



Strengthening Food Resource and Information Channels for Sustainable Production and Consumption of Food

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An IGES-CSA Venture



IGES
Institute for Global
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CSA

Strengthening Food Resource and Information Channels for Sustainable Production and Consumption of Food

Project Concept



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Project Description

What will be done and what benefits will this bring? Sum up the essential features of the project in around 150-200 words. Avoid overly technical terms, jargon and unusual acronyms.

One of the most significant lifestyle changes with severe environmental and health consequences being witnessed in the developing Asia is in the form of changes in food consumption behaviour of the people. Recognizing the importance of arresting the negative trends early in the stage, the project aims to address the changing food consumption behaviour towards healthy and sustainable choices by a) enhancing sustainable food production in rural, peri-urban and urban areas, b) by establishing 'Food Info-Marts' that become the centre pivot connecting all actors for sustainable production, supply and consumption of food through the Food Info-Channels and Food Resource Channels (See Figure 1 below), c) establish Food Resource Channels that

Project Benefits:

- 1. Producers** a) high resource efficiency including water, energy and other inputs saved by adopting environmentally better food production practices; b) high profits due to resource efficiency and direct marketing to the consumers, c) adapt to changing consumer preferences, d) access to skills and information for environmentally friendly practices e) produce own food in urban and peri-urban areas,
- 2. Consumers:** a) Access to healthy food along with b) access to better information on food from producers and nutrition experts
- 3. Others:** a) better environmental health for all, b) governments design better policies by understanding food patterns, c) food industry adapts to accommodate environmentally friendly food production practices and tailor their services accordingly

promote closed-loop resource circulation through recycling food and crop waste as compost for use in production areas (urban, peri-urban and rural areas), d) establish Food Info-Channels that connect producers and consumers through providing information on consumer preferences, help producers tailor their production choices to the food preferences, d) educate and train food producers on sustainable food production practices, and e) educate and train consumers on sustainable and healthy

food choices and food waste minimization. The project will build a campaign to increase sustainable food consumption which in turn promotes sustainable production and supply chains by reducing the ecological footprints of food, greenhouse gas emissions by promoting sustainable agriculture practices in the production areas, reduce the food wastage and resultant resource wastage, reduce water use and resultant energy requirement for water pumping and supply, reduce food transportation costs through promoting urban and peri-urban food production and reduce chemical fertilizer and pesticide use and resultant environmental impacts by promoting closed-loop linkages between production and consumption areas.

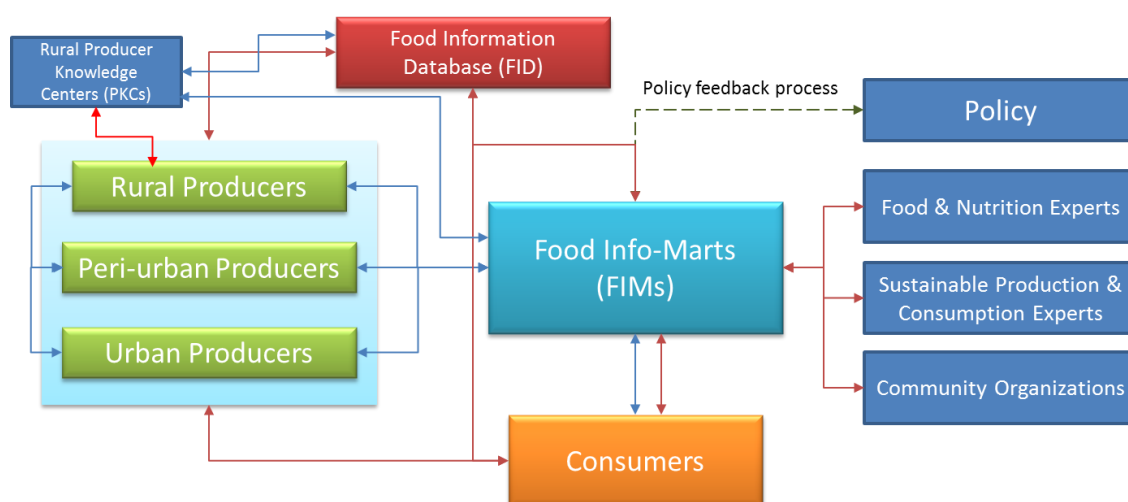


FIGURE 1. CONCEPTUAL DIAGRAM DEPICTING THE FOOD INFO-CHANNELS AND FOOD RESOURCE CHANNELS CONNECTING THE RURAL AND URBAN AREAS FOR PROMOTING SUSTAINABLE PRODUCTION AND CONSUMPTION

