

## Biomass Management in Punjab

Multi-stakeholder consultation to discuss strategies for farmers' engagement and technology adoption in Punjab

14.00-16.00 hours, 8 May 2018

CII, Block No. 3, Dakshin Marg, Sector 31-A, Chandigarh 160030

### Consultation Proceedings

**Objective:** CII has been working on the issue of farm biomass management under the CII-NITI Aayog "Cleaner Air Better Life" initiative. The "Taskforce on Biomass Management" constituted under the initiative under the leadership of Additional Secretary, Ministry of Environment, Forests and Climate Change released its report in Feb 2018, highlighting the need for a multi-pronged strategy to manage farm stubble for addressing this issue. As the next step, CII plans to galvanise action on the ground at the regional level through (a) implementing an industry consortium led programme to directly support farmers to adopt improved technologies and practices for managing farm residue, and (b) undertaking policy research leading to preparation of "district plans" to assist state level biomass management programme of the government. A stakeholder consortium was organised on 8<sup>th</sup> May in Chandigarh to deliberate on the overall programme structure for the industry consortium and get inputs from key stakeholders, especially on development of cost-effective regional strategies and bankable solutions for treatment of rice-straw.

**Participants:** The multi-stakeholder meeting was attended by officials from relevant departments of Punjab Government, senior academicians, executives from corporates like ITC, Mahindra and Mahindra, Birla Soft, Escorts, Ambuja, Tata Trust etc. Farmers from Ageti village in Patiala district where zero biomass burning was achieved in 2016-17 were also present during the consultation. Farmers informed the audience about the benefits of mulching achieved under the guidance of experts. Complete list of participants is attached in Annexure 2.

### Highlights of Discussions:

Ms. Seema Arora (Deputy Director General, CII) welcomes all participants to this multi-stakeholder meeting which aims to seek feedback on the possible role of industry for biomass management in the state of Punjab. Special thanks was extended to the farmer community who joined the discussions for sharing their experience while avoiding the farm stubble burning in their villages.

Dr Jaskaran Singh Mahal (Dean, Punjab Agriculture University) set the overall context on the issue of open burning of crop-residue, talking about its key policy, technology and social aspects. He stressed that farmers are under tremendous pressure due to- small time window available between paddy and wheat crops for land preparation, declining market prices for straw and lack of revenues to farmers as a result. Special character of paddy straw, that is high amount of Silica content is detrimental for machinery for shaving/chopping/shredding of straw and it is energy intensive. He also highlighted logistical challenge for storage and transportation of huge amount of paddy straw generated in the state (15 million tonne paddy

straw). Seven bio-power plants already operating in Punjab find it hard to compete with more cost-effective renewable power options such as solar power. Given the fact that organic matter in Punjab soil has declined to 0.3% (as opposed desirable level at 20%), Keeping biomass in the farms itself should therefore be the priority and society must support farmers to get rid of the problem.

Mr Kahan Singh Pannu (Chairman, Punjab Pollution Control Board) highlighted that biomass burning is a near three-decade old problem and government has taken various initiatives to create awareness on this issue. With the assistance of Central Government, Punjab is now planning to deploy agricultural machines among farmers in large scale. As an initial step, government is preparing an inventory of available machines which will be made available at an aggregation platform via mobile app. He said that private sector may come forward and support the areas with gaps in infrastructure. Mr Pannu also highlighted the need of financial support to farmers and mentioned that Punjab government is pursuing bonus on paddy MSP (which will be credited to farmers up on confirmation of non-burning) with the Commission for Agricultural Costs and Prices (CACP).

Mr Manmohan Kalia (Joint Director, Department of Agriculture, Punjab) spoke about the state action plan and the central scheme for procurement of machinery. Under the central scheme, 100% grant-in-aid is being provided to state for farm implements as opposed 60%-40% contributions from centre and state. He highlighted the incidents of bales catching fire as major challenge with baling and other challenges for evacuating straw from farmers/village end to user industry.

Inputs were also shared by several industry participants present at the meeting. Mr. Sanjeev Nagpal (Managing Director, Sampuran Agri) shared experiences with the bio-CNG from paddy straw in Punjab which has been tested at PAU for three years and is commercially established now. He highlighted the need to consider cost-effectiveness of different measures/technological options and evaluating them end-to-end. He stressed the need of scaling up established ex-situ solutions for farm biomass management. He mentioned that there is additional cost to farmers for treating the residue locally and highlighted air pollution from excessive diesel requirements for running various farm implements.

