



# Inclusive Resilience

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Stories of Small Marginal  
Woman Farmers

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**Supported by**

Poorest Areas Civil Society (PACS), A DFID, UK Programme, New Delhi

This document has been developed as an outcome of a project titled – “Flood resilient livelihood system with special focus on woman farmers” supported by Poorest Areas Civil Society (PACS), a programme of DFID, UK. The document captures the stories of small and marginal woman farmers who are adopting innovative agricultural practices to deal with climate uncertainties and make their farming remunerative and livelihoods resilient.

**Acknowledgement**

We acknowledge our PACS Project Partners - Jan Kalyan Sansthan, Kushinagar and Samaj Kalyan Evam Bal Vikas Parishad, Maharajganj who extended their support in capturing these resilient stories. We are also grateful to the woman farmers who gave their valuable time in sharing their experiences.

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**Design and print**

Aspire Designs

**Citation**

Mani, N., Pandey, V., 2015. Inclusive Resilience – Stories of Small Marginal Woman Farmers. Published by GEAG, Gorakhpur.

September 2015

**Published by**

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## Preface

The small-marginal and landless woman farmers significantly contribute to agriculture production and to the livelihood of their families. With their innovative skills and survival strategies they have evolved mechanisms to cope up with stressed situations caused due to market uncertainties, increasing input costs, frequent disasters and now the climate change impacts. The increasing feminization of agriculture due to male migration is posing newer challenges in front of woman farmers who have very limited rights and control over resources like land and have insignificant participation in the state agriculture programmes and extension services.

The impact of the climate change are adding extra pressure on woman farmers in agriculture and impacting the fodder, fuel wood and other such farm and off-farm activities which are largely in the domain of woman farmers. The activities covered under this study are from the PACS-DFID supported project interventions and these clearly demonstrate how such woman farmer champions have moved towards a climate change resilient agriculture by using their traditional knowledge, skills and inputs facilitated by the project and the provisions of government programmes (like MGNREGA). We are able to cover only a few examples here although the actual presence and the impact on the lives and livelihood of such farmers on the ground are much more. Efforts were also made to scale the impact of such interventions through linking these farmers with other farmer groups, government and bank schemes and movements aspiring the rights and interests of woman farmers. Such community based adaptation are happening in different parts of the country and it is important that necessary hand holding is provided to woman farmers through government programmes and extension services towards developing resilience capacities in small land holding farming in the country.

The climate resilient agriculture adopted by these farmers indicates the need of urgent action at two levels: 1) the *production* level with lowering of inputs costs, strengthening of ecological processes in the farm, enhanced net gains, market linkages, etc.; 2) the *production system* level towards rights and control over resources like land, strengthening of ecosystem services, encouraging diversity and complexity, an extension system which involves woman farmers and address their problems, appropriate resilient inputs (like seeds) etc.; and 3) *policies and legal measures* are also crucial in this direction, which recognizes the role of small -marginal and landless farmers in general and the woman farmers in particular and helps in developing a pro-women farmer's environment in agriculture.

**Dr. Shiraz A Wajih**

President

Gorakhpur Environmental Action Group



## Background

Agricultural systems – food systems – are complex. They are biophysical systems, economic systems and social systems. These dimensions interact with each other, at various scales, from local to global and, again, from global to local and are going to be modified by climate change.

Agriculture plays a vital role in the Indian economy. Over 70 per cent of the rural households depend on agriculture as their principal means of livelihood. Agriculture, along with fisheries and forestry, accounts for one-third of the nation's GDP and is its single largest contributor<sup>1</sup>. In India too, climate change is threatening food production systems and therefore the livelihoods and food security of millions of people who depend on agriculture. Agriculture is the sector most vulnerable to climate change due to its high dependence on climate and weather and because people involved in agriculture tend to be poorer compared with urban residents. Consistent warming trends and more frequent and intense extreme weather events have been observed in recent decades. In line with these trends, climate change scenarios

<sup>1</sup> [http://indianbusiness.nic.in/newdesign/index.php?param=economy\\_landing/2.13/2](http://indianbusiness.nic.in/newdesign/index.php?param=economy_landing/2.13/2)

consistently project temperature increases which will require farmers to adapt to changing conditions and build resilience. At the same time, agricultural activities release significant amounts of greenhouse gases (GHG) into the atmosphere. The combination of these characteristics of agriculture—its importance as an economic sector, its vulnerability to climate change, and its contribution to emissions—make building resilience to climate change an enormous challenge.

In Uttar Pradesh, frequent extreme weather events and climate change has had impacts not only on the agricultural production but also on the lives and livelihoods of the small, marginal and woman farmers. More than 80% of the farming community of Uttar Pradesh comprises of small and marginal farmers (having less than 1 ha of land). These farmers have meagre resources to buffer them from the new risks that climate change poses. For no fault of theirs, these farmers pay a high price for anthropogenic climate change.

April is usually a time of celebration for millions of farmers across northern India. The winter wheat crop is ready to be harvested, and there's money to clear past debts and plan future planting. This year, however, unseasonal rain and hailstorms in

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## Agriculture absorbs 22% of the economic impact caused by natural disasters in developing countries

*(FAO-UN, May 2015).*

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March 2015 destroyed millions of acres of farmland in the region, causing heartache for debt-ridden farmers, and leading dozens to kill themselves. The unseasonal rains and hailstorms rains that lashed a large part of north and central India between January to March 2015, spelled doom for farmers, as extensive damage to crops took place. More than 1500 farmers committed suicide leaving behind distressed families. More than 50 lakh hectares of wheat was destroyed in Uttar Pradesh, amounting to a massive loss of approximately 7,500 crores according to the state government. Events like this and the catastrophic impact that they bring with them, are constant reminders that climate change is adversely impacting the food and agriculture systems in India and the lives of those who are largely dependent on it.

## Gendered Impacts of Climate Change

The vulnerability of women and men to the impacts of climate change is not even. Accordingly, they will be affected differently. In India, the most vulnerable populations to climate change — impoverished communities and women — are being affected first, and the most. It is estimated that women produce over 50% of all food grown worldwide. In India, more than 84% of women are involved in agricultural activities, and as a result they become the greatest victims of climate change impacts. In addition, gender inequality makes them disproportionately vulnerable to environmental alterations. Studies have shown that women disproportionately suffer the impacts of disasters, severe weather events, and climate change because of cultural norms and the

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**Those who gather the wood, carry the water, and grow the crops, the majority of whom are women, suffer the most from climate change.**

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inequitable distribution of roles, resources, and power.

As compared to men, the woman farmers are the most affected categorically, given their dependency on subsistence crops, their limited access to resources and their lack of decision-making power. Despite their huge contribution to the agriculture, women are not the decision makers in the patriarchal setup because they do not own the land in their name and cannot get any help from the government for farm inputs or credit from the bank.

## Resilience Framework for Agriculture

The concept of resilience is central to an understanding of the vulnerability of the agriculture sector to climate change. The increased use of resilience within the development, climate change and disasters communities is possibly related to its semantic ability to represent a readily recognisable concept. 'Resilient' is a commonly used word, most popularly used to signify the ability to return quickly to a previous (and good) condition. This condition can arise only when the system has the ability to adapt to environmental shocks and

continue functioning without there being a change in its fundamental characteristics (Manyena 2006)<sup>2</sup>. The resilient agriculture work of Gorakhpur Environmental Action Group (GEAG) in the flood affected areas of three districts of Uttar Pradesh, namely, Maharajganj, Sant Kabir Nagar and Kushinagar under its programme supported by PACS-DFID follows a similar understanding and also holds the importance of viewing resilience as a 'process' rather than only an outcome. The interventions have focused on women farmers belonging to small-marginal-landless categories largely belonging to SC and Muslims who are affected by recurrent floods and acute waterlogging problems where their agriculture and livelihoods are on stake.

The premise of resilient agriculture interventions in these areas have ranged from agriculture being resilient to climate change impacts which are largely flooding and waterlogging to adding value in agriculture and making it remunerative, to promoting allied activities to linking farmers with market access to establishing effective linkages with government programmes like Mahatma Gandhi National Rural Employment Guarantee

2 Manyena, S.B. (2006) 'The Concept of Resilience Revisited', *Disasters* 30.4: 433–50

Act (MGNREGA) and all these leading the communities to develop resilient and profitable livelihoods. With these efforts, the climate-resilient agriculture is contributing to sustainably increase the agricultural productivity and incomes and adapt and build resilience to climate change.

