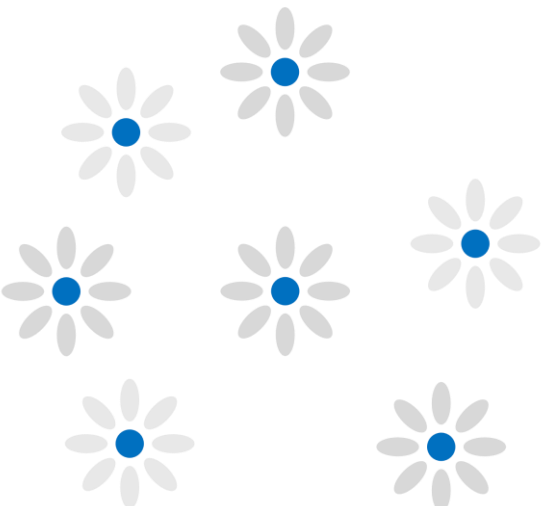


Creating Energy Security and Sustainable Livelihoods in Villages through Utilization of Stubble

Impact Assessment Study – A Report



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P0534
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Abbreviations

AILSG	All India Institute of Local Self Government
CRM	Crop Residue Management
CSR	Corporate Social Responsibility
HDO	Horticulture Development Officer
FRDP	Focused Rural Development Project
NGO	Non-Government Organization

Executive Summary

HDFC Bank Parivartan realized the issues related to stubble burning in northern India and agreed to pilot an innovation-seeking alternate ways to manage stubble, other than burning in partnership with All India Institute of Local Self Government (AIILSG) in Fazilka block of Fazilka district of Punjab state. The key objective under the project was to propose a suitable and do-able mechanism for the stubble management. Along with awareness generation activities in the villages, farmers were motivated to collect stubble and selling it to establishments that generate energy from it. The expectation was to reduce air pollution that will lead to a healthier environment.

IMPACT PSD conducted the impact assessment for the project during February 2024 using mix methods approach including quantitative survey with farmers and in-depth interviews with stakeholders. A total of 25 farmers across 5 villages were covered and 5 stakeholders across the project villages were interviewed to gather information.

Salient Findings

- Majority of farmers (three out of five – 64%) had land size in the range of 2 to 4 acre and remaining had 5 to 10 acres. All the farmers were using their entire land for the cultivation.
- Farmers were mainly growing Wheat, Maize and Paddy and all these crops leave a good volume of residue (stubble) due to which project was helpful for the farmers in the region.
- All 100% farmers were using some volume of stubble for the cattle feed as it is considered to be very healthy for the livestock.
- **None of the farmers reported burning stubble** as a practice which demonstrates that project activities have generated adequate awareness on management of stubble.
- Two out of three farmers (72%) were extracting their stubble and selling to the local buyers either directly at the farm or submitting to the aggregation centres.
- Lesser proportion of farmers were using their stubble for preparing vermi-compost.
- More than half the farmers (56%) earned income in the range of INR 3,000 to 5,000 and remaining earned more than INR 5,000 obtained from stubble selling.
- Overall, 10 out of 25 farmers (40%) earned profit through stubble selling and 2 farmers did not get profit neither suffered a loss. Remaining faced marginal loss which is mainly due to non-selling and using stubble at the household as the cattle feed.
- Knowledge on available options for stubble management was sound among the farmers that ranges between 44% to 68% on different ways such as selling to aggregation centres and using stubble for the cattle feed, preparing pellets, fertilizer, etc.

- Awareness on harmful impact of stubble burning was higher and aware of negative impacts such as air pollution (80%), health hazards (68%) and reduction of soil fertility (84%).
- Major challenges in stubble management faced by farmers included labor cost in the removal of stubble (76%), transportation cost for sending the stubble to aggregation centres (76%) and time taking process that forces farmer to become ignorant (44%).
- Community awareness campaigns have generated awareness on benefits of using stubble and how to use agricultural waste as a fuel, fertilizer and cattle feed. Though some processes are needed for making these products still farmers could understand the appropriate use of stubble.
- About 10 out of 25 farmers were aware of FPO in their area that deals with stubble management along with other issues of farmers related to agriculture.
- All farmers received orientation training under the project and recalled many topics that were covered under the orientation.
- About 13 farmers (52%) could recall and specify that they had seen the wall paintings promoting appropriate use of stubble in the area and impact of stubble burning.
- The project has manifested anticipated benefits such as decline in air pollution and improved air quality in the area and improved soil health leading to higher yield and income. Moreover, stubble can be used for cattle feed and vermi-compost with adoption of some processes.
- Though farmers have understood the need for proper stubble management, still there is a need to consistently strengthen the existing FPO that helps farmers in agriculture related work to ensure no single case of stubble burning is reported after the harvesting. This would provide the sustainability for the efforts made under the project.

The assessment on OECD criteria demonstrated the following results:

Evaluation Component	Score
RELEVANCE	5
COHERENCE	5
EFFICIENCY	5
EFFECTIVENESS	4
IMPACT	3
SUSTAINABILITY	3
Overall Score	4.2 out of 5

INTRODUCTION

HDFC Bank CSR – Parivartan Program

HDFC Bank helps in transforming the lives of millions of Indians through various social initiatives. HDFC Bank has a comprehensive program named ‘Parivartan’ aiming to contribute towards economic and social development by sustainably empowering its communities. The Parivartan program has been a catalyst in making a difference in the lives of people through its interventions in the areas of rural development, education, skill development and livelihood enhancement, healthcare & hygiene, and financial literacy.

Under Parivartan, the bank has a flagship “**Holistic Rural Development Program (HRDP)**” focused on Rural Development and caters to the needs of the rural communities in multiple focus areas. Another support program is the “**Focused Rural Development Program (FDDP)**” through which the Bank identifies an implementing partner with expertise in one of the focus areas and supports the partner to implement the intervention to improve the lives of the target groups concerning the focus area. The progress of all the projects under these HRDP and FDPs are assessed through systematic routine monitoring and independent evaluations to assess the effectiveness of projects.

About the Project

Realizing the issues related to stubble burning in northern India, HDFC, in partnership with All India Institute of Local Self Government (AIIISG) agreed to pilot an innovation-seeking alternate ways to manage Stubble, other than burning (which leads to pollution and carbon emission). One of the options considered was the collection of stubble from all farmers and selling it to establishments that generate energy from it. For long-term sustainability, forming a Farmer Producer Organization (FPO) was also considered, which could not be completed. In addition to better management of stubble, the project also aimed at increasing the awareness and knowledge of farmers regarding stubble management and improving the technical capacity of stakeholders in stubble management. By implementing the project, it was expected that local air pollution would be reduced and will lead to a healthier environment. Also, the project will create awareness among the local community towards better management of Agri-residue, in general.

