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Women Leading Climate Change Adaptation
and Drought Mitigation in the Thar Desert



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**Women Leading Climate Change Adaptation
and Drought Mitigation in the Thar Desert**

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Author's Note

Impact of climate change is visible on populations across different parts of the world. Some regions seem to be equipped with the resources to mitigate its effects or adapt to the new challenges, while others remain oblivious to recent advances and techniques that may help. Areas where social complexities are entwined with deficient resources are struggling to confront this challenge. For rural and marginalised communities in drought affected rural areas of the Thar Desert in Western Rajasthan, India, climate change phenomenon adds additional complexities to the problem of acute and perennial water shortage. As the financial and technological resources evade these communities, turning to local, indigenous and available human resources is the most pragmatic way leading to sustainable solutions.

Impact of climate change in the Thar Desert may be seen in multiplied sufferings that are sources of gender-based inequities in the region. Women not only continue to suffer from water shortage and insufficient food production, they remain responsible for navigating survival and organising water and food for the families. This calls for not only recognising women's crucial role in climate change adaptation but also entrusting leadership roles to them in the process of steering the communities out of the crisis triggered by climate change and drought. GRAVIS efforts to encourage women's leadership in climate change adaptation and drought mitigation in the Thar have been supported by mobilisation of women, sustaining and strengthening local institutional spaces such as Self-Help Groups (SHGs), making women's voices heard through village development committees (VDCs), and ensuring intergenerational transfer of knowledge through intergenerational Learning Groups (ILGs). Creation of enabling environment through community level dialogues and building of leadership skills through capacity building initiatives, along with support for construction of structures for rainwater harvesting in the leadership of women, have established women as leaders in the process of climate change adaptation and drought mitigation in the region.

For about 10,000 women directly reached out through the project *Enhancing Women's and Girls Leadership (EWGL)* being implemented by GRAVIS with financial support of the European Union and in technical partnership with HelpAge International (HAI), recognition of their contributions has been the most empowering aspect of their leadership role. Women's leadership in drought mitigation and climate change adaptation strategically position them as equal partners in the development process. Its sustained impact on the society, especially through ILGs and other such interventions, hints toward a better future for young girls who are witnessing increased educational opportunities. GRAVIS' interventions are building climate change resilient communities in rural areas of the Thar and are pointing at a promising future for gender equity in the region.

Neetu Sharma

I. WHAT DOES CLIMATE CHANGE MEAN FOR AN ALREADY DIFFICULT DESERT?

Impoverished regions in the low- and middle-income countries carry a disproportionate burden of social vulnerabilities of different natures. Development imbalance coupled with the emerging challenges such as climate change expose marginalised sections of the society to aggravated forms of crises, some of them jeopardise their existence itself. Recognised as one of the greatest challenges humanities is confronted with today, climate change and its implications have left no region, generation, class, group, community or income groups untouched, however, the variance in the degree of its impact on these different groups is astounding. As the developed and resource sufficient regions continue to benefit from technological advances and alternative solutions that are readily available, poor and resource deficient areas end up experiencing the fiercest brunt of climate change and its manifestations. As reported by the Intergovernmental Panel on Climate Change (IPCC), it is evident that people who are already most vulnerable and marginalised will also experience the greatest impacts¹. The poor, primarily in developing countries, get disproportionately affected and consequently in the greatest need of adaptation strategies in the face of climate variability and change.



Thar landscape

¹ILO, 2008. Report of the Committee on Employment and Social Policy, Employment and labour market implications of climate change, Fourth Item on the Agenda, Governing Body, 303rd Session (Geneva).

Largest Desert in the Indian Subcontinent, the Thar Desert, remains a witness to climate change and its impact on its people. Western Rajasthan region of India is enveloped in the Thar and are the most challenging climatic zones in the country. Parts of this region are also most backward in terms of human development indicators and multidimensional poverty. Inhabited by predominantly farming communities dependent on rainfed agriculture and associated activities, the Thar Desert region of Western Rajasthan braves recurrent droughts, acute water shortages and deficient food production. As the region reels under severe food and water insecurities, nutrition and health status of people is appalling especially as compared to the rest of the country. Rural areas in the districts of Barmer, Bikaner, Jaisalmer and Jodhpur that receive very low rainfall during the year are home to most vulnerable communities in terms of food availability, safe drinking water, health and hygiene situation, and even cattle health and productivity.

Effect of climate in the water scarce regions is largely seen in terms of erratic rainfalls exhibiting no patterns, and enhanced variability in the temperatures and rains. Extreme weather conditions were not new to the Desert, but the climate change phenomenon has added an edge to the extremities, making it even more difficult for those with limited resources to lead a food and nutrition secure and healthy life. As agricultural activities and processes are guided by traditional indigenous knowledge, in the event of extreme variance in rainfalls, the farming community finds itself clueless about the adequate timings for preparation and sowing of crops. Several studies² have pointed towards the extreme variabilities in rains and weather in the drought affected regions of Western Rajasthan which eventually result in reduced ability of farmers to produce sufficient food.

Risk analyses conducted in the state of Rajasthan shows a high magnitude decreasing trend in ground water in the four identified districts which implies rapid groundwater depletion. Characterized by arid and semi-arid regions, Rajasthan is highly susceptible to droughts, and analysis of drought patterns suggests an increase in drought months for several areas across Rajasthan. Regional water scarcity may aggravate in the state and effects of reduced rainfall and overexploitation of groundwater are likely to be compounded in future. As regards the rainfall, the trend for the 21st century shows no specific pattern³, which indicates that farmers are generally clueless about the rainy seasons. Districts with high hazard variability also tend to have high agriculture volatility, putting people at the risk of being food insecure.

Climate change can disrupt the socio-economic fabric of a region, which may already be reeling from diverse issues such as poverty, discrimination and illiteracy. The impacts of climate change are not constant and vary between groups of people. Some social groups are more sensitive to climate change

²For instance see, Darshan Mehta, S. M. Yadav; An analysis of rainfall variability and drought over Barmer District of Rajasthan, Northwest India, *Water Supply*, 1 August 2021; 21 (5): 2505–2517. doi: <https://doi.org/10.2166/ws.2021.053>

³State Action Plan on Climate Change, 2022, https://environment.rajasthan.gov.in/content/dam/environment/Env/Pdf_Files/Draft%20of%20State%20Action%20Plan%20on%20Climate%20Change%202022.pdf

than others due to their inability to cope, adapt and recover⁴. Therefore, characteristics such as high poverty, ageing populations and women suggest greater sensitivity to climate change. Social vulnerability, which is defined as the susceptibility of social groups to hazard impacts or their ability to recover from them and it relates not only to the characteristics of the group but also their relationship with other groups in the society. In societies where social and cultural norms are way stronger than political systems and economic relations, climate change results in aggravated vulnerabilities for specific social groups, for instance women in the traditional societies of Thar Desert, India.



Women fetch water from long distances in Thar

⁴Susan L. Cutter and Christina Finch, Temporal and spatial changes in social vulnerability to natural hazards Hazards and Vulnerability Research Institute, Department of Geography, University of South Carolina, Columbia, SC 29208 Edited by B. L. Turner II, Clark University, Worcester, MA, and approved December 21, 2007.