**The Climate Resilience Framework (Adapted from Urban Climate Resilience Planning Framework, ISET International)**

The Climate Resilience Framework (CRF)<sup>3</sup> (Fig-1) is structured to build a broad understanding of resilience by describing the characteristics of systems, the agents (people and organisations) that depend on and manage those systems, institutions

(laws, policies and cultural norms) that link systems and agents, and patterns of exposure to climate change. Throughout the CRF process, the focus is on capacity building and on utilizing pre-existing skills and knowledge. The CRF has been adopted in the rural context as well to understand the resilience.

The interventions promoted by GEAG address the three elements of the CRF – **Agents, Systems and Institutions**. At the **Agent** level, the capacities of the farmers have been built through training programmes and

<sup>3</sup> Moench, M., Tyler, S., Lage, J., 2011. Catalyzing Urban Climate Resilience.

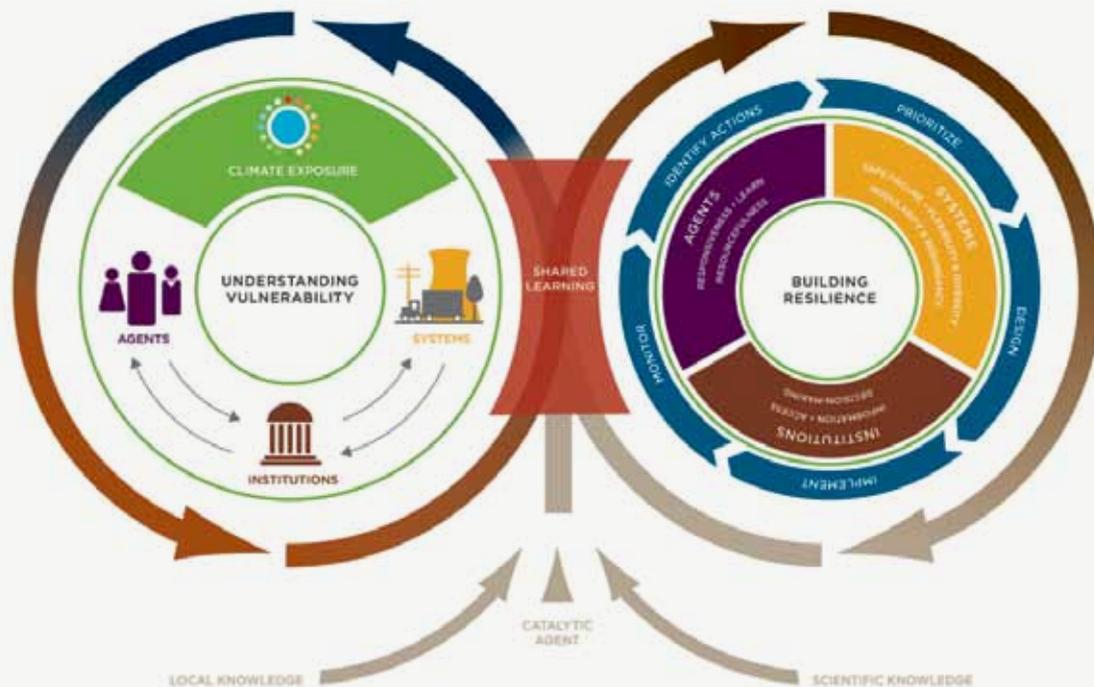


Fig. 1: Climate Resilience Framework

exposure visits. Moreover, the SMS based weather information system has brought about awareness on weather patterns and they are able to take relevant steps to deal with it. Apart from the farmers, the government functionaries, service providers, seed-sellers, Panchayat members and other important stakeholders have been sensitised and oriented who are together becoming strong agents of change.

At the **System** level, the diversity of farm system and sub-systems has increased which have made their farming robust. The whole landscape which consists of the farm, the natural ecosystems from where the inputs are obtained, the effective drainage mechanisms, etc have been strengthened to a great extent and hence they offer to be a strong system support.

At the **Institution** level, linkage of farmers with Farmer Field Schools, Village Resource Centres, and other government programmes such as MGNREGA has helped them in getting solutions to their agricultural problems. Linkages with departments such as agriculture, animal husbandry and horticulture have helped the small and marginal farmers to get input support. Effective advocacy with government institutions at the block, district, state

and national levels are being done for needed policy shifts. The efforts are also leading for advocacy to integrate climate change adaptation and disaster risk reduction in developmental planning and to enable the required institutional mechanisms for this.

### **Approaches to Flood Resilient Agriculture Adopted by Woman Farmers**

Flooding in Eastern UP has led to a high level of male out-migration and left women with much of the responsibility for dealing with floods. Since exploring the impacts of floods on women provides direct impact on basic survival needs. In a society traditionally influenced by feudal structures based on caste, women in the villages of Maharajganj, Sant Kabir Nagar and Kushinagar have restricted access to food.

The woman farmers have adopted a holistic approach to farming in the flood affected areas in order to make their farming profitable and also resilient to climate impacts. The agricultural approaches adopted to build resilience to floods have been low external input, sustainable and flood resilient agriculture, food security

and rights of small-marginal, women farmers. Robustness of farming system helps small farmers in dealing with bridging the food gap periods. In the process, communities need to use the skills of the organization and its institutions in removing hunger periods through resilient agriculture systems and in the process establish methodologies for larger sharing and scaling. The major strategies helping small and marginal woman farmers to cope with floods (and especially in response to changing climatic conditions) have been:

- Crop intensification: Intensification of crops and agriculture related activities
- Diversification: The flood affected areas are richly bio diverse. With this diversification woman farmers have adapted in the stressed situations by adopting techniques such as mixed farming, integration of animal husbandry, fodder and fuel production, etc.
- Use of indigenous technical knowledge: The traditional knowledge is quite rich in the area particularly in the sectors like treatment of sick cattle, seed preservation, grain storage, house construction, etc.
- Adoption of farming techniques which are resilient to flood and

waterlogging such as flood tolerant seed varieties, loft farming, raised bed nurseries, etc.

- Preparation and use of bio-manure and bio-pesticides
- Linkages with local community institutions such as Farmer Field Schools, Village Resource Centres, weather advisories, etc.
- Linkages with government departments for relevant training programmes, input support and subsidies.

Presented in this document, are a few glimpses of very unique experiences of innovations by small and marginal woman farmers – innovations that are an effective synergy of science and indigenous traditional knowledge and wisdom of woman farmers, based on local natural resources and the local ecology. These successful woman farmers have learnt and adopted agricultural techniques and methods that are not only making their livelihoods profitable, but also resilient. Here are a few Woman Farmer Champions of Resilient Agriculture!





# Farm Based Interventions

# Integrated Flood Model

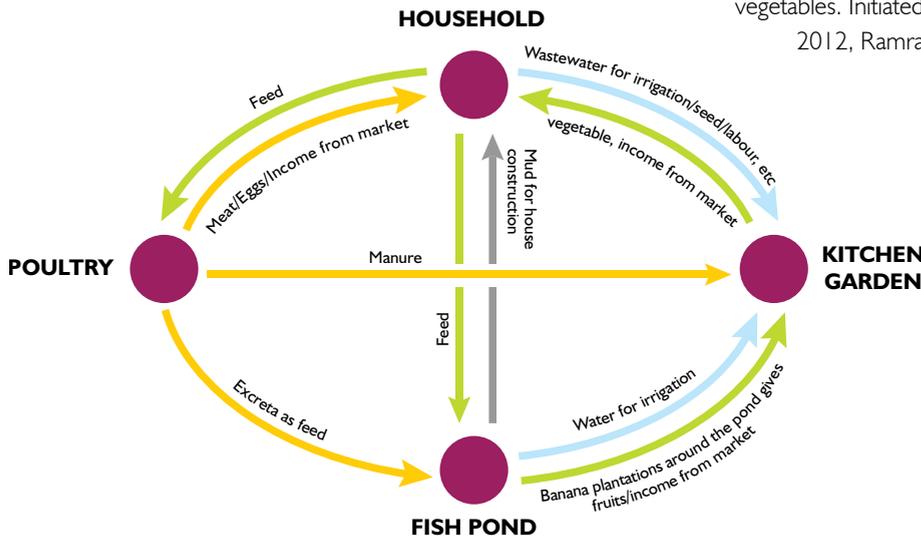


Ramrati Devi has mastered the art of integrated farming system. A small-landholding farmer, Ramrati hails from district Sant Kabir Nagar in Uttar Pradesh and she has sailed through the difficult times of floods which hit the area in 1998. The crops had submerged in the waters and there was no food for the family of seven. She has been experiencing the changes in weather patterns and the effect that it has had on her farming. Uncertainty in rainfall patterns and its erratic nature was weakening her farming system. Taking lessons from her association with GEAG, Ramrati has adopted integrated farming systems, diversified cropping mechanisms and use of bio-manure and bio-pesticides.



