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Budget 2018-19: Special scheme for governments of Haryana, UP, Punjab and Rajasthan to subsidise machinery for removal of crop residue and in-situ crop management

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1. First things first, Kudos to the Govt of India for finally acknowledging that there is a problem with agri-farm waste management, which needs attention.
2. A small step of acknowledgement is well begun, but I will be cautious here to comment that it is only acknowledgement. The taste of the pudding will actually lie in the proper, time bound implementation of the scheme. And this is where, typically most of the well thought & well meaning schemes fail. Centre-state coordination & micro-level management will be crucial to reap the benefits of this scheme.
3. Time is of crucial essence as the next harvest of rice paddy straw in North India is going to be starting from end Sep 2018 and that leave barely 8xMonths for this scheme to actually get implemented and to show some tangible results.
4. This scheme is a positive step in the flagship program of enhancing farmer income, as there is a prudent way of creating wealth from farm waste and the financial numbers are actually mind-boggling.
5. Approx 400 Million MT of agri-farm waste being burnt across India at a nominal value of about Rs 2000 per MT amounts to a whopping Rs 800,000 Million or Rs 80,000 Crores or USD 12300 Million or USD \$ 12 Billion going back into the rural economy. Creating a new business line in India for the farming sector and utilizing of renewable source of energy year on year.
6. An important point to be flagged is: why the scheme for only the four states of North India? Similar in-field burning happens across other states of India as well and for many other agri-residues besides rice paddy straw. Does it mean that since the effect is on Delhi only the neighbouring states get benefit of a financial package? Time for the other states & farming sector from other Indian states to raise this issue and stake claim for an all round solution across India to be implemented. If this scheme in North India is just the start and in the years to come it is going to be extended to other states, then that is to be looked into when more details of the scheme are available.
7. There are two main operatives of this scheme & I will dwell upon both in more detail in this note (more details about the scheme are awaited and fine print reading is important):
 - a. **Removal of Crop Residue**
 - b. **In-situ crop management**
8. **Removal of Crop Residue:**
 - a. The Govt is supporting equipments for the removal of the crop residues, which is a very positive initiative. It gives a positive method for the farmer with fiscal incentives to be able to remove the crop residues and not burn it in open fields.
 - b. So whosoever claims the fiscal benefits must not burn & this needs to be monitored at micro-management levels including use of technology interventions like satellite mapping, etc and a stick & carrot kind of role play by nominated agencies will need to be done. **Key is Implementation methodology.**
 - c. The question yet to be answered is to remove the crop residues and do what? Case in point is that the farmer mostly does not burn wheat straw which is available in the same fields but removes it and there is utilization as fodder. So again a half

baked story which can make the scheme fall flat and good money will not yield the desired benefits.

- d. Key is to create a utilization market. Demand side increase has to be created for the agri-residue which is going to be removed from the fields.
- e. Some work has been done on the demand side creation, but the projects are a long way away from reality, say anything from 3 to 5 years away, if it happens. Namely, biomass power plants in the states of Punjab and Haryana. Bio-ethanol refineries in the states of Punjab, Haryana, Uttar Pradesh. With the planned projects over the next 3 to 5 years, the quantity required for such projects is around 2.0 Million MT at the maximum. And the quantum being burnt between these 4xStates is close to 40 Million MT. Hence, on the demand side, only 5% of the usage being planned.
Therefore, the agri-residues will continue to burn in the North India fields.
- f. Removed and kept where? Storage for how long? Storage by whom? Farmer will need land to store this removed crop residues and find a market for it before the next season of crop residues which will come in a year's time or earlier in few geographies.
- g. Ball park numbers on storage- 1000 MT of baled rice straw requires 1 acre of land for storage. Even with this scheme being implemented and with demand of close to 2.0 Million MT being planned, it requires 2000 Acres of land for storage which has to be in small land parcels of 10 to 15 acres each. Hence, close to 150 to 200 storage centers / depots need to be planned within the next 8xMonths. Who is going to do this & detailing of the scheme implementation will be crucial.
- h. **Working capital.** There is a huge requirement of working capital in a short period of 60 days to be able to remove, aggregate, transport, and store this agri-residue biomass. The scheme is supportive of the subsidy on the equipments. Where does this working capital support come from? Financial institutions need to be sensitized to this new business model and come forward to support this scheme from year 2018 itself and Govt agencies need to be working overtime to ensure financial inclusion for this scheme.
- i. Price mechanism for the agri residues will have to be established and market dynamics will need to be created. The agri-residues will be the new commodity & this will need a market management mechanism to get created.
- j. List of equipments which need to be covered under this scheme are:
 - i. Balers
 - ii. Rakers
 - iii. Cutters
 - iv. Trolleys (to be manufactured specially for optimal transportation)
 - v. Tractors
 - vi. Chippers
 - vii. Weigh Bridges
 - viii. Fire Fighting Equipments
 - ix. Lightning Arrestors