Project Location

The project was implemented in Fazilka district of Punjab which is a border city 10 Km east of India-Pakistan border. Also, Fazilka is one of the aspirational districts in Punjab. Fazilka is surrounded at the tri-junction of three states— Punjab, Haryana and Rajasthan. Fazilka is around 400 km from the National Capital, Delhi.

HDFC Bank CSR intended to conduct an impact assessment study for the project and IMPACT PSD was entrusted to undertake the assessment in Punjab.



The objective of the Impact Assessment Study

To evaluate the effectiveness and sustainability of the intervention on alternate usage of stubble.

The ensuing chapters provides the detailed description on methodology, study findings and discussion on the outcomes of the study.

METHODOLOGY

This chapter includes information on sample size, research methodology, data management, implementation strategies, and the approach used for the impact assessment study. The details of several components have been covered; these will be discussed in the future section.

Assessment Framework

We suggested using the following assessment framework that includes the OECD-DAC criteria, which are widely regarded as gold standards in evaluation, to carry out the impact assessment research. This framework recommends adapting this framework, wherever feasible and applicable:



Using this framework, we suggested following questions that were adopted to assess project, using the six parameters stated above in the illustration. These questions were finalized in discussion with the HDFC MI team.

Evaluation Component	Suggested Research Questions	Target Respondents
Relevance	To what extent farmers feel that stubble burning is harmful	Farmers
	To what extent farmers are open to adopt stubble management, other than burning	Farmers
Coherence	What stubble management options were being used by the farmers and how effective were these?	Farmers
	Was the support provided at the right time when it was needed	Farmers
Efficiency	Number of farmers engaged in stubble management practices	Farmers
	Number of farmers who could recall the contents of the training	Farmers
	Number of farmers capacitated through trainings	Farmers

Evaluation Component	Suggested Research Questions	Target Respondents
Effectiveness	Increase in the awareness on the harmful effects of stubble burning	Farmers
	Awareness on ways to manage stubble, other than burning	Farmers
	Increase in the knowledge of farmers on stubble management	Farmers
Impact	Financial gain to farmers (per acre of land)	Farmers
	Perceived impact of not burning stubble on soil health	
Sustainability	The extent to which the project benefits (claimed by the implementing agency) are realized by the farmers	Farmers/ Implementing Agency
	Long term feasibility of adopting alternate ways of stubble management	Farmers/Stakeholders
	Willingness to adopt alternate ways of stubble management	Farmers
	Current status of Stubble gathering locations and the feasibility of its operation in long term	Farmers Implementing Agency
	Willingness of farmers to collaborate as FPO	Farmers
	Reasons why FPO could not be formed and what can be learned from the experience	Implementing Agency

Research Methodology

A mixed methods approach was adopted wherein the quantitative survey was undertaken with the beneficiary farmers in the areas supported under the project. Additionally, in-depth interviews were undertaken with the implementation partner adopting qualitative methods (KIIs).

Target Groups

The following target groups were included in the impact assessment:

- Beneficiary Farmers
- Project implementation team
- HDFC Bank Program Officials

Sample Size and Selection

A list of 100 farmers which were covered under the intervention was provided by the implementation partner. We proposed to randomly select 25 farmers for the impact assessment study, i.e., 25% of the total farmers reached. However, many telephonic follow-ups were undertaken with farmers about their availability prior to the visits to the villages for the interviews to cover the required sample.

Coverage

The following sample coverage for the impact assessment study was achieved:

Target Group	Coverage
Beneficiary Farmers	25
Implementation Partner	2
HDFC Bank Officials	2

Development of Tools

Considering the type of support provided, a quantitative tool was developed for capturing the details from the farmers having semi-structured questions. The quantitative tool incorporated the demographic profile of the farmers such as age, gender, educational qualification, caste and religion. The quantitative survey tool was appropriately scripted for the data collection using CAPI. For the qualitative interviews, a discussion guide was developed for in-depth interviews with the stakeholders (officials from the implementation partner and HDFC Bank). All the study tools were translated into the local language.

Team Deployment

A team of 2 coordinators was deployed to cover the required sample. Both the coordinators covered 25 farmers in 5-6 days duration. Both the team members were residents of Punjab state experienced in farmers' surveys as well as well-versed in regional and vernacular languages.

Training of Data Collection Team

A one-day training of the data collection team on the orientation of tools and methodology to be adopted. Both the team members were experienced and provided with all survey specifics including obtaining consent, the process of making physical visits, etc. The team members were shared with the contacts of the farmers and a point person so that the team could contact them for any clarifications or get directions for the geographical reach.

Study Implementation

The study incorporated the following key steps:

- All the team members were provided with the mobile contact numbers of the farmers. Prior to the visit, the team contacted the selected farmers and appointments were sought for the interviews.
- Upon reaching the village, farmers were interviewed, and information was gathered.
- Senior researchers also visited to meet a few selected farmers to assess the situation at the villages

Data Analysis and Report Writing

Post-data collection, the collected data were processed at the IMPACT office in MS Excel and/or SPSS and frequency runs were obtained. Post-completion of tabulation and cross-tabs, the interpretation of results was undertaken.

Challenges Faced

- During the data collection phase, farmers' protests were in progress which hampered the transportation to the Fazilka and villages.
- Farmers were busy with their agriculture and other administrative works which seeking appointments was difficult and interviews were conducted during the entire day with consistent follow-ups for their availability.

STUDY FINDINGS

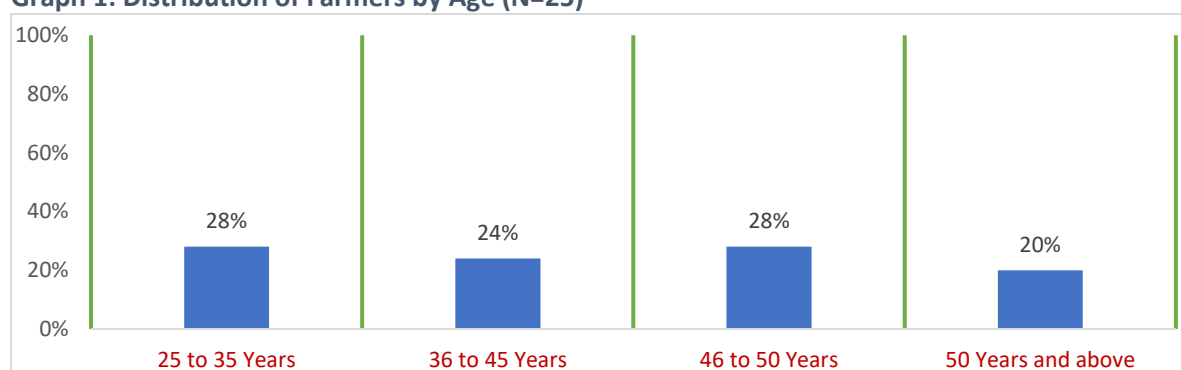
This chapter discusses the need for HDFC Bank support to farmers for opting Poly Houses as well as how the HDFC Bank supported the farmers. The key findings are discussed at length in this section.