Integrated fish and poultry farming is one of the major activities that have changed the life of Ramrati. Understanding the benefits of integrated farming, Ramrati has successfully linked the farming sub-systems e.g. pond with fish, crop and poultry to each other in such a way that the by-products/wastes from one sub-system become the valuable inputs to another sub-system and thus ensures total utilization of land and water

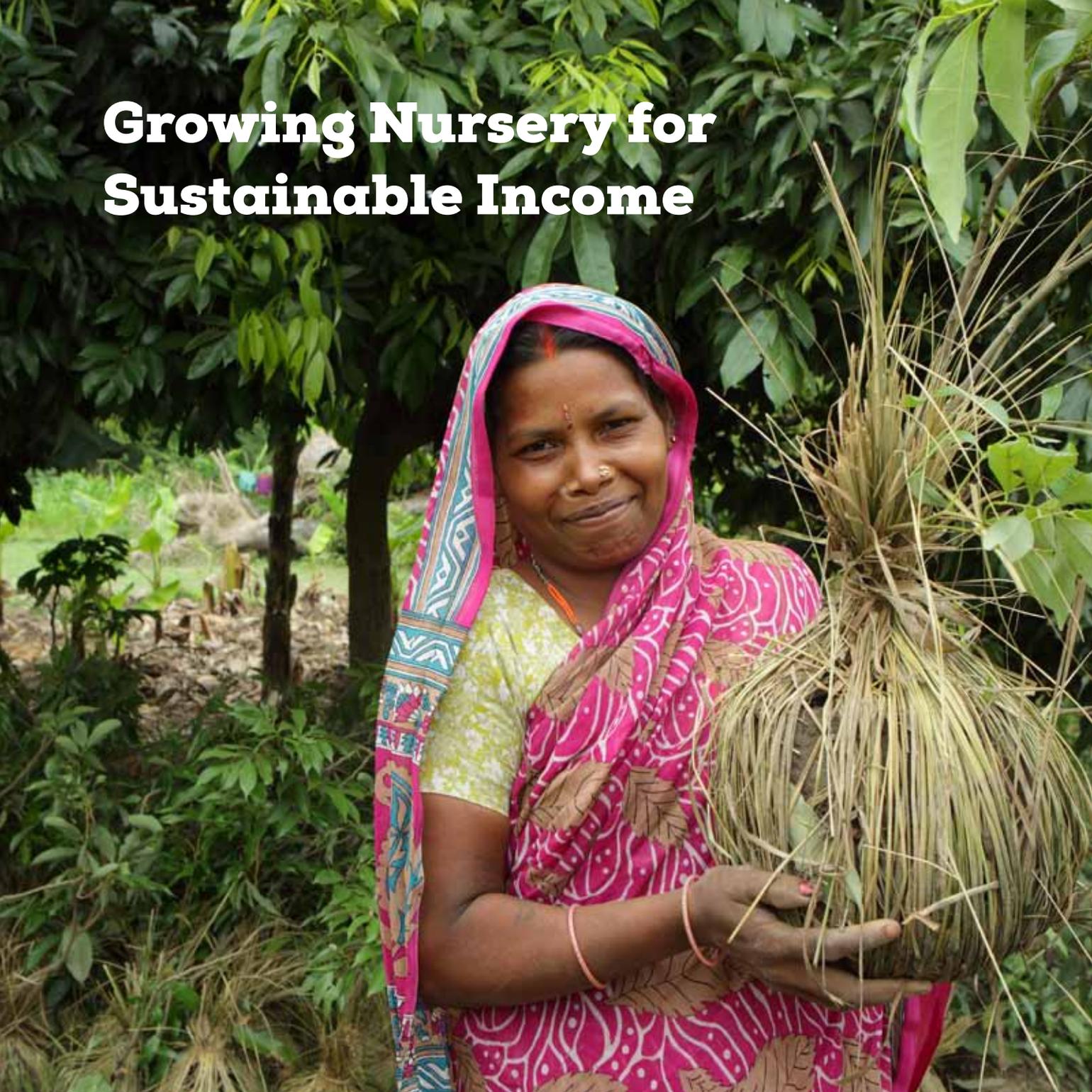
resources of the farm resulting in maximum and diversified farm output with minimum financial and labour costs. A small pond in which the fishes are reared with a stilt on which there is a poultry house with hens serves as a perfect combination of farm sub-system where the excreta and waste feed from poultry acts as manure and feed for fish as well as is used as manure for crops. The pond is surrounded by banana plantation to avoid soil erosion. Creepers are also planted on the poultry house from which she fetches vegetables. Initiated with a small investment in the year 2012, Ramrati's profits have gone more than 300%.



**“This integrated system is not only providing a stable income for me but has also strengthened my farm to withstand in adverse weather events”.**

Ramrati Devi

# Growing Nursery for Sustainable Income



Growing only one or two crops seldom proves to be remunerative for farmers. Along with the crops an additional activity needs to be taken up to diversify the farming system and also increase income, thus enhancing resilience. For Phoolpatti Devi of district Kushinagar, maintenance of a nursery for supplying ornamental and flower plants, fruit seedlings, vegetable and timber crops is seeming to be far more remunerative than the conventional farming. The Nahar Chhapra village where she lives is traditionally a flood affected area. But with the climatic changes happening, this area is now affected by drought as well. This has hit her farming adversely and there were times, when the family could not afford food in the months of July, August, September and October in a year.

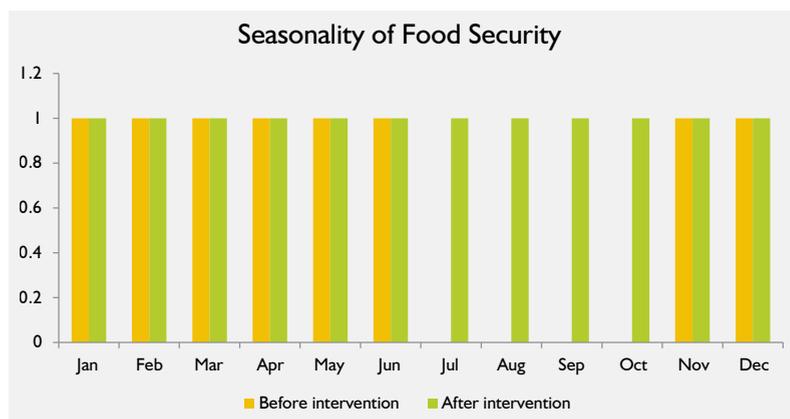
But, the situation changed. Phoolpatti, a dynamic woman farmer, associate herself with GEAG's activities and decided to turnaround the situation by doing something new. She liked the idea of growing nurseries of various types of crops as she knew the importance of the right type of good quality seedlings and that it was in high demand in the area. Trainings and exposure to others' fields helped her to learn the art of growing nurseries in a big way. Her family owns 0.25 acres of land and more than 75% of the land is used for nursery raising of different types of crops such as – fruit bearing plants (pomegranate, mango, litchi, jackfruit, coconut, papaya, guava, banana, lemon, etc.), timber crops (teak, neem, poplar, sheesham, etc.), vegetable crops (brinjal, cauliflower, cabbage, chilli, tomato, onion, ridge gourd, etc.) and flower/ ornamental plants (rose, marigold, hibiscus, ashok, etc.). While she does all the labour in raising these nurseries and managing them, her husband takes care of the marketing aspects. There is

a good market available nearby in which the nurseries go on a good price.

Phoolpatti used to do conventional farming growing wheat and paddy and the produce was hardly enough to feed the family all the year round. Nothing remained to sell in the market. By taking up nursery production, Phoolpatti is able to earn good income and also the family has food to eat for all 12 months. A simple data analysis shows that in the last 4 years, she had invested Rs. 56610 for nursery production and earned a profit of Rs. 124190. This has been a remarkable change for her.

**“Nurseries require less water and can withstand drought conditions. I am able to afford to send my children to private convent school. They also go for tuitions. I would have never been able to do this without the learning from GEAG”.**

Phoolpatti Devi



# From Monocropping to Mixed Farming



Flash floods used to inundate the crop lands of Sayda Khatoon. Moreover, monocropping farming practices and heavy use of chemical inputs had deteriorated the quality of soil in Sayda Khatoon's land to the extent that the farm had ceased giving any production outputs. Frustrated, the family had stopped raising any crops on that 1 acre land since many years. Nothing used to grow! A small and marginal farmer, Sayda Khatoon is an active woman farmer who wanted to utilise this piece of land and make it profitable. Building upon her association with GEAG and in turn, getting trainings on mixed vegetable farming practices along with preparation of bio-manure and bio-pesticides, she changed the fate of this 1 acre barren land. With the support of her father-in-law, she started doing mixed vegetable farming.

