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Best practices from the Gender Equality through Mitigating Droughts (GEMD) Project

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Author's Note

Knowledge sharing on the most effective strategies to empower women in difficult climatic zones, traditional societies and rural economy, is very important because of the complexity of challenges faced in the process. Rural areas of Thar Desert in Western Rajasthan is one such region that envelops abundant obstacles in its socio-cultural texture and economic status in pursuit of the vision for empowerment of women and girls. Gramin Vikas Vigyan samiti (GRAVIS), an NGO working in Thar Desert region has been engaged in integrated community development for rural population for about four decades and experiences gleaned through the several processes with the communities have informed the vision, strategies and activities. Focused efforts to ensure equal participation of women in the development process have helped GRAVIS evolve certain strategies that have been immensely effective in the difficult content of the Thar desert. Over a period of time GRAVIS has gained expertise in adaptation of these strategies and improvising them for efficiency and enhanced impact.

Gender Equality through Mitigating Drought (GEMD) in the Thar Desert project is an extension of the larger mission of GRAVIS that approaches women's empowerment through crises at the level of the entire community. As social norms and culture and the key factors determining status of women in the society, GRAVIS' strategies encompass both society and culture as well as rural economy and institutions that define women's access to opportunities and their role in addressing the most critical issue of water scarcity in the Thar Desert. This document makes an attempt to capture the practices that helped GRAVIS shape and highlight the agenda of creating a gender just society in the Thar Desert that is afflicted with wide gender gaps in all domains. From community based approach that enables participation of the end users, to content specific interventions, a holistic approach to gender empowerment, and respect of traditional wisdom, there are several elements of GRAVIS' work that deserve documentation and dissemination as best practices for use by fellow social workers, grassroots workers as well as researchers interested in demystifying the social imbalance in a drought affected regions.

In addition to documenting best practices adopted by GRAVIS as part of the GEMD project, this document reflects on various innovations, implementation of these practices on the ground and their transformative effect on rural populations. The process of documentation resulted in reinforcing GRAVIS' belief in integrated community development, role of traditional knowledge and women's leadership in drought mitigation. Time tested practices adopted by GRAVIS in its gender mainstreaming and drought mitigation work can easily be replicated by other organisations working in regions with similar social and economic challenges.

Neetu Sharma

1. Introduction

Addressing specific vulnerabilities, such as those based on gender, as part of the drought mitigation efforts very often falls prey to a compartmentalised approach wherein general community interests overshadow the specific concerns of a group. In traditional societies with wide gender gaps, alignment of community level goals with that of women's empowerment is a complex but critical issue for ensuring equity and eventually moving towards a gender just society. Gramin Vikas Vigyan Samiti (GRAVIS), an NGO based in Western Rajasthan, India has been working with the Desert communities in the rural areas of Rajasthan with a vision to develop resilience in the communities against droughts. GRAVIS has been working in the Thar Desert region in India for over four decades with a deliberate gender mainstream approach and emphasis of empowerment of women and girls. As extreme water scarcity jeopardises women's and young girls opportunities to lead a quality life. Neither do they have time left to engage in any learning or productive activity, nor do they have leisure or energy for self care.

Discrimination and oppression since childhood deprives girls and women from building their skills or investing in themselves. Their primary preoccupation with water fetching, tending to cattle, elderly and sibling care, etc., affect their education, and ability to be self-reliant. This is despite the fact that in the Desert communities, like in the case of other traditional societies, making water and food available to the family members, they do not have control over resources or any role in decision making relating to managing resources for the wellbeing of the family. Their participation in community life is minimal and their potential to contribute to mitigation of drought remains untapped. Cyclical droughts, water and food insecurities, low level of skills and education, along with restrictive cultural norms, reinforce gender gap in health, nutrition and general wellbeing.

Empowering women in a drought prone region needs to build in the drought mitigation elements. Through a project, Gender Equality through Mitigating Drought (GEMD) GRAVIS implemented its gender-informed drought mitigation strategy that weaved in a number of interventions built around specific needs of the community, especially women. The journey of the project culminated in several learnings having potential to guide and inspire other organisations and agencies to adopt the strategies and practices adopted as part of the project. Present document is an attempt at capturing three practices that were the essence of the project and to which the success of the project can be attributed to.

2. About GEMD project

Navigating gender imbalance in the process of drought mitigation is a challenging task by itself. Weaving in empowering elements for women may add layers of complexities in drought mitigation endeavours. GEMD project defies the popular view of attempting to inculcate gender specific interventions, rather alters the whole dynamic by designing drought mitigation plans around empowerment of women and young girls. This gender focused approach manifests in interventions that are inherently women oriented and are led by women's groups too. Addressing community level issues in the Thar Desert involved mitigation of droughts and building climate resilient ecosystems for the farming communities that are dependent on rainfed agriculture in an arid region. GEMD project addressed specific concerns emerging from water scarcity, food insecurities resulting from low farm produce, nutrition and health issues emanating from inadequate hygiene and undernutrition, while keeping women and girls at the centre of action. Within an overall goal of ' empowering women through mitigating drought', the project strived to achieve following objectives.

1. Developing capacities of local women and girls
2. Enhancing water security in the community
3. Addressing food and nutrition security through a range of interventions
4. Improving health status of communities
5. Documenting and disseminating the learning

Developing capacities of local women and girls

It was planned to mobilise women and young girls into groups. Accordingly, self help groups (SHGs) of women and Intergenerational Learning Groups (ILGs) of women and girls of various age groups were formed in each identified project village. SHGs had 12-15 members each. After formation of SHGs, trainings were organised for the members on microfinance, village development and prevention from COVID-19. In addition to the SHGs, 10 Intergenerational Learning Groups (ILGs) of older and young women and young girls were formed and trainings were organised for them on village development, ageing related issues and COVID-19. Each ILG has about 15 members – 5 adolescent girls, 5 young women and 5 older women. 2 trainings were organised for each of the 10 ILGs. Formation of these groups and their trainings were the key activities towards developing capacities of women and girls.

