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Japanese scientist suggests leaf vegetable farming in urban areas

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Tokyo, Sept 13 : When Bangladesh is at high risk of climate change having transportation and storage crisis for perishable foods, the Japanese 'Plant Factory' (PF) model can be one of the best solutions for an uninterrupted commercial production of 'leaf vegetables' in urban areas in the future, says a leading Japanese researcher. "Food production in the field is risky in a changing climate. Since Bangladesh at high risk of climate change, I think Plant Factory can be one of the best solutions to meet the demand of fresh leaf vegetables and other leafy foods in urban areas," Dr Toyoki Kozai, Prof Emeritus of Chiba University, Japan told UNB in an interview at his office.

The scientist said the PF will gradually become very important as arable land is shirking. "It can help resources inflow into urban areas and outflows wastes. Above all it's a water-saving system," he said. But plants for staple food to intake calories like rice, wheat and potatoes are not suitable for PF.

Asked whether the University will go for collaboration with Bangladeshi agriculturalists, researchers and university students, Prof Kozai, also the Chief Director of the Japan Plant Factory Association said they are willing to take foreign students and researchers; and share the innovative idea with them. "We want to popularise the idea. And foreign students and researchers, including from Bangladesh, are welcome," he said. Responding to a question, Prof Kozai said at first the university (from Bangladesh) must have an agreement with them (Chiba University). "Once the agreement is done, we'll accept students or researchers from Bangladesh and in that case, we won't charge any fee for research here." Responding to another question, he said PF is not a spending but a necessary investment under changing climate and increasing world population. "It's a combination of need and making friendship with environment."

Apart from big Commercial Plant Factory in urban areas, he said, people in urban areas can also have a chance to get fresh vegetables and an opportunity to engage in farming through utilizing this idea in small scale in their residences.

"Residents living in urban areas and having little chance to grow plants in the open field may enjoy using a household Plant Factory. So, this is not only production. It's part of amusement," he said.

The researcher said such Plant Factory can be set up in a wide variety of non-traditional locations, including private residences, various educational institutions, public facilities, commercial premises, hospitals, hotels, restaurants, shopping malls, rehabilitation centers for mentally disorder people, it can be used with TV, refrigerators as green interiors and at convenience stores.

“The small Plant Factory can be installed in a living room, allowing the family to grow fresh and tasty vegetables without the use of pesticides,” Prof Kozai said adding that a diversity of plants is amenable to cultivation in these factories.

“For instance, leaf vegetables, herbs, small fruit vegetables like grapes, tomatoes, strawberries, medicinal plants and small flowering plants can successfully be grown in these units. These plants help create a smoothing ‘green interior’ that benefits people’s well-being as they spend time caring for their plants on a daily basis and eating them at the end.”

Plant Factory refers to a plant production facility consisting of six principal components, including nearly airtight warehouse-like opaque structure, 4-20 tiers equipped with hydroponic culture beds and lighting devices, a CO2 and an environment control unit.

Workers generally enter the cultivation room of the Plant factory only after taking a hot water or air shower and wearing clean clothes. Using PF, high quality pesticide-free plants are produced all year round.

Leaf vegetables produced in PF are clean and need no further wash before cooking or processing. The relative annual production capacity and sales volume of leaf vegetables per unit land area of a PF with 10 tiers are estimated to be, respectively, roughly 90-fold and 117-fold, compared with those in open field.