

**IMPACT ASSESSMENT STUDY REPORT OF GAIL'S  
CORPORATE SOCIAL RESPONSIBILITY (CSR)  
SUPPORTING THE COMMUNITY INITIATIVE FOR  
CHECKING STUBBLE BURNING**

**FINAL REPORT  
JANUARY 2025**

**STUDY COMMISSIONED BY**



**गेल (इंडिया) लिमिटेड**

(भारत सरकार का उपक्रम – महारत्न कंपनी)

**GAIL (India) Limited**

(A Government of India Undertaking - A Maharatna Company)

*NEW DELHI*

REF: CO/CSR/Impact Assessment/MSSW/2024-25

10.05.2024

**SUBMITTED BY**

**MADRAS SCHOOL OF SOCIAL WORK,  
EGMORE, CHENNAI- 600 008**

# **IMPACT ASSESSMENT STUDY REPORT OF GAIL'S CORPORATE SOCIAL RESPONSIBILITY (CSR) SUPPORTING THE COMMUNITY INITIATIVE FOR CHECKING STUBBLE BURNING**

## **ACKNOWLEDGEMENT**

This Impact Assessment study report on the CSR initiatives of GAIL is to provide a valid description of the impacts of the CSR initiatives carried out by GAIL during 2021-22, in the project sites.

We are thankful to GAIL for partnering with Madras School of Social Work (herein referred as MSSW) for Conducting an Impact Assessment Study.

Our sincere thanks to Shri. Deepak Kumar, DGM (CSR), Shri. Akshaya Kumar Panda Manager (CSR), Shri. Asim Anwer Ansari, GAIL (India) Limited, New Delhi for their strategic support in conducting the study at every stage by furnishing relevant available secondary data information and meticulous coordination. We also extend thanks to all the GAIL Officials, who assisted to complete the Study as per schedule.

We humbly acknowledge the support extended by the GAIL nodal officer Shri. Asim Anwer Ansari, CII nodal Mr. Tahir and Mr. Chandrakant Pradhan, Lead, Climatic resilience, Mr. Abdullah all the CII staff for providing necessary documents for desktop review and field Visit. We would also like to extend our gratitude to District Agriculture Officer's kind cooperation.

The Madras School of Social Work Study Team comprised of Dr. S. Raja Samuel, Principal Consultant, Mr. Vimal Navin Rao Study nodal officer project, Dr. C. J. Paul, Team Leader and Social Development Consultant and Dr. Prema P, Gender & Environment Consultant, and Mr. V. Purushothaman, Administrative Assistant.

Dr. S. RAJA SAMUEL,  
Principal,  
Madras School of Social Work,  
Chennai

## ABBREVIATION

BI	Beneficiary Interview
CII	Confederation of Indian Industry
CRM	Crop Residue Management
CSR	Corporate Social Responsibility
FGD	Focus Group Discussion
FPC	Farmer Producer Company
FPO	Farmer Producer Organisation
GAIL	Gas Authority of India Limited
KII	Key Informant Interview
MSSW	Madras School of Social Work

# IMPACT ASSESSMENT STUDY REPORT OF GAIL'S CORPORATE SOCIAL RESPONSIBILITY (CSR) SUPPORTING THE COMMUNITY INITIATIVE FOR CHECKING STUBBLE BURNING

## EXECUTIVE SUMMARY

Farm stubble burning is a major environmental concern in Northern India. An estimated 47 million tons of rice straw is produced annually in Punjab, Haryana, U.P, and Rajasthan, with 80% burnt in the field. This causes severe air pollution across north India, especially in Delhi NCR. About 26% of PM 2.5 levels in Delhi's winters are due to stubble burning, reaching up to 50% on some days (IIT-K 2016).

GAIL India, in collaboration with, the CII Foundation is addressing this issue through the Crop Residue Management (CRM) Initiative in 5 villages of Ludhiana, Punjab. They signed a MoU in November 2019 to roll out the project, financially supported by GAIL, until March 2021, working with farmers to reduce stubble burning during the 2020 cropping season.

GAIL supported the initiative with INR 52,00,000/-. The MSSW team conducted evaluations with stakeholders and beneficiaries using qualitative and quantitative methods, including interviews and focus group discussions.

### Key Findings

- **Improved Farming & CRM:** Facilities provided by CSR support enhanced farming practices.
- **Training & Awareness:** Farmers received training on the ill effects of stubble burning and CRM benefits.
- **Machinery Bank:** A pool of high-quality machines managed by the FPO is available for rent at nominal rates.
- **Consultation & Upgrades:** CII & FPC regularly consult with PAU for more efficient CRM machines.
- **Environmental Benefits:** Reduced fertilizer/water requirements, improved soil profile, and approximately 5-6% increase in yield.