Enhancing water security in the community

As the community in identified villages is confronted with acute water shortage and is largely dependent on rain water for their water needs, water security measures were undertaken in the form of rainwater harvesting to address household level and farming related household needs. Construction of 170 drinking water storage tanks *(taankas)* was undertaken to capture and store rainwater – a *taanka* is a 25,000 litres storage capacity tank that collects rainwater during the rainy season and water is thus made available during dry season. In a similar fashion, construction of farming dykes *(khadins)* was undertaken for the

farmers. *Khadin* is about a 100 feet long and 5 feet high bund/duke on one side of farming land that effectively retains rainwater and moisture. Both, the *taankas* and the *khadins* were the key activities to achieve water security for the targeted population.

Addressing food and nutrition security

Water shortage and poverty among the rural population result in nutritional deficiencies and food insecurities exposing the rural population to several health hazards. Arid Horticulture Units (AHU), with 20-25 plants of fruits and vegetables each, were established within the premises of households and these were to provide much needed nutrition and additional income to families through sale of excess produce. Measures for water, food and nutrition security were further substantiated by trainings on water security, food and nutrition security, importance of and issues related to water conservation, crops variety, diet and nutrition, etc.

Improving health status of communities

With a view to address health related concerns of the community and bring improvements in their health status, food and nutrition related interventions were supported by direct health support through outreach medical camps, wherein a medical team provides diagnostic and curative services to villagers at their doorstep and also provides health education. These camps were organised to provide immediate relief for health related issues and educate people to follow good practices for better health.

Documenting and disseminating the learning

The project envisaged document and disseminating best practices and learnings from the project and making them available for a larger group of stakeholders including NGOs, state agencies, academics and practitioners.

Table1 : Project Outputs

SL.	Activities	Total Number	Beneficiaries
1.	SHG formation	10	110
2.	ILG Formation	20	206
3.	Tanka	170	850
4.	Khadin	170	1,020
5.	AHU	170	1,020
6.	Compost pit	111	610
7.	Desilting of village ponds	2	6,500
8.	Outreach Medical camps	25	1,050

9.	Agroforestry Units	10	55
10.	SHG Training	50	550
11.	ILG Training	90	990
12.	Food and Nutrition Training	40	1,000
13.	Water Security Training	40	1,000
		Total beneficiaries	**14,961**

As shown in the table, the project directly benefited about 15,000 people in the most backward and drought affected remote villages of Jaisalmer District, Rajasthan.

3. Best practices

All the activities incorporated in the project design of GEMD were were premised on the GRAVIS' organisational vision and value system. Reflection of these values and basic tenets could be very well witnessed in the content and nature of the interventions and the approach with which these interventions were carried out. Being located within the geographic scope of where the communities that it strives to impact live, GRAVIS has assimilated these values and integrated them within the overall framework of its various projects. An effort has been made to document these practices that form the fulcrum of the GEMD project and offer guidance regarding the implementation of all the activities, whether specifically focused on women or on community in general.

I. Women and girls at the centre of action

The Desert region that forms the majority portion of the Western Rajasthan, India is climatically one of the most difficult regions in the whole world. However, in addition to climate, the region reels under several other challenges. Social, economic, nutrition and health indicators for the region are far below the national average. Public health and education facilities, especially in the project villages are either non-existent or are ill equipped to respond to community needs. Areas that are directly and recurrently affected by drought are remotely located and excluded from the mainstream development process and its benefits. Poverty, illiteracy and health concerns, all social and economic deficiencies have a gender dimension to it that puts women and young girls in a disproportionately disadvantageous situation in comparison to their male counterparts. Despite having to perform a major share of the hardwork in the family's economy, they remain subjugated to male dominance and have no control over the resources or assets.

A SHG Training

Women spend considerable amounts of time on water fetching duties, which deprive them of any opportunities to socialise, learn, complete their formal education or engage in any productive activities that might bring them self reliance. In addition to water scarcity, several other problems impede the path to well being for women. Deep-rooted patriarchal systems limit opportunities for education, employment, and decision-making for women. Early marriage, child labour, and son preference remain concerns in some communities. Societal restrictions on movement can confine women to their homes, hindering their access to education, healthcare, and economic opportunities. In the midst of all these challenges, limited awareness about women's rights and lack of resources can leave them vulnerable to exploitation and discrimination. Discrimination practices with women and young girls manifests in unequal access to land and inheritance rights can leave women financially dependent and vulnerable. Much lower female literacy rates in the state of Rajasthan where the project villages are located, as compared to national level literacy rates, and other such indicators relating to health, workforce participation and secondary education completion, also indicate towards a grim picture viz a viz status of women in the villages where GEMD project was implemented.

Keeping all these in view and recognising the potential of women's leadership in mitigating droughts, GEMD project kept women at the forefront of all its interventions. The theory of change of project looked at mobilisation of women as the first step towards their empowerment. This mobilisation was followed up by their organisation into groups and then building their capacities to take charge of their own situation. Women were additionally supported in starting their own vocations, and generating additional incomes through AHUs, etc. Mobilisation of women led to formation of self help groups (SHGs) and intergenerational learning groups (ILGs), that were subsequently provided technical trainings on rainwater harvesting and other women's role in drought mitigation.

Women's groups : Self Help Groups of women are acknowledged as one of the key strategic tools for women's empowerment in different spheres of their lives. On the economic front, these SHGs provide opportunities for group savings, internal and bank loaning, as well as income generation collective enterprises. SHG membership may potentially lead to asset ownership, giving women a sense of control over their resources and financial security. Through collective bargaining, women also have better access to markets and fair prices for their products or services. On the social front , SHGs and other such groups help overcome isolation and gather social support for their causes. SHGs operate democratically, and allow them to participate in decision-making processes, express their opinions, and gain leadership skills. The GEMD project, by making SHGs and ILGs focal points for all the interventions, builds women's collective economic and social strength.

Capacity : Women's capacity building was one of the core activities of the GEMD project that placed specific emphasis on leadership development and ensuring that they are able to assume their roles as leaders for drought mitigation. Specialised trainings in maintenance of rainwater harvesting structures, maintaining good health and hygiene, setting up and maintaining AHUs, managing seed banks, running the groups with

democratic procedures, etc, help women consolidate their skills sets and orient them to address drought related concerns in the community. It provided them the much needed confidence to face any challenge in the entire process of drought mitigation at community level.

