

KRISHI JYOTI

A NEW DIMENSION TO
NGO - CORPORATE PARTNERSHIP



Institute of Rural Research
and Development
(An initiative of S. M. Sehgal Foundation)



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Foreword

“I would like to appeal to all sectors—private, not-for-profit, and public—to work together to empower rural India by fulfilling the unmet needs of the rural poor, like human dignity, justice, and a path to vertical mobility.” - Dr. Suri Sehgal

In today’s globalized world, it has become extremely difficult to establish success by going it alone. Major organizations and businesses are looking at new methods for developing partnerships and leveraging each others’ assets to take quantum leaps. The non-profit world is no different. The unmet needs of the poor are many, and poverty does not revolve around any one issue. Therefore, an integrated approach to development is required to successfully eradicate poverty. Over the years, non-profit organizations have been able to recognize their niches and have developed expertise in those particular areas. For other critical needs of the poor, non-profits must look for dedicated partners, whether for-profit or not, that have similar thinking and consciousness of the issues facing the poor.

In this vein, the Institute of Rural Research and Development (IRRAD) has established a very successful and fruitful partnership with Mosaic India Pvt. Ltd., a prominent fertilizer company, to address the critical need to improve agriculture practices in Mewat, a rural agricultural region in northwestern India. IRRAD has excellent rapport with the communities of Mewat, stemming from our flagship programs in water management and sustainable agriculture. Mosaic has tremendous agricultural expertise, especially in the areas of soil health and effective inputs for boosting land productivity. In addition, Mosaic has sound business practices and a strong record of corporate social responsibility. By leveraging each other’s strengths, IRRAD and Mosaic launched the *Krishi Jyoti* program in the village Santhawadi in 2007. Through this program, farmers improve their soil and farming practices, leading to increased productivity and income. IRRAD and Mosaic share similar guiding principles and sentiments for the small farmers of rural India. The collaboration that began with just one village three years ago has now grown to four villages, and we are looking to expand this partnership further to reach many more communities.

At IRRAD, we believe that for-profit organizations must fully embrace corporate social responsibility as a key governance policy. Rather than being driven solely by profits, companies must adopt and continuously work toward a “triple bottom line” of earnings, environmental protection, and social justice.

Jay Sehgal
Managing Trustee, IRRAD

Preface

In December 2005, the United Nations General Assembly unanimously adopted a resolution, “Towards Global Partnerships,”¹ that describes the joint role of nongovernmental organizations (NGOs) and businesses in poverty reduction or and national development. The present publication documents one of IRRAD’s interventions in rural India that reflects the ideas and goals of this resolution.

Krishi Jyoti is a joint effort of an NGO (IRRAD) and a corporate firm (Mosaic India Pvt. Ltd.) that is designed to ameliorate the low yield agriculture prevalent in the villages of Mewat, a socioeconomically deprived region in the state of Haryana that is comprised mostly of small farmers. The program aims to raise household income, and hence living standards, in the area by making farmers aware of key modern agricultural practices so as to increase the productivity of their fields.

The sections of this publication represent a step-by-step description of how *Krishi Jyoti* materialized—first as a concept and then as a grassroots program to empower the rural poor. *Krishi Jyoti* was initially framed within a purely agricultural context, with an agri-input (fertilizer) company as the corporate partner, but later it went beyond the realm of agriculture to include social concerns such as education and water management. Renovation of a village school and construction of a check dam were undertaken as part of the program.

The results of this ongoing program have been exciting and are enumerated herein. Under *Krishi Jyoti*, farmland that was used for demonstration plots yielded produce of much higher quantity and quality than what farmers typically obtained. This outcome and a cost-benefit analysis were sufficient to convince the farmers to adopt improved cultivation practices such as soil testing, using quality seeds, and applying micronutrients.

The prime objective of using a corporate-NGO partnership approach appears to have been achieved. IRRAD takes pride in its collaboration with Mosaic on the *Krishi Jyoti* project and hopes that this process document serves as a reference for individuals and organizations aiming to enter into similar arrangements for community welfare and development.