## **Before & After CSR Support**

- **Before:** Poor soil fertility, unprofitable farming, uneconomical equipment rental, no CRM practices, and severe pollution from stubble burning.
- **After:** Increased soil fertility, profitable farming, economical equipment rental, better CRM practices, and improved air quality.

The project successfully met the community's need to check stubble burning. The GAIL project was highly effective from 2021-22. Madras School of Social Work compliments the GAIL CSR team and hopes future CSR plans will accommodate the community's needs.

This project has demonstrated significant positive impacts and laid a strong foundation for further growth and success.

# **IMPACT ASSESSMENT STUDY REPORT OF GAIL'S CORPORATE SOCIAL RESPONSIBILITY (CSR) SUPPORTING THE COMMUNITY INITIATIVE FOR CHECKING STUBBLE BURNING**

## **1. INTRODUCTION**

The report assesses the impacts of GAIL's CSR support for Supporting Community initiative for Checking Stubble Burning in the 5 villages in Ludhiana, Punjab during the years 2021-22.

GAIL supported with INR 52,00,000/ for the Community initiative for Checking Stubble Burning during the years 2021-22. MSSW team conducted the evaluation discussions and evaluations with stakeholders and beneficiaries.

## **2. OVERVIEW OF MADRAS SCHOOL OF SOCIAL WORK AND THE CONSULTANCY DIVISION**

The Madras School of Social Work (MSSW) was founded in 1952 by Mary Clubwala Jadhav. MSSW is an autonomous college affiliated to the University of Madras. The school offers various under-graduate and graduate courses in social sciences. The College is accredited by NAAC at 'A+ Level' and ranked within the top five institutions for social work education.

MSSW has a Consulting Division (since 2009) that supports the Central Public Sector Units, State Public Sectors, Private companies, GOI, State Government agencies and NGOs in the baseline & evaluation studies, monitoring, CSR investment plans, CSR evaluations and other customized requirements of the clients on the social and environmental related support.

## **3. BACKGROUND OF THE STUDY**

Farm stubble burning is a major environmental concern for Northern India. An estimated 47 million tonnes of rice straw is produced every year in four North Western states of Punjab, Haryana, U.P, and Rajasthan, of which 80% is burnt in the field. This phenomenon causes a rapid escalation of air pollution across north India, especially in Delhi NCR. About 26 % of PM 2.5 contribution in winters in Delhi is caused by stubble burning overall (IIT-K 2016), and on some days the estimated contribution of stubble burning to Delhi's pollution touches nearly 50%, according to official data. CII Foundation and GAIL signed an MoU in November 2019 to roll out

a project, financially supported by GAIL, in 5 villages in Ludhiana, Punjab till March 2021, working with the farmers to address the stubble burning issue through the 2020 cropping season<sup>1</sup>.

GAIL invested INR 52,00,000/ for Supporting Community initiatives for Checking Stubble Burning during the years 2021-22.

On 16.07.24 Mr. Vimal Navin Rao & Mr. Arindam team members of Madras School of Social Work, Chennai went to the CII head office to meet with the Nodal officer for discussion with the officials on the project “Supporting Community Initiative for Checking Stubble Burning” and then on 19.07.24 Mr. Vimal Navin Rao visited the site in Ludhiana Punjab for a discussion with the authorities, Officials, and beneficiaries, followed by Group Discussion with the farmers.

Prior to the evaluation, the officials were briefed telephonically and via email/WhatsApp on the GAIL Study methodology and a brief about the MSSW. This evaluation was participatory in nature. The district agriculture officials extended necessary support to complete this participatory evaluation to complete the evaluation study in the limited time allotted.

#### **4. GAIL CSR PROJECT COMPONENTS AND DETAILS OF WORK UNDERTAKEN:**

Proposed activities under the project area of 5 villages were:

- Large-scale awareness-building measures and training, and behaviour change communication:
- Procurement and deployment of recommended farm machinery with farmer groups
- Monitoring the adoption of improved straw management practices by farmers.
- Research and impact evaluation of the project outcome.