Material Support in starting vocations : In addition to enhanced capacity, GEMD project extended direct material support to women. Financial support to start some vocations with initial investment and capital costs were provided to half of the SHGs members who had got involved in collective savings. Many women were able to start their own vocation through this support and become financially independent and secure too. While the community was supported in construction of RWH structures too, direct support to women came in the form of materials provided to set up AHUs, such as seeds, samplings etc. With this support women were able to become financially empowered as they sold excess fruits and vegetables in the open market. They also got better say in decision making within the family as their contribution was acknowledged by the families too.

O**wnership of assets :** Social and cultural belief in rural economies of traditional societies lead to unequal access and ownership of resources among females and males. Ensuring access and ownership of assets for women has many advantages. When women are in control of financially beneficial and useful assets, they are able to play significant roles in decision making within the families. Women with assets have more bargaining power that reduces their vulnerabilities. Owning assets can challenge traditional gender roles and contribute to a more equitable distribution of power and recognition within rural communities. Ownership of assets also has a direct link with self esteem and confidence. Considering all this, GEMD project, as in the case of other projects of GRAVIS ensured that all the assets created through project support were owned by women. All the RWH structures - taankas and khadins, as well as AHUs were established in the name of women to ensure their control over their use and their outcomes.

Health outreach: Another way women were given more focus within the overall programme strategy was ensuring health outreach to them. In the Thar Desert, where women are not even allowed to step out, and do not spend money on their own wellbeing, provision of outreach medical camps not only offer a solution to them as they are available at the doorstep, these camps also challenge and encourage positive health seeking behaviour among women. Although these camps help the entire community, these are targeted towards women who do not have adequate resources to reach out to health services.

Girls' education and skills: GEMD project places specific emphasis on skills building and education, especially for girls. A number of trainings, membership of ILGs and special focus on saving girls from water fetching responsibilities, encourage education of young girls. Girls are not only completing their school education, they also have time to study and home and excel in their studies.

Water security : Scarcity of water in the Thar Desert region affects the entire community, however, its inordinate impact on women can be seen in terms of the number of hours spent by them on water fetching and/or distance travelled everyday to meet the water related needs of the families. All water security

related interventions directly helped women and young girls as they got liberated from their responsibility and could utilise their time for better endeavours, such as formal schooling in the case of girls, membership of SHGs and ILGs, and meetings and trainings of these groups in case of women. More importantly, women and girls could focus on their health and wellbeing after being relieved from water collection roles.

All the abovementioned interventions had a gender specific focus and vision of empowerment of women, while these addressed community level issues as well. This demonstrates a way women's and girls' concerns can be focused upon while also addressing most pressing issues at the community level. The practices resulted in multiple empowered groups of women and girls in the project villages who then took on the leadership role in drought mitigation.

II. Community in focus

Family and community plays a significant role in peoples' life in traditional societies. Members of a community share a strong bond as they face similar challenges and support each other in difficult times and in times of joy and happiness. Community based festivals, gathering and institutions remain the epitome of peoples' daily life. Sense of community is inherent to their culture, society and local economy. Communities collectively confront the challenge of water scarcity, food and nutrition insecurities, and social and economic deprivation. While doing so, communities have evolved their own unique way of dealing with droughts and other crises arising out of water scarcity. It is interesting to note that social life of the community is intrinsically linked to limited resources, land, and their flora and fauna, which makes it imperative to consider the community based practices and institutions while designing any external interventions for drought mitigation and water security, etc.

An ILG Training

With unwavering commitment for integrated community development that is premised on holistic wellbeing of the society, GRAVIS has adopted and implemented an approach that is embedded in community values. This community based approach has found its manifestation in a number of ways in GRAVIS' work with the rural communities in the Thar. In the GEMD project too, several expressions of this approach can be identified. Very first of such manifestations is the GEMD project's overt emphasis on community based groups and their critical importance on overall community development. GEMD project worked directly with the existing groups towards strengthening them, and also created new ones to consolidate the community voices and optimising collective strength towards larger community goals. Village Development Committees (VDCs), Self Help Groups (SHGs) of Women and Intergenerational Groups of Women and Girls (ILGs). All these groups served specific purposes as part of the project, however, were driven towards a common goal of empowerment of women and girls through mitigation of droughts.

VDCs are symbols of decentralised governance and decision making for the whole village. In the spirit of decentralised governance recognised by the government, VDCs have the responsibility and the power to discuss the matters pertaining to village development, approve or disapprove any of the plans brought to them, and identify the most distressed groups to ensure that the benefits of development projects are reaching them on priority. Recognising their importance, GRAVIS has been engaging with VDCs for all its community outreach programmes.

As part of the GEMD project too, VDCs played an important role in determining the pressing needs and priorities. At the onset, GRAVIS worked towards mobilising the VDC members and ensuring that they meet regularly to discuss community level issues. In order to do so, GRAVIS team mobilised all the team members and ensured that they conducted their meetings on a regular basis. In all the 5 project villages, trainings were also conducted for the VDC members to strengthen them and enable them to play a central role in facilitating empowerment of women through drought mitigation endeavours. As recurrent droughts are the most daunting challenge that the villagers face on a regular basis, it is in discussion with the VDCs that GRAVIS decided to work towards drought mitigation. VDCs meetings were utilised to mainstream gender empowerment agenda in the community, and it was in consultation with them that the final beneficiaries were identified as part of the GEMD project. The practice of having VDC decide on the beneficiaries ensured representation of community in decision making on a crucial matter, and lent legitimacy to the whole process. As in the case of VDCs, SHGs also played an important role in mobilising women's groups on community level issues. These SHGs became vehicles of change in the desert that the desert communities needed.

Community issues

Working closely with the community based groups, automatically orients the interventions towards addressing the most pressing needs of the community. In the rural areas of the Thar Desert in Western Rajasthan, water shortage is the most severe problem that the community faces. Scarcity of water has direct implications for hygiene and health of rural poor, who cannot afford to buy water and those who do not have

a water source close to their houses. With inadequate amounts of water at disposal, rural farming families are not able to grow enough food for their own consumption and are not able to maintain proper hygiene. When water is scarce for human needs, it becomes even more difficult to tend to cattle that provide much needed nutritional and financial security to rural households, especially during the dry seasons and when the food production is too low.