Introduction



For an agrarian economy like India, it is widely accepted that agricultural growth and human development—especially education, health, and women's issues—are key factors affecting rural development. The Indian agriculture sector contributes 17% of the national GDP and holds tremendous potential to create economic growth in rural communities. Apart from sustenance, agriculture creates employment opportunities in adding value (as in the food processing industry), in bringing agricultural products to the consumers (market linkages), and in providing support (infrastructure, information, quality control and training). There are strong and direct relationships between agricultural productivity, hunger, and poverty.

>> Table 1: Yield of wheat and rice in various countries for year 2008-09²

Country	Yield (metric ton/hectare)	
	Wheat	Rice
India	2.79	3.28
China	4.76	6.56
USA	3.02	7.68
Egypt	6.51	10.08
France	7.10	NA
Philippines	NA	3.77
World	3.03	4.25

Sustained agricultural growth during the 1990s reduced rural poverty in India to 26.3% by 2000³. Since then, however, the slowdown in agricultural growth has become a major cause for concern. India's rice yields are one-third of China's. With the exception of sugarcane, potato and tea, the same is true for most other agricultural commodities (Table 1). A great deal still remains to be done to raise Indian agriculture to global standards of productivity.



The Indian farming community is largely constituted of small-scale farmers. About half of all farms are less than 1 hectare (approx. 2.5 acres) in size, and another 20% are less than 2 hectares. A crucial challenge for India's development is to ensure that small-scale farmers participate in and contribute to agricultural and rural growth. It is essential to adopt updated technologies and reform policy frameworks in view of arising challenges, and it is equally important to reach out to those agrarian communities that are still traditional and have a low productivity base.

Within this broader agricultural setting in India lies the dismal state of farming in Mewat. *Krishi Jyoti* is an initiative to bring basic principles of modern agriculture to farmers in Mewat with the objective of improving the productivity of their fields. This program represents an innovative endeavor to sustainably develop and empower farming communities.

Mewat

An Overview

Mewat District came into being in April 2005 after being carved out from erstwhile Gurgaon and Faridabad districts. It is part of the larger historical region of Mewat, which includes parts of Rajasthan, and is inhabited predominantly by Meos, a Muslim culture from which the area gets its name. The Meos by tradition are tribal and agricultural people, and Mewat to this day is dominated by small-scale, rain-fed agriculture. Of the district's nearly 1 million inhabitants, approximately 95% live in rural areas (Census, 2001).

Mewat has largely remained deprived of the development benefits visible in neighboring districts. While Haryana as a whole fares well in agricultural production—it is often called the “food mine” of the country—Mewat lags behind not only in agriculture but also in many other areas of social development. Of particular concern are the issues of poor education and nutrition for women and children.

Most of Mewat falls under the semi-arid tropics agro-climatic zone, characterized by low-to-medium rainfall, poor soils, and lack of irrigation. The vast majority of farmers own little or no land (Fig.1). The average land holding is less than 2 acres, and therefore subsistence agriculture is still the norm. Mustard, wheat, and *bajra* (pearl millet) are the major crops grown in the district; mustard is the cash crop of the villages, while wheat is usually grown for self-consumption.

Mewat is marked by multiple problems relating to declining crop productivity and deteriorating natural resources. In general, the productivity of field crops,

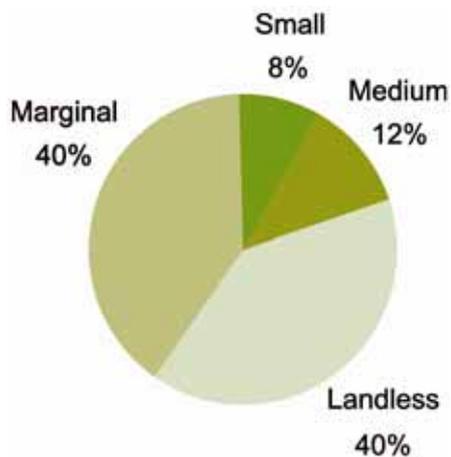


Figure 1: Household land ownership in Mewat, by size of holding (Source: Srijan Foundation, 2000)

vegetable crops, and animals is low because of issues such as water scarcity, soil nutrients deficiencies, inefficient farming practices, and a poor economic base. Cropping intensity is relatively low, with only a single crop being grown in most cases, largely due to inadequate supply and quality of groundwater. Mechanization in agriculture has lagged behind other districts of the state and consists almost solely of plowing by tractor. The use of certified seeds for high-yielding crop varieties is only about 2%. Agricultural markets are fragmented, and alternative livelihood options are limited.