Profile of Farmers Included in the Assessment

In all, 25 men farmers were covered in a sample at Fazilka to assess the impact of the HDFC Bank supported project. The following discussion provides the status of farmers and beneficiaries of the project.

Among 25 farmers, somewhat equal proportion of farmers were found by various age groups. Almost 3 out of 10 farmers (28%) were each into the age range of 25-35 years and 46-50 years. Following graph portrays the age distribution of farmers.

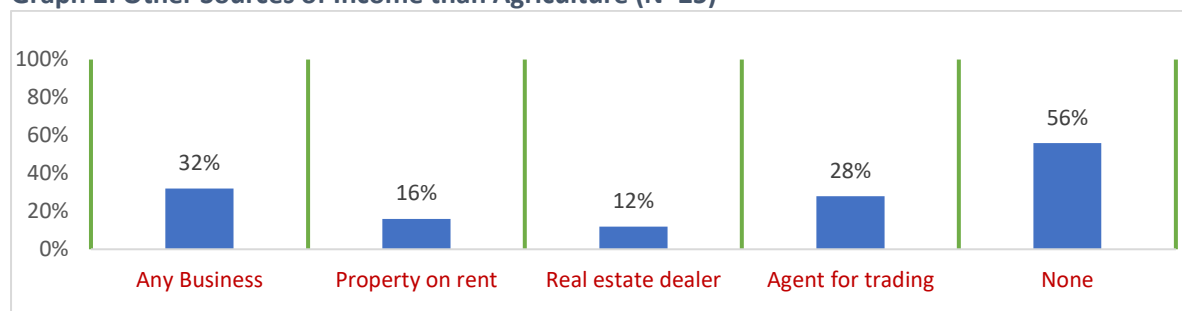
Graph 1: Distribution of Farmers by Age (N=25)



Evidently, almost half the farmers (48%) were more than 45 years of age.

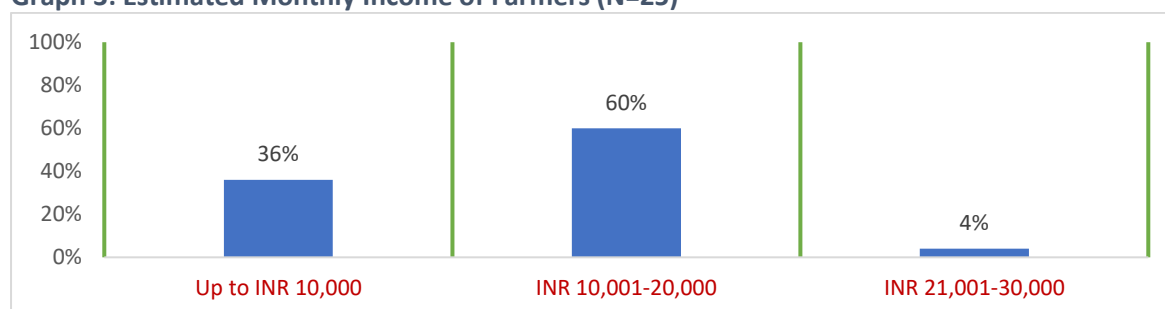
With respect to education, three out of five farmers (64%) were educated between middle to secondary level followed by one out of three (32%) had completed higher secondary. Majority of farmers (60%) had 5 to 8 family members followed by 32% having 3-4 family members and there were only 2 farmers who had families of more than 8 members.

More than half the farmers (56%) did not have any other source of income except Agriculture. Following graph shows the type of income sources that farmers were having other than agriculture.

Graph 2: Other Sources of Income than Agriculture (N=25)

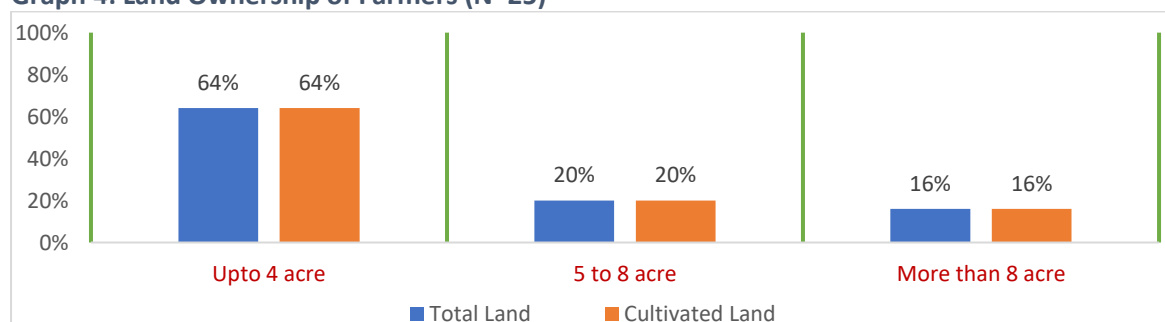
About a third of farmers (32%) were having some kind of businesses and 16% were earning through rentals from their properties and more than a quarter (28%) found involved in trading related to agriculture such as crop, seeds, agriculture equipment, nursery and seedlings, fertilizers and pesticides, stubble management, etc.

Majority of farmers (60%) were earning monthly income of INR 10 to 20 thousand and more than one-third (36%) reported earning up to INR 10,000. Following graph depicts the monthly income of farmers.

Graph 3: Estimated Monthly Income of Farmers (N=25)

Ownership of Land

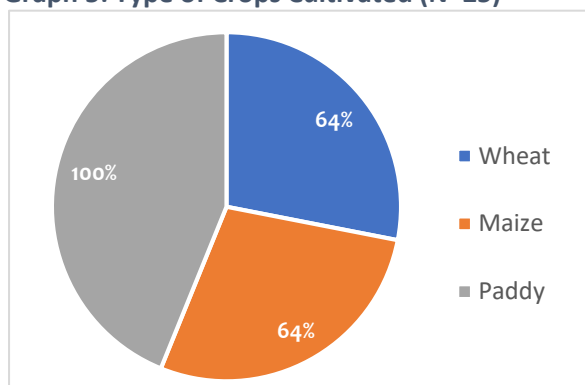
Majority of farmers (64%; N=16) had land in the range of up to 4 acres followed by 5 farmers (20%) having 5 to 8 acres respectively as shown in the following graph.