#### **PROJECT ACTIVITIES BY CII FOUNDATION:**

CII Foundation identified the possible sustainable solutions to the root causes of the problem in consultation with farmer groups, especially focusing on the following aspects - with support from GAIL:

---

<sup>1</sup> CLEANER AIR, BETTER LIFE Crop Residue Management Initiative Raikot Block, Ludhiana, Punjab CII Foundation, Project Progress Report Jan 2021

- Creating trust and confidence among farmers - through regular visits, meetings, and awareness campaigns at the ground level – to motivate them to adopt alternate straw management solutions.
- Formation of machinery tool bank at the cluster level (by involving existing Farmer Producer Organisations (FPOs)), thereby filling the gap of farm machinery required for in-situ (mulching/mixing of straw in the soil) operations by farmers.
- Series of technical training in collaboration with scientists of Punjab Agriculture University, Ludhiana, Krishi Vigyan Kendra (KVK), district agriculture department, and other progressive farmers.

#### **METHODOLOGY OF THE STUDY:**

- This study focused on both the qualitative and quantitative aspects of the programme. Qualitative Research Approach, where qualitative data were collected through interactions with both beneficiaries and stakeholders of the programmes.
- The investment facilities provided by GAIL were visited by the MSSW team.
- Qualitative research approach: Key Informants Interviews, Focused Group Discussions, and case study guides were used for qualitative data collection.
- Key informant interviews were conducted with farmers and government authorities to gain- in-depth insights of the investments and its impacts.
- Focused group discussions were conducted with the beneficiaries (farmers).

Madras School of Social Work (MSSW) identified the following sample framework for the study:

<b>SAMPLE AND TOOLS USED FOR THE STUDY</b>			
<b>PROJECT &amp; SITE</b>	<b>Key Informants Interview (KII) *</b>	<b>Focus Group Discussion (FGD)</b>	<b>Transact walk/ Case study* of beneficiaries</b>
Supporting Community initiative for Checking Stubble Burning	KII-6	FGD 1 comprises of farmers from 2-3 villages.	Site visit 1 & Case study

- The beneficiaries were asked to explain the individual benefits they were impacted through the facilities provided under GAIL's CSR investments.
- A set of tools was used to conduct the stakeholders' consultation/interview.
- The list of the officials/authorities and farmers interacted and the FGD details provided in Annexure 1
- The photo gallery is placed as Annexure 2.

## **5. IMPACT ASSESSMENT STUDY FINDINGS**

The study report provides a valid description of impacts of GAIL's CSR investments for supporting community initiative for checking stubble burning in five villages of Ludhiana.

### **5.1 DATA COLLECTED FROM THE FIELD KEY INFORMANTS INTERVIEW AND ANALYTICS:**

1. Training and awareness on the ill effects of stubble burning and the benefits of adopting the CRM were shared with the farmer, and a way to get the machines on rent was framed to support the farmers in willingly adopting zero stubble burning and realizing the benefit of the CRM (crop residue management).
2. The FPO formed prior to the project was selected for managing the Machinery bank where there is a pool of machines that can be rented by the farmers for CRM and can be given back at a very nominal rent lower than the market rate.
3. The machineries provided for CRM were of good quality.
4. There are 14 machines provided under this project and farmers take these machines on rent.
5. The CII is in regular consultation with PAU for new models of machines which are more efficient for CRM.
6. There are environmental and financial benefits of using CRM techniques.
7. With this project the marginal farmers got access to affordable machinery.
8. Fertilizer/water requirement is reduced and hence input cost is reduced.
9. Soil profile is improving/no water logging still retains water due to CRM practices and zero stubble burning.
10. Approximately 5-6% increase in yield registered by the farmers.

11. CRM is timesaving and zero stubble burning reduces air pollution. In farming time saved is money saved as any delay in farming results in more cost.
12. The FPO was formed in 2016 and then converted to FPC in 2022 and this FPC is now taking care of the machinery bank.
13. The FPO that is managing the machines shared that the maintenance of the machineries is very high and to promote the CRM/zero stubble burning the rent are on the lower side.
14. The project can be upscaled and extended to other parts if more fund is given for sustaining the FPO/FPC that is maintaining the machinery bank.
15. More machines are demanded for CRM as the machine are not available as per the demand of farmers during the farming season and delays in farming forces the farmers to take desperate actions like stubble burning.
16. The shed was constructed by the FPO, the FPC, President suggested that the cost of shed should have been incorporated in the project.