Being a closed community, the Meos of Mewat are generally reluctant to accept outside intervention. Government programs in the area tend to be dysfunctional, if they exist at all, and this has been the case in agriculture as well. Government-sponsored agricultural extension services rarely penetrate Mewat, leaving farmers in the district with limited or no access to soil testing or practical guidance on good farming methods, including the proper use of fertilizers and other inputs.

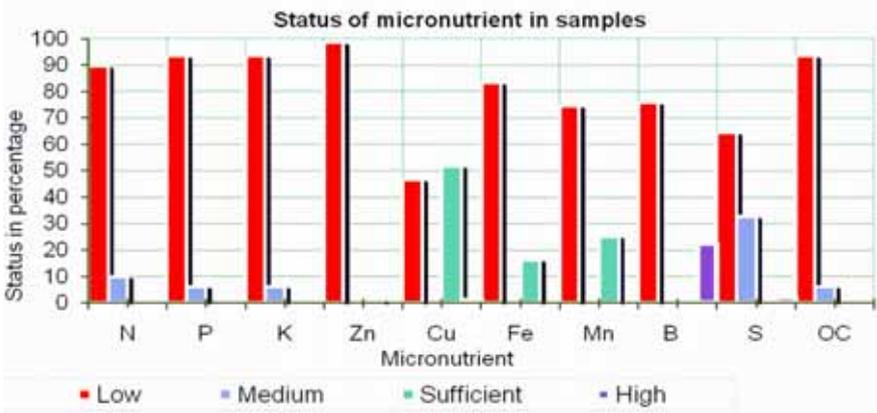


Figure 2: Percentage of soil samples containing low, medium, sufficient, or high levels of micronutrients (Source: Soil assessment conducted by IRRAD covering 14 villages of Mewat)

Traditional fertilizer, primarily farmyard manure obtained from cattle dung, is low in supply, as the animal holding is low (less than 1 per household). In addition, farmers in many cases apply partially decomposed manure that invites termite attacks on crops. Chemical fertilizers such as urea and diammonium phosphate (DAP) have been used for years, but in a non scientific and uncontrolled manner. Their injudicious use has contributed to soil degradation in terms of nutrients, microorganisms, and physical structure.



The crop rotation of wheat/mustard followed by pearl millet, practiced continuously for centuries, has also played a role in the depletion of key micronutrients in the soil. In fact, if farmers grow vegetables or mustard without fertilizers, the crop barely reaches maturity. As shown in Figure 2, insufficient levels of essential micronutrients are a common problem for the farmers of Mewat, who rarely test their soil or supplement it with calcium (Ca), magnesium (Mg), zinc (Zn), iron (Fe), or boron (B). In cases where soil tests are done, they are limited to nitrogen (N), phosphorus (P) and potassium (K). Low levels of organic carbon (OC) are yet another indicator of the generally poor condition of the soil in Mewat.

The average family size in Mewat villages is six members. The increase in family size with every generation, coupled with cultural traditions involving marriage and inheritance, leads to ever smaller land holdings and agricultural profits. Because agriculture is a seasonal activity, seasonal/cyclical unemployment is high. Nevertheless, most of the population is still involved in farming (Table 2) because the lack of development and industrialization in the region offers few other employment opportunities. There is minimal migration, as education and skill levels are also low.

>> Table 2: Overview of employment in Mewat (Source: Srijan Foundation, 2000)

Classification of Primary Occupation	% of Population Involved
Agriculture and allied activities	37
Agriculture wage labor	21
Wage labor (off farm)	17
Household industry and trade	15
Government services	10
Private jobs	10
Others	3

Because the collective livelihood of Mewat depends on agriculture, there is tremendous pressure on cultivable land. This situation requires interventions that introduce modern, sustainable farming practices to farmers and motivate them to adopt those practices. Adoption of certain scientific practices, resulting in increased farm productivity and income, would serve as an important step towards improving the agricultural landscape of Mewat and the lives of its rural inhabitants.