Graph 4: Land Ownership of Farmers (N=25)

As evident from the graph that all farmers were cultivating their entire land as per their ownership. None of the farmers reported not doing agriculture. Punjab being an agriculture focused state,

agriculture is the prime activity of every farmer. Moreover, government also support farmers in their Agri-related activities across the state.

Graph 5: Type of Crops Cultivated (N=25)



All 25 farmers reported cultivating Paddy which is usually exported to other Indian states where Rice is the staple food for the citizen. Three out of five farmers (64%) reported growing Wheat and Maize. However, there are a few farmers who also cultivate Sugarcane.

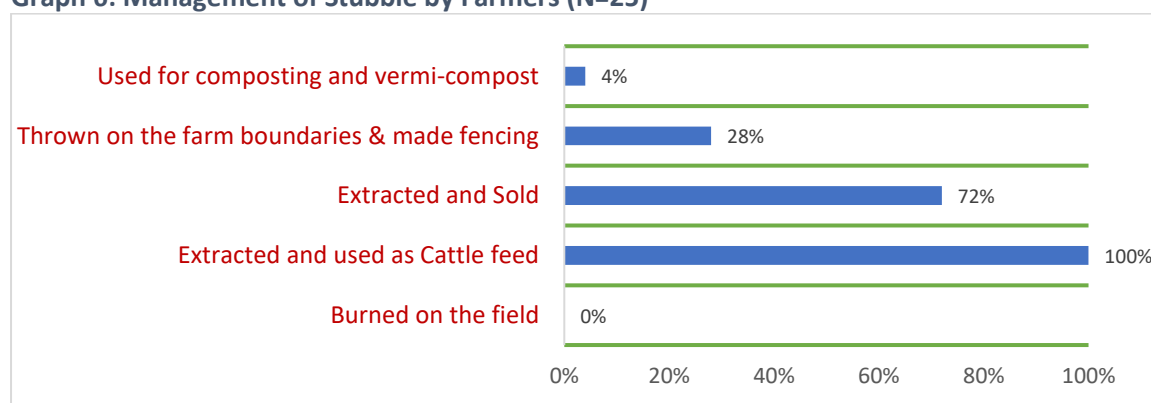
The reason for collecting this information was to assess the problem of stubble in the area. As it can

be seen that largely farmers are growing the crops that leaves residual after the harvest.

Stubble Management

The project was implemented to support the farmers in the management of stubble (crop residue). Farmers were asked about the process they adopt to manage the stubble post harvesting. As per farmers, they attempt multiple things to manage their crop residue as all farmers (100%) outrightly spoke about using stubble as cattle feed for their livestock which was well observed on the ground while visiting the villages during the assessment. Following graph shows the ways adopted for the Stubble Management.

Graph 6: Management of Stubble by Farmers (N=25)



However, more two-third of farmers (72%; N=18) informed that they extracted the stubble and sold to buyers. Though low, still a good proportion of farmers have attempted the right approach for the stubble management. There were 7 out of 25 farmers who used the stubble as fencing at the farms and one farmer claimed that stubble was used for compost and vermi-compost.

Of all 25, none of the farmers reported burning of stubble at all which is incredible.

Selling of the Extracted Stubble

Information was sought from those farmers who extracted and sold their stubble to understand the process of selling. Of 18 farmers who responded extracted and sold, 13 (72%) reporting selling to the trader who came to the farm for the collection followed by 12 (67%) who sent their stubble to the locally available stubble aggregation centre.

When an assessment team visited the Fazilka villages where the initiative was being carried out, they found that most farmers and rural residents were well-informed about the risks associated with stubble burning in the field. Thus, farmers demonstrated their willingness to sell their excess stubble, but largely they were using as the cattle feed which they consider as very healthy for the livestock. Few farmers also mentioned that they sometimes sell to the rural residents who do not have agricultural land but keep livestock.

Expenditure and Income Generated from Stubble Management

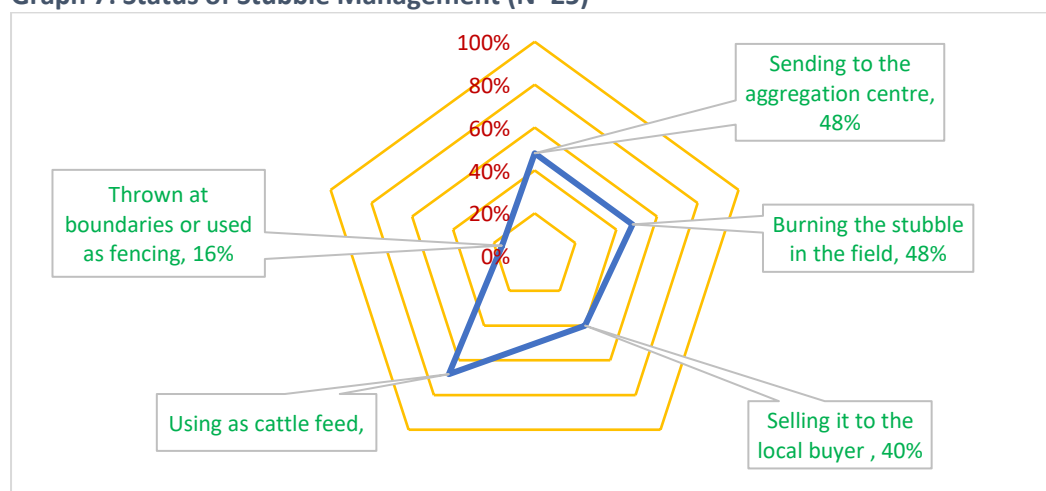
Those farmers who sold their stubble were further asked about their expenditure on extracting stubble at the field as well as their earning through the selling the stubble to the local traders or aggregation centre. This was asked to know whether it is an economic viable and profitable option or need any further amendment in the process. The majority of farmers (60%; N = 15) reported spending between INR 3,000 and 5,000, followed by nearly a quarter (24%; N = 6) who spent between INR 5,000 and 10,000, and just four farmers (16%) who reported spending more than INR 10,000. It is evident that expenses are mostly determined by the field's size and the crop that is grown there.

About the amount of money that farmers made by managing their stubble, the majority (56%; N=14) had earned between INR 2,000 and 5,000, while 3 farmers (12%) and 8 farmers (32%), could earn between INR 5,000 and 10,000. It is evident that stubble management could bring a respectable income for farmers.

