise in the percentage of older population, in terms of proportion and longevity. By 2050, the world's population of people aged 60 years and older will double (2.1 billion). The number of persons aged 80 years or older is expected to triple between 2020 and 2050 to reach 426 million (*World Health Organisation*). In 2050, 80% of older people will be living in low- and middle-income countries. In other words, 80% of the older population in the world will be at greater odds with economic, environmental, physical and societal transitions and effects that are far more pronounced in these regions than the rest of the world. At a time when old persons are being viewed as an additional burden to the family and societies, GRAVIS has come forward with a noble intention of uplifting older persons in the Thar so that they may be better prepared to cope with the changes in the environment.

It is imperative to consider older persons as equal, if not larger stakeholders in the context of climate change and drought mitigation as they are most vulnerable and do not necessarily possess the ability to respond or cope in a timely and effective manner. They are an extremely important resource to the community as they possess substantial information and have gathered invaluable experience and expertise in dealing with acute shortage of resources. It is this wealth of information and wisdom owned by the older generation of the Thar region that has driven majority of the interventions by GRAVIS.

The VOPA model was first introduced by GRAVIS with a fundamental objective of strengthening the capacities of older persons and facilitating the delivery of essential services. Today, lives of more than 2000 older persons and 12,000 family members have been transformed as a result of this model, ensuring access to water, nutrition, healthcare and income security. This network of VOPAs across the Thar region have helped cement strong linkages within and beyond communities, equipping older populations with adequate resources to respond effectively to climate change.

Through the WNHT project, GRAVIS has focused on strengthening the VOPAs and facilitating the setting up and renovation of several structures such as *taankas*, *khadins*, *naadis*, *beris*, AHUs, supplemented with training and capacity building activities to promote sustainable ways of water conservation, promote food and nutrition security, supplement income security and ensure access to healthcare. Through this project, larger number of communities have been added to the growing list of older persons 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. The WHNT project has also contributed significantly to bringing to fore the challenges faced by the residents of the Thar. This is particularly relevant through the engagement and dialogue with members of the local government, functionaries and civil society organisations. The project has also paved the way for VOPA to emerge as an important model that can be replicated in various states and communities.

While the project has demonstrated a commendable transition in the lives of older persons and their families in the Thar, it is imperative to scale up such efforts, strongly rooted in the principles of Sarvodaya and Swaraj. The VOPA model, along with other interventions in the project must be made available to





every rightsholder in the State to facilitate a smooth transition into a sustainable, resourceful, effective and inclusive ecological system. There is a need to adopt a diverse approach in order to ensure that the transition is achieved in a timely manner, without compromising on the immediate and future needs of all. In order to strengthen and institutionalise the measures undertaken as part of this project, GRAVIS may consider incorporating the following:

**Knowledge dissemination on traditional methods of farming and water conservation:** Advocacy and awareness generation are critical to ensuring that traditional and local responses are implemented to address climate change and adaptation. This is particularly important to ensure that the future generations are aware of the inputs, methods and processes associated with agriculture, water conservation, moisture conservation, soil conservation, traditional farming techniques and employ all of these to use, restore and sustain practices. GRAVIS may consider advocating for dissemination of information on traditional methods of farming as part of schools and colleges so that the future generations appreciate the value of the same and are better prepared to adapt to climate change.

**Kitchen gardens to promote food availability and diversity:** Kitchen gardens have been an excellent way of utilising small portions of land to grow locally available, seasonal fruits and vegetables that cater to the nutritional needs of a small unit. Encouraging the concept of kitchen gardens in schools and educational institutions may be considered to promote availability of nutritious food suitable for all seasons, especially for those belonging to vulnerable groups.

**Provision of local variety of seeds:** The use of local variety of seeds is imperative to ensure soil conservation, promote longevity of crops, enhance production and ensure smooth adaptation to climate change in current and future circumstances. GRAVIS may consider expanding this particular intervention, to reach out to more number of farmers in other parts of the Thar region. Experts may be consulted and interactions may be facilitated between experts and farmers to enhance their knowledge sustainable ways of cultivating farm lands.

The above mentioned measures may be incorporated as part of the existing community development programmes to reiterate the need to focus on an integrated and inclusive community based approach in the Thar in order to effectively respond to climate change. It is strongly believed that GRAVIS will pursue the interests of all poor and vulnerable people of the Thar, continuing to plant seeds of hope, resilience and revival in all, until *Sarvodaya* and *Swaraj* are accomplished.



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## ACRONYMS

AHUs	-	Arid Horticultural Units
CBOs	-	Community Based Organisations
GRAVIS	-	Gramin Vikas Vigyan Samiti
ICDS	-	Integrated Child Development Services
IDOP	-	International Day of Older Persons
ILGs	-	Inter Learning Groups
IPCC	-	Intergovernmental Panel on Climate Change
MGNREGA	-	Mahatma Gandhi National Rural Employment Guarantee Act
PDS	-	Public distribution system SHGs-Self Help Groups VDCs-Village Development Committees
VOPAs	-	Village Older People's Associations
WHNT	-	Water Nutrition Health in Thar





## GLOSSARY

**Beris-** *Aberi* is essentially a pitcher-shaped shallow well that is used to store rainwater

**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.

**Naadis-** *Naadis* are village ponds, found near Jodhpur in Rajasthan. They are used for storing water from an adjoining natural catchment during the rainy season

**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



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Gramin Vikas Vigyan Samiti (GRAVIS) 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).