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Record Note of VC meeting for the Project Proposal for Value Added, User Friendly Rural Vegetable Vending 'Smart Cart' held under the Chairmanship of Secretary, Ministry of Panchayati Raj on 9th July, 2020 at 10.00 A.M.

A VC on the Project Proposal for Value Added, User Friendly Rural Vegetable Vending 'Smart Cart' was convened under the chairmanship of Secretary, Panchayati Raj (SPR) on 9th July, 2020 at 10.00 A.M. which was attended by Dr. Ketaki Bapat, Scientist 'F' in the O/o. Principal Scientific Advisor, representatives from IIT, Mumbai [Industrial Design Centre (IDC)] and RuTAG, IIT Delhi, IIT Madras and the Officers from the Ministry of Panchayati Raj. The list of participants is at **Annexure**.

Commencing the VC, SPR welcomed the participants and highlighted the need for Vegetable Vending Smart Carts in the rural areas of the country. He deliberated upon the various types of Vending Carts - manual and mechanized - which are in use in the country and the problems being faced by the Venders primarily for keeping the fruits and vegetable fresh with longer shelf life, limited shelf life for storage of farm products & wastage due to exposure to sunlight, water, dust etc., difficulty in the maneuvering the cart and non-availability of other basic facilities in the manual Vending Carts currently in use etc. Hence, as a solution, there is a need for a multiple-utility, user-friendly, affordable and useful Smart Vegetable Vending Cart with the support of appropriate technological interventions which can be made available in Rural Areas for vending fresh fruit and vegetables for the common masses.

Dr. Ketaki Bapat submitted that IIT Bombay has conceptualized for the Smart Vegetable Vending Cart and we are here to discuss the concept and requested Prof. R Sandesh, Associate Professor, Industrial Design Centre (IDC), IIT Bombay to share his ideas and views on the subject-matter. Prof. Sandesh intimated that they have prepared a concept note on the project proposal for Smart Vending Carts and it is a futuristic project. He made a Power Point Presentation on the Project for Design & Optimized Industrial Production of Value Added, User Friendly, Rural Vegetable Vending 'Smart Cart'. He presented the details about various types of manual vending carts as well as improvised carts available in the market including in rural areas and their utility. He highlighted some other important issues concerning lack of basic amenities faced by the vendors in the vending areas like toilets, especially for women, availability of water, unhygienic working conditions, lack the appropriate spaces/places for vending, fear of eviction by municipality from the vending places/areas and poor waste disposal.


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He further pointed out to some key issues being faced by the Vendors using manual Vegetable Carts as under:

- (i) Spoilage of goods due to long hours of exposure to heat and other weather conditions.
- (ii) Constant sprinkling of water on goods to prevent them from drying out.
- (iii) Long hours of Standing and no available place to sit while vending and thus may be compelled to sit on the cart itself
- (iv) Lack of proper shade in the cart, which is very much needed in the times of rainy season or summers.
- (v) Lack of categorized storage or compartments for different types of goods often leading to goods being piled up.
- (vi) Navigating the roads with the cart requires heavy physical effort, especially on inclines.

It was submitted by him that now the people as consumers are conscious of various products utilized / consumed by them including the quality and nutritional value of the farm produces especially fruits and vegetables in the wake of the Covid-19 pandemic. It was also intimated by him that the Institute has undertaken the industrial design for various products for rural livelihood development, health care and medical products, crafts and livelihood generation, agricultural products, furniture, consumer products, various designs for social concern etc. The objective of the Vending Smart Cart project is to design an improved vegetable cart prototypes that can bring solutions to the current problems encountered by the vendors which include storage of farm produces, health, comfort, usability, lack of technology assistance & value added features to be added in the existing Carts and climatic issues.

Throwing light on the Project, he intimated that the objective is to design improved vegetable cart prototypes that can bring solutions to current problems and address issues encountered by lakhs of rural vendors such as storage, health, comfort, usability, muscular-skeletal disorders, lack of technology assistance, value added features and climatic issues through use of appropriate technology. Thus there would be a need for optimized manufacturing process, materials and user centric design solutions incorporating modern features



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including modularity, facility for storage of goods, shelter, seating facility, human comfort and safety, vendor and customer usability, road maneuverability, lighting, water spray facility etc.