While computing the profits by each farmer considering a difference between the amount spent and money generated, it was observed that 10 farmers (40%) were in profit and 2 farmers had no profit or loss. However, 13 farmers (52%) faced marginal loss in the range of INR 1000 to 2,000 as they spent money on stubble extraction in the field but could not generate by selling the entire volume and used as cattle feed at the household level for their livestock.

On enquiry, it was observed that nearly half the farmers (48%) were burning their stubble at the field prior to the project and similar proportion of farmers (48%) were sending the stubble to aggregation centre or point in and around village. About two-fifths (40%) were sending to local buyer also. Following graph portrays the status of stubble management prior to the project in the covered villages.

Graph 7: Status of Stubble Management (N=25)



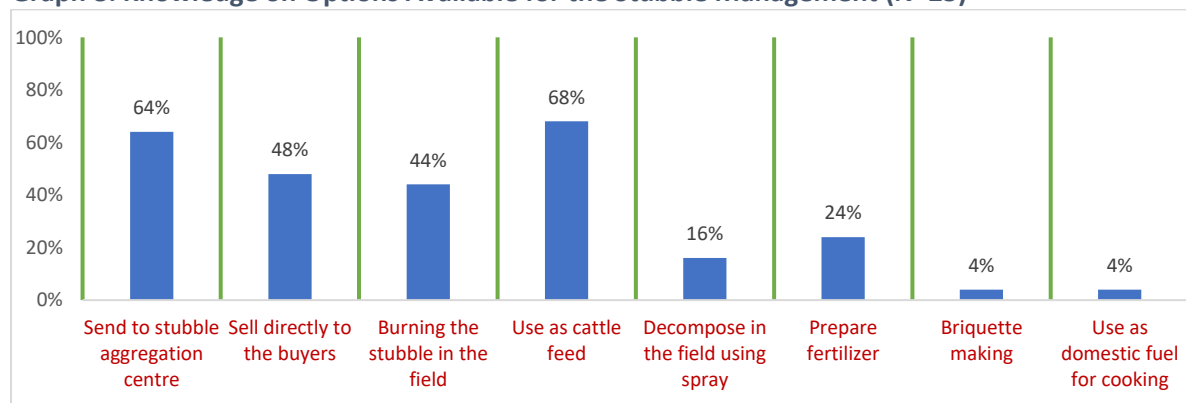
Evidently, farmers were having a substantial amount of stubble from their fields which was used for the cattle feed and/or selling at different channels discussed in the graph.

The key finding has emerged from the study that a large proportion of farmers (48%) have stopped the stubble burning which was one of the key objectives of the project. Moreover, the stubble generated in sent to the local buyers or being picked up by the local trader which is a good practice seen in the villages.

Knowledge on Stubble Management

Awareness generation was one of the key activities in the entire block area covering all the rural farmers of the villages. Farmers were posed with a question on what major options are available that are available in the area for the appropriate stubble management of the crop residue. Following graph illustrates the knowledge levels of farmers on available options currently for them.

Graph 8: Knowledge on Options Available for the Stubble Management (N=25)



Largely, submission of stubble at the aggregation centre and use the stubble as cattle feed are the two major ways of stubble management were shared by the farmers, which is incredible. Other ways included selling directly to buyers directly from the field and prepare fertilizer, etc. However, 11 farmers (44%) mentioned that option of burning stubble will be always available, but we do not consider as this option as healthy and environment friendly.

This was also observed during the visit in the areas that none of the farmers opted stubble burning as an option for the stubble management. Many farmers had stored their stubble at their homes which was being used as cattle feed as they consider this stubble as the healthy food for their livestock.

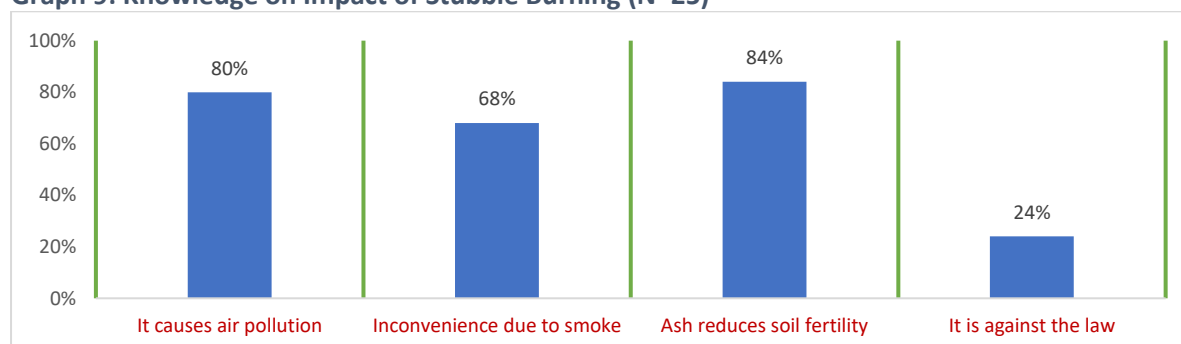
Information on stubble management approaches usually adopted by other farmers in the village was also collected. Again, more than two-thirds (72%) reported that largely farmers are selling the stubble to the local buyers as well as 68% shared that they use it as cattle feed. As expected, 8 farmers (32%) reported that a few farmers who still burn their stubble and 2 farmers mentioned that a few farmers throw their stubble on the street or roadside.

When the reasons for choosing this particular practice were questioned, seven of the ten farmers (70%) said they could not afford to manage their stubble, and six (60%) said it would be costly for them to remove, collect, and transport the material to the aggregation point. The issue is that there is no adequate road leading to their fields which are actually located far from the aggregation centre.

Knowledge on Impact of Stubble Burning

Farmers were asked to specify the type of harmful impact of the stubble burning. It was incredible to note that four out of five farmers (80% to 84%) had sound knowledge on harmful or negative impact of stubble burning. Following graph shows the knowledge levels of the farmers.

Graph 9: Knowledge on Impact of Stubble Burning (N=25)



Farmers understood that burning stubble pollutes the air severely and depletes soil fertility since the ash residue ruins the soil's quality and reduces production. Out of all farmers, just six (24%) said that there is a legislation that prohibits them from doing so.

Ways to Prevent Stubble Burning

All farmers were in sync with the option that all farmers of the villages should be provided with a doorstep facility for the collection of stubble at the field level. Almost all (96%; N=24) also had an opinion that farmers should be awarded with a non-financial incentives for those who submit their stubble at the aggregation centre. This would promote the appropriate management of stubble.