"The soil had deteriorated to a large extent. We started applying organic manure to bring back the lost life in the soil", says Sayda Khatoon. Today, Sayda grows more than 30 varieties of vegetables in her farmland. Her hard work and persistence helped her to make a profit of Rs. 50,000 between 2012 to 2014.



**"The color of the vegetables is natural and they also taste good. I know I am not feeding poison to my children as I use only organic manure. Due to this, the water requirement is also low. I have so many varieties of vegetable crops in my field that if one fails, I am sure some other will survive and will give us food"**

Sayda Khatoon

# Deriving Dual Benefits from Sunhemp



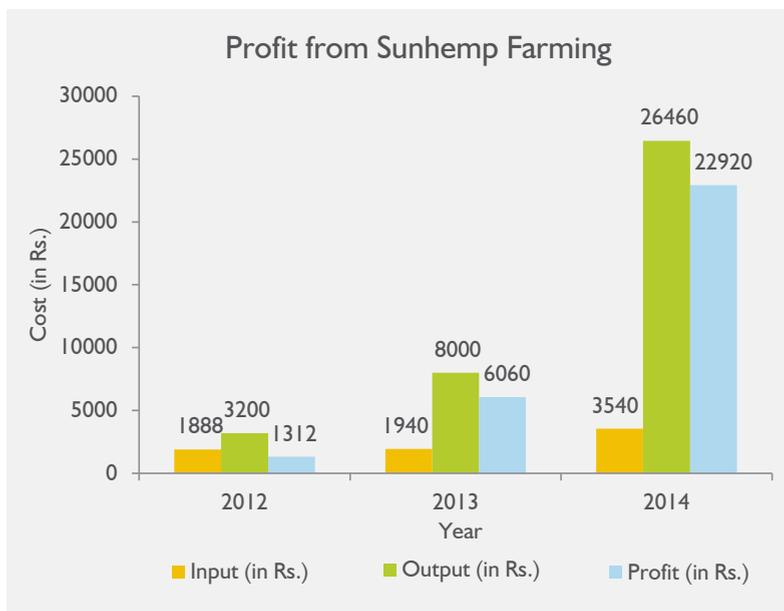
Sandhya Devi's village in district Kushinagar is known for occurrence of floods and deep waterlogging for prolonged periods. The increasing intensity of rainfall causes rapid flow of water in smaller rivers which brings large amounts of mud alongwith. A small and marginal farmer with limited resources, Sandhya Devi had to opt for farming of alternate crops which could sustain the impacts of climate and could also diversify her income. Sunhemp cultivation was one option that she decided to take up after learning about it through GEAG's association.

She grows sunhemp on 0.06 acres of land soon after the harvesting of wheat crop and uses it as green manure for the next paddy crop. Sunhemp is also grown as a mixed crop with other vegetable crops. This has helped her to enhance the soil quality like never before. She also extracts fibre from the sunhemp by submerging the crop bundles in a water body for about a week. She and her family members then do the knitting to make ropes.

The products prepared from the fibre of this plant have played a key role in the day-to-day activities of Sandhya Devi. The ropes are mainly used in making cots, tying cattle in the cattle shed, collecting fuel and fodder, etc. The sticks are also used as thatching material and fuel. Multiple uses of this crop have reduced the input cost in agriculture to a great extent. An investment of Rs. 7368 has given her profits worth Rs. 30292.

**“Muddy water helps in enhancing the rate of extraction as compared to clear water and so we dip them in the village pond”.**

Sandhya Devi



# Loft farming in flood affected areas



Living on the edge of river Gandak, Gulabi Devi's 1 acre farmland used to be affected by floods and waterlogging and harvesting a *kharif* crop was almost impossible. The delayed advent of monsoon and then its increased intensity was inundating her crops. Moving away from the conventional style of harvesting two crops in a year (*kharif* and *rabi*), she decided to adopt multi-tier cropping system and grow vegetables in the *zaayad* season. She has adopted loft farming which is an innovative way of doing farming.

She developed lofts or stilts using wooden sticks on which the climber crops like bitter gourds, bottle gourds, ridge gourds, etc. are supported for growing. The produce is saved from getting spoilt in the waterlogged fields.

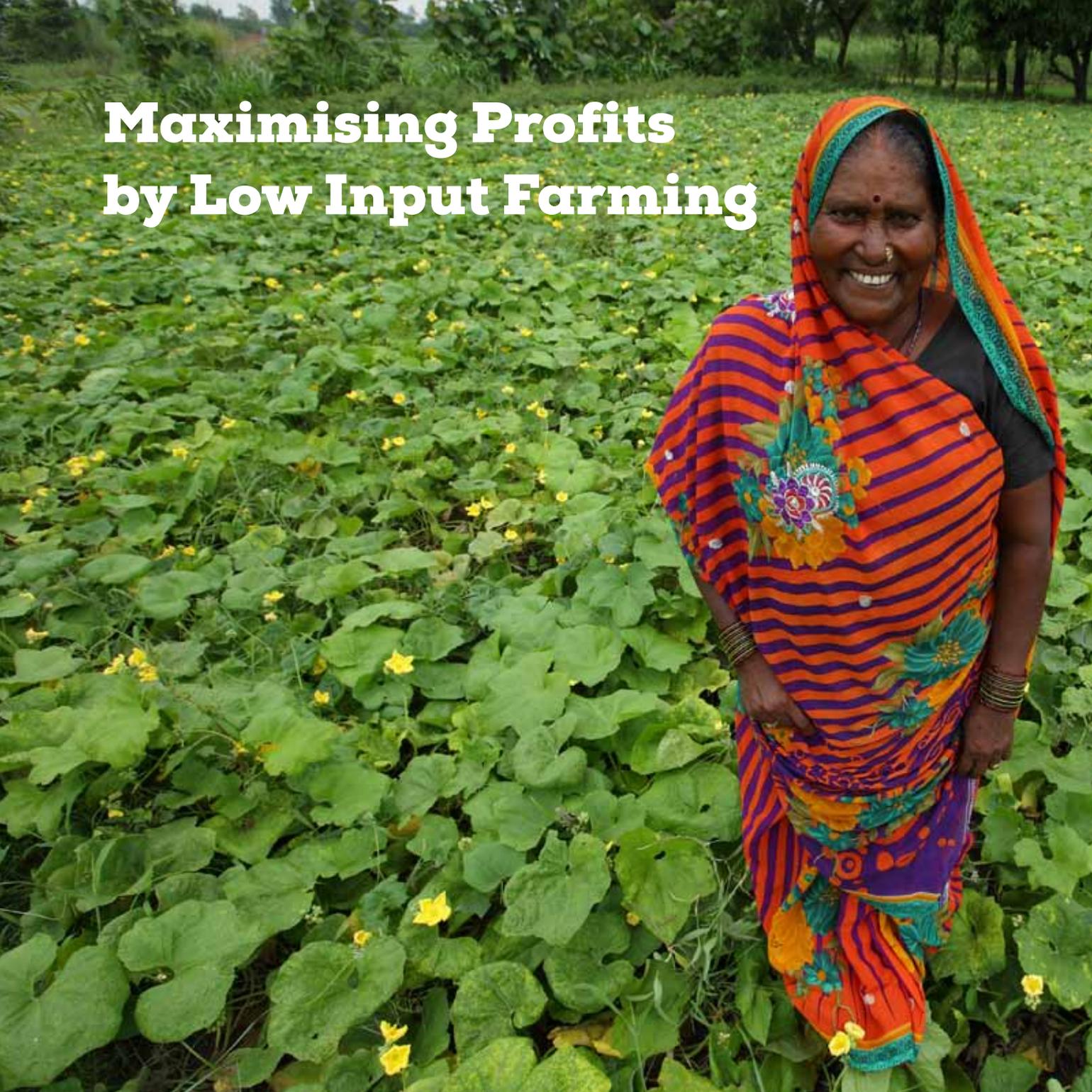
"The vegetables give a good price in the market. I have been able to sell and make profits upto Rs. 1.8 lakhs. I also never knew about water-tolerant varieties of crops until I learnt from GEAG. These varieties have been a saviour for me and my family", says Gulabi Devi.