An NGO-Corporate Partnership Approach

To bring a positive and lasting change to the farmers of Mewat, a two-pronged approach was adopted: first, target the area for increased food production, and second, reduce the cost of cultivation by optimizing the use of agricultural inputs. IRRAD and Mosaic, with their vast experience in community mobilization and marketing of farm inputs (including technical know-how), respectively, together created a plan to be implemented at the grassroots level. The framework of the plan was devised so that the two organizations would complement each other and jointly contribute resources towards a common goal: improve the lives of India's rural poor. IRRAD would use its existing communications and community mobilization channels to reach out to farmers who otherwise might not be receptive to outsiders, while Mosaic would provide the required fertilizers, micronutrients, plant protection chemicals, and technical experts.

IRRAD has long been working in Mewat on issues of water, agriculture, livelihoods, women's empowerment, health, education, and governance. Mosaic, one of the leading producers and marketers of concentrated phosphate and potash, identified IRRAD as a potential partner for its corporate social responsibility activity with the goal of increasing crop productivity in Mewat. Understanding that reforming the core activity of agriculture entails overall development of the community and that the existing farm practices in the region were non-scientific, the two organizations joined hands to conceive the program *Krishi Jyoti* (*Krishi*-agriculture; *jyoti*-light).

In one of the first ventures of its kind for IRRAD with a corporate firm, the objective of *Krishi Jyoti* was to "light" a path for the farming community of Mewat to a more prosperous way of farming by introducing modern farming techniques such as sowing of hybrid/high-yielding variety seeds, seed treatment, and proper usage of quality fertilizers and pesticides.

The project took off in 2008, centered around two villages, Notki and Santhawadi. Both villages were in the throes of a worsening agricultural situation marked by declining crop productivity and deteriorating water, soil, and other natural resources.

Krishi Jyoti exemplifies a natural alliance of like minds in a true sense. IRRAD strives to make lives of rural people more secure and prosperous through education, better health, improved skills and supportive governance. Mosaic aims to improve quality of life of farmers by helping them achieve enhanced farm economics through sustainable agriculture models.

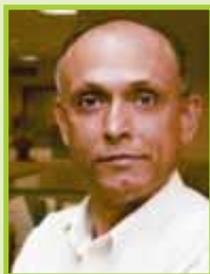
IRRAD's core strength is its direct reach and close relations with the communities of Mewat. Mosaic possesses technical expertise on improved cultivation practices, especially farm inputs such as seed treatment, fertilizers, and pesticides. While IRRAD through its field force mobilized farmers to join *Krishi Jyoti*, Mosaic's field representatives were ready with scientific solutions and support for farmers at various stages. The marriage of core competencies of these two organizations has so far worked out quite well. The program has evolved from a purely agri-focused intervention to a broader program addressing issues of water and education.





IRRAD's View

“IRRAD continues to look for like-minded partners like Mosaic.”



IRRAD's basic objective is the improvement of livelihoods in the communities in which we work, and it was ideal for us to join hands with Mosaic, a leading provider of crop inputs. It was the start of a perfectly complementary partnership, and it continues to be a “happy marriage.” *Krishi Jyoti* has resulted in farmers now adopting better farm practices, and we have clearly demonstrated how the inputs provided by Mosaic helped farmers increase their productivity.

Krishi Jyoti is successful in real terms, as quality and quantity of produce has gone up significantly. With time, the scope of *Krishi Jyoti* widened to touch upon areas of water and education, including the construction of a check dam and renovation of a school. The program is going well beyond provision of fertilizers; it has been the kind of fruitful relationship that can expand beyond its first mandate.

For IRRAD this means accomplishment of some, but not all, of its objectives. We continue to look for like-minded partners who can contribute to the larger vision and mission of our organization. Given the visible success that *Krishi Jyoti* has been, we would like to scale it up.

During the entire process, from initial discussions to delivery to farmers, the relationship between IRRAD and Mosaic grew and deepened. Starting in two villages, *Krishi Jyoti* can grow to encompass many more areas beyond its initial scope. That is tremendously exciting and rewarding for the two organizations and for the community.

Confidence and trust between IRRAD, Mosaic, and the community has been firmly established, and thus the community's initial fear—that a corporation's only focus is profit—has been allayed.

- **Sanjiv Chatrath**

Chief Operating Officer, IRRAD
(2009-2011)



MOSAIC's View

“Our goals were common and aligned.”