II. WOMEN AND CLIMATE CHANGE: A CASE OF AGGRAVATED VULNERABILITY

The impact of climate change on men and women is not the same. Women are increasingly being seen as more vulnerable than men to the impacts of climate change, mainly because they represent the majority of the world's poor and are proportionally more dependent on threatened natural resources. The difference between men and women in the context of impact of climate change and water scarcity can also be seen in their differential roles, responsibilities, decision making powers, access to land and natural resources, opportunities and needs, which are held by both sexes⁵. Worldwide, women have less access than men to resources such as land, credit, agricultural inputs, decision-making structures, technology, training and extension services that would enhance their capacity to adapt to climate change⁶.



Securing water is a severe challenge for women in Thar

⁵Osman-Elasha, 2008 "Gender and Climate Change in the Arab Region", Arab Women Organization p. 44.

⁶Aguilar, L., 2008. "Is there a connection between gender and climate change?", International Union for Conservation of Nature (IUCN), Office of the Senior Gender Adviser.

Traditionally paternalistic social texture of the communities in the Thar, which is based on the supremacy of men over women and their dominance on every facet of life, shadows the contributions made by women towards dealing with the water scarcity especially at the household level. Despite the fact that it is the control rather the involvement that is much more in favour of males, women's contributions and abilities to mitigate drought are repeatedly undermined, particularly in the agrarian societies. Historical social hierarchies that continue to get nourished by regressive cultural norms and low education levels, not only result in many adverse consequences for women and young girls but also keep them at bay when it comes to decision making and exercising control.

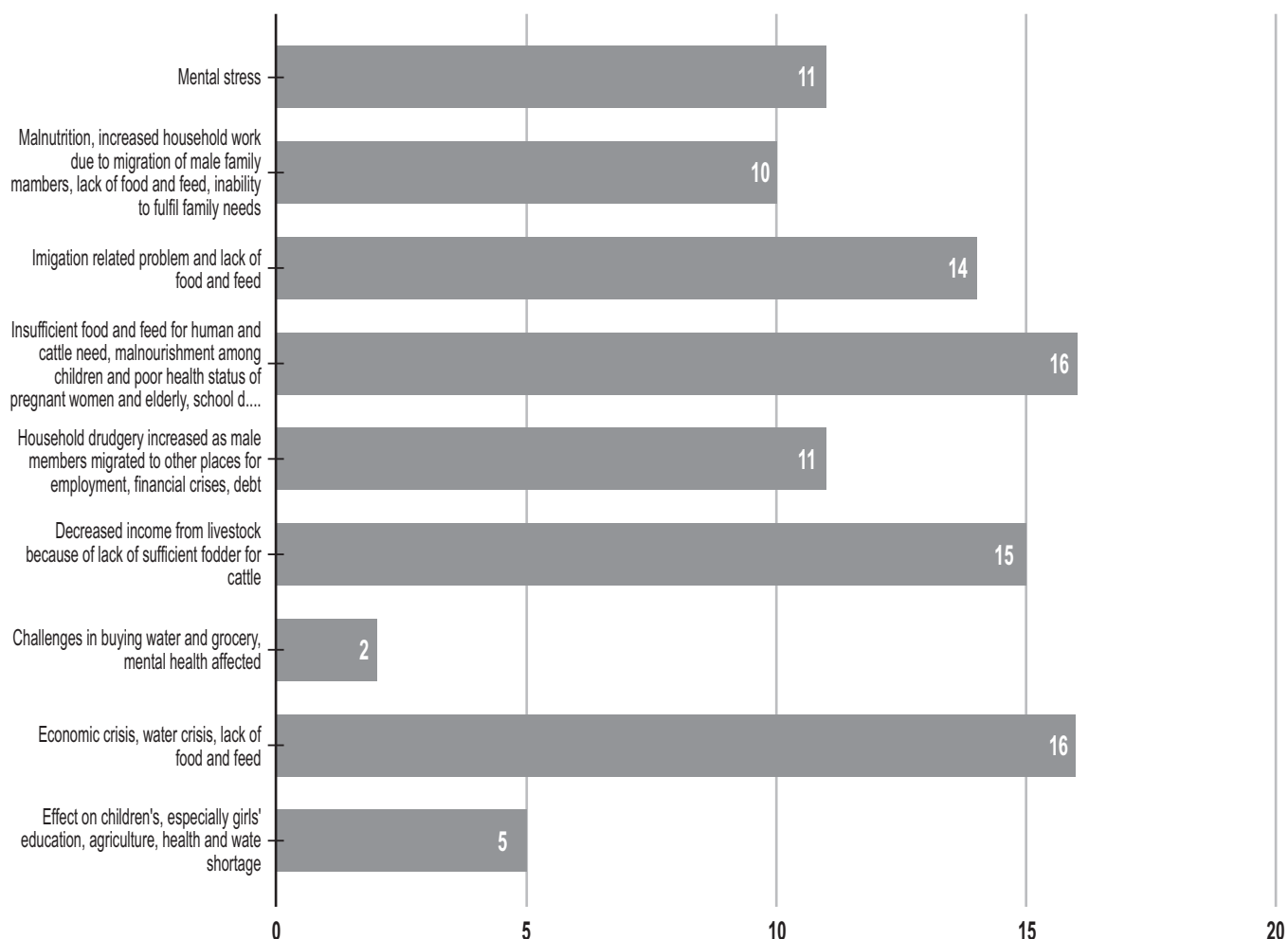
In regions where water is scarce even for basic human needs, survival of farming communities is nothing less than an anomaly. Indefinite and scanty rains have a defining impact on peoples' life be it food production, hygiene, health or economic status. Water insecurity often gets translated into limited food production that triggers household level food insecurities. Inability to grow and consume diverse food results in chronic malnutrition among the population, especially children, women and older people. As most of the farming communities cultivate in small farm lands, they remain susceptible to financial shocks and lead a life with inadequate access to amenities. Their financial conditions as well as remote and difficult to reach locations keep them excluded from the development processes and jeopardise their access to public facilities and fundamental services for health, education and other such support.

As in other traditional societies across the globe, women and young girls carry a disproportionately higher burden of drought and its consequences for the family and community. Even today, women and young girls spend a considerable amount of time collecting water and addressing food related needs of the family, and are not deprived of any opportunity to invest in their own social and economic wellbeing. Responsibilities such as child rearing, water fetching, cooking, elderly care and collecting firewood, do not allow them to engage in any socially or financially beneficial enterprise. For young girls water fetching and sibling care means deprivation from educational opportunities, reinforcing the intergenerational cycle of exclusion, deprivation and powerlessness. Prevailing low female literacy levels reinforce such secondary status of women in the society.