**The vegetables give a good price in the market. I have been able to sell and make profits upto Rs. 1.8 lakhs.**

Gulabi Devi



# Maximising Profits by Low Input Farming



As impacts of climate change in forms of erratic rainfall, flooding and then long dry spells is gathering pace and posing a danger to agriculture, Kalawati Devi, a small and marginal farmer of village Jangal Jagdishpur of district Kushinagar has been able to adopt low external input methods of farming and increase her income significantly. Earlier dependent only on *rabi* and *kharif* crop farming, she never knew about the profitability in vegetable cultivation and the resilience that it provides against climate change impacts.

Maximising profits by reducing the input cost in vegetable farming has been her success mantra! Kalawati has given up on the use of chemical fertilizers and she prepares bio-manure like compost, vermicompost, etc. and bio-pesticides like vermiwash, cow urine concentrate, etc. at her household level. These have not only helped her to save on input costs but have also given her healthy vegetables and fruits like colocasia, banana, chillies, ladyfingers, etc. She has 0.6 acres of land on which these vegetables are grown.

By adoption of low external input practices of farming, Kalawati's input costs are mainly focussed on seeds and saplings. She has also started producing seeds and is confident to expand it in the coming years. In the year 2014-15, Kalawati invested Rs. 13140 and gained profits of Rs. 91660.

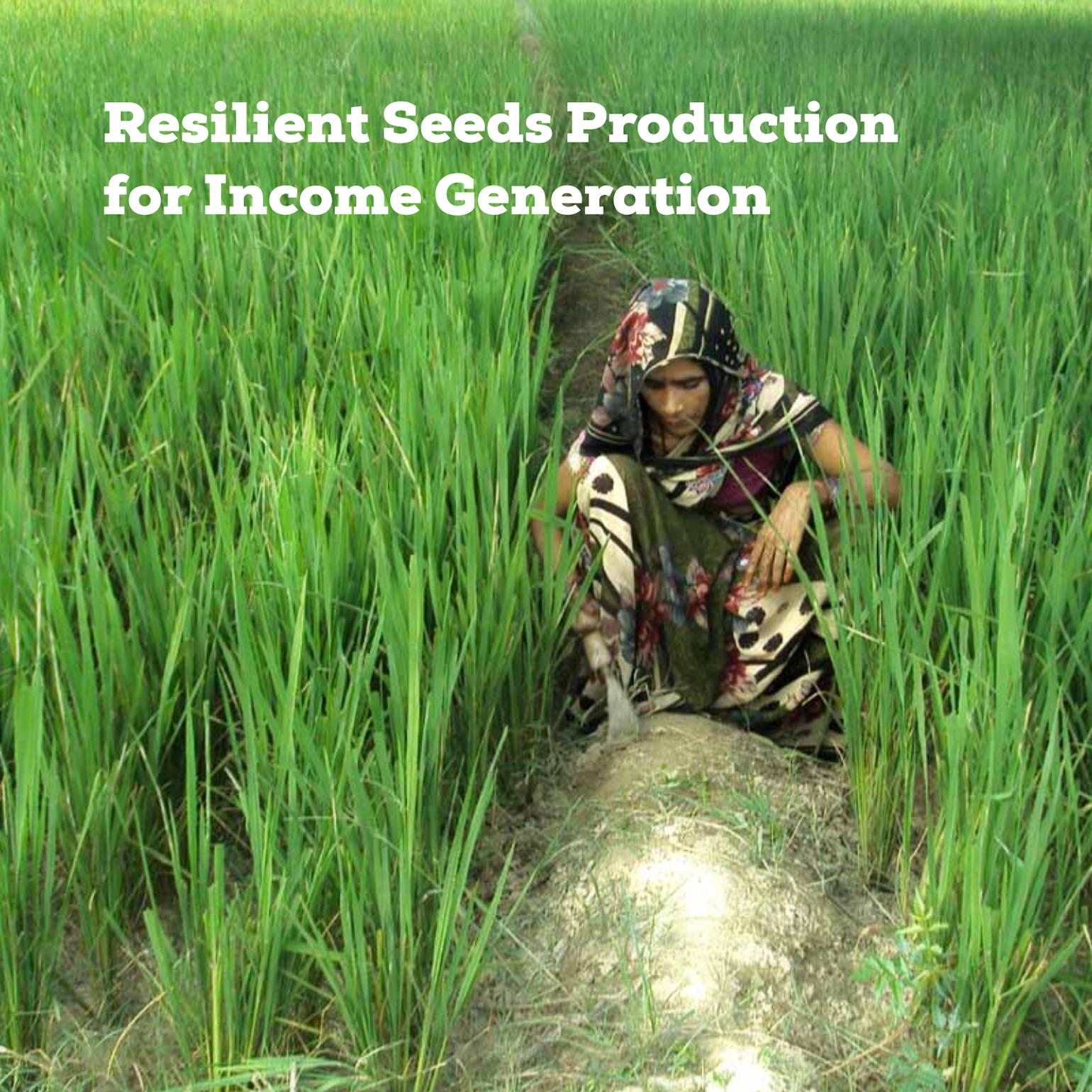
Input cost (in Rs.)	Income (in Rs.)	Profit (in Rs.)
13140	104800	91660

**“This is unbelievable! I had never expected to make so much money for my family just by adopting home remedies for fertilizers and pesticides and growing only vegetables. I am sure I can do more in the years to come”.**

Kalawati Devi



# **Resilient Seeds Production for Income Generation**



Rice dies within days of complete submergence, resulting in total crop loss. These losses have severely affected the small and marginal and resource-poor farmers of village Chikaniya Deeh of district Sant Kabir Nagar for whom the alternative livelihoods are limited. Shakuntala Devi, who used to suffer losses due to this problem says, “the erratic floods and heavy rainfall leading to prolonged waterlogging in the area have caused serious problems for rice and other crops because of the poor or non-existent drainage and, in some cases; the topography of the land has prevented fast water movement to drain flooded fields. Maximum losses occur in the *kharif* season as 25% of the croplands get submerged in the waters”.

In 2013, Shakuntala Devi came to know about flood resilient varieties of paddy seeds and with the support of GEAG, sourced 15kg of foundation seeds of Suvarna Sub-1 variety. She sowed this variety on 1 acre of land. She applied bio-inputs like compost and bio-fertilizers and got a production of 22 quintals. “Suvarna Sub-1 is a variety that

gives good production even if it is submerged in waters up to 18 days. This tolerant variety is a blessing for me”, says Shakuntala Devi.

She learnt the techniques of seed treatment using bio-inputs by attending GEAG’s training programmes. She sold the treated seeds to 135 fellow farmers at the rate of Rs. 18 per kg. By using the resilient varieties, she not only secured her *kharif* crops but also helped other farmers who were facing the same problem.

Crop area (Suvarna Sub-1 – Paddy tolerant variety)	1 acre
Input cost (in Rs.)	11851
Production of seeds (22 quintals @ Rs.1800 per quintal) (in Rs.)	39600
Profit (in Rs.)	27749



**“Suvarna Sub-1 is a variety that gives good production even if it is submerged in waters up to 18 days. This tolerant variety is a blessing for me”.**