Please refer to the section 'Appendix' for explanation on these components

Environmental Impacts

The ecological footprints would be measured by a composite index called **Ecological Debt Index (EDI)**¹ which comprises of

- **Carbon footprint:** Energy and other forms of carbon emissions from resources used in production, transport, storage and sale.
- **Water footprint:** water consumed in production
- **Agrochemical footprint:** Chemical fertilisers, pesticides which consumes huge energy in production and also leave lots of residues polluting soils and water
- **Resilience:** Measures the resilience gained both by the producers and consumers as a result of project interventions.

Impact: The project team will make all efforts to introduce the Ecological Debt Index (EDI) developed as a part of this project with all the relevant government departments, NGOs, industry engaged in production and consumption of food for adoption and improvement.

Tools would be developed by which each stakeholder (producer, consumer, supplier/trader) can assess the ecological footprints of the food they are responsible by their production, consumption or trade behaviour. Campaign would be built to create awareness and capacity building would be taken up to improve their performance by reducing their ecological footprints. A food label would be developed which indicates the ecological footprint of the food pack so that consumer can make a better choice. The farmer producers and their cooperatives will maintain the data and label the produce before marketing. The private players in the supply chain also would be engaged to understand the issues and move to towards greener supply chains.

The project will also engage with farmers and farmer producer organisations to directly connect with the consumers through the Food-info marts which lead to mutual understanding and benefit. The Food-info Marts will gradually become market place

¹The concept is being developed by the project proponents, Ecological Debt Index (EDI) is based on the concept of the Greenhouse Debt or Carbon Debt and is defined as the number of units by which a product or entity or enterprise exceeds its permitted ecological footprint units. This innovation will provide first of its kind experience in deciding the ecological debt for food production and consumption based on participatory approaches.

for producers to directly sell their produce to consumers and thus become self-sustainable.

The Impact Framework

How will the sustainability benefits (e.g. prevention of resource use or GHG emissions) from the project be assessed/measured?

The project will establish a sustainability indicator framework covering the field-to-plate food life cycle developed in consultation with the experts in sustainable production and consumption of agriculture and food to measure the sustainability of project impacts, which will be based on the concept of ecological foot prints (referred to as Ecological Debt Index, EDI). The strategy involves establishing a Panel Data where in randomly selected members from volunteering farmers and consumers will contribute to regular observations/collection of data on how their production and consumption lifestyle decisions have changed over the course of the project.

What would be the main criteria of success?

The main criteria for success of the project will be assessed in terms of 'Food Info-Marts' that have proliferated outside the project, number of self-engaging consumers and producers that are linked through these Food Info-Marts, reduced ecological footprints (hence lower EDI), GHG emission reduction achieved, water saved, health impacts in terms of reduction in food-borne health issues, changing consumption patterns of consumers towards environmentally friendly products beyond food choices, change in micro-climate in urban areas due to urban food production and other environmental indicators.

What would be the scale of impact (e.g. how many households, cities, schools, etc.) would be directly involved or influenced by the project?