Mosaic is a key farm-input company with a wide presence in India. We realize that it is very important for us to participate in a larger way with the communities who are our customers or stakeholders in one form or another.

We started with areas that have water-constrained conditions. When we approached farmers on our own with our model, we could not build a trust with them. We were experts only in agriculture, and the people's expectations exceeded what we were proposing. We needed support with community mobilization, building credibility and gaining acceptance, and more importantly we needed help in understanding what can be done with regard to the water situation.

It was through our sales team that we came to know about IRRAD. We visualized that working with IRRAD would be a very complementary role for us. IRRAD has a much wider focus, while our strength is technical know-how of agriculture. Overall, our goals were common and aligned. *Krishi Jyoti* is our first campaign undertaken in a partnership mode. Though we have experience working in many countries around the world, our role in this program is most wide and deep. This is the first case in which we are directly involved in the execution of such a program.

You can't imagine the enthusiasm this project has generated. We believe that *Krishi Jyoti* is a model for progressive agriculture that is replicable and scalable. We are delighted that we are part of Mosaic's vision through this program.

It is very important to build credibility and trust. The issue is not to throw money on problems, but to give time and make efforts to build the capacities to use the inputs. Corporations are generally removed from the business of building capacities—that is where organizations like IRRAD come in.

- Naveen Chahal

Managing Director, Mosaic India Pvt. Ltd.

Implementation



Putting Ideas Into Practice

Krishi Jyoti, rather than advocating any new technology or inventing new techniques, aimed at improving existing farming practices of the region, primarily on the input side. Keeping in view the mindset of the people, who had remained averse to participation in various welfare schemes, *Krishi Jyoti* was kept as simple and easy to adopt as possible. The principle of “seeing is believing” remained at the core of the program’s implementation; each step and activity was undertaken with the full



participation of the farmers, and the operations and results were demonstrated on the farmers’ own fields.

Format

Field demonstrations were set up using two modules of farming practices, which were named P1 and P2. For all demonstrations, 1-acre sections from local farmers’ fields were used as experimental plots.

P1 Module- Of the 1 acre of land, one half was cultivated using a complete package of practices (POP) formulated by experts from Mosaic and IRRAD. Though the second half was cultivated as per traditional practices, seeds of high-yielding varieties were supplied to be sown on the full 1 acre. This was done in order to control for any difference in yields being due to the quality of seeds. The complete POP comprised seed treatment and a complete regimen of fertilizers, micronutrients (if needed, based on soil tests), and pesticides. It also included full technical support.

The objective of this module was to enable the farmer to directly compare the results obtained using modern versus traditional farming practices.

P2 Module- The full 1 acre of land is supplemented with micronutrients (calcium, magnesium, sulphur, zinc, and boron). Apart from this supply of nutrients, the farmers' usual practices were allowed to continue.



This module was formulated with the objective of sensitizing farmers to the importance of micronutrient applications.

Execution

Selection of Villages

In order to keep the program focused and within manageable limits, medium-sized villages of 120 to 300 households were selected. The availability of freshwater was also taken into consideration. In the villages that were ultimately selected, IRRAD already had established a presence through earlier interventions. Another key factor for selection was the willingness of farmers to participate and the cooperation extended by the village *panchayat* (village governing body).

Community Meeting

Before the program started, members of IRRAD and Mosaic met with the villagers to discuss the details of the project and address any concerns the villagers had. In particular, any unease with regard to a private firm joining IRRAD was dispelled. Through this open dialogue, the villagers were able to fully understand and accept the program.

Baseline Information Collection

In order to understand the existing cropping systems and the problems besetting the soil, group meetings and short surveys were conducted. Information on yield, irrigation supply, intercropping operations, etc. were gathered to further clarify the requirements of the program.

Soil Testing

Soil tests including complete micronutrient analysis were done for P1 plots at the private labs of Chambal Fertilizers. The soil tests were matched to standard recommendations on inputs as stated by Haryana Agricultural University. Based on the recommendations, material requirements for each of the plots were determined.



Training

An important aspect of the program was initial training. Farmers were informed about the components/materials of the POP. They were made aware of the role and proper usage of each of the components. After the training, POP materials were distributed to each farmer.