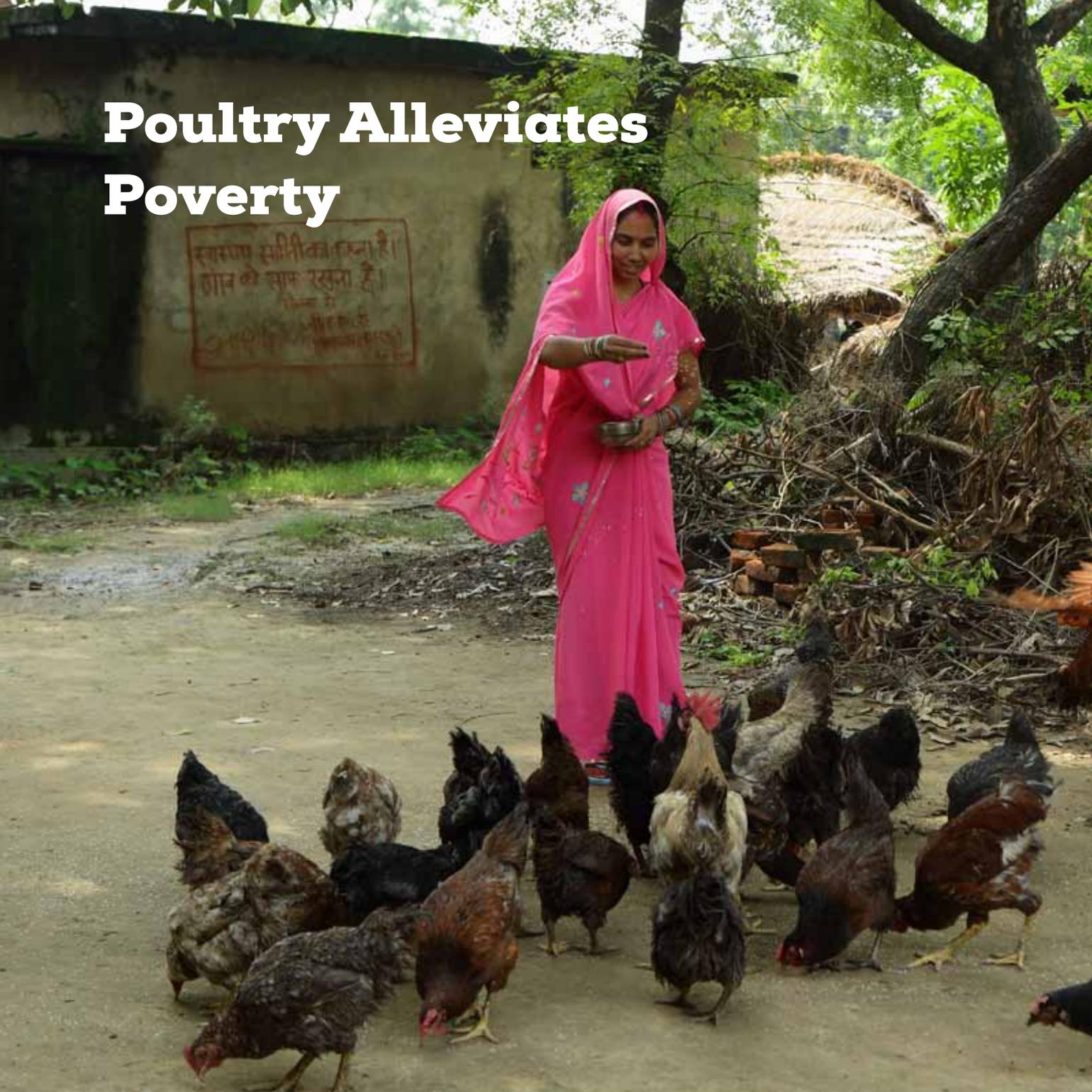
Shakuntala Devi



# **Rearing Small Animals**

# Poultry Alleviates Poverty

स्वस्थता संपत्ती का हिस्सा है।  
गांव के साथ रहना है।  
शिक्षण से  
आय बढ़ाएं।  
कामयाबी



A young and enthusiastic small farmer, Suman supports her family by poultry rearing in her backyard. Living in a low-land area of district Sant Kabir Nagar, which is prone to flooding and waterlogging, Suman's family has seen distressed times when the family's food and nutritional security was hit by floods. To compensate the crop losses due to prolonged water logging, Suman adopted alternative off farm activity and added the sub-component of poultry rearing in the farm system.

Suman, the bride of the family, unlike other young women, took the initiative of stepping out of the home to learn the basics of backyard poultry farming which she believes can sustain even at times of disaster. By doing this, she is not only supporting her family economically but also ensuring good nutrition for her children. As a small-land holder farmer, Suman has optimised the resources available around her home and environment to rear these hens and make money out of it.

With the support of GEAG, Suman got connected with the Backyard Poultry Farm Yojana and she started this initiative with 50 chicks which she got under this scheme on a subsidised price in January 2015. She also underwent training on poultry farming from the government department. With an investment of Rs. 600 and with her persistent efforts, in the span of 6 months, Suman has been able to increase the number of hens to 65 and her profits by 50 percent.

She further adds – it is easy to sell the birds as the buyer comes at my door step and the eggs are also easily sold in the village itself. She also reserves the eggs for home consumption, mainly for her children. In the first six months, she sold few hens and earned Rs. 4000 while eggs were sold worth Rs. 200. She is no more a burden on the family and is able to support the education of her son. Poultry rearing has become an alternate source of income for Suman's family.

Input cost (in Rs.)	Income (in Rs.)	Profit (in Rs.)
600*	15300#	14700

\* Cost of wheat flour for feeding the chicks

# Income from selling of chickens and eggs

**“It is most convenient to be in this work. Being around my household I can take care of my son as well as the birds while earning a decent income”.**

Suman

# Generating Income through Goat Farming



Forced by declining returns from farming in ecologically fragile areas of Sant Kabir Nagar and virtually no regular labour-intensive jobs, Dukhna Devi has been taking to goat farming. Taking a loan of Rs. 6000 from her Laxmi Self Help Group, Dukhna Devi bought 2 female goats and 1 male goat and started rearing them. In a span of 2 years, Dukhna Devi was able to multiply them to 11 female goats and 6 male goats. She has been selling the goats which happens at her doorstep and has made profits worth Rs.25000.

Taking lessons on goat rearing from the Animal Husbandry department and GEAG's experts, Dukhna Devi has understood that goats can fetch her income even during extreme weather events. She confidently explains that goats are well adapted to different environmental and geographical conditions and can tolerate extreme heat. They are also drought tolerant and most disease resistant.

**“Goat farming has played a prominent role in supplementing income in my home. Goat rearing has been profitable for me as they provide quick return on account of their short generation intervals and high rate of prolificacy”.**

Dukhna Devi



# Goats – Saviour in Disasters



The village Jangal Bakulaha of district Kushinagar is a flood prone area. Santri Devi, an enthusiastic small farmer has been reducing the risk of disasters by diversifying her income beyond agriculture. “Suffered enough losses in farming when floods hit us and there was waterlogging for several months”, says Santri Devi. And hence, she decided to do something different for generating income and sustaining her family.

Taking lessons from the Farmer Field School and attending training programmes, Santri Devi took up goat rearing which could save and sustain her family during disasters. She started off with 4 goats and today she has multiplied them to 20. Goat rearing has served as an insurance mechanism for Santri Devi when crops are damaged due to weather uncertainties.

Santri Devi invested Rs. 1800 in 4 goats, reared and multiplied them and sold them to the local buyer. Below is a description of her earnings just from one goat in 1.5 years.

Purchasing price	Rs. 1800 (cost of one goat and its feed for 6 months)
Income	2 male goats born from mother goat = Rs. 10000
	2 baby goats of 4 months each = Rs. 1000
	Mother goat = Rs. 1000
	Total income = Rs. 12000
Profits	Rs. 12000-Rs. 1800 = Rs. 10,200



**“My workload has definitely increased as I need to take the goats out for grazing and also bring fodder for them to feed but I am happy as I know they will be my saviour during disasters”.**

Santri Devi

# Raising hens for raising income



Raising hens is an effective means to smallholder prosperity especially when farming is hit by changing climatic conditions and Kavita Devi has proven it. A small farmer from village Chaumukha of district Maharajganj, Kavita Devi has successfully started poultry farming and is able to reap good benefits from it.

“Experiencing the weather uncertainties and crop losses, it was time to think beyond agriculture”, admits Kavita. She took up poultry farming after learning about it in the farmer field school. Being a member of Self Help Group, Kavita took a loan of Rs. 500 and bought 25 chicks and started rearing them. An additional Rs. 555 was invested on feeding the chickens. In a span of two months, the chicken meat was sold for Rs. 7500/-, thereby giving a net profit of Rs. 6445 to Kavita’s family.

Input costs	Purchasing price of 25 chicks	Rs.500
	Feed for 2 months	Rs.555
Income	Selling price of 50 kgs of meat (@ Rs.150/kg)	Rs.7500
Profit		Rs.6445



**“I would have never made such money in just about two months from my farm. This work is easy and keeps me busy. I have repaid the loan amount to SHG and I am planning to expand this in a few years and establish a poultry farm of my own”.**

Kavita Devi



# **Training and Extension**

# Field Days for Effective Learning



Climate change is demanding a different and innovative kind of extension mechanism for the farmers which is not available. In such situations, field days are important extension activities which provides learning and sharing platform for the farmers. Farmers come together to share their on-farm research and demonstration and learn from each other in the spirit of openness and curiosity. A number of farmers have been participating in the field day events but the change that Piyari Devi has brought in her farming is worth the mention.

A small farmer from village Bankasiya in district Sant Kabir Nagar, Piyari Devi's farm lands lie near the Rapti river and when the water level in the river rises, Piyari's crops are first affected. In times like this, her crops used to get submerged

in the waters for a long time and she used to suffer heavy losses. High dependency on market for inputs, use of chemical fertilizers and conventional type of farming system was reaping no benefits for Piyari.