9. **In-situ crop management**

- a. **Happy Seeder.** This equipment which has been developed for the In-situ crop residues management and scientific results has been encouraging. Developed in synergy with Germany and Indian collaboration, many papers have been published regarding the plough back of the rice straw residues in the fields and the next crop sowing (wheat) can be done with no effect on the production quantum.
- b. On ground feedback regarding the use of Happy Seeder equipment has been mixed and at many places farmers who did use this equipment have moved away from it and at other places farmers continue to use this equipment.

- c. More advocacies for the use of Happy Seeder need to be done and the increased availability of this equipment should bring it into more usage. Good step by the Govt to provide financial support for this equipment to be purchased. Again implementation will be crucial, as purchase of this equipment should mean that in that region the agri-waste is not burnt and this needs micro level monitoring and implementation.
- d. Approx 5 to 7 MT of agri-residues is generated per Ha of land. In situ tilling of this large quantum of agri-residues and such a large volume of agri-residues should bio-degrade within a quick time period for the next crop to not get affected. This is something which needs to be seen for the effects over a period of time & needs soil experts & agriculture experts to get involved. Statistical data over few years will be able to provide creditable answers to this point.

10. Dichotomy of the Scheme.

- a. Govt is propagating and advocating use of the agri-residues for its commercial utilization with large scale projects by Public and private companies being developed based on the utilization of these agri residues. The energy value of the agri residues biomass has huge potential to create value, which is very much in sync with the Govt scheme of doubling farmer income. By In-situ crop management and putting it back into the ground, what happens to the billions of dollars of investment which is being planned based on availability of these agri-residues.
- b. Areas where the projects are being planned are based on studies and assumptions of long term availability of crop agri-residues and if the In-situ crop management is being done in these areas, then where is the agri-residue biomass to support such large investment.
- c. In effect, half baked scheme, half thought of by the consultants and announced in a hurry to catch the budget timing. Yet ray of hope is to be able to implement it by forming an Apex Body which implements this scheme in letter and spirit.

11. Conclusion

- a. I congratulate the Ministry of Finance, Ministry of Agriculture, Ministry of Rural Development, Ministry of New & Renewable Energy, Ministry of Power, Ministry of Petroleum & Natural Gas, Ministry of Science & Technology, Department of Bio-technology, NITI Aayog, Govt PSU like, IOCL, HPCL, BPCL, MRPL, NRL & NTPC for all coming together at various points of time over the last few years and finally Govt of India coming out with an initiation of a **Special scheme for governments of Haryana, UP, Punjab and Rajasthan to subsidise machinery for removal of crop residue and in-situ crop management.**
- b. **Kudos & Salute to Hon'ble Prime Minister Narendra Modi Ji for being able to announce this scheme to be rolled out and the officials in the PMO for reviewing the problem and for finding a solution.**
- c. **Prayer:** The implementation in letter and spirit of this scheme should be under one nodal agency akin to many other Central schemes and surely India has embarked on the potential of a Bio-economy and Circular-Economy with self reliance on energy to be harnessed from biomass.

JAI HIND!