The project through establishment of 14 Producer Knowledge Centres will directly work with 2500 farmers in the state of Andhra Pradesh and Telangana with the objective of promoting organic as well as Non Pesticidal Management farming. The producer knowledge centres will have a two-way information flow. On the one hand it will provide all technical knowledge to the farmers to convert to organic / non-pesticidal management (NPM) farming, recycling their crop residues, reducing water consumption thereby reducing carbon emission and on the other hand collect farmers'

feedback to improve and sustain organic/NPM agricultural practices. This will reduce the energy consumption of the target farmers in the range of 50% to 75%. The project will have a spin off effect with another set of 5000 farmers. Similarly, the project will work directly with 10000 consumers in cities of Hyderabad and Vishakapatnam educating them on healthy food and food habits. The project through campaigns, FIMs, mobile FIM and media events will educate another 50,000 producers/consumers in three-year period. The mobile FIM is a cost effective mechanism to reach out to a large number of consumers in urban, peri-urban and even rural areas. The 3 FIM (two standalone and one mobile) established will engage with all the 60,000 consumers and the PKCs will engage with 2500 farmers to get their feedback for panel data and analysis.

Sustainability

How can activities started under the project be sustained after the termination of the funded project phase?

The Food-Info-Marts (FIMs) will become the meeting ground for producers and consumers together to understand the ecological footprints of food and also establish a closed loop market system. The project also proposes to influence the Smart Cities Program² of the Government of India where in the lessons learned from the project will help strengthen the smart cities program. Currently,

the concept of smart cities as envisaged by the Government of India is heavily relied upon technological interventions with unknown stress on addressing issues such as sustainable lifestyles through strengthening the food choices made by consumers and producers in urban, peri-urban and rural areas. The strategy for influencing the national level program is through inviting the relevant office bearers to participate in the program activities including the inception workshop and facilitate exchange visits.

Exit strategy for sustainability: the project team will engage consumer and producer cooperatives that already exist in the project locations, build their capacities and pass on the project outputs (FIMs etc) to be managed by cooperatives after the project. The project implementers will subsequently play the role of advisers and support the initiative for possible scale-up.

What will remain after the project and what longer-term impacts can be expected?

²The Government of India is currently preparing a blue print for smart cities to be implemented in 100 cities under the supervision of the Prime Minister himself. The cities are yet to be identified. The title of the program is tentative.

The project will put in place Food Info-Marts that link producers and consumers through information (getting to know farmer's ecological agriculture practices used, environmental benefits gained compared to consuming other food products, healthy food choices, ways to minimize food waste, and ways to grow own food) and material channels (food produced and waste for composting). Due to mutual benefit provided by this channel, the marts will sustain and grow with more and more

Project Deliverables:

The project will leave behind the following outputs to be managed by farmer and consumer cooperatives

1. Several food info-marts and a mobile FIM
2. Ecological Debt Index (EDI) which is an index to measure environmental sustainability of the food production and consumption practices
3. Environmentally friendly production and consumption practices
4. Capacities of producers and consumers built on environmentally friendly production and consumption practices

producers seeing the benefit of knowing their consumers and directly marketing to them and consumers knowing their producers. The project will also leave behind a gamut of best food production and consumption practices that spread through producers and consumers, better understanding on ecological foot prints among producers and consumers will steer them towards making environmentally sound production and consumption choices. The capacity building programs taken up at the Food Info-Marts will act as a catalyst for this process.

In addition to the above, the project will strive to institutionalize the EDI concept, to begin with on pilot basis, within the food and agriculture departments at urban centers and other places. Agriculture departments will collaborate with the environment departments, wherever exist,³ so as to strengthen and adopt the EDI concept developed by the project. This will encourage the Mayors and other administrators to

³The state of Andhra Pradesh has the Department of Environment, Forests, Science and Technology at the state level. However, the environmental tasks at the city and sub-state levels (e.g. district levels) are usually carried out by the municipality and equivalent departments. Hence, the agriculture departments could be suitable candidates to institutionalize the EDI at these levels.

showcase their city as a Green City, improve their political acceptance among the people and help continue the practices promoted by the project.

Implementation

Location

Where will the project be implemented?

The project will be implemented in Anantapur, Kurnool, Kaddapa, Vizayanagaram districts comprising 30 villages linking them to consumers in the city of Vishakapatnam in the state of Andhra Pradesh. Similarly, the project will be implemented in Adilabad, Medak, Nalgonda and Warangal districts comprising 20 villages linking to the consumers in the Hyderabad city in the state of Telangana.