## 5.2 IMPACT OF THE GAIL SUPPORT

The impact of the Support is furnished below:

Project	Before CSR intervention	After CSR intervention
Supporting Community Initiative for Checking Stubble Burning	<ul style="list-style-type: none"> <li>• The farmers were burning the stubbles, and the air quality of the village and surrounding area gets polluted and pose health hazards.</li> <li>• Natural fertility of the soil lost</li> <li>• Farming was not considered profitable</li> <li>• Buying/renting equipment was not economical</li> <li>• No crop residue management was not done</li> </ul>	<ul style="list-style-type: none"> <li>• Many farmers are now adopting the alternate ways of dealing with stubble by integrating it into the soil and some by mulching it to save on water.</li> <li>• Natural fertility of soil increased</li> <li>• Farming now considered profitable</li> <li>• Equipment available for rent and is economical</li> <li>• Crop residue management is now considered better</li> </ul>

	<p>only burning stubble was practiced and there was no way to check it.</p> <ul style="list-style-type: none"> <li>• Soil profile was not good.</li> <li>• Less yield</li> </ul>	<p>practice and stubble burning is checked to some extent.</p> <ul style="list-style-type: none"> <li>• Soil profile improved.</li> <li>• 5-6% increase in yield.</li> </ul>
--	--	--

## 6. SUPPLEMENTARY DATA FROM CII FOUNDATION'S SECONDARY DOCUMENTS

Reduction in Stubble Burning Incidents because of the project, there was a major transformation in paddy straw management methods in the project villages, which resulted in a drastic reduction in straw burning incidents. Before the project initiative, only 7% of the land was under non-burning and in the rest of the land, the stubble had been set to fire. But after GAIL INDIA and CII FOUNDATION's initiative, almost 80% cases of stubble burning was checked.

Districts/ State	No. of Villages	Paddy Acres	Total Farmers	Non-burning/adoption of new practice (complete non-burning + partial burning) in Acres	Burning area (Acres)
Raikot Block, Ludhiana	5	3320.5	706	(1070+2124=3195)	125

Village	Total acre under paddy	Full Burning	Zero Burning	Partial Burning <sup>1</sup>	Acres where stubble burning checked	Total Beneficiary (Farmer + Community)
Bhaini Bharinga	1317.5	80.5	743.5	493.5	1237	2302
Mohammadpura	407	35	67	305	372	388
Tajpur	767	10	110	647	757	1879
Kishan Garh Channa and Lakha Singh	829	0	150	679	829	2535
<b>Grand Total</b>	3320.5	125.5	1070.5	2124.5	3195	7104

## 7. IMPACT CREATED SO FAR THROUGH THE PROJECT

- 6500 tonnes of straw have been saved from burning. (considering an average of 2.5 tonnes per acres)
- A cadre of volunteer and technical trainers has been trained on the ground which will help in sustaining the project in the future.

- As per the preliminary discussion with the farmers, the results are quite satisfactory for the farmers and they are willing to continue with the same non-burning practice in the next season also.
- Machine use & Rent Collection by FPO:
- Total rent of INR 95,120/- was booked against the machines used in all the villages by farmers. As some of the farmers took the machines on credit, after the full collection, this rent will be deposited back in the FPO account which will be further used for the maintenance of machines, rental for a warehouse for tool bank, etc.

### **MACHINE USE DATA MACHINE**

Machine	Acres	Rent collected by FPO
Rotavator	350.5	59305
Harrow	131.5	9415
Mb Plough	101	22350
Happy Seeder	7	1300
Other Machine	42	2750
Total	632	95120

In addition to the machines provided through the projects, there was also demand for other machines during the season and thus additional machines owned by the FPO were also bought into these villages and their use was facilitated. Details for the additional machinery use is given below

Machines	Acres
Baler	1.5
Broadcaster	51.5
Mulcher	104.5
Potato Planter	17
Zinda	20
Total	194.5

### **SERVICING AND MAINTENANCE OF THE MACHINERY:**

Regular machinery servicing has been done as per the need for the smooth running of the machinery in the season. All the machinery is regularly checked for any defects and serviced regularly by the volunteers after every machinery returns from the fields<sup>2</sup>.

---

<sup>2</sup> CLEANER AIR, BETTER LIFE Crop Residue Management Initiative Raikot Block, Ludhiana, Punjab CII Foundation, Project Progress Report Jan 2021

## **8. MSSW TEAM MEMBERS OBSERVATIONS:**

The Farmer's Producer Organisations (FPO) were provided with basic infrastructure (machine shed) to house the machinery.

GAIL CSR support has been acknowledged and prominently displayed GAIL logo and financial contribution details on the equipment supplied under the project.