On further exploration, more than two-thirds of farmers (72%) had opinion that collection and sale of stubble is feasible in the villages, but it is a labor-intensive process. There were only 5 farmers (20%) who were sure that it is very much feasible.

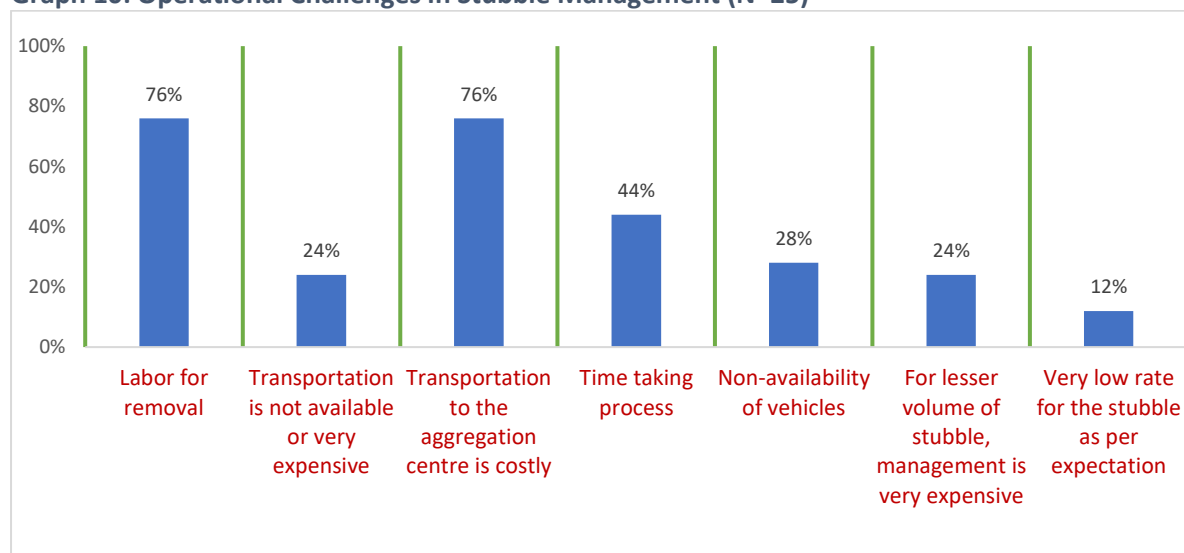
Operation Challenges in Stubble Management

Information on operational challenges faced in the management of stubble was gathered to understand the ground level situation in the villages.

Majority of farmers narrated two major challenges that are being faced by the farmers which are labor cost for the removal of stubble and transportation cost to the aggregation centre which is very costly (76% each). The other challenges shared by the farmers are shown in the following graph.

Challenges force the farmers to avoid stubble management as burning of stubble is the easy process for them. Moreover, it is difficult to adopt new proposed practices in absence of any monetary incentives, and their financial burden to manage stubble such as laborers for the extraction work.

Graph 10: Operational Challenges in Stubble Management (N=25)



Removal of stubble is a time taking process (44%) and shortage or non-availability of vehicles for the farmers for sending the stubble to aggregation centre are another two key challenges faced by the farmers.

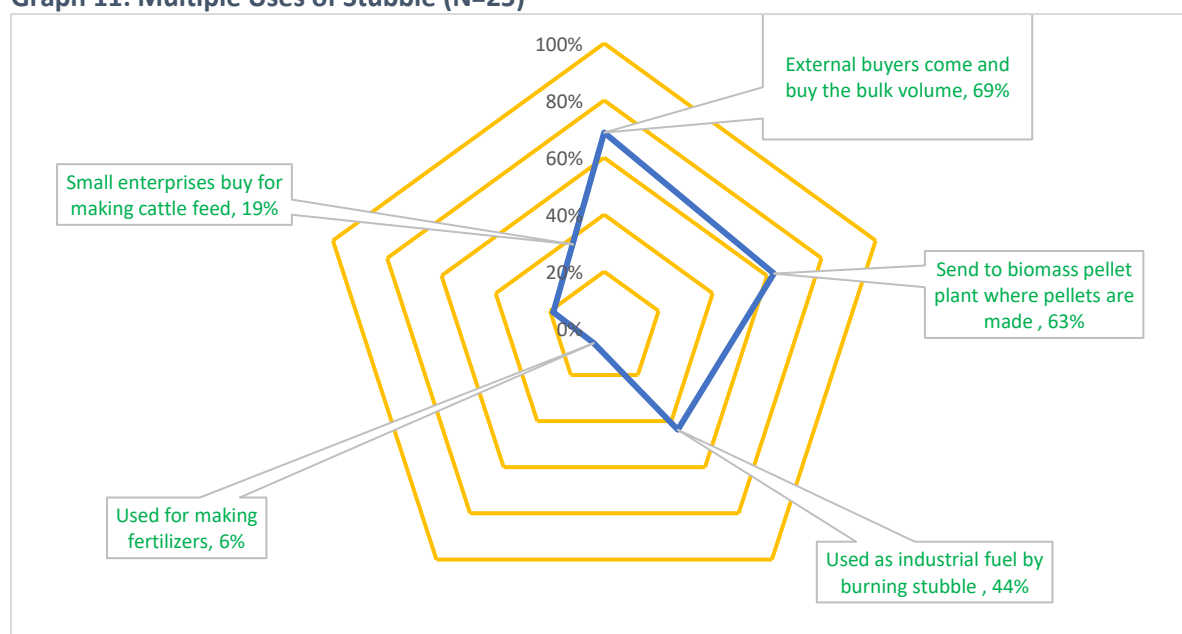
Presence of Stubble Collection Point

More than three-fifths of farmers (64%) confirmed that they have an aggregation point or centre where local farmers can bring their stubble for the storage and selling.

How Sold Stubble is Used

Farmers were asked to mention on how the sold stubble is used or processed by the agency. As a practice prevalent in the areas, external buyers come and buy the bulk volume reported by 69% of farmers. An incredibly higher proportion of farmers (63%) confirmed that the collected stubble is sent to a biomass pellets plant for the pellets making. The other uses are shown in the following graph.