Women's vulnerability to climate change stems from a number of factors -- social, economic and cultural. Across the world, Seventy percent of the 1.3 billion people living in conditions of poverty are women. In urban areas, 40 percent of the poorest households are headed by women. Women predominate in the world's food production (50-80 per cent), but they own less than 10 per cent of the land. Women represent a high percentage of poor communities that are highly dependent on local natural resources for their livelihood, particularly in rural areas where they shoulder the major responsibility for household water supply and energy for cooking and heating, as well as for food security. Women are mainly engaged in subsistence farming, particularly horticulture, poultry and raising small livestock for home consumption.

Women have limited access to and control of environmental goods and services; they have negligible participation in decision-making, and are not involved in the distribution of environmental management benefits. Consequently, women are less able to confront climate change. When coupled with inaccessibility to resources and decision-making processes, limited mobility places women where they are disproportionately affected by climate change.

Most serious effects of drought and climate change: from women's perspective



Climate change, drought and water scarcity adversely affect all aspects of a woman's life. Out of all the women interviewed in the Thar Desert for the study, most of them were concerned about the availability of food and water, and impact on agriculture and livelihoods, while a significant percentage highlighted the impact of climate change and doubt on mental health. Women were also found to be concerned about their children's education, nutrition and need to protect the coming generation from the painful exercise of water fetching on a daily basis. All of them dreamt of a life free of water fetching duties. In many societies, socio-cultural norms and childcare responsibilities prevent women from migrating or seeking refuge in other places or working when a disaster hits. Such a situation is likely to put more burden on women, such as travelling longer to get drinking water and wood for fuel. Women, in many developing countries suffer gender inequalities with respect to human rights, political and economic status, land



ownership, housing conditions, exposure to violence, education and health. Climate change will be an added stressor that will aggravate women's vulnerability. During extreme weather such as droughts and floods, women tend to work more to secure household livelihoods. This will leave less time for women to access training and education, develop skills or earn income.

The condition of women in Rajasthan is appalling, especially in comparison to other states in the country. Involvement of young girls in water fetching duties, cattle rearing, and sibling care deprives them of educational opportunities, and they are not able to go to school or complete their studies. Rajasthan state that covers the majority of the Indian side of the Thar Desert, has the largest gender gap in terms of literacy which is 80% for males and about 57% for females. Those who are able to go to school have to drop off after primary education leaving them at low educational levels as compared to males. Health and financial status of women in Rajasthan state is also a matter of concern. The state has one of the highest maternal maternity ratios (MMR) in the country with 224 deaths per lakh live births. In famous for child marriages and female infanticides, even child sex ratio for young children is poor with 888 girls for every 1000 boys.

III. WOMEN LEADING DROUGHT MITIGATION: ROLE AND IMPACT

Gramin Vikas Vigyan Samiti (GRAVIS), a non-governmental organisation engaged in community development for over three and a half decades has done pathbreaking work to empower communities in the Thar region to build resilience and mitigate the impact of drought and climate change. Ingrained in the philosophy of finding indigenous solutions and enhancing their impact and outcome by synergising them with modern techniques and advanced approaches. Through its drought mitigation endeavours, GRAVIS has directly reached out to more than 17000 people build capacities of over 1500 women. GRAVIS has strategically focused on building and ameliorating the leadership of women and girls with a view to amplify its drought mitigation interventions and sustain them for a considerably longer period of time. As women have a much greater stake in drought mitigation, owing to its impact on women and the significant role women play to address water scarcity; gender mainstreaming has been at the core of GRAVIS's drought mitigation programmes. As climate change adds another edge to droughts in the Thar region, gender mainstreaming approach to drought mitigation and climate change adaptation has become more relevant than ever.



Drought prone regions of Rajasthan, India

Women's leadership in climate change mitigation

Carrying forward the tradition of mainstreaming gender in its work, GRAVIS has been undertaking a project titled, Enhancing Women and Girls' Leadership (EWGL) in Climate Change Adaptation in the Thar Desert, India, in collaboration with the European Commission. The project seeks to contribute towards enhancing women and girl's leadership and voices in drought mitigation, Natural Resource Management (NRM) and Climate Change Adaptation (CCA), as these three are directly linked to each other. Through the project GRAVIS has also been fostering partnerships with various stakeholders in order to greater gender equality within the communities. The project directly reaches out to communities living in rural and economically backward regions of four severely drought-hit districts of the Thar Desert namely Barmer, Bikaner, Jaisalmer and Jodhpur. Drought mitigation intervention reach a population of about 18,000 people in 20 villages in these four districts.

As the rural communities in four drought affected districts of Western Rajasthan confront climate change and its impact for their agriculture, food and water security, cattle, livelihood, health and even education, they turn to the traditional ways of mitigating water shortage. Since women and girls have been involved at various levels in climate change adaptation, recognition of their efforts, and extending support to their efforts encourages them to play a much more effective role. GRAVIS has been supporting the communities in a number of ways for climate change adaptation and all such interventions factor in women's leadership role either directly or implicitly.

Women as catalysts

Older and young women have been participating in climate change and drought mitigation ever since these were recognised as major existential problems. In addition to actually providing for water related needs for humans and cattle within the households, the role of women in adapting to water scarcity and devising ways to cope with the acute water shortage for agriculture has been extremely important for traditional communities. In rural Africa, older women's role as custodian of traditional knowledge for water management has also been documented. In the identified regions of the Thar Desert region, where GRAVIS is working closely with rural and impoverished communities, women are increasingly becoming cognisant of their contributions and are assuming leadership roles, primarily by mobilising themselves into small groups that serve as platforms for closer and regular interactions on water management and climate change adaptation, along with the generating a sense of self-esteem and confidence among women to lead the way.

Women in rural areas of Barmer, Bikaner, Jaisalmer and Jodhpur districts of Western Rajasthan have been mobilising themselves into self-help groups (SHGs), an age-old strategy for building collective strengths of women through discussions and exchanges in terms of knowledge, expertise and enterprise. Women in these districts have come together, with facilitation of GRAVIS, as informal groups that work together to solve their own and community level problems. In the Thar SHGs of women have proved to be the vehicles for women's leadership in CCA and drought mitigation. Most homogeneous in nature, these groups are able to not only underrated and appreciate the problems at the micro level but are also able to offer solutions to problems arising of water scarcity.



SHG training

GRAVIS has facilitated the formation of 80 vibrant self-help groups that are actively engaged in climate change adaptation and drought mitigation in the region and are leading the way for the community to be able to mitigate drought and its impact.

Intergenerational learnings and women's leadership

Sustainability, stability and effectiveness of women's leadership in climate change adaptation and drought mitigation is highly contingent on knowledge sharing and transfer of skills and knowledge through generations. In order to achieve the transgenerational knowledge building, GRAVIS has integrated an intergenerational learning component with an all-inclusive approach within the implementation strategy of its projects. Intergenerational Learning Groups (ILGs) represent a combination of sharing and dialogue platforms for women and young girls that enable transfer of knowledge and ensure recognition of challenges and problems across generations of women. ILGs in their classical form provide space for addressing social problems concerning cultural, social and economic needs and explore the answers to problems affecting the most vulnerable populations, such as children, women youth and elderly, who have difficulties in making their voices heard and equally benefitting from the progress generally made in the society.