Birla Soft shared its experience of successfully executing a programme in two villages in Punjab leading to “Zero Biomass Burning”. Farmers from village of Ageti, supported by Birla Soft last year, shared about the community action and positive impacts they have achieved by abandoning the practice of burning of residues in their farms. The village has total 725 Acre under paddy cultivation. After mulching the paddy residue at the field, farmers in the village have experienced 20-25% irrigation water savings and roughly 24% hike in the yield of wheat crop. It has also helped them to adopt crop diversification – potato was taken up at a large scale in the village in the current year, and since the potato produce quality was good, companies such as Pepsi have procured in bulk from the village.

Representative from Novozymes mentioned that enzymatic solutions are available in the market for both lingo-cellulosic and non-lingo-cellulosic content and second stage bio-ethanol demonstration plant is successfully working in Kashipur. He highlighted suitability of maize over paddy for biofuel conversion as per the life cycle assessment studies but at the same time, maize to ethanol is not allowed by the Government of India as production of rice from Punjab is considered important for national food security. Ambuja Cements shared about its

approach of adopting villages in the vicinity of the plant, where it sources farm straw in partnership with farmers producer groups.

CII presented on proposed steps planned for biomass management in the state of Punjab and invited inputs from stakeholders present in the meeting. There are two major aspects of CII's planned work in Punjab- (1) Policy research for sustainable management of biomass in the state which includes devising regional strategies and district action plans (DAPs) for biomass management, (2) Designing and execution of an Industry consortium supported programme involving engagement with farmers for behaviour change and adoption of improved technologies, tools and sustainable farming practices leading to "Zero Biomass Burning" in villages. The roll out of the programme will be managed by CII Foundation which is a charitable trust set up by CII.

The annexure 1 captures the key features of Punjab districts for paddy cultivation. It was highlighted by CII presentation and was agreed by the participants that the required infrastructure for treatment of crop-residue is not uniformly distributed in Punjab districts. District action plans are therefore very important to ensure effective programme implementation and efficient utilisation of resources.

#### Conclusion:

Ms Seema Arora concluded the session by mentioning that CII will coordinate with the Government of Punjab and industry members in the following months to design and roll out a programme on biomass management in a manner that is complementary to government efforts.

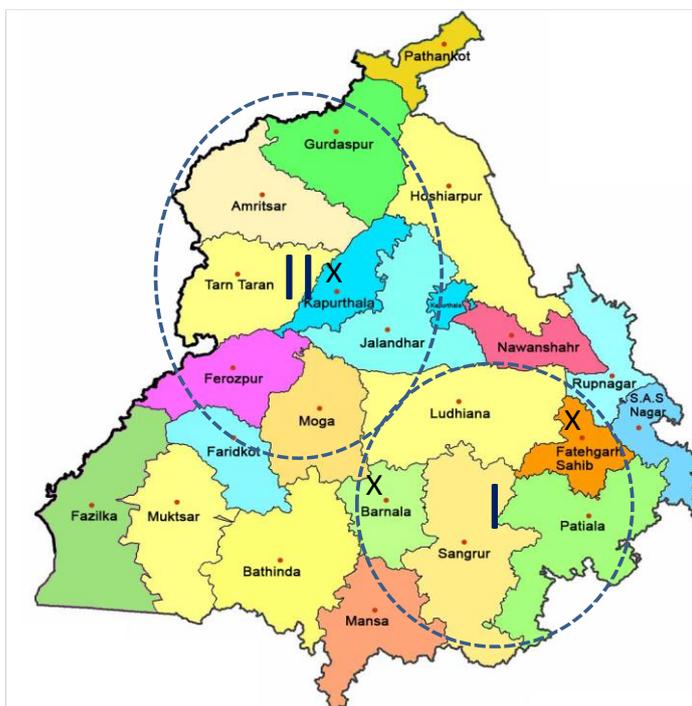
The consultation was successful in terms of understanding government's view and initiating discussion on the implementation plan. Government of Punjab welcomed the move by CII for forming a consortium of companies to jointly tackle this problem for the larger impact. Various companies have shown interest in joining hands for the joint initiative.

#### Next Steps:

- CII will design a Programme Implementation Plan that will be shared with interested partners. The programme design will be in line with the concept presented to the stakeholders and the inputs received, especially from the Government of Punjab.
- The Programme will be supported by the industry consortium and will be executed by CII Foundation in villages in two districts.
- Further inputs will be taken from the Government of Punjab and other stakeholders to improve the programme design. The Government of Punjab is currently undertaking an exercise of mapping up of the existence and use of farm tools and implements in the state. This mapping exercise will provide inputs about the infrastructure gap in different districts that the industry consortium can address. CII will coordinate with the Government of Punjab in this regard.
- CII will also design a framework for the district plan preparation and will share this with interested initiative partners.