Graph 11: Multiple Uses of Stubble (N=25)



As evident from the graph that a very low proportion of farmers mentioned about small enterprises

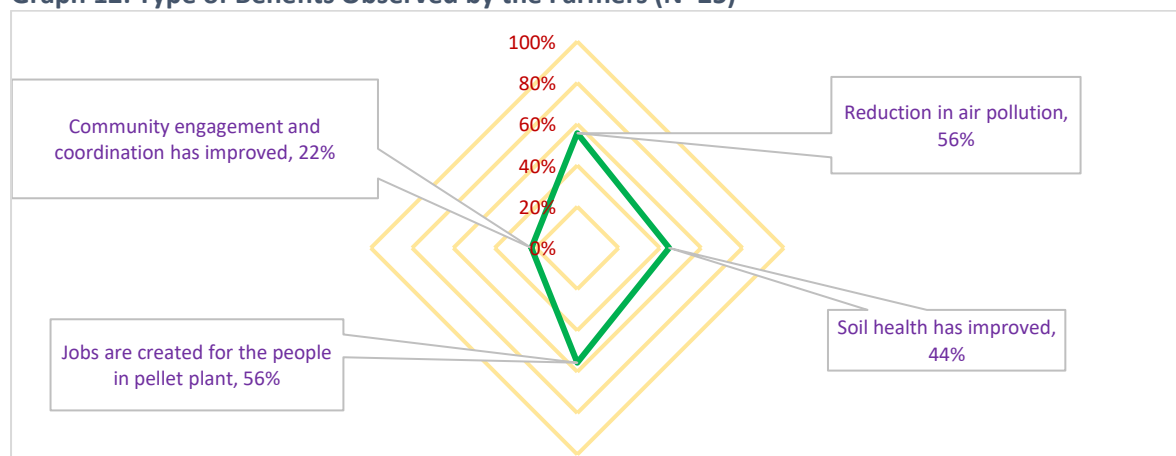
Community awareness campaigns under the project have generated awareness on benefits of using stubble and how to use agricultural waste as a fuel, fertilizer and cattle feed. Though some processes are needed for making these products still farmers could understand the appropriate use of stubble.

sell the collected stubble for making the cattle feed and fertilizers. This proves that farmers are adopting the same practice which was promoted under the project on collecting the stubble and sell to the aggregation point so that stubble could be sent to local buyers or plants for the further use for burning the

furnaces under controlled conditions. This practice saves the environment pollution and health of rural dwelling population, mainly elderly people, and children.

Benefits of Adopted Stubble Management Practices by Farmers

Farmers were asked to specify the type of benefits they have visualized during the last one year due to appropriate management of stubble management and following graph shows the type of benefits.

Graph 12: Type of Benefits Observed by the Farmers (N=25)

More than half the farmers (56%) had perception that they observed a reduction in pollution after the harvest this year. Similar proportion of farmers (56%) had observed another benefit that there are many people who got work to earn money in the pellet making plants, which is somewhat a seasonal work which is more after the harvest and gets reduced after some time. Only stored stubble is used in the pellets making plants.

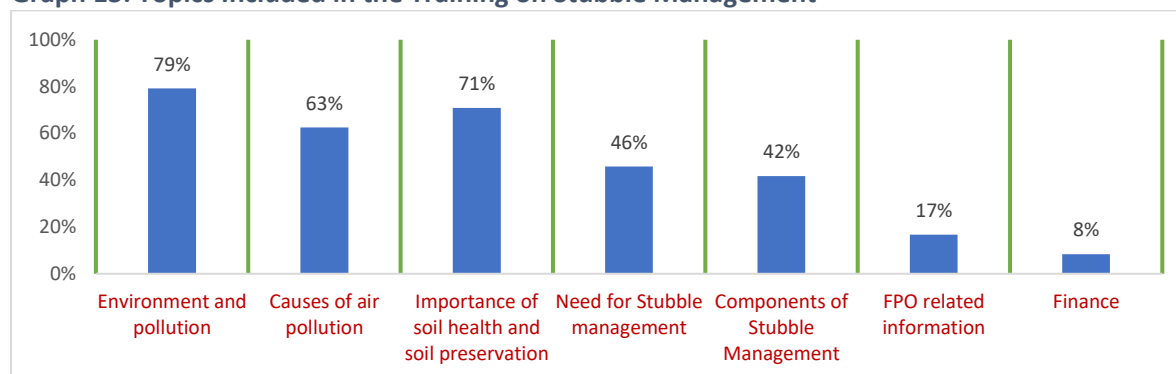


Fig. 1 - Extracted Stubble Stored at Household for Cattle Feed as well as Sending to Aggregation Centre

Availability of FPO and Training on Stubble Management

Of all 25 farmers, 10 farmers reported that they have FPO that deals in stubble management. These farmers did not claim that FPO is formed only for stubble management. Of those 10 who were aware of FPO, one each was president and joint secretary and remaining were active members.

Almost all farmers (24 out of 25) consented that they received orientation training on stubble management. Of 24 farmers, 15 specified that the training duration was only one day and other 9 reported it to be 2-4 days. Majority of farmers stated that they were oriented on environment and pollution (79%; N=19) and importance of soil health and preservation of soil (71%; N=17). Following graph presents the topics covered under the orientation training imparted by AIIISG under the project covering 50 villages of Fazilka block of Fazilka district.

Graph 13: Topics Included in the Training on Stubble Management

Only 4 farmers could recall about FPO and FPO related information as one of the topics. Air pollution was reported by 63% of farmers which indicates that farmers do have awareness on harmful effects of stubble burning.

Four out of five farmers (84%) were aware that the orientation trainings and awareness generation was undertaken by Agriculture department in association with HDFC Bank/AIILSG.

However, only 13 out of 25 farmers (52%) had seen the wall paintings on stubble management and 8 farmers could not recall and 8 denied seeing any such wall painting indicating harmful impact of stubble burning.

Anticipated Benefits through the Project

Decline in Air Pollution and Improved Air Quality

Stubble burning will be discarded over the time and rural farmers would continue attempting appropriate stubble management. With reduction in stubble burning cases, the amount of air pollutants will be less leading to improved air quality for the residents. There will be less incidences of air pollution related disorders and community will enjoy better health.

Improved Soil Health and Higher Income through Agriculture Sustainability

Farmers have adopted stubble management practices that help in preserving soil health of their fields and reduced incidences of stubble burning would decline greenhouse gas emission. Certainly, practices adopted by farmers promote sustainable agriculture and improved yield leading to higher earning of income for farmers.

Energy Security

Use of agricultural wastes by transforming into pellets as a source of energy, there will be lesser demand for expensive fuels. This would improve access to energy and promote energy security in the geography.

Harmonious Community Development

The joint efforts among farmers in creating structures and outlets, such as waste processing and energy generation units will improve harmony among the rural communities.

Improvement in Climate Change

By reduction of emissions, there will be improvement in climate change, which will benefit the community in long run.