Selection of Farmers

Selection of farmers to be covered under the program was done in consultation with the *sarpanch* (village head) and opinion leaders of the village. The selection was made such that there was equal representation of farmers from three key quarters—each village *mohalla* (neighbourhood), each caste, and each category of land holdings (marginal, small, and large farmers).

At the start, some farmers were covered under P1 and another group under P2. Ideally, more farmers would be added each season so that within two years the entire village would be covered. Each farmer would alternate between the two modules, getting each package two times within a period of two years, or in some cases less than that.

Seed Supply

Based on the farmers' recommendations and experiences, hybrid seeds suitable for the area were procured and supplied. The seeds came from established companies of good repute. The practice of sowing seeds with a seed drill was introduced.

Monitoring

A *Kisan Mitra* (“farmer’s friend”) was engaged to make visits, almost daily, to farmers and their fields to monitor progress, ensure that no negligence occurred, and report any disease or insect attack on the crop.

Field Days

A key feature of *Krishi Jyoti* was *Khet Diwas* (field days). For these day-long events, the farmers of fields surrounding the plots of land under the P1 module were invited to see for themselves the results of adopting the recommended practices.



The crops were analyzed and shown to the farmers, who then shared the experience among the community. These events served to motivate those farmers who did not participate. *Khet Diwas* took place at various stages of crop growth—germination, fruiting (pods, spikes), and prior to harvesting.

Harvest Sample Collection

Upon maturation and harvesting of crops, samples of produce were collected from randomly selected plots. The produce was weighed and analyzed for quality of grain, and the data were recorded for each of the farmers. Yields from the controlled plot and demo plot were then compared; results are presented in the next section.

Executive Team

The executive team of *Krishi Jyoti* comprised one member each from IRRAD, Mosaic, and the village.

Designation	Organization
Village Champion	IRRAD
Marketing Development Officer	Mosaic
<i>Kisan Mitra</i> (farmer's friend)	Village volunteer

The Village Champion (VC) is deputized by IRRAD as its key contact person for a given village. A VC coordinates all the programs that IRRAD runs in the village. The VC acted as a key facilitator and community mobilizer during *Krishi Jyoti*.

The Marketing Development Officer (MDO) is Mosaic's technical supervisor in the field. He was entrusted with the responsibility of determining the necessary farm inputs and ensuring their supply and timely application during the crop season. He also provided technical support on various operations such as seed treatment, applications at the time of disease and pest attack, irrigation requirements, and intercultural operations.

The *Kisan Mitra*, similar to the MDO, acted as an interface between farmers and the implementation team. Being a native of the village, the *Kisan Mitra* worked closely with farmers, understood their day-to-day concerns and needs and shared these concerns with members of IRRAD and Mosaic, organized meetings, and monitored the suggested farm practices.

Results



Krishi Jyoti brought about remarkable changes to the farming communities in which it was implemented. The program's success was evident as farmers adopting the recommended practices were rewarded with higher yields and income. Moreover, the program served as a harbinger of new thought among the people towards improving their social infrastructure—education in particular.

The practices that were introduced to farmers through the program resulted in significantly higher yields in all three major crops—mustard, wheat, and pearl millet. For the demonstration plots where modules P1 or P2 were implemented, average yields were 12-27% greater than those of the control plots (Table 3). The consultations and supervision by the *Krishi Jyoti* team at all stages of cultivation encouraged the farmers and guided them through the process.

As expected, the greater productivity led to significantly higher income for the participating farmers. The average increase in return per acre in rupees for the three crops is given in Table 4.



Bajra demonstration (left) vs. control plot (right)

>> Table 3: Average yields (In kg per half-acre) for demonstration vs. control plots

Year	Crop	Village	Control plot	Demo plot	Increase
2008	Mustard	Notki	451	535	18%
		Santhawadi	448	535	19%
	Wheat	Notki & Santhawadi	825	930	12%
2009	Pearl millet	Raniyala	327	406	24%
		Santhawadi	272	346	27%
	Wheat	Raniyala	667	781	17%
		Santhawadi	772	890	15%
	Mustard	Raniyala	350	415	18%
		Santhawadi	407	475	16%

In addition to the tangible benefits of higher yields and income, *Krishi Jyoti* also fared well in terms of its qualitative impact. The program brought to the region a new found

>> Table 4: Average increase in income

Crop	Increase in income per acre (Rs)
Pearl millet	1200 – 1330
Wheat	2626 – 2628
Mustard	3457 – 3622

“agri-literacy” about chemical farm inputs, seed quality, and modern agricultural operations required during cropping period. It created an open, communicative environment that has long been missing in the villages — one where the farmers talked about applying micronutrients to their fields, discussed pesticides in the event of insect and disease attack, shared experiences on effective water management, and looked for newer means to raise farm output.