Annexure1. Punjab districts and paddy cultivation

- **Group-I districts:** Districts with very-high cultivation area under paddy (> 20,000 ha). Three districts of Punjab in Central and Southeastern region: **Sangrur, Ludhiana and Patiala**
- **Group-II districts:** Districts with higher cultivation area under paddy (> 15,000 ha). Six districts of Punjab in Central and Northwestern region: **Amritsar, Ferozpur, Gurdaspur, Tarn Taran, Moga and Jalandhar**
- Other districts with higher percentage of net sown area under paddy: **Faridkot (82%), Kapurthala (78%), Barnala (84%) and Fatehgarh Sahib (87%)**



S. No.	Districts of Punjab	Area under paddy cultivation [ha]	Percentage of Net sown area (NSA) [%]	Harvesters/ 000' ha under paddy cultivation	Penetration of Agricultural cooperative societies [% households]
1	SANGRUR	248440	84%	6	56%
2	LUDHIANA	248001	85%	4	72%
3	PATIALA	227516	88%	19	72%
4	AMRITSAR	175067	82%	1	30%
5	FEROZPUR	174752	87%	5	33%
6	GURDASPUR	165211	81%	2	20%
7	TARN TARAN	157946	80%	2	39%
8	MOGA	156696	84%	16	67%
9	JALANDHAR	154035	69%	2	84%
10	FARIDKOT	104485	82%	9	79%
11	MUKATSAR	100594	45%	6	38%
12	KAPURTHALA	99778	78%	2	67%
13	BARNALA	96986	84%	5	70%
14	FATEHGARH S.	85035	87%	6	67%
15	BATHINDA	80313	33%	9	21%
16	FAZILKA	70697	29%	10	41%
17	MANSA	67747	37%	6	50%
18	NAWANSHAHR	56750	59%	3	---
19	HOSHIARPUR	54668	28%	1	82%
20	RUPNAGAR	37035	47%	2	80%
21	SAS NAGAR	30224	51%	1	28%
22	PATHANKOT	27629	54%	1	7%

Annexure 2. List of participants

**Crop Residue Management in Punjab**

Multi-stakeholder consultation to discuss strategies for farmers' engagement and technology adoption in Punjab

1300- 1630 hours, 8 May 2018, Tuesday  
CII Northern Region Headquarters, Sector 31-A, Chandigarh.

**Attendance Sheet**

S No	Name	Designation	Organisation	Signature
1.	JANJEEV KHANNA	CONSULTANT	ESCORTS LTD, FARIDABAD	[Signature]
2.	Taru	CSR Consultants <sup>Pres</sup> Mpt.	Bioloboff	[Signature]
3.	Sushant chinchka	Programme manager, ITC Punjab	ITC Ltd.	[Signature]
4.	Ashwini Yadav	ITC Ltd, Bhopal	ITC Ltd	[Signature]
5.	POONAM KATARIA	Incharge, CAPMAE	PAU, Ludhiana	[Signature]
6.	Mangji Wadhwa	Head, Dept Animal Nutrition	GADVASU, LDH	[Signature]
7.	ANKUR RODRAI	HEAD, DESIGN R&D ESCORTS	ESCORTS, FBD	[Signature]
8.	PARDIWAN	APPLICATIONS ENGG, AGRI. IMPLEMENTS	ESCORTS FBD.	[Signature]
9.	PARMOD LAMBA	Vice President	Malindret + Malindret	[Signature]
10.	I.M. CHHIBRA	Consultant	RGR cell, Taru Tourist PAU	[Signature]
11.	Kalluhi Ansa	PWD scholar	PAU, Ludhiana	[Signature]
12.				

S No	Name	Designation	Organisation	Signature
13.	Dr. Salman Singh Ladhani	Adml. Director (Env.)	Punjab State Council for Sci & Tech.	
14.	Kulbir Singh Bhat	Area Manager.	Tata Trusts	
15.	R.S. Ghossein	CRRID Professor	CRRID, Chandigarh	
16.	Anooj Bhat	Research scholar	CRRID, Chandigarh	
17.	Jasrajit Singh	Dy. G.M. - Lower Plant	Ambuja Cements Ltd.	
18.	Amitabh YADAV	AMBUJA	"	
19.	Tanu Katheria	Prog Mgr. + Consultant	Bidasoft	
20.	Dr. Navinder Singh	Associate Prof;	I.I.T. Ropar	
21.	Kamal Sharma	Counsellor	CII	
22.	Mohit Sharma	ASSU - counsellor	CII	
23.	Sangeet Singh	M.D. Nava Agro Industries		
24.	DR. MANMOHAN KALIA	JDA ENGG. Cum Nodal Officer Crop Residue Management.	DEPT. OF AGRIC, Punjab 98140 66839	
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27.				
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