*ILG training*

80 ILGs with an accumulated membership of more than 800 women are active in the four identified districts of the Thar Desert. These ILGs provide learning and sharing platforms to women and young girls. The exclusive women's ILGs have acquired a dynamic of their own and have begun to engage with the Government on a variety of issues of public concern. This is very clearly visible through the campaigns by the state Government titled '*Administration towards Villages*', where all the Government functionaries from different departments come down to the village for a day in a month to receive complaints and demands. The women members of the ILGs participate actively in the campaign and submit their memorandum of different demands for better facilities in the village. Representation of the whole village by women in front of administration is not a common sight in the identified intervention areas. Women have assumed leadership roles in seeking support for drought mitigation from local administration. ILGs are also taking active interest in the issue of girls' education. As torch bearers for women's and girls rights, ILGs are raising awareness among the community for educating the girl child and refraining from the practice of child and early marriages. Active intervention by ILGs is preventing drop out of adolescent girls and continuation of their studies.

Women-led initiatives improving the local food and nutrition situation in drought affected region

A range of initiatives for water and food security get implemented under the leadership of women, through SHGs and ILGs. Rainwater harvesting for household, agriculture, livestock, both at family and community level ensures availability of sufficient amounts of water for people. Agricultural innovations, horticulture units and judicious use of water for farming result in farming communities becoming food and nutrition secure.

Drought affected villages becoming water secure through women led initiatives for rainwater harvesting

Villages in the Thar Desert are extremely vulnerable to resource stress and the communities constantly strive for availability and accessibility of water and food. The villages, even if it receives rain, are not able to harvest the rainwater with no structures, facilities in place. Even if community water bodies are in place, they are not maintained and hence are not functional. There is an urgent need for household level and community water structures either constructed or repaired in order to build resilience in the community and prepare them for climate change adaptation and drought mitigation. ILGs and SHGs of women and VDCs are facilitating construction and renovation of rainwater harvesting structures for household use and for farming purposes in drought affected villages. Women members of ILGs and SHGs have been playing an instrumental role in ascertaining the needs for these structures including drinking water storage tanks, farming dykes, percolation wells and community ponds.

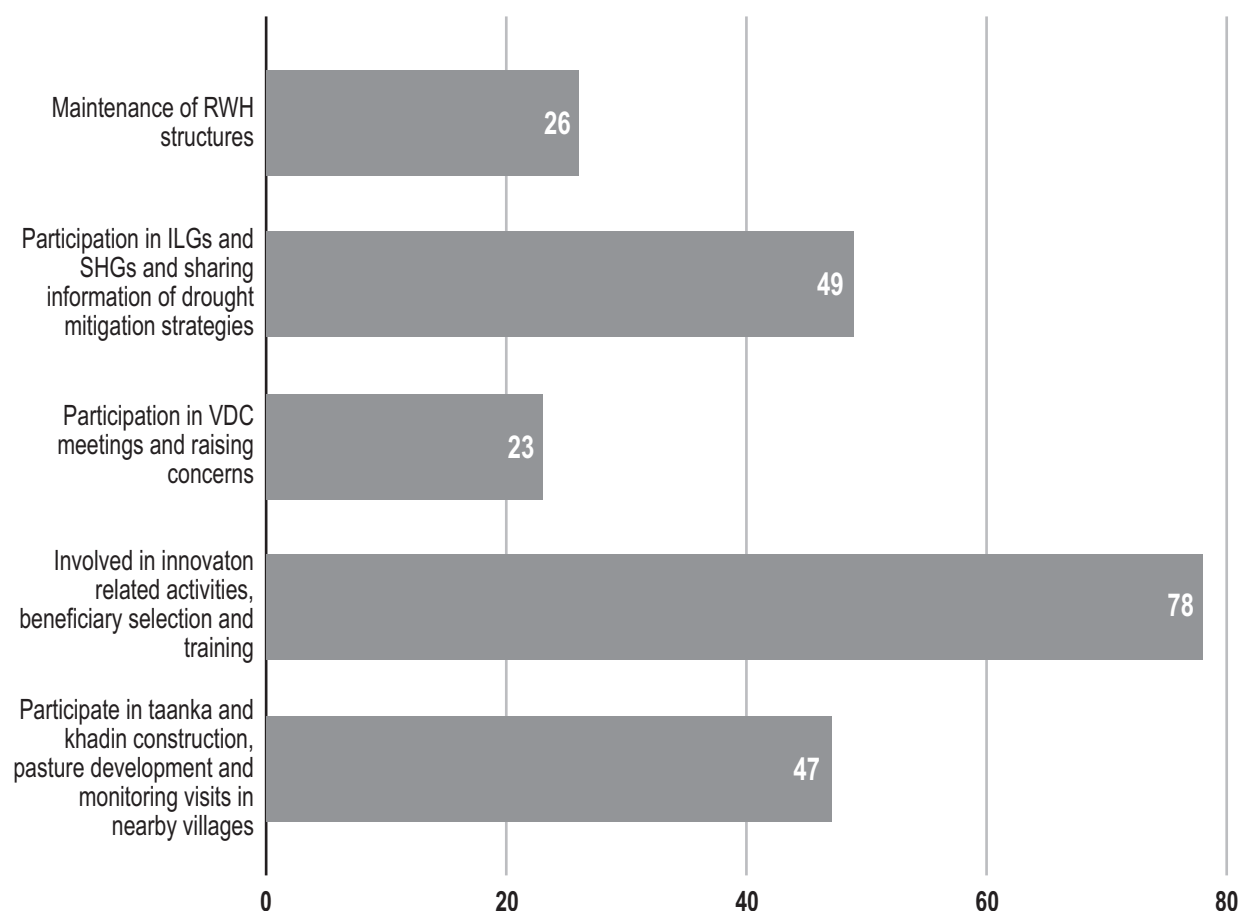
Selection of most deserving and needy beneficiaries for the construction of these structures was done through meetings with the ILG, SHG and VDC members. Women members of these groups selected the beneficiaries through community consensus based on an agreed selection criterion. In addition to taking decisions about the beneficiaries, ILGs and SHGs the construction activities are monitored by local ILGs and SHGs with technical support from GRAVIS. Active involvement of these groups ensured active interest by the community in the process that got expressed through voluntary contributions such as labour and safeguarding structures etc. These women-led interventions towards creation of rainwater harvesting structures have become an important source of water for local communities, with the most positive impact on women and girls whose water fetching duties have been reduced.

Table 1: RWH for water security

Sl. No.	Women led drought mitigation interventions	Number of constructed RWH structures	Total outreach (include number of family number that would have got benefited)
1.	Water storage tank (<i>Taanka</i>)	72	360
2.	Farming dykes (<i>Khadin</i>)	72	360
3.	Renovation of percolation wells	15	750
4.	Renovation of village ponds	3	15000
	Total	162	16470

Recognition and awareness of their own capacities and strength is an important aspect of women's role and leadership. Very often, women remain oblivion to the outside world despite their abilities to resolve greatest challenges. Sharing and interactions enabled through ILGs, SHGs and participation in VDC has instilled a sense of pride and self-awareness among women in the Thar and they have started recognising the value of their own contributions. As shown in the Figure above, a vast majority of women (78%) do recognise that involvement in innovation, RWH activities, including selection of beneficiaries and

How do you lead drought mitigation, NRM and climate change adaptation activities?



trainings, are the crucial areas of their interventions for climate change adaptation and drought mitigation in the community. Participation in the meetings of ILGs, SHGs, etc. and information sharing on drought mitigation; and participation in actual construction, pasture developments and monitoring visits were also felt to be crucial aspects of drought mitigation by the women leaders.