All these factors result in high levels of malnutrition and susceptibility to disease among people, especially women and children. Villages where GEMD project got implemented represents one of the most affected regions in terms of under nutrition and has a major contribution in defining the health profile of women in the district of Jaisalmer. Jaisalmer has one of the highest levels of female malnutrition in the state and in the country and much of it has to do with the water scarcity in the region, low literacy and education rates among women and regressive social norms that deprive women from any opportunities for development. Not only women carry the double burden of water scarcity, as they have to physically strain themselves to fetch water for household needs, they are the ones most affected by the scarcity of water and food. Gender imbalance in the region reinforces the deprivations women face in the wake of droughts.

Water security initiatives such as *taanka* and *khadin* are directed towards resolving fundamental issues that communities in this region face. High prevalence of waterborne diseases which is a direct result of lack of awareness and water shortage and inadequate personal hygiene, as well as malnutrition, especially among women, children and elderly, manifest in poor health profile of the region. Since the population region does not have access to quality public health services, GRAVIS identified healthcare as one of the major community issues and designed interventions in the form of medical outreach.

Participation of community in decision making

Another way, GEMD project ensured that local communities remain at the epicentre of all the action was by entrusting the decision making power in their hands and making equal partners in project implementation. Communities, including men, women and young girls, wholeheartedly got involved in mobilising their peers and taking responsibilities for conducting meetings, trainings and other events etc. Decisions related to timing, venue as well as the content that needed greater attention during the trainings, was also determined with active community participation. However, the most effective way of ensuring community ownership was leaving the decision related to selection of beneficiaries of key provisions part of the project, such as *taanka, khadin,* etc., in the hands of community based institutions. VDCs have representation from all social groups in the community and have the power to select the most needy people for distributing the support available through the project. GRAVIS facilitated orientation of these VDCs to enable them to take the decision in a democratic way.

III. Optimising local resources

One of the major highlights of the GEMD project was optimisation of available resources and drawing upon community resources for larger benefit wherever possible. Construction of *taanka,* desilting of community

water sources, and establishment of AHUs, all had one thing in common - these all were undertaken with voluntary contribution of labour by the communities. Rural communities in the Thar Desert have been facing life threatening challenges and are always prepared to work hard for survival and towards a better quality of life. For construction of *taankas,* household members came forward to work along with the technical team for digging of wells and later building a bund to ensure that clean water gets captured during rains. Similarly, construction of farm bunds was also undertaken by farmers themselves. In both these cases, the benefits were directly reaching the households of contributors of labour. However, in labour free labour was also contributed by people for revival of community water resources and cleaning of existing ones. Desilting of village ponds was largely undertaken by the villagers themselves with support of technical teams and necessary equipment for undertaking the cleaning process.

In addition to labour, the community also contributed to the project through other means. For instance, land used for AHUs belonged to the respective households. With the contribution of a piece of land adjacent to their house and work in the AHU, village households grew fruits and vegetables for their own consumption and for selling in the market for profit. Women in the villages lent their time that they could have spent for resting or some household chores. About 5000 Women in the project area spent about 6-8 hours a month on a regular basis on the project, by either participating in meetings, undergoing trainings, engaging with mobilisation activities, actively contributing labour or tending to plants at AHUs. It is important to note here that the GEMD project would not have achieved all that it did in terms of community wellbeing and empowerment of women, if women themselves had not actively participated in all aspects of implementation of the project.

An AHU

Local community proactively engaged in mobilisation of other members of the community and took initiative to reach out to those who were not aware of the interventions, trainings and action being undertaken by GRAVIS as part of the GEMD project. Groups of women played a crucial role in mobilising not only women of their age groups but others too they happened to meet in the village. Most importantly, community's contribution for providing a venue and space for the meeting was quite helpful. It was possible to inform the community about the time and venue of the meeting as invariably all the time these meetings took place in community halls, or common public places that were provided free of cost. These venues were provided for conducting meetings and trainings, and enabled rural women to reach on time for the meetings as these venues were centrally located and accessible for everyone in the project villages.

However, most importantly, it was the engaged involvement and continuous support by the entire community that led to creating resilient communities in the project village. In traditional societies, women always need validation for their actions and participation in community life. Education of girls is also dependent on family's approval and letting the girls travel a distance to attend a school. GRAVIS ensured continuous engagement and kept women, girls and other relevant stakeholders motivated towards a common community cause.

Utilisation of local resources is one of the best strategies for ensuring sustainability of projects and their outcomes. Monetary or in kind contributions made by the community are as investments made by them for their own future. Their contributions keep them motivated to continue to remain engaged and involved in the projection vision. Community contributions are also the most useful source of complementary funding and resources for any project funding.

IV. Sustainable and climate resilient solutions

Land degradation, water scarcity, reduced farm production, poverty, and hunger are major problems faced in desert communities across the world. In desert areas affected by droughts, unsustainable agricultural practices, overgrazing, deforestation, poor irrigation practices and high temperatures lead to land degradation. In the Thar Desert wind storms also cause soil erosion and land degradation, which lead to further desertification, damaging crops and livestock, and trapping millions of people in poverty. The problems related to arid and dryland farming are complex, and their severity is increasing with climate change. Small and marginal farmers already deal with scanty rains in the thar Desert, sudden changes in the patterns of rains in the wake of climate change also come to haunt the farming communities who are not equipped to deal with this phenomenon. In such a situation resorting to unsustainable means to meet the water related needs and even to increase the farm produce is quite lucrative considering the short term gains, however, in the long term interest promotion and practice of sustainable and climate friendly measures becomes extremely crucial. As the world faces an increasingly critical need to address climate change, the impact that water conservation has on a sustainable environment is undeniable. Groundwater is the primary source of freshwater that caters to the demand of ever-growing domestic, agrarian and

industrial sectors of the country. Over the years, it has been observed that the necessity for the exploitation of groundwater resources for various everyday needs, like toileting, bathing, cleaning, agriculture, drinking water, industrial and ever-changing lifestyles with modernization is leading towards tremendous water wastage.

Sustainable and climate resilient solutions have been the focus of GRAVIS' drought mitigation strategy. These strategies were devised and implemented at different levels based on the need related to water scarcity for households and for the community in general, and farm level activities, including seed conservation etc. Extraction of groundwater for personal and farm use needs to be avoided and GRAVIS promoted and facilitated the use of rainwater harvesting as one of the key strategies for drought mitigation.

