Workshop on Emerging Solutions for Sustainable Management of Paddy Straw Biomass

1. Background
Agriculture plays a vibrant role in the economic development of India as about 17.41% share in the Gross Domestic Product (GDP) is accounted by agriculture and more than 50 percent of the workforce is dependent on this for their livelihood. Agricultural exports accounted 12.1 per cent of India’s total exports for the year 2014-15. In India Punjab, Haryana and Uttar Pradesh produced 28.48 million tonnes of rice, which is 27% of all India’s total production for the year 2016-17 and produced a total of 43 million tonnes of paddy straw.

Agriculture residue (stubble) from rice and wheat crops pose a significant problem to the farming community. Unlike other crop residues, major portions of the paddy straw remain uncollected in the fields due to its specific characteristics such as high silica, lack of nutrients, low calorific value and obsolete traditional uses preventing their alternate uses. Additionally, removal of straw from fields requires a huge labour cost fuelled by shortage of labours. These aspects has led to the farmers resorting to open burning of the straw so as to prepare the fields in a very short span of 15-20 days to initiate sowing the next wheat crop leading to plethora of issues towards climate change, nutrient loss, loss of soil fertility, and severe air pollution in entire northern states and choking the National Capital Region.

There are various options for processing rice straw either at farm itself (in-situ) or outside the farm area (ex-situ). The workshop intend to deliberate both on the short term and long term solutions for the “open burning” covering in-situ and ex-situ options. The in-situ utilization of paddy straw offers long term solutions while improving the fertility of soil through nutrient recycling. The workshop will cover the techniques and benefits of in-situ utilization of paddy straw.

Energy from paddy straw can be harnessed through conventional combustion process or through biological process. The conventional biomass power plants are not 100% on rice based on rice straw and have not seen much success due to several operational challenges inherent in the straw. Some of the challenges are collection of straw from the field, storage and protection from rains and organic degradation, and typical characteristics such as high Alkali and Silica content. Silica leads to clinker formation in the super heater zone and a severe problem of deposition in the convection zone, requiring frequent shut-downs for cleaning the boilers (MNRE; UNDP 2015). Also to make them commercially viable, apart from capital subsidies, a subsidy on tariff would be required. Key challenges for biomass power generation projects are:

- Continuous availability of biomass throughout the year as it can be effected in offseason/seasonal variation.
- Competing user industries in the project region for the raw waste material.
- High costs of transportation of wastes to site.
- No dedicated policy for regulating the market price for crop residue waste; as farmer may ask for higher prices once project has been commissioned.
- Govt. support for preferential tariff and project commercial viability
• Govt. support for project communities sensitization, livelihood growth to ensure project sustainability

Utilization of paddy straw as fuel can also provide some monetary incentive to farmers and at the same time avoid large scale burning of stubble while generating renewable energy. The workshop will deliberate on the technological solutions for the challenges of biomass power plants.

There is an imperative need of sensitizing different stakeholders such as policy makers, Govt. regulators, private developers and investors for the importance of effective management of paddy straw, associated environmental impacts and their utilization.

2. Background of NPC

National Productivity Council (NPC) is an autonomous, multipartite, non-profit and a national level organization established by the Ministry of Industry, Government of India to promote productivity culture in India. NPC is assisting the Central and State Governments, local bodies and other organizations through taking various project assignments, training programs for improving the quality and efficiency of public services, including issues and concerns relating to quality, environment, energy, HRD, integrated rural development etc. NPC is conducting several Training Programs and workshops to meet the urgent and long term needs and objectives of the various govt. schemes in the developmental sector including energy efficiency and energy sectors.

There is an imperative need of sensitizing different stakeholders such as policy makers, Govt. regulators, private developers and investors for the importance of effective management of crop residue, associated environmental impacts and utilization of crop residue for power generation, technical and financial aspects in biomass power plant, key operational issues and likely solution for promoting the biomass based power generation in India.

3. Objective of the Workshop

Objective of the program is to sensitize different stakeholders on importance of effective management of paddy straw, associated environmental impacts, emerging technical solutions for effective utilization paddy straw and on the commercial and financial issues associated with such projects. Key discussion topics are:

• Current Status of Management of paddy straw, associated environmental impacts and need for effective management of paddy straw
• Solutions for processing / management of paddy straw
• Technological solutions for 100% utilization of paddy straw in biomass power plant
• Commercial &Financial aspects related to biomass processing projects
• Role of State / Central agencies and regulatory support mechanisms for effective management of paddy straw
4. **Target Participants**
   All stakeholders such as private developers, consultants and advisors, investors, Govt. regulators who are involved in management of crop residue and keen in promotion of biomass based power generation.

5. **Participation Benefit**

   Program will provide a platform for knowledge sharing on technical solutions for effective management of crop residue, Commercial and technical aspects and possible solutions, and measures for the promotion of paddy straw utilization.