The deliverables vis-à-vis Project involves designing Prototypes for two types of vegetable carts (i) Retrofit Value Added Model and; (ii) New Modern Model which would require comprehensive field study, product audit, usability and ergonomic study, road safety and full project documentation and technical detailing, drawing and 3D Models for the aforesaid two vegetable carts for commercial production, Legal and Road Safety positioning, market testing, Vendor identification, Production and assembly plan and MSME assessment for production, video material for dissemination of work, promotion, production and assembly modules, documentation, promotion and branding, assessment of financial linkage with schemes and bank assistance. The description of features in the deliverable prototypes is to have a product which is technology driven, and have modern features of modularity, proper facility for storage of goods, climate related shelter, seating facility, human comfort and safety, seller and buyer usability, maneuverability, lighting, water spray facility etc. The Project has been divided into two Phases—Phase-I which involves a period of six months for comprehensive study and development of various cart types, material uses, trials & testing, manufacturing processes, interactions with vendor and industrial unit/equipment, legal and road safety positioning etc. and; Phase-II involving subsequent four months to cover multiple-local field testing and design validation, refinement and final prototype developments, material costing and manufacturing costs. Vendor and stakeholder consultations and integration of recommendations, production, assembly plan and assessment of production, video documentation, user and market interfaces, finalization of prototypes and promotion / dissemination of the final Models, as the key outcomes. Total project cost for in two Phases has been estimated to be Rs. 36,58,800/-, funding for which will be worked out by the O/o. PSA in consultation with MoPR.

Subsequently, Prof. S.K. Saha and his team from RuTAG, IIT Delhi presented a Concept Note on Vending Cart for Fresh Fruits and Vegetables which focused on the problems faced by the Vendors in the conventional vegetable carts/*Thehas* and its limitations from preventing fruits and vegetables from constant exposure to sunlight, dust etc and consequential reduced shelf life of the produce. He presented the modular design and specifications of proposed Carts which will have the provision for sanitization of products and include features for social/institutional recognition etc. He also stated that he has incorporated certain features relating to robotics and



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mechanized steering also in the vegetable vending cart design. Some important socio-economic benefits of the proposed Cart mentioned by him are mentioned below:

- (i) Health - Sanitizing mechanism to combat the spread of COVID-19 and other health issues.
- (ii) Vendors to earn more profit by using the thermally insulated carts as it increases shelf-life of vegetables and fruits
- (iii) It will provide social recognition and positive attitude towards vendors
- (iv) Digitization and RFID licensing will ensure that every vendor gets the benefits of government policies and welfare
- (v) RFID licensing to reduce illegal hawking and petty trade disputes
- (vi) Improvised Vending Cart will preserve cultural identity of the street vendors by providing them the much needed recognition to carry out their trade in harmony

Vending Carts developed by some organizations including IIT Kanpur for fruits & vegetables etc as well as their utility & efficacy for keeping them fresh also came up for discussion.

Thereafter, Prof. Abhijit P Deshpande from RuTAG, IIT Madras made a presentation on 'Development of thermally insulated vending cart for fresh fruit and vegetables and intimated that street vending is a global phenomenon and most visible aspect of the informal sector in India, and is characterized by the low level of income, self-employment and ease of entry in this employment. Vending job is a tough task which involves physical labour, cleaning, sorting, weighting and dealing with customers. Vendors are required to keep on moving in all the weathers for selling their produce. Fresh vegetables and fruits are continually exposed to sunlight, heat, dust and rain which results in their being rotten / wilted within few hours of exposure. Likewise, leafy vegetables are rotten due excessive sprinkling of water and exposure to heat, thus such rotten/wilted vegetables & fruits are not purchased by the customers which leads to financial loss to the poor vendors, as they are compelled to discard their waste fruit and vegetables.

This problem can be solved by reducing the spoilage of vegetables and fruits during its retail marketing by the street vendors by increasing their shelf life so that consumers can get fresh produce and vendors make a profit. Prof. Deshpande discussed regarding some of the



innovative designs developed by some Organisations with their pictorial presentation for keeping fruit and vegetables as under:

- (i) Safal by Mother Dairy Fruit and Vegetable Pvt. Ltd.
- (ii) Solar vegetable cart by Indian Agricultural Research Institute (IARI)
- (iii) Samriddhii vending cart by Sampoon Samriddhii
- (iv) Vegetable vending van by ICAR-IIHR (Indian Council of Agricultural Research and Indian Institute of Horticulture Research)

He suggested solution through the project involving designing a thermal insulated rotation molded plastic based compartment design having transparent cover for display of fruits & vegetable by maintaining temperature at 15-25 degree C with a protective canopy for the vendors for protecting Vendors/Hawkers from various weather conditions. These can be installed over the existing wooden plat form of vending cycle and vendor need not purchase a new Cart. This arrangement is expected to cost below Rs. 20,000/-. He further presented some conceptual designs for the Carts made by RuTAG IIT Madras. The beneficiaries of such product can be farmers, women, economically weaker sections, youth irrespective of their skill sets and other mobile street vendors. He highlighted some of the benefits which will come out of the improvised Carts to be ease of operation and reduction in drudgery, improved livelihood opportunities and value addition owing to increased shelf life of the fruits and vegetables. Funds requirement of Rs. 6.00 lakhs and items of works involved for the assignment was also intimated by him.