Field days and related training programmes opened the world for Piyari. She could learn so much from the agriculture scientists and the fellow farmers that she decided to adopt new techniques of farming. She prepared her own bio-inputs and started doing integrated farming. Apart from the paddy and wheat crops, she started cultivating vegetables, planted orchard trees and also reared small animals such as chickens and goats. Farmer Field School sessions solved her agriculture and livestock related problems.

Activity	Input cost (in Rs.)	Income (in Rs.)	Profit (in Rs.)
Paddy crop	4450	6600	2150
Vegetables	1485	26000	24515
Poultry	200	2000	1800
Total	6135	34600	28465

**“I never stepped out of my home and when I attended the Field Day sessions, it was an eye opener for me. By doing various activities, my income source has diversified and my farming is strengthened”.**

Piyari Devi

# **Building Capacities through Farmer Field Schools**



Farmer Field Schools (FFS) at the village level have opened up new farming avenues for Asma Khatoon, a small and marginal farmer of village Bandhu Chhapra of district Kushinagar. FFS has enabled her to take up innovations in farming, improve production and make her farming resilient to climate impacts.

Asma runs a family of 6 from a 0.4 acre of land. Unable to reap benefits from farming before getting associated with GEAG and FFS, Asma's husband migrated to Punjab for earning a living and to support the education of her children, leaving behind the family alone. It was a tough time for her to manage household and farming all on her own. Also, the unprofitable nature of farming was adding to the frustrations in the family.

Input cost (in Rs.)	Income (in Rs.)	Profit (in Rs.)
14560	124000	109440

After her association with GEAG and joining the FFS, Asma started learning new techniques of farming. She learnt about integrated vegetable farming and use of bio-manure and bio-pesticides which she could prepare herself and reduce her dependency on the market. She also attended other trainings in Krishi Vigyan Kendra and orientation programmes by the government departments. She started small but this small step has given profits which are beyond her imagination. Integration of Banana, maize and chillies has helped her to make her farm strong and robust to floods and also diversified her income. In 2014-15 alone, she has earned a profit of over one lakh rupees.



**“I have earned profits which has brought back hopes in farming. And more than anything, my husband has returned back from Punjab and now he supports me in vegetable farming. We can together do many things now and ensure good education for our children”.**

Asma Khatoon

# **Saving Crops through Innovative Techniques**



Maimunnisha's village Biraichi in district Maharajganj lies in the flood prone area. Prolonged water logging due to erratic rainfall was inundating her fields. Cultivating conventional crops – paddy and wheat was not fetching any profits to her family. Difficult times prevailed for Maimunnisha who was bearing the responsibility to feed a family of 15. She used to work as labour in others' fields and the money that she earned was peanuts to run the family.

She became a member of Self Help Group and learnt the new techniques of making bio-manure and bio-pesticides. She also started attending Farmer Field School sessions and learnt about growing vegetables on stalks. Maimunnisha decided to take up multi-tier cropping and grow bitter gourd on her 0.6 acre of land. She took a credit of Rs. 20,000 on Kisan Credit Card and Rs. 5000 from her the self help group. The total investment made by Maimunnisha was Rs. 29395 from which she earned an income of Rs. 180000 and a net profit of Rs. 150605.



Input Cost	Seeds	1760
	Bamboo sticks	17000
	Ropes	3260
	Bio manure and pesticides	475
	Labour	6000
	Irrigation	900
	Total input cost	29395
Total production	180 quintals of bitter gourd in 6 months – sold @ Rs.1000/quintal	180000
Net profit		150605

**“I could never make such profits from cultivating paddy and wheat. If I can earn this just in one season, I am sure to earn much more by adopting new techniques. Farmer Field School has taught me lessons for life”.**

Maimunnisha

# Weather advisories – A Boon for Farmers

प्रिय किसान मित्रों  
12 से 16 दिसम्बर के बीच जिले में  
13, 14, 15 दिसम्बर में कड़ दिनांक पर  
राज के साथ होने की  
समय हल्के मीठ  
मान प्रति साम्  
के बराबर व  
गर्मी का कारण  
ख



The predominant livelihood of communities in village Chikaniya Deeh of district Sant Kabir Nagar is agricultural, with both own cultivation and labouring on larger farms, or through the rural employment guarantee (MGNREGA) being the mainstay of the village economy. Vegetable farming is done by the majority of farmers in this village as they have a ready market nearby.

Laldeyi is a resident of Chiakniya Deeh village and she confesses that there is a high degree change experienced in climate over the past 5 to 10 years in the village. Summer temperature and particularly heat waves have increased. While total amounts of rainfall are either not thought to have changed or declined slightly, the rainfall pattern has significantly changed, with monsoon starting 15 – 30 days later and rainfall less regular, more intense and with longer dry spells in between.

“Our livelihood is completely dependent on agriculture which in turn is dependent on weather. The weather uncertainties are leading to unprecedented impacts on farming which hits our livelihood”, says Laldeyi. In situations like this, the weather advisories from GEAG have been of huge benefits to us. We receive the weather related forecast in the form of SMS on our mobile which we also disseminate to other fellow farmers and make changes in agricultural activities accordingly.

In the year 2013, in early October, which is a peak season to potato and peas crop, Laldeyi was also planning to sow the potato seeds during that time. She received the weather advisory through SMS saying that heavy rains were predicted during 15-16 October. She confided in this information and postponed the sowing of potato and peas crops. Heavy rains occurred during the predicted period and Laldeyi could not thank enough to this weather SMS service. One SMS information saved Rs. 10,280 for Laldeyi. She was saved from a huge loss which otherwise would have shattered her.

The SMS-based early warning system is a boon for Laldeyi. She never imagined she and her fellow farmers could get weather information in their hands.

**“We prepare ourselves on the basis of SMS that we receive and inform our fellow farmers too about it. The weather information is shared in the local market and at the Village Resource Centre too. When we come to know that it is going to rain the next day, we do not irrigate our crops or sow seeds and hence we save on that cost”.**

Laldeyi

# Extension brings Innovation



Knowledge is empowerment for woman farmers and Prema Devi of village Bankata in district Sant Kabir Nagar has set an example of how knowledge can be so influential in improving farming and livelihood. The uncertain rainfall pattern was causing difficulty in getting fuel wood and fodder for her animals. Also, frustrated with the increasing input costs in agriculture and declining profits, Prema devi could not afford farming and gave her land on *adhiya* for shared cropping.

In 2012, GEAG's association and new learning gave a new dimension to her farming. She learnt new methods of composting and preparing other bio-inputs. This increased her interest in farming and she took back her land and decided to do farming on her own. Use of bio-inputs reduced her input cost in agriculture and she started making small profits.

Later in 2013, she attended a training programme imparted by Agriculture Development Officer on growing *Sesbania* (*Dhaincha*) for green manuring, fuel and fodder. Prema Devi planted *Dhaincha* crop on 5 *bighas* of land after the harvesting of wheat crop and incorporated it in-situ before the transplanting of rice crop. She also planted *Dhaincha* in another 1 *bigha* for seed production.

Crop area ( <i>Dhaincha</i> )	1 <i>bigha</i>
Input cost (including labour) (in Rs.)	1471
Production of seeds (3.5 quintals @ Rs.40) (in Rs.)	14000
Production of firewood (20 quintals @ Rs.800) (in Rs.)	16000
Profit (in Rs.)	30000
Net Profit (in Rs.)	28529



**“*Dhaincha* has increased the carbon content in my soil and there was an increase in my paddy crop by 15%. This also has other benefits. I get firewood for cooking, fodder for my animals and *Dhaincha* also works as fence on the farm land and protects my crops from stray animals”.**

Prema Devi



# Upscaling Initiatives

# Fighting against Discrimination



Village Bharpurva of district Sant Kabir Nagar is situated on the banks of river Aami. The village population mainly comprises of people belonging to *Dalit* and minority communities who are small landholders and agriculture is their mainstay of livelihoods. Seasonal floods and water logging incur huge losses to standing crops, leaving barely enough grains for families to feed through the year. People are impoverished due to lack of skills, weak social security net, which is further deteriorated by prevailing discriminatory practices and poor monitoring by government. In situations like this MGNREGA is proving to be an effective mechanism helping in a range of climate resilient practices.

Village Bharpurva has its own elected village council, Gram Panchayat with Shakeel as elected leader from minority community. Power to govern people however is vested in the hands of Jalaluddin who happens to be the son of Shakeel. Making use of the powers of Shakeel, Jalaluddin decides on the distribution of job cards under MGNREGA to beneficiaries and also what works are to be done in village under MGNREGA.