Drinking water storage tanks (*Taankas*): Taanka is an RWH structure at household level to store underground drinking water for household use. This water storage tank's capacity is 20,000 litres which is sufficient for one family of about 6 members for 6 to 8 months. Taanka is an important source for families for collecting water for drinking and cooking purposes. Constructing *taanka* at household level helped in enhancing water security by providing access to water for the villagers within their households. Keeping in view that fetching water was always a major hardship in the past and still in some parts of the Thar Desert, the activity is a big relief especially for women and girls. Availability of water at doorstep saved the women and girls time and energy in collecting water from long distances. In the saved time,

women can take care of themselves and girls can attend the school, and their health improves significantly. The *taanka* ownership is in the name of women which brings leadership, dignity and confidence in them. All *taankas* are taken care of by owner families with regular cleaning and catchment related work. Water in these tanks lasts for many months and saves women the hardships of water fetching. Acceptance of women's leadership by the rest of the members of the family is the hallmark of rainwater harvesting initiatives in the region and demonstrates a shift in the attitude towards women.



A taanka

Water has changed the way we live

Nenu Devi is a living example of water security becoming a source of empowerment for rural women. She and her young daughter used to walk about 10 kms every day spending about 3 hours carrying water. Although they had a small water tank close to their home but it had to be shared between 10 families and water was never enough for her 8 persons household. While she was not the only woman in her village to do so, she was concerned about her daughter's studies and had been praying for a solution to this problem.



Nenu Devi next to the taanka in her backyard

Kelva village of Jaisalmer district is one of the remotest villages in the Thar Desert having no regular water supply. Water is scarce for human needs, cattle and for agriculture. Many women like Nenu Devi have been carrying the burden of water fetching on their shoulders and young girls find it difficult to continue their schooling. At the time of visit to Kelva village, the GRAVIS team accompanied by the ILG members, Nenu Devi shared her vows and requested for support. In consultation with the VDC and local community, taanka was constructed in the backyard of Nenu Devi's house.

“I was so glad to have a taanka just next to my home. During the monsoon soon, it got filled on its own and I have been using the water from the taanka even 8 months after the rainy season. To me, it seems like divine intervention and a means for ensuring that my daughters attend school. With water available so close, I am able to complete household chores in no time, and our family is saving about INR 9000 for the whole year as we do not need to buy water when the small tank dries. Life has changed for good. Not only my daughters are attending school regularly, even I have become a member of an SHG and have undergone training in maintaining the taanka too. As the taanka is in my name, my views in the family are heard and feel more respected. This small thing in my life has changed the way women live.”

Nenu Devi is one of the hundreds of women in the Thar Desert who have got taanka constructed within their premises and are members of community-based groups.



Renovation of village ponds

Village ponds are oases in the Desert and serve the water related needs for families during dry seasons too. However, cleaning and maintaining these village ponds requires time and resources. Desilting and renovation works of these village ponds is undertaken under the direct supervision of SHGs and ILGs. Women in the villages of 4 identified districts have got three village ponds clean and renovated which are sources of water for domestic use for a population of over 15000 people and livestock. Availability of water even during the dry months of the year helps the community maintain good hygiene and health. With healthier livestock, there is also steady improvement in income status and nutrition status of people.

Renovation of percolation wells (*Beris*)

Percolation wells are community rainwater harvesting structures. With an average storage capacity of 500,000 litres of water, underground percolation wells serve about 10 families throughout the year. These community water bodies are an important source of water security for Desert communities, however are needed to be maintained and required to be covered to retain the quality of water. Percolation wells have traditionally existed in various parts of the Thar and making use of them after renovation brings in a lot of relief especially for women and girls in the region, while serving groups of families in one go. VDCs, SHGs and ILGs play an important role in facilitating this renovation. These groups have been negotiating with the local administration for investing resources for the same and have been motivating the community to contribute in kind.

Increased production: Better food and nutrition

As farming communities in the Desert, struggle with food shortage, finding ways to enhance food production is one of the best ways to combat food and insecurity in the region. Strong dry winds that are typical of the Desert weather in summers have a detrimental effect on the soil and water retention. Traditional agricultural techniques and practices, with modified advances in scientific methods helps these communities improvise agriculture and optimise the agricultural outputs.

Construction of farming dykes (*Khadins*)

Women members of SHGs, ILGs along with the VDCs facilitate construction of farming dykes that help retention of moisture in the soil that leads to enhanced production of food grains even during low precipitation. In deserts, farming dykes maximise the utility of rainwater for agriculture and play a significant role in enhancing food production. Farmers report a 30 to 40% increase in their produce with the help of these dykes that are known as *khadins* in local languages. With enhanced capacities women members of SHGs and ILGs along with the VDC members, are able to work along with GRAVIS to innovate and customise these dykes for improved utility. In addition to motivating the community for constructing dykes wherever relevant, women play an important role in careful selection of beneficiaries to prioritise the most disadvantaged and needy groups of farmers. Benefits from these dykes include enhanced production, multiple yields and enhanced income for the farmers.



A khadin

Women-led initiatives in Climate Change adaptation or mitigation contribute to improving the local food and nutrition situation

Prevalence of food and nutrition related insecurities in drought affected regions of the Thar desert, demands specific crop base interventions as well as diversification of food baskets that has remained a challenge for the Desert Communities. In addition to rainwater harvesting initiatives, GRAVIS has also been supporting the farmers in this rainfed agriculture zone with innovations for improved quality and quality of production, diversification of cropping and sustainable agriculture practices. Crop demonstrations, development of pasture lands for livestock and establishment of community seed banks (CSDs) are some of the ways rainwater harvesting techniques are complemented with sustainable agriculture practices. Technical exposure visits to institutes such as Central Arid Zone Research

Institute (CAZRI) and Rajasthan Seeds Corporation (RSC) by ILGs and SHGs members helped them understand the technical aspects of these various practices and their utilities. With support of GRAVIS SHGs and ILGs mobilised the community and enabled participation of farmers in crop demonstrations done in 20 villages. These demonstrations also encouraged the farmers to grow diverse crops with improved quality of seeds.

As farmers in drought affected regions constantly face the challenge to get and preserve indigenous quality seeds, GRAVIS sought to address this problem by setting up community seed banks, which are monitored by women's groups. These seed banks imbue much needed resilience in the farming community against extreme and unpredictable weather and climatic shocks, and help them adapt to climate change by making seeds available and affordable for them.