SPR complimented all the participants for throwing light on the ideas and the project proposals as solutions to the issue. He highlighted the existing problems faced by the Vendors using the existing manual Vending Carts and emphasized the need for having a User Friendly Value Added Vending Smart Cart as an overall solution for availability of fresh vegetable and fruits through the Smart Vending Cart and livelihood better opportunities for rural citizens. It is also important to note that Covid-19 pandemic has compelled the migrants to leave Cities/Towns for their native places and they would be willing for vending fruit/vegetables etc. through Smart Vending Carts as it will give them productive employment with the sense of dignity and self-respect. He cited the example of E-rickshaw which has significantly replaced manual rickshaws across cities/towns and rural areas in a short span of time, since there was always scope and



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demand for the mechanized rickshaws which proved to be comfortable, affordable, fast, convenient mode of transport providing upto last mile connectivity for the travelers and decent employment opportunities for the people. During this pandemic time many people - skilled, semi-skilled and unskilled - have migrated from urban areas to the villages and are unemployed. They are compelled to do work which they don't feel to be dignified and commensurate with their ability, skills and profession. Hence, the need of the hour is to engage such productive manpower in the work which they can take up in dignified, affordable and profitable way. Also for improving the livelihood of the people in rural areas, we need to take this project to its logical conclusion by leveraging the technology. Thus, such a User Friendly Value Added Vending Smart Cart can be of great use in the rural as well as in urban areas. The role of local Governments also become crucial for optimizing / implementing such initiatives by giving recognition & providing all necessary support for the Vendors / end-users to mitigate their problems. In this context, for example, it has been noted that persons who are allotted shops/spaces by the local bodies are found to be faring better than those selling products in unorganized way on the footpaths. He stressed upon the need to cater to the requirements of various categories of improved manual as well as mechanized cart for the vendors in rural and urban areas keeping in view their financial capacities, and also underscored the need for institutional credit to the needy vendors for purchase of these Carts. There is immense potential and demand for such Carts in the country where Vendors can utilize them either by straightway buying them or having them on rental basis or on lease basis from entrepreneurs or the local bodies etc according to their capacity and requirements.

He stressed that IITs need to take up the project as a national mission for positive social and economic impact in the rural areas and on the livelihoods of the people. He gave the liberty to the participating organizations to collaborate among themselves together or to go independently for the project as they are the experts in their domain and fixed the target for completion of the project and availability of the finished product by April, 2021 before National Panchayat Raj Day which is observed every year on 24th April.


Prof. Sandesh submitted that the target fixed for delivering the product by April, 2021 is very short and need to start very soon on the project for a Smart Vending Cart and ensured the chairman their commitment to come out with the value-added useful product within the scheduled target.



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SPR assured the participants of all support and necessary approval for the project on the part of the Ministry and necessary coordination with the O/o. PSA, Institutes and concerned authorities.

The meeting ended with the vote of thanks to the chair.

A handwritten signature in blue ink, appearing to read 'The Chair', written in a cursive style.

List of participants in the VC meeting chaired by Secretary, Ministry of Panchayati Raj on 9th July, 2020 at 10.00 A.M. for the Project Proposal for Value Added, User Friendly Rural Vegetable Vending 'Smart Cart'

- (i) Dr. Ketaki Bapat, Scientist 'F', O/o. PSA
- (ii) ShriK. S.Sethi, JS (FD), MoPR
- (iii) Shri A.P. Nagar, JS (CB), MoPR
- (iv) Shri Vijay Kumar, DS(FD), MoPR
- (v) Prof. R Sandesh, Associate Professor, IDC, IIT Bombay
- (vi) Prof. S.K. Saha, RuTAG, IIT Delhi
- (vii) Prof. Abhijit P Deshpande, RuTAG IIT Madras
- (viii) ShriSreenivas Chigullapalli, RuTAG IIT Madras
- (ix) Shri Tara Chandar, US(FD), MoPR