Timeline

What will be the main phases and the key milestone events?

<i>Task</i>	<i>Year I</i>			<i>Year II</i>			<i>Year III</i>		
<i>Project launch and consultation event and policy advocacy workshops</i>									
<i>Establish 'FoodInfo-Marts'</i>									
<i>Train consumers and producers on sustainable food production and consumption</i>									
<i>Establish close-loop resource circulation system between consumers and producers</i>									
<i>Develop ecological footprint database and implement</i>									
<i>Setting up panel data on consumption behaviour</i>									
<i>Monitoring and Evaluation of impacts</i>									

Main implementer

What organisation will be responsible for the on-the-ground implementation of the project? Briefly, what similar project(s) has this organisation implemented successfully in the past? Identify also the person who will be in charge.

The main implementer of the project will be the Center for Sustainable Agriculture (CSA), Secunderabad, Telangana. Established in 2004, the center has since been involved in promoting sustainable agriculture by training the farmers in various parts of the erstwhile Andhra Pradesh. As a result of its efforts, the centre was able to train thousands of farmers in sustainable agriculture production technologies such as organic farming, non-pesticidal management (NPM), and promote the open source seeds systems, strengthen the farmer organizations and promote green enterprises such as composting. In 2009, CSA initiated formation of Sahaja Aharam Consumer Cooperative to bring consumers and producers together. CSA and the Sahaja Aharam Consumer Cooperative are engaged in consumer education, appear frequently in national news, media debates on issues related to sustainable agriculture and healthy food choices and participate in the policy processes at state, national and international levels. The centre organizes various conferences, meetings and seminars to promote dialogue between producers and consumers, policy makers and food supply chain service providers with a view to promote sustainable food production and consumption in India.

Similar projects in the past include:

- Measuring climate change adaption by farmers in the states of Andhra Pradesh, West Bengal and Utter Pradesh
- Supporting farmers adapting to climate change in Maharashtra
- India for Safe Food Campaign with urban consumers
- Urban/home vegetable gardening initiative
- Composting urban food waste
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Other partners

What other organisations or individuals will be involved and what roles will they play?

The third partner in the project is Sahaja Aharam Consumer Cooperative. This cooperative has been promoted by health conscious consumers of the city of Hyderabad. The cooperative has been in business for the last 6 years. It links producers of organic and pesticide free fruits, vegetables, grains, pulses & spices to consumers from the state of Andhra Pradesh & Telangana. Sahaja Aharam Consumer Cooperative is also engaged with consumer education on healthy and sustainable food consumption. It organises food fairs in regular intervals, writes in popular newspapers and magazines. It has a portal www.sahajaaharam.in through which it sells organic foods, enrolls consumers and also provides tips on healthy food.

Reporting and outreach

How will experiences and achievements of the project be documented and disseminated?

Clarify the roles of each project partners in preparing reports and other output.

Partner	Role
IGES, Japan	Contribute to overall concept and technical support for monitoring and evaluation and reporting
Center for Sustainable Agriculture, India	Implement the project, organize inception workshop, training events and manage the Food Info-Marts, establish info- and material-channels between producers and consumers for better decision making at both ends, establish panel data, collect and provide necessary data in the form of regular reports

Scaling-up

Potential for build-on activities

What possibilities exist for follow-up, e.g. through replication or upscaling?

The online resources on 'Ecological Footprints of Food' will help people from other regions also to understand and assess themselves on this scale and steps to reduce their ecological footprints. The information material, methodologies and practices developed in the process will be useful for replication and up-scaling in other areas. The methodology can also be adopted by other private players in the food business to green their supply chains.

Possibilities for upscaling:

1. Smart cities program of the Government of India to upscale to other cities
2. Potential adoption of the index by various NGOs, food industry and other stakeholders engaged in food production and consumption

The Government of India has put a major emphasis on promoting smart cities in India and is in the process of developing a blue print for the program. The program is expected to be implemented in 100 cities initially and to be scaled up eventually. However, the information available through media releases by the Ministry of Urban Development and other relevant agencies shows that the emphasis is going to be largely on technological interventions and job creation and the concept largely ignores the environmental, social (especially food and health aspects) and rural-urban linkages. Hence, there is a very high potential for this project to influence the national program which can provide an effective vehicle to scale up to 100 cities and beyond if successful.