Fruits of hard work



A humble but welcoming household, located about 40 kms away from the nearest administrative office, is Hasina's abode for past more than two decades. She Not being able to provide sufficient fruits and vegetables, especially for her children was one of the major concerns she had.

Hasina belongs to a poor family in Dasudi village of Bikaner district. She lives with her husband, in-laws, and children. Her family of seven members struggles in getting proper nutrition from their diet and has insufficient resources to fulfil their daily needs. The sole earning source is agriculture in the region which is dependent on rains. Owing to the social and cultural restrictions she is not able to step out of the house to ear money. Fortunately, one SHG was constituted in neighbourhood, she became

member of it, and as the meetings of the SHG used to take place just next door, she started participating in the meetings regularly.

Interactions with other members of SHG motivated her to do something to for additional income for the family. She had discussions with ILG and requested financial and technical support from the Village Development Committee (VDC). The ILG and VDC approved her request to establish AHU next to her farm. Saplings of fruit bearing trees planted there to provide her with nutritional and economic benefits at the same time. Hasina grows vegetables in the space between the plants in her AHU and uses it for cooking at home.

Hasina and her family are not only getting benefitted from the vegetables that fulfil the nutritional needs of everyone at home, they are able to make additional income through sale of fruits that they grow in the AHU. While the AHU is in Hasina's name, the whole family is involved and motivated to take proper care of the plants in AHU considering the benefits it has. The family saves money on vegetables and are expecting a good harvest of fruits from AHU that will bring in additional financial gains. Hasina is considering selling the excess vegetables too for extra income.

“AHU has proved to be a game changer for me. Not only does the family get sufficient nutrients, I am also financially independent now. I am in a position to negotiate greater freedom and flexibility with my family and participate in the meetings of SHGs and ILGs which was not a possibility in the past. If every woman in the village is able to set up an AHU and take care of it, half of the problems being faced by women will disappear and families will be nourished even in a dry place like ours.” Says Hasina.

Setting up AHUs and development of pasture lands were two specific interventions focused on household nutrition needs and livestock development, respectively. Drought and climate resilient AHUs and community pasture lands specifically were largely undertaken with active participation of women in the process. As AHUs are normally established close to their homes, women, especially older women end up taking care of these AHU and having control over them. Selection of beneficiaries is done during the ILG and SHG meetings. The beneficiaries who show promise and provide land, which normally is a small piece of land next to their homes, are given 20 drought resilient saplings of fruits that can be grown with limited water and can survive extreme weather. Women are also supported with fencing using the stones and gravel and are also provided with the knowhow of preparing organic fertilizers. These plants grow and start bearing fruits in a couple of years and become a source of nutrition and additional income for the families.

Table 2: Food and nutrition security interventions

Sl. No.	Food and nutrition security interventions	Number of interventions	Total outreach
1	AHU	60	360
2	Crop demonstrations	60	360
3	Seed banks	100	500
	Total	220	1220

Pasture lands for livestock

Livestock is a major livelihood source for agrarian communities in the Desert. Ensuring year-round availability of fodder for the livestock is a huge challenge for rural communities. Traditional pasturelands are either encroached or are not maintained well and their revival and development is a boon to livestock management. Sites for pasture development are selected by the members of SHGs and ILGs in discussion with the local community and considering factors such as availability of land and the distance from villages. VDCs including the women members facilitate the land acquisition process and pastures are set up at village common lands and are developed by growing drought resistant grasses and shrubs and by putting up appropriate fencing. Local communities engage in digging holes for plants, plantation, sowing seeds, watering plants and the entire process managed by the ILG and VDC members, as per the rules developed by ILGs. Skills and knowledge of women, especially older women members of ILGs help in developing and managing pasture lands. ILGs continue to work closely with the VDCs and the community and engage in generating awareness about preservation of pasture land and need for refraining from practices that adversely affect pastures and eventually the livestock.



A pasture

Enhanced voice and effective leadership of women

Marred with social and economic exclusions and sharp gender imbalance, the traditional rural communities in the Thar Desert have kept women at the margins of decision-making processes in families and at community level. Women's participation in decision making pertaining to their own education, marriage, financial independence, social relations and political participation have remained subjected to approvals by male adults in the families. Intergenerational illiteracy among women, early marriages and lack of any opportunities for self-development kept them from raising their voices. Rural desert society is a highly patriarchal society with strict norms governing female behaviour. However, the evidence suggests that the change process has begun and men are also recognising the need to listen to opinions of women in public fora. One of these norms relates to women's non-participation in the public sphere along with men. Women normally wear veils, even within the confines of their homes from their elders. Participation in public meetings is either not allowed or not encouraged. Participation of women in ILGs itself is a breakthrough and a challenge to regressive social norms that prohibit women from participation in public fora. Women have assumed the leadership role by ensuring that their meetings are held regularly and with participation of all the members. The ILGs have reached a stage where women themselves ask the local community workers as to when the next meeting is scheduled. Women are beginning to take a greater role in drought mitigation, NRM, and CCA interventions being implemented in the villages and are also involved in monitoring visits at places where construction of rainwater harvesting structures is going on.

Participation in local administration and political processes

Women-led initiatives have impacted natural resource management (NRM) and CCA interventions undertaken by local administrative units in a significant manner at both design and implementation level. All the interventions undertaken by GRAVIS and facilitated by ILGs, SHGs and VDCs in the project villages are either being supported or replicated by the state government through local self-government units *viz.* village committees. VDCs are able to negotiate with the local government to construct more RWH structures for the benefit of villagers. This has resulted in a collaborative relationship between community-based organisations and local self-government, opening up further avenues for discussion and seeking resolution for community-based issues. ILGs of women are also involved in monitoring the NRM related work being undertaken by local authorities. SHGs, ILGs and VDCs have drawn attention towards building financial capacities of the community by facilitation of support for starting various vocations for economic empowerment.

Typically, the outreach of government agencies remains restricted to the main settlements and remote and small settlements are left out. The increasing interaction of ILGs was best illustrated during the recent state campaign titled 'Administration towards Villages', under which, all the Government Departments gather at panchayat level to receive complaints and petitions, that are followed up upon by senior Government officers. The ILGs participate actively in this campaign and give memoranda on

different issues of community concern, such as provision of electricity, need to activate nutrition services for young children and supporting local enterprises. Through the membership of ILGs, SHGs and VDCs, women in the Thar are bringing the government and local administration closer to people and are highlighting specific issues that concern women and young girls in the context of CCA, RWH and NRM.

Leadership prerequisites: Capacities and enabling environment

As lack of education and prevalence of female illiteracy pose a challenge to have women as leaders, the need for building their capacities assumes paramount importance. The process involves several repeated interactions with women, motivating them to be part of the processes leading to CCA and drought mitigation and generating confidence in them to be able to lead the way. GRAVIS engages with this intense process and mobilises women into community-based groups with clear mandate and structures and then handholds these groups until they become self-reliant. Trainings of women's groups on gender and development, leadership, climate change adaptation, RWH and maintenance of structures for RWH, were organised by GRAVIS to prepare women for assuming leadership roles.

