Minutes of a Meeting on "Roadmap for Implementation of Science & Technology Intervention in NER (STINER)" held on 20th April, 2017 at Committee Room-C, Vigyan Bhawan Annexe.

A meeting on "Roadmap for Implementation of Science & Technology Intervention in NER (STINER)" was held under the Chairmanship of Principal Scientific Adviser, Dr. R. Chidambaram, hosted by Ministry of DoNER on 20.4.2017 at 11:00 AM in the Committee Room - C, Vigyan Bhawan Annexe. The meeting was called to deliberate and discuss ways of dissemination of various S&T interventions in both Farm & Non-Farm sectors and also to identify the gaps where new technology could impact and bring about economic development in the NER.

2. The list of participants is enclosed.

3. Welcoming the participants, the Chairman stated that a number of technologies have been developed by various institutions which can reduce drudgery and enhance the standard of population particularly in the North Eastern Region. He stated that the meeting has been convened so that the institutions that are generating new technologies and the users of these technologies are brought together on the same platform so that these technologies could be scaled up and disseminated widely. The meeting aims to set up mechanism where demand for new technology are also identified jointly by the user organization. He stated that the participation of Secretaries of various levels indicates that the low level of interests for development in the North Eastern Region. It was decided that the discussions could be focused on the non-farm sector first so that the R&D work done in the textiles sector could be shared and mechanism for wider dissemination could be discussed.

NON FARM SECTOR:

4. Dr. Ketaki Bapat, Scientist, Office of the PSA to GOI, gave a presentation on the work of RuTAG (Rural Technology Action Group), centres established at IITs in the Non-Farm sector especially Handloom, Silk and Wool Sector which have been successfully used in various rural areas of India and can also be replicated in NER. She mentioned that updated machineries like Pirn Winding Machine Modified handlooms (100 installed by KVIB, Kerala), Hank to bobbin machine and machines for Muga Silk weaving etc., are available for replicating in the NER.

5. The Secretary, Textiles stated that the technical intervention in the Handloom Sector should only be done to reduce the drudgery of the weaver, but the product may retain the status of Handloom. Facilitating supportive technologies would improve the productivity, quality and design which will have direct impact on their standards of living. Referring to the innovations by

RuTAG, she stated that convergence between scientists of Central Silk Board and the IITs are already being initiated. She agreed that there is a need to mainstream the innovations and that the Ministry has schemes of subsidy for mechanize equipments that reduce drudgery without training status from handloom to power. She mentioned about the R&D work done by Central Silk Board – Buniyad to reduce the drudgery in thigh real. She stated that meeting like this for a change of innovations and also we need to create awareness and skilling. In addition she informed that the Central Silk Board, Textiles Research Associations have also developed various innovative technologies.

6. During the discussions that ensued, it emerged that the following R&D institutions are engaged in research/development of new technologies as follows:

- ICAR, Mumbai - Processing of cotton fiber
- ICAR, Kolkata - Processing of jute and natural fiber
- CSIR, Jorhat - Processing of banana and apple fiber
- CSIR, Palampur - Converting bamboo fiber to yarn and using waste cocoons for Cosmetics
- Central Agriculture University, Impha - Apple fiber
- CSIR, Guwahati - Organic dyes of Indigo
- National Botanical Research Institute, Lucknow under CSIR – for dyes. NBRI have also developed plant colour technology from the textiles sector.

7. Secretary, Textiles stated that sericulture has been give a special focus under the sub-scheme titled NERDPS on the issue of good quality planting material. DBT and Central Silk Board could work together building on various pilot projects. Participants generally agreed that the R&D efforts need to be coordinated and also consolidated. DG, CSIR suggested that a web portal with all technologies are posted could be created where all R&D initiatives would be hosted. The issues that remain unresolved could be asked to different R&D institutions.

8. In order to upscale these initiatives, the ICAR network of laboratories and KVKs can be associated for planting material especially for muga silk. The technologies that have been developed may be validated by the Ministry of Textiles and then would be disseminated amongst producer groups. Royalty could be given preferably in pastors so that CFCs could be set up for standardized technology and design intervention. While the producer groups could be formed by the Office of DC (Handloom) and the North Eastern Handloom and Handicrafts Development Corporation, there is a need to also identify small entrepreneurs who could undertake fabrication of the technologies that have been developed by RuTAG, CSIR, ICAR, etc. PSA mentioned about the activity undertaken by Tezpur University regarding the GI