Policy environment

To what extent would the project assess the influence of public policies, e.g. how the current policy environment facilitates or creates obstacles for the implementation?

The project will provide a unique experience of addressing changing lifestyles in Indian cities through food as an entry point as food plays an important role in the life of Indians. While education (e.g. schools) has mostly been tested as an entry point to influence the environmental awareness and sustainable lifestyles, there is no concrete evidence for it to make a dent largely due to the environmental education being in nascent stages in the country. Food purchase, an essential aspect of daily life, can instead offer a great opportunity to influence consumer and producer behaviour as food production and consumption contributes a significant amount of GHGs.

The Government of India recognizes the importance of sustainable food production for food security, rural development and natural resource conservation.⁴The government has established a National Mission for Sustainable Agriculture in 2010 with specific focus on addressing the challenges posed by the climate change.⁵The current policy environment by the government led by the Prime Minister Narendra Modi gives even higher emphasis on sustainable agriculture. The government has already identified the North Eastern states of India as niche areas for promoting organic food products for domestic and export purposes.⁶ The government has also announced a major program to strengthen 100 cities in the country into smart cities which provides ample opportunity for the project to integrate smart lifestyle choices including growing and consuming healthy food.⁷ The city of Hyderabad has found a prominent place in the list of cities that are being considered to be converted into Smart Cities in India.

⁴<http://india.gov.in/topics/agriculture>

⁵<http://agricoop.nic.in/Climatechange/ccr/National%20Mission%20For%20Sustainable%20Agriculture-DRAFT-Sept-2010.pdf>

⁶http://commerce.nic.in/publications/annualreport_chapter12-2010-11.asp

⁷<http://www.rvo.nl/sites/default/files/Smart%20Cities%20India.pdf>

Appendix

Any other information relevant to understanding the project.

Ecological agriculture

Ecological agriculture or agro-ecology is the future of agriculture and human survival. This fact has been amply emphasized by the International Assessment of Agriculture Knowledge, Science, Technology and Development (IAASTD). The UN Special rapporteur refers to agro-ecology as “a range of agronomic techniques, including intercropping, the recycling of manure and food scraps into fertilizers, and agro-forestry, that reduce the use of external inputs and maximize resource efficiency. There are strong environmental arguments in favor of agro-ecology, as agro-ecology also provides other social and health benefits. Diverse farming systems contribute to more diverse diets for the communities that produce their own food, thus improving nutrition. Because agro-ecology reduces the cost of farming by minimizing the use of expensive inputs, it improves the livelihoods of farming households, particularly the poorest households and it supports rural development as it is knowledge-intensive and generally more labor-intensive, and it creates employment opportunities in rural areas. Though easier to implement on smaller-sized farms, agro-ecological techniques can be disseminated on a large scale, and should also inspire reforms in how large production units operate.” Agriculture is affected by climate change but it also contributes to the greenhouse gas emission. Industrial farming and with its ancillary activities like production of chemical fertilizers, pesticides etc contribute between 50% to 70% of the greenhouse gases.

The shift from the industrial mode of agriculture to ecological agriculture requires multi-pronged strategies and most of it has to come from the government; nationally and internationally. Governments around the world started focusing on increasing agriculture production since the 1960s. This has certainly improved the food production but has not solved the problem of poverty and more importantly nutritional issues while also causing serious ecological crisis in terms of soil fertility getting eroded, soils, food and water getting poisoned with chemicals etc. The mainstream agriculture model has not just damaged the cropping system but it has also affected the consumption patterns. Mr. Olivier de Schutter says in the UN Special Rapporteur for Right to Food “Existing

food systems have failed to address hunger, and at the same time encourage diets that are a source of overweight and obesity that cause even more deaths worldwide than does underweight”

