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# ON TRADE

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## WORLD TRADE EXPO 2017

November 16 -17, 2017 | Expo Center, World Trade Centre Mumbai

Exhibition | **Country Presentations** | **B2B Meetings** | **Export Workshop** | Panel Discussion



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Overseas**



## Rural IDEA Takes to Alternative Farming Technologies

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Founder, CRAFT

**C**enter for Research in Alternative Farming Technologies (CRAFT) was founded in 2014 with a view to bring alternative farming technologies to India, providing solutions to problems faced by Indian farmers. The biggest problem faced by the Indian farmer was non-viability of farming largely on account of small and fragmented land holdings coupled with problems of water scarcity, infertility of land, changing weather, unorganised agriculture produce market and use of present farming practices.

Traditional and organic farming were confirmed to be either not environmentally sustainable or economically unviable. Thereafter, alternative farming technologies was introduced by researching on adapting these technologies to the Indian environment by setting up research models and doing in-depth hands-on study of the techniques by mastering the art of hi-tech sustainable farming. Initially, farming operations commenced near Pen, a small town on the outskirts of Mumbai, to have a first-hand experience of farming. CRAFT supplied and provided consulting services to numerous hobby and small commercial (urban) farms throughout India.

Since 2014 awareness programmes

on these techniques were carried out. Farmers, entrepreneurs, students, etc. have also been trained on alternative farming technologies by organising seminars and conducting workshops.

Given the volatility of agriculture produce market, adaptation of these high-cost technologies is very limited hence, CRAFT is currently developing startups in Hydroponics and Aquaponics for the Indian market through relentless research

and implementation of business models based on them, on the ground. Rural Integrated and Digitalized Economical Aquaponics (Rural IDEA) is one such startup, with which, CRAFT is trying to make a change in the marginal farmer's life. An alternative farming technique called Aquaponics is used to make this business model sustainable for the poor farmer.

Aquaponics is a new farming technique where vegetables are





grown using water from fish tanks. The word Aquaponics is derived from Aquaculture (high density fish farming) and Hydroponics (growing vegetables without soil).

In Aquaculture, to avoid ammonia (produced by fish) and nitrate (generated by bio-filter after converting the ammonia using bacteria) buildup in the system, almost 10% of total water in the system is exchanged with fresh water every day. The release of a waste stream of water is an environmental issue and together with the fact that 10% of water change every day, makes the Aquaculture industry unsustainable business. Water is becoming a commodity that is in short supply. When combined, aquaculture with hydroponics help plant roots take up the nitrate from the aquaculture water as a source of nitrogen for its growth. All other nutrients required for plant growth are also provided through fish excreta. Aquaponics uses only 10% of water compared to soil-based farming and has no waste if the system is designed properly, making it one of the most environmentally sustainable farming methods.

The technical aspects of Aquaponics under Rural IDEA are designed for rural population where education is minimum and traditional knowledge is maximum. The technical aspects are taken care by

means of sensors and remote monitoring technology such as Internet of Things (IoT). The agronomy will be mostly cared by the farmer himself, but 24 hours help would be available for consultation with experts. An Integrated pest management program with proactive and organic measures would be implemented in all farms and followed up closely by area supervisors. Aquaponics is inherently intolerant to chemical pesticides as fish are first to die with use of harmful substances in Aquaponic setups.

The economical sustainability is achieved by fish component. Live fresh water fish always has a good retail market all over India. According to a CRAFT Study, almost all parts of India, people do not mind travelling 4 to 5 kilometers on motorbikes or bicycles to buy live fish at retail rates. A standard Rural IDEA farm of 500 sq. mtrs. produces around 50 to 60 kg of fish per week. Fish such as Mono Tilapia is sold at 200 to 400 INR./kg in different parts of India. This gives almost INR 6 to 10 Lakh income to the farmer per year from the fish alone. Vegetable produce such as very nutritional spinach and tomato would be bought back by the startup to setup a supply chain to the market which is very safe with nutritious vegetables transported to the urban consumer base.

The capital cost of the farm of 500 sq. mtrs. setup is around INR 7 to 8 Lakh. This is only possible with low cost hybrid greenhouse and plastic liners to be used for making fish ponds and growing beds in the ground. The whole setup is designed with locally available inputs in India. Various stakeholders such as farmer groups are invited to set up the farms, government agencies for subsidy of these farms, financial institutes for loan to the farmers, etc.

The overall impact of Aquaponics on the environment is very little. The system design with minimum power requirement makes sure that electricity is consumed at low rates coupled with integration to solar energy which could be a very possible alternative.

All these aspects of Rural IDEA make the system very sustainable ecologically, technically and economically. The startup was featured and appreciated at World Trade Expo 2017 organised by World Trade Centre Mumbai and at the 37<sup>th</sup> India International Trade Fair 2017 (Delhi). CRAFT is currently setting up the prototype to standardise the project inputs, farm inputs and outputs. All enquiries about setting up personal farms, franchise, corporate social responsibility and investment are welcomed.