On one such occasion, Jalaluddin decided to deepen a pond in the village using MGNREGA funds and engage only men members for this work. By doing this, he knew that he was violating the government procedures but was confident that nobody would challenge his decision. He was not aware however that women have been informed about their right and entitlements under MGNREGA by Laghu Seemant Kisan Morcha (LSKM), a federation of village households to work as watchdog for implementation of government schemes. Taking strength from this, Kamrunnisha approached Jalaluddin with request for work, it was summarily rejected. She then decided to sit on a protest in Jalaluddin's office all by herself. It made Jalaluddin to agree by giving 3 days job to Kamrunnisha. She got Rs. 426 at the rate of Rs. 142



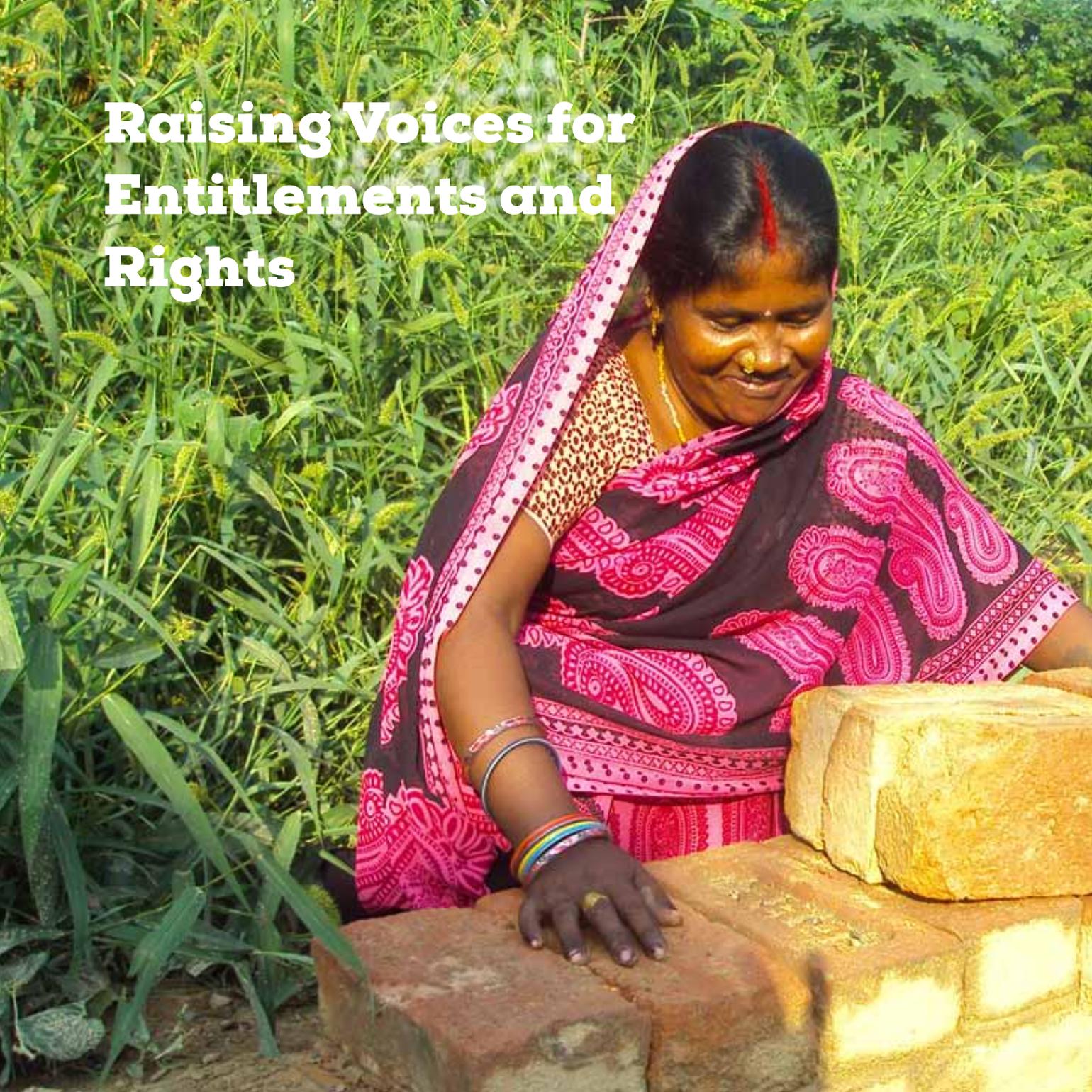
per day. Members of self-help group to which Kamrunnisha belong feel that Jalaluddin sanctioned her job only because she belongs to minority community. Whatever made Jalaluddin to decide by giving job to Kamrunnisha, it is a fact that Jalaluddin will not deny women from their entitled rights under MGNREGA.

The story of Kamrunnisha highlights an important aspect of development. Embedded gender inequalities in the society need to be removed by raising voices and fighting for rights. Community institutions like LSKM are playing an instrumental role in doing this where the weak, vulnerable and discriminated find their voice to break the barriers of silence.

**“I could fight for my rights and entitlement only because of the support of LSKM”.**

Kamrunnisha

# Raising Voices for Entitlements and Rights



Laxmina Devi of village Jamohara in district Sant kabir Nagar had a share on the village residential land. She had got the patta on the land but getting the possession was still a dream for her. Her land was illegally possessed by another woman named Gilasi Devi.

Laxmina Devi became a member of SHG in 2012 after coming in contact with GEAG and learnt about the various rules of land ownership. This opened her eyes and she decided to fight for her land rights. She started pursuing with Gilasi Devi to leave the illegal possession but nothing was gained. At last, she contacted the Laghu Seemant Krishak Morcha, a federation of village households help the poor farmers get their rights and entitlements. With the support of Morcha, Laxmina Devi went to the Tehsil office and sourced all the details of her land. She then formulated a strategy to gain possession on her land. In the meanwhile, Gilasi Devi had started illegal construction on the land. Seeing this, Laxmina Devi along with the Morcha members went and demolished the construction. She then made a small hut on the land with the support of SHG members and started living there.

She later produced the documents in the court proving her ownership on the land and in May 2014, she got legal possession on the land after suffering for 30 years.



**“I had heard that truth always wins but without the collective strength and support of Morcha, I would have never been able to fight this alone. I have a house to call of my own now”.**

Laxmina Devi

# MGNREGA Empowers Women



The women members of village Samogar in district Sant Kabir Nagar were fighting an unending fight with the village Gram Pradhan for MGNREGA jobs which focuses on many climate resilient activities in the village. Despite having job cards made on their names, the Gram Pradhan was constantly denying jobs to these women saying that there is no work for women. The poor women also believed in his words and kept quiet.

In October 2013, one of the Farmer Field School sessions was focussed on the entitlements under MGNREGA. Ramawati Devi, a proactive resident of the village along with other women members attended the session and learnt all about the MGNREGA scheme. They learnt that the work has to be provided equally to men and women and special provisions are to be made to take care of the small below school age children of women who may have to accompany them to work. They also got to know about the MGNREGA toll free number (1800 180 5999) where one could call and file a complaint.

Women, under the leadership of Ramawati Devi decided to call on toll free number and complaint about the Gram Pradhan. Immediate compliance of the complaint was done and the very next day, the Assistant Programme Officer of MGNREGA from the Block office visited and met Ramawati Devi in her village. As a result, the Gram Pradhan allocated work for Ramawati and other 27 women of the village for 17 days. Though initial hiccups continued between the Pradhan and the women members who had got MGNREGA job but slowly, it was resolved.



**“Coming together collectively and taking action in the right way helped us to get our rights and entitlements. The women of other villages have also started taking such initiatives which is helping them to get jobs and earn money under MGNREGA.”**

Ramawati Devi





Gorakhpur Environmental Action Group (GEAG) is a voluntary organization working in the field of environment and sustainable development since 1975. Ever since its inception, GEAG has been actively engaged in implementing several development projects addressing livelihood issues of small and marginal farmers, particularly women, based on ecological principles and gender sensitive participatory approach. Besides, GEAG has accomplished several appraisals, studies, researches at the micro and macro levels as well as successfully conducted a number of capacity building programmes for various stakeholders including women farmers, civil societies groups and government officials etc.

Today, GEAG has established its identity in North India as a leading resource institution on sustainable agriculture, participatory approaches, methodologies and gender. Acknowledging its achievement, efforts and expertise, United Nation's Economic and Social Council (ECOSOC) accorded GEAG Special Consultative Status in the year 2000. GEAG was recently awarded with the Lighthouse Activity Award by UNFCCC in 2013.

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