Rainwater Harvesting

As the world faces an increasingly critical need to address climate change, the impact that water conservation has on a sustainable environment is undeniable. Rainwater harvesting is a simple strategy by which rainfall is gathered and stored for future usage. The process involves collection and storage of rainwater with help of artificially designed systems, that runs off natural or man-made catchment areas. Rainwater Harvesting is unrestricted from any kind of impurity, with relatively less storage cost and no maintenance cost involved except for periodical cleaning. With depleting groundwater levels and fluctuating climate conditions, this measure can go a long way to help mitigate the adverse effects of rising water scarcity. Reserving rainwater can help recharge local aquifers, reduce urban flooding and most notably, ensure water availability in water-scarce zones.

***Taanka* for household level water security :**

As the rural community faces acute water shortage and the water is insufficient for personal and household use too, provision of water for the households serves the dual purpose of meeting the household level water needs and simultaneously relieving women and girls from the gruelling. GRAVIS facilitated construction of rainwater harvesting tanks in 170 households and ensured provision of water for them even during dry season for meeting drinking, cooking, cleaning and other personal use for rural families. One of the major methods GRAVIS promotes is *Taankas.* Taankas are underground drinking water storage tanks, which have a capacity of 20,000 to 25,000 litres. Thus, an averaged sized family can be provided with water for around six months.

Taankas have a cylindrical shape with a diameter of 3.33 metres. They consist of cement, sand and a pebble/gravel mixture. The Tanks are filled with rainwater during the monsoon season, which is collected through a round sloped catchment, which has an average radius of 21.336 metres. Furthermore, the amount of water harvesting can be increased by a silt catcher. Each Tanka has at least one to four inleads and one out lead.

Woman with her taanka

***Khadin*/Farm dykes for increasing farm produce**

Lack of irrigation facilities and complete dependence on rainfall for farming put framing communities in a complex situation. Delay and insufficiency of rainfall causes dry soil and reduced farm produce posing food insecurity threats to the village communities. Even when it rains, the rain water runs off the surface and sometimes also latkes fertile soil, adding to the woes of farmers. With a view to support rural farmers, GRAVIS supported them with construction of dykes in their farms to prevent running off of rainwater from the farms. A *khadin* is an earthen embankment built across a slope to conserve the maximum possible rainwater runoff within the agricultural field. The embankment helps increase moisture in the submerged land, and depending on the rainfall available, multicropping is explored. A bund is constructed to retain the rainwater in the field. The soil then retains moisture for a longer time. The water flowing in brings with it organic matter, minerals and new soil. These are retained in the field and act as manure. Because of more moisture, even two crops can grow in a year in one field. Overall, *khadin* has the potential to increase agricultural productivity by 2 to 2.5 times.

Through the GEMD project, GRAVIS constructed *khadins* in 170 farms reaching out to 1020 people directly. *Khadins* are a very effective water conservation farm practice and most suitable for drought affected desert regions where project villages are located. With depleting groundwater levels and fluctuating climate conditions, this measure can go a long way to help mitigate the adverse effects of rising water scarcity. Reserving rainwater can help recharge local aquifers, reduce urban flooding and most notably, ensure water availability in water-scarce zones.

A farmer with his khadin

Other Farming practices

Arid and dryland farming has its own set of challenges. As rural communities engage in rainfed agriculture, they not only face the problems associated with the scarcity of water, they are also confronted with the dilemma of whether to use techniques that may provide quick solutions. Farming practices that might be detrimental to farm health include, use of hybrid seeds, chemical fertilisers and pesticides,groundwater extraction and others such as broadcasting seeds etc. All the farming practices are unsustainable and affect soil health and agriculture produce too in the long run. Through the GEMD project, GRAVIS encouraged and supported rural farming communities in adopting sustainable farming practices too. In addition to the use of *khadin* for retention of water, several other practices were introduced to farmers, their capacities were built to be able to adopt them and material support was also extended to further encourage them and initiate the practices.

Although farmers have been using organic fertilisers for a long time, the past few decades have seen a surge in the use of chemical fertilisers and pesticides. Through several technical sessions and crop demonstrations farmers were trained to apply these practices in their farms too. Farmers were also oriented on the use of other methods that enhance farm productivity, such as distancing between plants, growing drought resilient crops and other such techniques.

Encouragement and support for Community Seed Banks (CSBs) was another initiative that was a part of sustainable farming practices shared with the rainfed farmers. Over the past few decades or so the practice of preserving seeds has vanished, which is a result of a number of factors. CSBs provide an opportunity for the farming community to not only preserve the native, locally adapted quality of seeds that might have

been lost because of commercialisation. Most often these varieties can be more resilient to local conditions and offer unique flavours and nutritional benefits. CSBs provide reliable access to seeds during times of natural disasters or disruptions in the usual seed supply chain, improving food security and livelihood resilience. Access to a wider range of varieties allows farmers to experiment and tailor their crops to specific needs and conditions, potentially leading to improved yields and pest resistance. Participating in seed banks fosters a sense of community and ownership, empowering farmers to make informed decisions about their seeds and agricultural practices. Knowledge sharing and exchange of traditional practices are encouraged.

At community level, preserving diverse seed varieties maintains genetic diversity in the local ecosystem, contributing to a healthier and more resilient environment. CSBs has potential to encourage economic development by fostering local seed production and exchange, reducing dependence on external seed suppliers and promoting economic self-sufficiency. Local seed markets and income generation opportunities can emerge with the professionally maintained seed banks in the community. A very crucial advantage of CSBs is the social revitalisation and cohesion that it facilitates. Similarly, GEMD project facilitated establishment of 110 compost pits for the farmers that helped them get organic manure for their farms. Benefits of these compost pits directly reached more than 600 people.

Sustainable solution for improved nutrition

Lack of purchasing power and inability to grow diverse fruits and vegetables are major reasons responsible for undernutrition among farming communities in the desert. To guarantee a balanced nutrition for people in the far off villages, GRAVIS provides support for starting AHUs by the house for adding vital nutrients and minerals to the peoples' diet. Fruits like lemons and pomegranate can be grown, as well as vegetables. GRAVIS provides the resources and expertise to establish AHUs which grow plants that are suitable to an arid environment. These include fruits and vegetable saplings, seeds, technical support in setting up the AHU and also the barbed boundary to protect the plants from cattle. These AHUs provide solutions for nutritional needs of families and are largely managed by women in the families. Having control of the food grown by them helps women claim equity and equal share in resources and decision making powers. As part of the GEMD project, GRAVIS supported 170 women to set up their own AHUs that directly benefited 1020 people in terms of improved nutrition. 75% of women who received this support reported that the entire family including women and children are getting nutritious food that has a crucial role in prevention from diseases as well as overall development. 55% of women specifically expressed their contentment with the fact that young girls are able to consume green leafy vegetables on a regular basis and given the indeed for nutritious food in this crucial age, AHUs have proved to be a source of continuous nutrition and improved health for them.