Economic growth

It is expected that there will be jobs available in the pellets making plants and stubble aggregation centres, transportation sector and centres that process the agricultural waste. This would give economic growth to the rural communities.

ASSESSMENT USING OECD CRITERIA

This chapter discusses the findings based on components included in the OECD framework. The following discussion will demonstrate the overall scoring of the HDFC Bank's support to the farmers of Fazilka district.

ASSESSMENT RESULTS

Evaluation Component	Score
<p>Relevance</p> <p>Punjab state is known for its agriculture production and agriculture is the major resource of state's economy. The state contributes nearly two-thirds to the total production of food grains and a third of milk production in the country. Punjab has been the leading producer of wheat, thereby contributing to the national food security. Post harvesting, farmers used to burn their stubble at the field that was creating major environment and health hazards in the north region. Fazilka is mainly known for producing Wheat and Paddy which leaves stubble in abundance. The project was rightly aimed to support farmers with the help of HDFC Bank through a partner organisation generating awareness among farmers' community and demonstrated ways to use stubble for cattle feed and making pellets for the energy security. Farmers needed a comprehensive awareness on stubble management as well as a push for attitudinal transformation that they can attempt it successfully. All the farmers had awareness and felt that the stubble burning is very harmful for the environment and community. They demonstrated their efforts towards correct stubble management which was the key objective of the project. Thus, the project was very much relevant for the farmers in promoting the stubble management correctly and timely.</p> <p>Hence, HDFC Parivartan supported project to support farmers in stubble management was RELEVANT.</p>	<p>5</p>
<p>Coherence</p> <p>Project attempted to conduct activities prior to the harvesting period so that the farmers get the adequate and essential support in transforming their mindsets through a series of orientation sessions on environment pollution, harmful effects such as soil health, other health hazards for residents, along with ways on how stubble management should be undertaken. Farmers were using the stubble for cattle feed as well as selling to the local buyers and others for the energy options for them such as pellets making and using at the industry level for burning under the control conditions.</p> <p>Under this component, HDFC Bank support was found to be Coherent as farmers could receive the desired support timely and attempted the appropriate management of stubble in their fields.</p>	<p>5</p>

Evaluation Component	Score
<h2 data-bbox="204 255 421 309">Efficiency</h2> <p data-bbox="204 331 1375 667">Findings suggest that farmers and their communities understood the comprehensive package of information provided to the farmers through project activities. The proposed ways were well accepted by the farmers and contributed towards environment safety and adopted the suggested processes in the stubble management. During the interactions with many farmers, it was observed that all farmers adopted the learning with their open hearts and found convincing that project has contributed to generating awareness and support their own communities for pollution free living. All 25 farmers spend money in extraction of stubble, transportation and sell it to the aggregation centres. Moreover, all 25 farmers confirmed receiving the orientation sessions as well as they could recall the topics discussed in the orientation sessions which demonstrated that they were capacitated through the project activities in the area.</p> <p data-bbox="204 719 1375 824">The intervention is implemented efficiently as the farmers were provided with appropriate right information and all farmers are contributing by adopting appropriate stubble management as promoted through project activities.</p>	<h2 data-bbox="1262 255 1289 309">5</h2>
<h2 data-bbox="204 846 501 900">Effectiveness</h2> <p data-bbox="204 922 1375 1182">All farmers (100%) were using stubble as cattle feed for their livestock which was observed during the assessment. More than two-third of farmers (72%) informed that they extracted the stubble and sold to buyers which has become a practice among farmers. Largely, majority of farmers (72%) reporting selling to the trader directly collect from the field and 67% of farmers were selling to stubble aggregation centre. This indicates that the practices are in place at the rural villages and majority, more than half the farmers (56%) had earned between INR 2,000 and 5,000, 44% of farmers could earn between INR 5,000 and 10,000. This demonstrates that stubble management could bring a respectable income for farmers.</p> <p data-bbox="204 1234 1375 1294">This project has environment wise and economically benefitted the farmers demonstrating its effectiveness.</p>	<h2 data-bbox="1262 846 1289 900">4</h2>
<h2 data-bbox="204 1317 363 1370">Impact</h2> <p data-bbox="204 1393 1375 1809">The HDFC Bank supported project has been able to create some impact and benefiting the farmers but further strengthening the awareness will be required. As of now, farmers have been able to sell the stubble to aggregation points, but the number of aggregation points have got reduced since the last year. The reason being many farmers initiated the collection of stubble from the fellow farmers so that they can sell at higher rates to the buyers. There is a smaller number of buyers to purchase stubble from all the aggregation points and moreover, there are cost implications for buyers to purchase all stubble existing in the region because managing large volume to stack and transportation from the source to destination are highly expensive process. More than half the farmers (56%) earned income in the range of INR 3,000 to 5,000 and remaining earned more than INR 5,000 obtained from stubble selling. Overall, 10 out of 25 farmers (40%) earned profit through stubble selling and 2 farmers did not get profit neither suffered a loss. Remaining faced marginal loss which is mainly due to non-selling and using stubble at the household as the cattle feed.</p> <p data-bbox="204 1861 1375 2011">In terms of impact of the project, assessment team could observe that awareness levels are higher among farmers on not to burn stubble and aware that how to protect soil health for the fertility. Perception of farmers on benefits of stubble management included reduction in air pollution and many people got income earning source at aggregation points as well as pellets making plants in the nearby geography.</p>	<h2 data-bbox="1262 1317 1289 1370">3</h2>

Evaluation Component	Score
<p>The project has been able to create its impact among the communities that stubble burning is not a suitable option rather using the agriculture waste in a productive ways. Moreover, some impact on farmers who own large land size located near to the roads was observed as they themselves do aggregation and motivate people to sell their stubble so that they can directly sell the stubble in bulk volume to large buyers.</p>	
<h2>Sustainability</h2>	<h2>3</h2>
<p>Assessment team has observed that the farmers are currently attempting but there is a need to monitor that whether farmers have adopted the right management of stubble in future. It is equally important to monitor the incidences of stubble burning in the project areas. For sustainability, there is a need to generate awareness for correct ways of stubble management and what to attempt to save environment and protection of soil health in terms of fertility. Farmers have shown their commitment for the stubble management, but consistent efforts are needed to retain them to continue opting proper stubble management. Farmers had belief in the available FPO dealing with agriculture related issues and FPO can be used as a strong platform to ensure no single event of stubble burning in the region and FPO members can undertake the monitoring.</p> <p>Sustainability can be ensured through a joint effort of non-profit sector along with government departments and generate awareness before the harvesting season on how to manage stubble.</p>	
<h2>Overall Score</h2>	<h2>4.2 out of 5</h2>