Table 3: Building local capacities

Sl. No.	Trainings	Number of trainings	Total Participation
1	Trainings for ILGs and SHGs on gender and development and climate change	128	1270

These trainings and capacity building initiatives generated awareness among women about the possible solutions for drought mitigation and helped them realise their potential for leading and facilitating climate change adaptation in the region. Meetings conducted during the process enabled shared understanding and articulation of issues and possibilities in women's leadership in drought mitigation. There were also opportunities for women to discuss issues such as child marriages, importance of girls' education and financial empowerment of women.

Community attitudes towards women and girls' rights

Gender stereotypes and subjugation of women are ingrained in the social and cultural milieu of rural areas of Thar Desert. Challenging these norms entails inclusion of male counterparts and community chieftains to be part of the dialogues on gender and development. Focused efforts to create an enabling environment for women to voice their concerns were made through awareness camps on gender, NRM, drought mitigation and CCA village/community dialogues and CCA. Village dialogues were also organised with participation from villagers, Government representatives and community workers of GRAVIS to discuss various themes on gender, NRM, drought mitigation and CCA. These dialogues provided opportunities to facilitate understanding of government programmes apart from contributing to knowledge building and developing good synergies across different social groups.

Village dialogues were used as an opportunity to discuss potential role of SHGs, and ILG approach and their importance in CCA and drought mitigation. These dialogues and other interactions with the community helped having the larger community including men on board to have women lead these



initiatives and led to creation of an enabling environment for women and girls, to lead on drought mitigation, NRM and CCA. There were visible changes seen in the attitudes of members of the community, especially the men and boys, supporting women and girls' leadership in women and girls' led drought mitigation, NRM and CCA and on ILG approach. Women were able to participate in SHG, ILG and VDC meetings without any friction at home.

Table 4: Creating conducive environment for women's participation

Sl. No.	Inclusion dialogues	Number of trainings	Total participation
1	Awareness camps on gender, NRM, drought mitigation and CCA'	40	1250
2	Village dialogue	20	802
	Total	188	2052

Gradual shifts have been witnessed in the attitude of men and the general community in the villages. Men have started performing tasks that are traditionally seen as women's work, such cow milking, fodder preparation for cattle, childcare etc. This change may be partly attributed to women's ownership of RWH structures, control over and ability to manage assets such as AHUs, all of which led to their social and economic empowerment. Along with this, their women's confidence that was explicitly seen in the process of participation in local political processes, and ability to influence the decisions in public fora, convinced/men about women's abilities.

Outcome of women's leadership in CCA and drought mitigation is visible in the community life and families in the Thar. People have better access to nutritious food, opportunities for

IV. HALLMARKS OF WOMEN LED CCA AND DROUGHT MITIGATION INITIATIVES IN THE THAR

As much as it is challenging to evolve and enhance the leadership of women in CCA and drought mitigation in the context of the Thar Desert, its effectiveness in addressing climate related distress is unmatched. Understanding of local context, ability to adapt and learn, along with the resilience of women make them perfect leaders in the struggle against climate change and drought. Their connection within the families, neighbourhood and the community and concern for everyone lend inclusivity to their leadership. In 20 identified villages of the Thar Desert, women have been able to spearhead a movement towards creation of drought and climate change resilience communities. Their leadership has touched and influenced all spheres of human life be it - social, political or economic, and has positioned women as potential frontrunners in combating drought and responding to its implications for food and nutrition security. A few strategic elements of the process accentuate the impact of women's leadership. In addition to that, *ownership* of the assets created through the various interventions was deliberately provided to women and this added value to their contributions and enhanced their status within, family, village and the community. Empowerment of women and their leadership in part was also a by-product of their economic empowerment that came through the ownership of assets and their outcomes in the form of improved nutrition and income for the families.

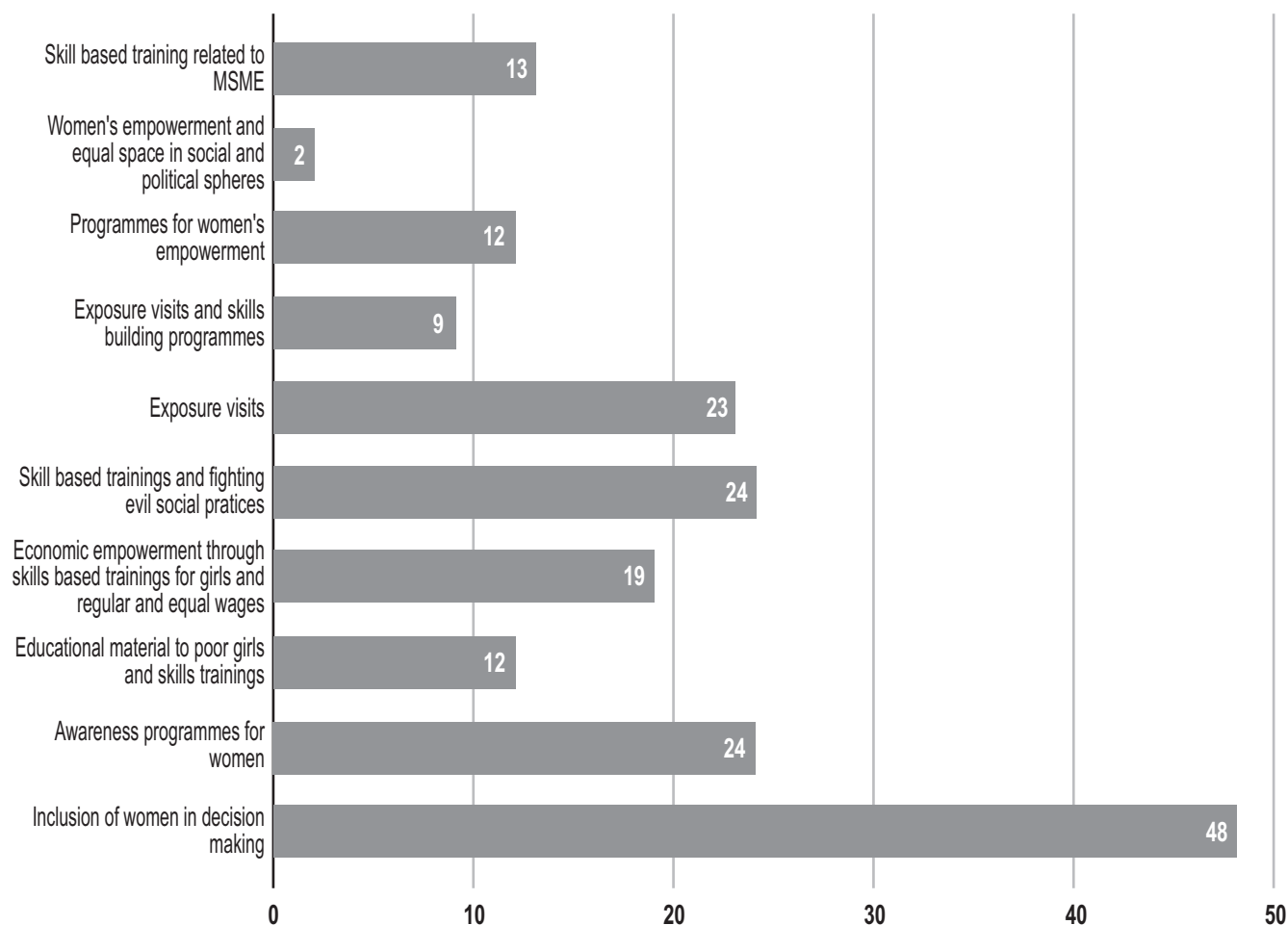
Community involvement was at the core of the process which was achieved through village dialogues, awareness camps and involvement with existing community based organisations in the village. Recognising that gender balance cannot be achieved without involving and engaging with men and boys, specific intervention focused on including them in the process. Changes in community attitude helped women and young girls participate in the meetings of groups. However, the most critical element that aided women in emerging as leaders was the fact that their actions addressed the issues that were most central to community life in the Thar. As rural communities in the Thar struggle on an everyday basis to deal with water scarcity and climate change, successful efforts by women established them in their leadership role.