The relentless sun beat down on the parched earth of Rampura village, casting long shadows across the fields of Thar. Saraswati, her weathered face etched with the struggles of life in this arid land, felt the familiar despair settle in her bones. Like generations before her, her family grappled with the harsh realities of drought, scarcity, and poverty. Scarce rains meant meagre harvests, forcing her husband to migrate in search of work, leaving her alone to manage the fragile threads of their existence. Food was scarce, her children often went hungry, and the livestock, their sustenance, languished for green fodder. Sending her children to school was a luxury she couldn't afford.

Then, a glimmer of hope flickered like a desert mirage. Initially hesitantly, she began attending the meetings, drawn by the whispers of change. It was here that she first heard about the Arid Horticulture Units (AHU) – a project spearheaded by GRAVIS and supported by the GEMD, promising a fresh harvest of opportunity. With fervent determination, she presented her case to the group, laying bare her struggles and dreams. The seasoned faces, etched with similar hardships, understood her plight. Together, they analyzed her situation, offering both encouragement and practical advice. Soon, Saraswati's dream took shape.

GRAVIS provided her with fruit-bearing plant saplings. She received vital training on nurturing these fragile lives, her calloused hands learning the gentle touch of pruning and fertilizing. Under the scorching sun, her AHU became her sanctuary, a testament to her unwavering spirit. She meticulously tended to her saplings, their tender leaves whispering tales of resilience. As weeks turned into months, a quiet transformation bloomed in Rampura. Green shoots pushed through the parched earth, defying the arid landscape. Saraswati's face, once etched with worry, softened with newfound hope. The grass in her AHU flourished,

providing her livestock with the green nourishment they craved. Milk production surged, turning into a vital source of income for her family. The burden of financial anxieties eased, replaced by the quiet buzz of hope. But Saraswati's dreams didn't stop there. She envisioned baskets overflowing with juicy fruits, a vibrant counterpoint to the dusty plains of Thar. Soon, her AHU would not only sustain her family but also offer a surplus to sell, a golden path to financial independence.

One evening, as she watched her children giggle, their faces flushed with the joy of a full meal, Saraswati knew she had planted more than just saplings. She had sown a seed of hope, one that was blossoming into a future filled with laughter, prosperity, and the bittersweet taste of self-reliance. In the heart of the desert, Saraswati's story stands as a testament to the human spirit's indomitable will, whispering a simple yet powerful message: even in the harshest of lands, where hope seems fleeting, a single seed, nurtured with courage and determination, can blossom into a harvest of possibilities.

V. Building Local Capacities

Water, food and nutrition security related interventions of the GEMD project resulted in improvements in hygiene, health and general wellbeing of people. Families were able to grow more food and earn more to make a better living. Rainwater harvesting structures provided them with sustainable solutions that had a sustainable and everlasting impact on their quality of life. These outcomes may be sustained for a longer period of time because of the skills and expertise gathered by the communities.

Table 2 : Trainings conducted

Sl.	Types of training	Number	Total beneficiaries
1.	SHG Training	50	550
2.	ILG Training	90	990
3.	Food and Nutrition Training	40	1,000
4.	Water Security Training	40	1,000
	Total		**3,540**

Trainings contribute towards building leadership skills among women and girls. Capacity building initiatives that encourage women to take on leadership roles within community organizations, cooperatives, and decision-making bodies provide them with a platform to raise their voices and advocate for their needs and rights. Over a period of time, capacity building of women and girls may also effectively address gender norms and promote equal participation can challenge traditional power structures and pave the way for women to actively engage in community affairs. Most importantly, these trainings equip women with skills in areas like literacy, numeracy, business management, leadership, and agricultural

techniques can dramatically increase their confidence and agency. This knowledge empowers them to participate more actively in income generation, decision-making, and community leadership. Technical skills on maintaining RWH structures, AHUs, etc further add to their confidence and place women on equal footing with their male counterparts.

SHG Training

Organising these trainings gradually reduces dependence of the people on external support and local communities move towards self reliance and enhanced resilience in drought prone regions. GRAVIS conducted about 220 trainings for SHG members, ILG members, VDCs and others on all the issues that matter most to them.

VI. Blend of traditional wisdom and modern techniques

Desert communities have been surviving droughts and extreme water scarcity for humans and cattle existence since time immemorial. In the process of dealing with difficult droughts communities successfully experimented and succeeded in a number of ways against the climatic extremities. Over a period of time several age-old traditions and practices have helped them navigate droughts and these practices have a major role to play in their daily lives. These practices relate to judicious use of water, water conservation and agricultural practices that help keep their farm produce at an optimal level. On the other hand, the past few decades have also witnessed technological innovations that are simple, effective and low

cost. GRAVIS has endeavoured to make use of a combination of these traditional and novel approaches to address food insecurities in the region.

Rainwater harvesting structures such as *taankas* and *khadins* have been part of the age-old tradition of water conservation in dry and drought affected areas of Rajasthan. GRAVIS integrates cost effective and simple technological innovations to enhance the efficacy of traditional practices and improve their productivity without much investment. For instance, an alley next to a *taanka* not only helps capture rainwater in an efficient manner, it also creates obstacles for debris and other unwanted materials such as sand etc to enter into the water tank. Further, constructing it as a *pucca* structure lends longevity to the structures making it last for decades without additional maintenance and repair costs. Experience has shown that a combination of these traditional and modern techniques have multiplied the impact of these rainwater harvesting structures.

Taanka is an underground water storage tank that stores rainwater. Taanka is being used by the rural communities in Western Rajasthan for meeting household level water needs. Water from the *taanka* is suitable for drinking, cleaning, washing, cooking and all other human needs.