Food Info-Marts (FIMs)

Food Info-Marts (FIMs) are the central hubs through which the efficient and effective information and resource flow happens between producers and consumers. FIMs are essentially the market place where the ecologically produced food is made available to the consumers combined with the information about sustainable food production choices made by producers along with the associated environmental and health benefits. FIMs are beyond a vegetable store, they are the places where food producers, experts and consumers interact directly and indirectly. The FIMs will act as knowledge centers for both producers and consumers in urban and peri-urban areas while there will be separate producer knowledge centers (PKCs) established in the rural areas specially catering to the rural producers. The tentative physical layout of the FIM is shown in the figure 2 below. Each FIM will consist of an info-mart where the information on ecological food production and consumption is made available to the consumers, this is the place where regular interaction between producers and consumers happen and where the experts interact with the producers and consumers in the form of ‘Meet your farmer’ and ‘Meet your expert’ and ‘Know your consumer’ events will be organized. The info-mart will have a display that regularly update consumers about the food production choices adopted by the producers, tips on healthy cooking, tips to minimize food waste, tips on urban food production etc. are displayed. The other part of the FIM consists of the food-mart where the food produced in the peri-urban and rural areas and the excess food produced from the urban areas is sold to the consumers. The FIM can also provide mechanical tools and other production inputs necessary to produce urban food. There will also be a mobile version of the FIM in order to reach out to the larger sections of the consumers and producers.

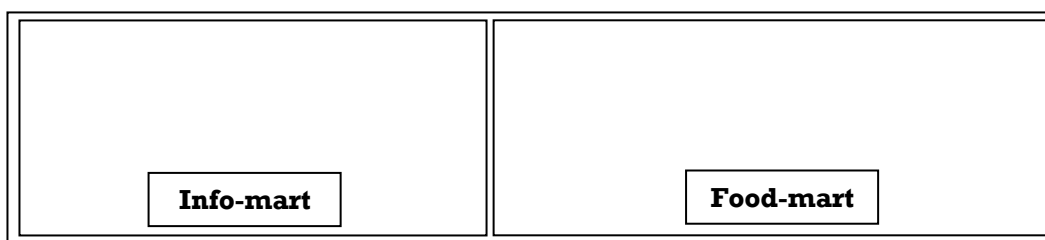


FIGURE 2. PHYSICAL LAYOUT OF THE FIMs

Food Info-Channels (FICs)

The current food chain completely isolates the producers from consumers in terms of production practices used by producers and consumer demand and preferences. Producers often get to know the consumer demand late in the season which is often too late to modify the crop production choices suiting to the consumer needs. Hence, this project aims to bridge this gap through strengthening the food information channels between consumers and producers. Mainly consisting of a food information database based on ecological footprint methodology, this channel will educate the producers about their target consumer food habits and preferences so as to fine tune their production choices within the framework of ecological agriculture. Similarly, the channel will enable consumers to get to know their food producers in terms of what production choices they made, how they differ from the food produce available in the market in terms of ecological and health impacts, food miles, GHG emissions etc. The uniqueness of this channel is also about promoting urban agriculture where the experts and producers will train and educate the urban households on how to produce niche food in the limited urban space while minimizing the environmental impacts.

Food Resource Channel (FRCs)

Another channel that connects the producers and consumers is the food resource channel which consists of the flow of materials between consumers and producers enabled through the food info-marts. The material flow consist of collected food waste for composting and circulation of compost among rural and urban producers; circulation of food produced in rural and urban areas where even the surplus urban food could be marketed by the urban producers.

Rural Producer Knowledge Centres (PKCs)

Producers in Rural areas are sometimes aware and sometimes not aware about their production practices that involves healthy food and environmental concerns. If appropriate information on production practices is provided to them then there is a big potential for them to grow under organic/NPM condition reducing the usage of chemical fertiliser and pesticides. This will largely benefit the consumers from health hazards, reduce GHG emissions and also save. The PKCs will provide the producer with regular information on production techniques, consumer demand and act as another link between the producers and consumers.

For More Information

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