Empowerment of women and girls at personal level is most valuable given the prevalent gender dynamics in the region and is of immense importance to the social and economic development of rural communities. Not only the process is imbuing self confidence among women, and making them educational opportunities for young girls are also indicative of a brighter future for gender parity in the Thar Desert. *Intergenerational approach* to learning and sharing of knowledge that involves and prepares young girls for future challenges is an empowering tool with potential to sustain the impact of interventions as women's leadership for generations to come.

V. MAKING THE MOST OF IT: LEVERAGING FROM WOMEN'S LEADERSHIP FOR CCA AND DROUGHT MITIGATION

Those who get most affected by any crisis are the ones perfectly located to offer solutions too. With women leading the CCA and drought mitigation interventions, not only they themselves entire families, villages and the community in general get benefited and may aspire to gradually move towards food security and prosperity. Future of women's leadership and their role in CCA and drought mitigation may be further augmented through a range of strategies and interventions as the process advances:

Further strengthening women's leadership in drought mitigation and climate change adaptation



GRAVIS' interventions for CCA and drought mitigation have yielded expected results in the form of improved food and nutrition security, empowered women folk, and improved financial status of the community. This impact can be further enhanced and magnified by increasing the volume of some of the interventions. For instance a large number of women found exposure visits quite insightful and expressed interest to go for more of those for improving their knowledge and skills. A significant number of women felt the need for skill-based training for women, while others expressed the need for provision of study materials to poor girls so that they can continue their education. Most of them were of the opinion that the training and skills building are a continuous process and must be conducted continuously.

Strengthening participation of girls: Participation of girls in ILG has proved to be of immense importance, however, this involvement may be further diversified by involving young girls in the village dialogues, educational interventions and focused interactions through schools. Mainstreaming of girls in school education needs to be at the centre of interventions to prepare them to be future leaders. Along with this, the possibility of their skill building towards financial empowerment can be explored to accentuate the intergenerational approach. Exposure visits, focused discussions on the importance of education and sustainable practices to deal with water scarcity will lend further relevance to the content of interactions with girls.

Strengthening educational and nutritional services: As the awareness and knowledge level increase among women and girls, provision of response mechanisms for their specific needs especially pertaining to education and nutrition is imperative. It is important to make administration of schemes for nutrition and service delivery mechanisms effective and accessible to rural women and girls, along with equipping them with the capacity to cater to nutrition and education needs of women and children. For instance, provision of equitable quality education and nutrition through public schools and nutrition centres run by the government must be ensured to respond to emerging demand and keep women and girls motivated and engaged with the CCA and drought mitigation processes.

Optimising existing institutional and policy spaces: Being one of the most severely affected drought prone regions in the country, central and state governments make special provisions to address the situation and avert any serious and long-term crisis. Going forward, GRAVIS may work towards leveraging these provisions in a structured way. Starting from accreditation and support for SHGs, to access to compensations for farmers at the time of crop failure, and provision for construction of rainwater harvesting structures, communities can benefit with many such provisions. A mapping of such provisions may help making focus efforts to make these services and support available to the community.

Facilitation of network of civil society for CCA and drought mitigation: GRAVIS has demonstrated a women led CCA and drought mitigation model that may be adapted in regions with similar problems and replicated by other civil society organisations. GRAVIS must engage in building capacities of CSOs in gender and drought mitigation and support them in conceiving and implementing similar projects. Documentation of challenges, good practices and programme design, for dissemination



must precede such action. Close engagement with the experts and institutions in the area of gender, women empowerment, rainfed agriculture and drought mitigation may be sought to further value add to the process and create a support network.

Scaling up: There is an urgent need in other parts of the region to prepare people for CCA and drought mitigation. GRAVIS must generate and raise more resources to directly reach out to a larger number of people and extend support.

Addressing vulnerabilities: Socio-economic vulnerability is a major component of vulnerability to climate change. It exacerbates climate risks, and any measures to mitigate climate change or drought need to factor in reduction of these vulnerabilities. Girls' education is one of the definite ways that leads to improved gender balance. Advocacy for investment in quality education and encouraging education for girls should be on the agenda for civil society organisations. Further, as majority of the population in rural Thar earns its livelihood from agriculture directly or indirectly, the state government must take significant measures towards the development of the agriculture sector. GRAVIS has already positioned itself as a leading organisation dedicated to building community resilience, and is perfectly located to play the role of a catalyst in the region bringing in technical resources agencies, and government initiatives together to address climate change using a gender mainstreaming approach.

Leveraging from existing innovation: As a forerunner in community development initiatives, GRAVIS has introduced several innovative frameworks such as village older peoples' associations (VOPAs) to mobilise and consolidate traditional wisdom. Older women represent wisdom pools with their inherited knowledge and expertise related to early warnings and mitigating the impacts of disasters. This knowledge and experience that has passed from one generation to another will be able to contribute effectively to enhancing local adaptive capacity and building resilient communities. Proactive measures must be taken to integrate CCA and drought mitigation work being done under the leadership of women with that of VOPAs.

GRAVIS is involved in pioneering work in CCA and drought mitigation with RWH as one of the key strategies. Evolving and developing women's leadership in the whole process is a daunting task given the challenges that emanate from the social fabric of the society, however, women's involvement and leadership remains the most desirable strategy to move towards sustained results. GRAVIS must utilise the opportunities to share with the rest of the world, especially the developing world its experiences gathered through this challenging path, along with the strategies that worked best to overcome these challenges. Although climate change is a global issue, inspirations need to be drawn from local solutions to address it.



ACRONYMS

CCA	- Climate Change Adaptation
RWH	- Rainwater Harvesting
SHG	- Self Help Group
GRAVIS	- Gramin Vikas Vigyan Samiti
VDC	- Village Development Committee
ILG	- Inter-generational Learning Groups
CAZRI	- Central Arid Zones Research Institutes
CSB	- Community Seed Banks



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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 with over 75,000 families across 1600 villages reaching a population of over 1.6 million and has established over 4,000 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.