As in the case of RWH, many traditional and organic farming practices are again in vogue with growing awareness against chemical farming. GRAVIS supported farmers in adapting and optimising traditional and natural ways of farming with a scientific approach to them. For instance, distancing while sowing, drought resilient crops, use of organic fertilisers and pesticides, etc. The traditional practices help farmers mitigate droughts and climate change and prepare them for extreme events such as unseasonal rains, heat waves and prolonged dry spells. By blending traditional wisdom with modern technologies, the region can build a resilient and sustainable agricultural landscape that sustains its heritage while supporting rural livelihoods, ensuring food security despite extreme climate events like droughts.

Utilising and deploying age old practices for community purposes has a number of benefits. Given the familiarity of people, especially the older people who command respect in the community, ensures acceptance by most people in the population, which is important for generating ownership in the community for all such measures. It is only when people own any practice that they adopt it in their daily life and engage with all the processes related to it with interest and involvement. For instance, since the community found *tankaas* and *khadins* as coherent and in affinity with their cultural beliefs and practices, they were happy to receive the support to get them constructed on their own land. It did not require much convincing on the part of GRAVIS to utilise their land for the purposes of RWH as traditionally communities have believed in collection of rainwater and its sustainable use. Ameliorating these practices with new advances in technologies only helped enhancing their impact and turning them into more pragmatic solutions to the community's water woes. Such solutions are not only accepted well in the society, they are also simple and easy to understand, are low cost and most often sustainable. Grounding of the solutions in

traditional knowledge encourages people to reinforce their understanding through additional trainings, and they could relate better to the refreshers provided by GRAVIS, for instance for maintenance of rainwater harvesting structures.

Khadin, is a traditional rainwater harvesting system, is one such example of traditional tools being utilised by GRAVIS to mitigate drought. *Khadin* has the potential to transform rain runoff into life-giving sustenance. Bunds are created as barriers towards the slope to capture rainwater and retain it in the soil for a long period., and prevent it from gushing away. As the water seeps below the surface, it leaves behind fertile sediments and moistens the earth, allowing crops to flourish without a drop of additional irrigation. Farming communities in the Thar have been using various forms of this *khadin* to benefit from this technology. GRAVIS improvises this age-old technique with some modern techniques, amplifying its capacity and making it even more effective for the dryland farming system.

Another khadin in a village

VII. Multisectoral approach to overall wellbeing

Poverty, water scarcity, food and nutrition insecurities, and general state of resource deprivation define life for the rural communities in Thar Desert. Status of women is of particular concern in the rural societies with very low levels of education especially among women. Several age-old traditions restrict women and girls from accessing opportunities for development and improving the quality of life for themselves and their families. Gender imbalance and thereby empowerment of women in the Desert region is needed to be seen from a multi sectoral approach encompassing challenges that women and girls face owing to multiple vulnerabilities in economic, social and personal sphere. A multisectoral approach aims to prevent and

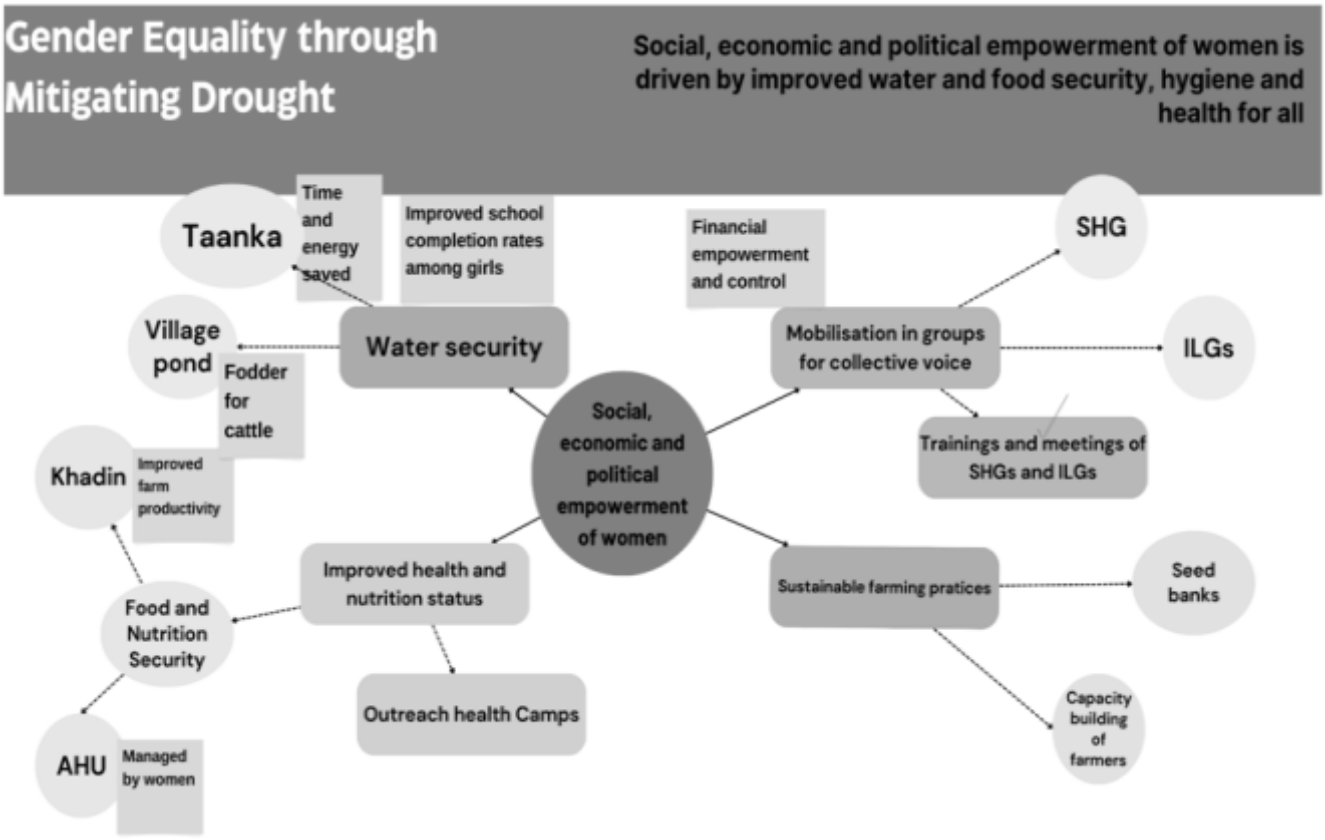
protect women from all forms of deprivations by addressing the inter linkages between poverty and vulnerability. GRAVIS adopts a multisectoral approach to women's empowerment by resolving the most critical problems being faced by the whole community, and those that have an overbearing impact on their own lives. As water scarcity and droughts are the most severe community issues, these provide a framework for designing holistic responses and also create an opportunity to integrate gender related concerns within it.