This positive behavioral shift signifies a new outlook and expansion of mental horizons. *Krishi Jyoti* prompted the farmers to think beyond subsistence farming and explore previously unimaginable ideas, such as growing fruits and vegetables. Rather than remaining confined to their own set of traditional practices, the farmers strove to improve their knowledge on a variety of topics, from soil testing to crop inputs to developing market linkages.

“There used to be few attendees at the meetings that we initially held. Much to our delight, the number of participants increased as the first crop season passed and the results of *Krishi Jyoti* came up.”

- Pawan Kumar, Program Leader, IRRAD

Moving a Step Further

The enhanced income as a result of *Krishi Jyoti* triggered among the community new ideas about the future, starting with the education of their children. During meetings with the program team, residents of Santhawadi raised concerns about the poor condition of the village school. The school was always dirty and had dilapidated walls; it had no boundary, toilets, kitchen, or water supply; the student-to-teacher ratio was dismally high. The villagers made an earnest request to the program team for support to bring the school into better shape.

With an honest concern for the village that went beyond agriculture, the *Krishi Jyoti* team agreed to help renovate the school. The village and program team worked together—each village household contributed labor, and IRRAD/Mosaic shared the other costs. An external private teacher was also recruited, the cost of which was covered by financial contributions from the villagers.

The villagers of Santhawadi also sought IRRAD/Mosaic's support to take up the issue of water supply and conservation. The village was marred by the problems of diminishing groundwater, salinity, and rainwater runoff causing soil erosion. Fully appreciating the inextricable link between sustainable agriculture and freshwater availability, the team agreed that the water problems needed to be alleviated and suggested that a check dam be constructed.



Left: The Mosaic team inaugurating the newly renovated Santhawadi school
Right: The IRRAD and Mosaic teams at the Santhawadi check dam

A check dam 4.5 meters high and 45 meters long and having a capacity of 100,000 kiloliters was built across a water channel in the foothill adjacent to the village. The structure collects the hill's runoff, storing it as surface water for various uses, allowing it to percolate into the ground to recharge the groundwater, and preventing it from eroding fertile surface soil. The result of the intervention was a higher water table, lower salinity, and greater water security going forward.



Farmer's Testimonials

“I myself now buy fertilizers and micronutrients for my fields.”



I grow mustard, wheat, *jowar* (sorghum), *bajra* (pearl millet), and vegetables. I am very happy to share that my yield for wheat has grown to 40-45 mann/acre and mustard to 18-25 mann/acre. This used to be 30-35 mann/acre for wheat and 13-15 mann/acre for mustard (1 mann=40 kg). Seeing the results, I myself now buy fertilizers and micronutrients for my fields. *Krishi Jyoti* has shown us the way and I am happy that this way leads to better life.

Increased income as a result of higher crop production has enabled us to spend more on buying nutritional food items for my family. We now often buy pulses and fruits that we could not earlier due to low disposable income. We can now think of going to private medical practitioners for disease treatment.

We villagers are really thankful to *Krishi Jyoti*. It also undertook the renovation of our village school and built check dam. The benefits have been a lot to this village. We would like IRRAD-Mosaic to stay with us and suggest further ways to improve our agriculture and water issues.

- **Jumme Khan**, from village Santhawadi, father of five children



“Thanks to *Krishi Jyoti*, I am saving a lot now.”



I got interested in *Krishi Jyoti* because it was very simple to be a part of it and I wanted to give it a try. I am very satisfied with the way IRRAD-Mosaic team approached and suggested ways to improve my farming practices. Earlier my yield for wheat was 30-35 mann/acre (1 mann=40 kg). I followed what IRRAD-Mosaic told me to do for my crops. It ranged from providing me good quality seeds to suggesting number of times to irrigate my crops. The yield went up to 40-45 mann/acre. I never thought of it. For the first time, they got my soil tested and for the first time I came to know about micronutrients like boron

and zinc. I was also told how to get the farmyard manure completely decomposed with application of few chemicals and make it more effective. I used to apply 3 times the manure of what I am using now; thanks to *Krishi Jyoti*, I am saving a lot now.