### **Feedback on the strengths, weaknesses, and opportunities of improvement/ augmentation/ modification of the programme:**

#### **Strengths**

1. **Infrastructure Support:** Machine sheds provided for basic infrastructure needs.
2. **Acknowledgment of GAIL CSR Support:** Prominent display of GAIL's logo and financial contribution details on equipment.
3. **Optimal Machine Utilization:** Machines are being used to their full potential, benefiting both local and neighboring villages.
4. **Sustainability:** The FPC efficiently manages the machine bank even after the project has ended.
5. **High Efficiency and Effectiveness:** Investments yield good returns, and farmers recognize the benefits.
6. **Positive Impact:** Farmers in the village and neighboring areas are experiencing the advantages of CRM and zero stubble burning.
7. **Unique Project:** Tackles multiple Sustainable Development Goals (SDGs) simultaneously.

#### **Weaknesses**

1. **High Maintenance Costs:** The FPC faces substantial maintenance expenses.
2. **Slow Adoption:** The transition to zero stubble burning is gradual.
3. **Reversion to Stubble Burning:** Farmers revert to stubble burning when machines are unavailable.
4. **Potential Miscommunication:** The sustainability of the machine bank might be miscommunicated to consultants.

## Opportunities for Improvement

1. **Funding for Expansion:** Additional funding is required to support the growing demand from neighboring villages.
2. **Accelerate Adoption:** Increased investment is needed to speed up the adoption of zero stubble burning.
3. **Spread Successful Model:** Collaborate with CII to replicate the project in other regions, especially in Northeastern states.

## 10. CONCLUSION

The impact assessment of the project revealed that it has successfully met the community's need to address stubble burning through the CSR intervention by all the concerned stakeholders and local communities.

- **Full Utilization of Investment:** The investment was utilized to its full potential and continues to be effectively used by the FPC. To upscale and expand the program, additional investment is required to ensure more farmers adopt zero stubble burning and CRM practices.
- **Evolving Machinery:** As technology evolves, newer and better versions of machinery are introduced. Farmers are eager to adopt these advancements to maximize benefits. It is suggested that the FPC, which maintains the machinery, should save enough funds to acquire new machines independently.
- **Funding Opportunities:** The FPC can seek matching grants from the government and engage in other income-generating activities to raise funds.

The GAIL project deserves high commendation for its effective implementation during the period 2021-22. The GAIL CSR management team has done an exceptionally commendable job, and their dedication has significantly contributed to the project's success.

Madras School of Social Work compliments the GAIL CSR team for their excellent work.

\*\*\*\*\*

## ANNEXURE 1

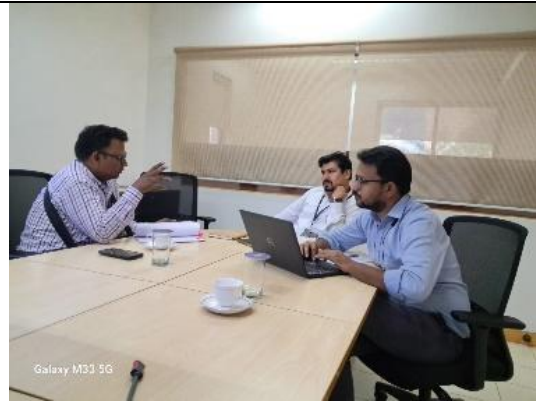
**The list of the officials/authorities and farmers interacted and the FGD details**

<b>PROJECT &amp; SITE</b>	<b>Details of stakeholders interacted</b>	<b>Focus Group Discussions (FGD)</b>	<b>Transact walk/ Case study of beneficiaries</b>
Supporting Community initiative for Checking Stubble Burning	<p>KII</p> <ol style="list-style-type: none"> <li>1. Mr. Chandrakant Pradhan CII Lead Climate Resilience</li> <li>2. Mr. Abdullah, CII</li> <li>3. Mr. Tahir, CII Nodal</li> <li>4. Dr. Harminder Singh Sidhu, Director, FPC</li> <li>5. District Agriculture officer</li> </ol> <p>Beneficiaries interview &amp; FGD</p> <ol style="list-style-type: none"> <li>1. Hirday Pal Singh 9915392508 BI</li> <li>2. Manraj 7837036024 BI</li> <li>3. Arshdeep Singh 8872805602 BI</li> <li>4. Gurpurat Singh 9592196116 BI</li> <li>5. Charnjit Singh</li> <li>6. Pardeep Singh</li> <li>7. Veer Davinder Singh</li> <li>8. Dr. Harminder Singh Sidhu</li> </ol>	FGD -1 8 Farmers	Site visit -1

**ANNEXURE 2**  
**PHOTO GALLERY**



Visit to CII to meet officials



KII with CII Officials



KII with Director FPC



Visit to Machine bank shed



FGD with farmers



Group photo