GEMD project locates women's empowerment in day to day lives of rural communities and initiates the intervention with water crisis. As water scarcity has implications for food security, health and nutrition, particularly of females, and education of girls that ultimately determined women's empowerment in future, GRAVIS strived to address all these issues through a variety of interventions. While taanka resolved the problem of clean drinking water, that was inaccessible, and ample amount of water for maintaining personal hygiene, something that caused susceptibility to diseases. Remote villages of the Thar desert do not have access to quality health care services in vicinity. Village people have to travel long distances in case of health related issues. For women its even more challenging as they face several hindrances in accessing health care services. Most often, women themselves do not attach importance to their own health owing to their conditioning. In addition to their own health seeking behaviour, generally families, especially heads of the households and other people who control the decision making in the family, do not attach much importance to women's health related concerns. Restrictions on their movement, finances for health and accessing health care are also major obstacles that women face in their way to accessing health care facilities. Recognising this as a major factor hindering women's wellbeing and empowerment, GRAVIS enabled access to health care or the rural community through outreach medical camps that benefitted the women and young girls most as they were the ones who were in dire need of this support.

In addition to drinking water and health related issues, food and nutrition insecurities were also identified as key community concerns. With the provision of *khadins* for the arid farms and AHUs, GEMD project plugged another major gap that was causing troubles for the community. Along with improved health and sustainable food security, financial empowerment came along with enhanced food production in farms and sale of excess fruits and vegetables grown in AHUs. However, focused efforts to empower women financially were undertaken with SHGs as vehicles for change. SHGs along with mobilising and empowering women through knowledge and skills served as groups of entrepreneurs who explored viable business opportunities while supporting each other by group savings, sharing of knowledge and extending support in case of any emergencies.

The most representative example of multisectoral approach could be traced in the nature and content of meetings and trainings conducted as part of the GEMD project. Initial meeting provided the members of SHGs and ILGs an opportunity to get to know each other better and build a congenial relationship. At a later stage, as the project advanced, these meetings were utilised to build skills in managing the group,

conducting meetings and becoming socially active. Additionally, a range of trainings were organised for both SHG and ILG members [om issues including: water conservation, importance of maintaining hygiene, impact of hygiene on status of health, leadership, importance of girls' education, impact of child marriage on young girls and the society, income generation activities, banking, accounting etc. All the trainings covered several aspects of women's life and wellbeing and encouraged them to bring up any other issues or challenges that might be hampering their empowerment.



VIII. Transcending generations

Social transformation is a prolonged process. Social and cultural norms that inhibit women from the opportunity to exercise their choice, have equal share in the development process and invest in their own wellbeing, are etched so deep into the society that it takes games to completely exterminate them. Rural areas of Thar Desert in India are inhabited by communities with deep rooted regressive social norms against women. Cultural practices such as child marriages, preference to male children and disparate investments in education among male and female children, all have societal approval. GEMD project challenges these normative beliefs through mobilisation of women, awareness generation among the communities and demonstration of women's leadership potential. All these have ushered in a wound of change among the communities. However, translating this change to the next generation is crucial to prevent any retraction and ensure that the change lasts for the generations to come.

Manifestation of an intergenerational approach in the form of intergenerational learning groups (ILGs) of women and girls of varied ages as part of GEMD project is an attempt to ensure that the coming generations are already sensitised on gender issues and have awareness about their potential role in the society. ILGs provide a platform for sharing and wisdom and experience of people from various age groups and in the context of women, these ILGs offer a unique way of mobilising them and creating a dynamic space for knowledge sharing, skill development and discussing matters that concern all generations. Through continuous mentoring and ripple effect of these groups social transformation takes place both for the present as well as future generations.

ILG Training

GRAVIS created 200 ILGs with a cumulative membership of 206 women and girls. They underwent 90 trainings on various issues concerning women and girls, RWH, women's role in society, leadership building, importance of education, etc. Presence of these ILGs in the villages of Thar ensure that women have a platform for learning and sharing contemporary knowledge related to health , wellbeing, financial self reliance, as well as farming, water conservation RWH, etc. Alongside, membership of older women in the group along with younger ones and the young girls, ensure that the traditional knowledge gets transferred to younger generations effectively. The ILGs also act as an opportunity to learn for the older generations regarding the problems, issues and aspirations of the younger generations. Beyond all this, ILGs role in nurturing leadership potential of younger women and girls is of utmost importance that the project tapped into.

ILGs are a major contribution of the GEMD project in terms of empowering women and girls. These groups provided space and opportunities to females from different age groups to engage in conversations relating to community life, their own worth and opportunities in a safe space. While GRAVIS has been promoting ILGs as part of its work, GEMD project utilises this space for empowerment of women and young girls, by making them aware about the importance of health care, developing leadership skills, helping them consolidate their voices and eventually preparing them to take active part in decision making.

Most important contribution of ILGs is to sustain the knowledge, awareness and the expertise gathered during the process of the project implementation, for a much longer period of time, potentially for eternity as the knowledge, and awareness keeps getting transferred to generations and empowering the communities, especially women and girls. ILGs also serve as a platform for women and girls to negotiate with the larger community for measures towards their wellbeing. As women get together and articulate their issues and challenges, along with the possible solutions, it becomes difficult to ignore them for the larger benefit of the community.

Acronyms

AHU	Arid Horticulture Units
BSF	Bio-Sand Filters
CBO	Community Based Organisations
CSB	Community Seed Bank
GRAVIS	Gramin Vikas Vigyan Samiti
ILG	Intergenerational Learning Group
RWH	Rainwater Harvesting
SHG	Self Help Group
VDC	Village Development Committee

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GRAVIS is a leading Non-Governmental Organization working in rural India in the States of Rajasthan, Uttarakhand, and the Bundelkhand region of Uttar Pradesh. Since its inception in 1983. GRAVIS has worked in over 2,000 villages reaching a population of over 2 million and has established over 4,000 Community Based Organizations (CBOs). GRAVIS believes in participatory community development that blends traditional knowledge and modern sciences and promotes equality.

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