My average monthly income too has grown. Earlier it was tough for us to think of sending our children to school, as expenses were too much for us. With the increase in farm income, it is now possible for me to buy essential items as books for children. I have also started spending on buying better clothing.

I know that if I don't adopt nutritional treatment for the soil, be it organic or chemical, I would be affected—with low soil productivity and low income.

- **Ayub Khan**, from village Raniyala, and eight members of his family

Challenges



Krishi Jyoti faced challenges at various levels, both on and off the field. Part of the program's success is the experience gained from coping with these challenges. The key among them:

Farmers' Hesitation and Nonparticipation

Though almost all the farmers were aware of the program and its benefits, many still declined to take part at the beginning. Probably the biggest reason behind their nonparticipation was apprehension about a private company entering the village and distributing farm inputs for free. Some stayed away to maintain a "wait and watch" position. Many who initially didn't join the program later came forward to join after they saw the results on the demo plots of their fellow farmers.

Low Level of Education

It was tough for the program team to make uneducated farmers understand the principles of soil depletion and micronutrient applications. The traditional mindset of cultivating a single crop or following a single crop rotation was tough to counter. It took a series of meetings to educate and train the farmers on the advantages of soil testing and high-quality seeds.

Improper Implementation

Some farmers did not follow the advice given by the program team and deviated from the recommended practices. For example, despite being advised to sow seed at the rate of 1.5 kg/ha for mustard, some farmers applied 3-4 kg/ha, as they used to do. There were apprehensions and doubts at every stage.

Non-participation of Women

Though women are part and parcel of agriculture in the villages of Mewat, winning their participation in *Krishi Jyoti* remained difficult. Women are involved in nearly all aspects of farmwork, but they did not participate in the *Krishi Jyoti* meetings. Apparently, the societal framework does not favor women leaving their confines for such

activities, and it was not feasible to have women sharing their views on various aspects of farming.

A high degree of perseverance is what is needed. Building trust and credibility among the community is not easy; it takes time and continuous interaction.

- Ganesh Kumar, Director, Mosaic

Corporate-NGO Partnership

A Perspective

Krishi Jyoti represents a “use-case” that models a framework for corporations seeking new modes for their philanthropic activities and looking to increase their engagement in communities by working in close cooperation with NGOs. *Krishi Jyoti* has remained successful to this day, and the partnership by all means is a win-win situation for all parties—IRRAD, Mosaic, and the rural communities.



A brief analysis may provide further perspective on adoption of this line of action with respect to the objectives of the stakeholders.

From the point of view of Mosaic, IRRAD is a very suitable partner. The reasons being:

- IRRAD facilitates the involvement of the community.

- IRRAD's professional expertise and experiential knowledge allow it to respond to community needs.
- Partnering with IRRAD serves as a means of implementing business strategy.

From the point of view of IRRAD, a partnership with Mosaic would give a boost to IRRAD's activities in the following ways:

- Mosaic, as an expert in agriculture, offers unique contributions to help resolve social problems, including research and development expertise, distribution services, outreach, and marketing support.
- A partnership provides an opportunity to members of IRRAD to access skills and training that they would otherwise not be able to afford.
- Mosaic builds influence among the crop-input industry on issues of agriculture.

Krishi Jyoti illustrates how community welfare initiatives can be innovatively conceptualized and diligently implemented without depending much on the government machinery. The "haves" and "have-nots" of the society can, within themselves, work out strategies and address issues of development at their own ends.

Krishi Jyoti is a replicable model and it should encourage NGOs and corporate firms in other regions to take a partnership approach. At the same time, it is important to understand that whereas development issues are broad and all-encompassing, there are limitations of a corporate firm in terms of its focus area or expertise, its capital, and its human resources. A scaled-up approach may have multiple corporations joining in with their relevant expertise and resources. It is necessary that programs and partnership frameworks are judiciously devised and include interventions that are simple and demonstrable for the targeted community.

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