for muga silk. In this context, Secretary, Textiles suggested that Ministry of DoNER/NEC could provide support to farmers taking up muga silk cultivation the erstwhile scheme of Central Silk Board has been stopped and State Governments have been requested to converge this with MNREGA. DG, CSIR stated that research should be driven by the Ministry. Secretary, Textiles mentioned that under this scheme, 70% of their R&D work have already done by the Ministry and 30% by the private industry. CSIR labs are also developed technology for portable kilns and taking charcoal from bamboo. The initiatives by the National Innovation Foundation may also be taken into account. Technologies for waste water recycling developed by CSIR and ICAR would also be useful in this sector. Secretary, DST mentioned about the initiatives taken by them in micro grade – distributed energy wherein they have set up 6 hydro projects but these need to be scaled up by the line Ministries. The representative from MNRE mentioned about projects of a solar mini grade under which individual home system have been provided for weavers in Manipur.

9. The innovative technologies developments CSIR, RuTAG, ICAR, DST and DBT, for various components of textiles sector viz. Seeding, extraction of Yarn, use of alternate material (Bamboo, pine-apple etc) for making yarn, natural dye, processing of textiles, weaving etc. not only need greater coordination amongst these Scientific Organisations, but also mechanism to disseminate these technologies from lab to users (especially women) with the help of M/o Textiles have to be taken up in a big way. It was agreed that a group under Secretary, Textiles to exchange information between users and R&D institutions would be constituted to identify demand of new technologies and to bring technology to the grass root level through awareness, skilling and providing prototype for initial users. On the issue of cultivation of muga silk, ICAR and DBT could be associated. This would be serviced by MDoNER. It was suggested for CSIR and RuTAG would look into the aspects of increasing productivity and reducing drudgery while retaining the basic features of the loin looms.

FARM SECTOR:

10. In farm sector, Secretary, MDoNER stated that the NER has the best Turmeric with 13% of Curcumin (an active compound with medicinal use) and high quality ginger. However, due to lack of post harvest facilities including value addition technologies, farmers are deprived of the right price of their produce, giving opportunity for exploitation.

11. Another gap area is the poor connectivity between the farm and the market, which causes loss due to the perishable nature of the crop. Hence, S&T intervention in this sector is required for longer shelf life and primary processing unit which will have direct benefit to the farmers. The CSIR, ICAR has been asked to come up with innovative technologies for drying these

products without losing their quality. The CSIR and ICAR both have technology for extraction of active compounds i.e. Curcumin and Oleoresin which has high demand in foreign Countries. They have also developed effective technologies in drying of turmeric with minimum loss in its quality and retention of its colour and aroma. However, exclusive use of solar dryers in the NE Region will not be very effective due to clouds cover and therefore, dual technology is required for NER.

12 The CSIR informed that they have technology for extraction of essential oils from leaves of Turmeric & Ginger Plants. The use of this technology can being value addition to the produce and improve livelihood of farmers.National Aroma Mission is facilitating farmers in growing aromatic crops like Citronella, Geranium, Lemon Grass, Lavender etc. They were requested to consider a separate scheme in this sector for NER farmers.

The loss of ginger crop in NER is due to Fusarium infection which can be controlled through organic pesticides available with them.

13. CSIR stated that they have tested Curcumin content in different varieties of Turmeric and it was observed that the curcumin in one of the specific variety found in NER is very high. CSIR was requested to test and certify the presence of active compound in each lot to increase the saleability / cost of the produce.

14. Secretary, DoNER stated that NERAMAC could be the focal point for convergence of all the available technologies from different scientific institutes with regard to farm sector. He requested that ICAR campuses in NER can be used for demonstration and dissemination of new available technologies in farm sectors. Joint Secretary, (JKS), DONER suggested that NERAMAC can organize workshop with regard to technologies in farm sector by inviting the actual users and various stakeholders including Spices Board.

15. It was suggested that the use of technology for e-marketing can be developed for quick sale of produce on e-platforms. A forum can be created where challenges being faced by the farmers / processors can be posted which can help towards development of relevant technology for such issues. There could be permanent e-connectivity between the users and the scientists. Mobile processing units especially for Turmeric Growers was also suggested.

16. It was noted that mobile distillation units being successfully used in Himachal Pradesh for the aromatic compounds of leaves of spices can be replicated in the NER.

17. Secretary, DoNER apprised that Broom Grass is grown abundantly in Nagaland & Meghalaya. However, drying and broom making is done in Indore. If low cost drying technology is made available in broom producing states, it