german cooperation
DEUTSCHE ZUSAMMENARBEIT

Implemented by
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

NABARD

BIRD

KFW

CAPACITY BUILDING TOOLKIT (MODULE 7)

BUSINESS MODEL: ORGANIC COFFEE CULTIVATION

Published by
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Registered offices:
Bonn and Eschborn
Umbrella Programme for Natural Resource Management
A2/18, Safdarjung Enclave
New Delhi 110 029 India
T: +91 11 4949 5353
F : + 91 11 4949 5391
E: info@giz.de
I: www.giz.de

Responsible
Mohamed El-Khawad
Program Director and Cluster Coordinator
Environment, Climate Change and Biodiversity
Email: mohamed.el-khawad@giz.de

Rajeev Ahal
Director, Natural Resource Management
Email: rajeev.ahal@giz.de

Technical Partners
Intellect Consortium

Content Review
Dr R.S.Reddy (BIRD),
Deepak Chamola, Technical Expert, GIZ

Editor
Raj Pratim Das

Design and Layout
Rouge Communications
rougecommunications@gmail.com

Photo credits/GIZ
GIZ is responsible for the content of this publication
On behalf of the
German Federal Ministry for Economic Cooperation and Development (BMZ)

New Delhi, India
October, 2019

ABOUT THE MODULE

National Bank for Agriculture and Rural Development (NABARD), Bankers Institute of Rural Development (BIRD) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has come up with a 'Farmer Producer Organisation (FPO) Capacity Building Toolkit'. The toolkit
contains the following modules:

1. FPO orientation material
2. FPO capacity assessment tool
3. Training for Trainers (ToT) manual for Board of Directors (BOD)
4. FPO Massive Open Online Course (MOOC)
5. Guidebook on FPO business planning
6. Guidebook on FPO legal compliances
7. Business models for FPOs
8. Schemes and policy initiatives for supporting FPO
9. Guidebook on common derivative market for FPOs
10. Guidebook on input business planning for FPOs
11. Guidebook on FPO financing for bankers

MODULE 7 **'Business models for FPO'** presents a compilation of business models of various commodities based on experience of Umbrella Programme for Natural Resource Management (UPNRM) programme to help FPOs and other stakeholders in development of business plan, as a reference material.

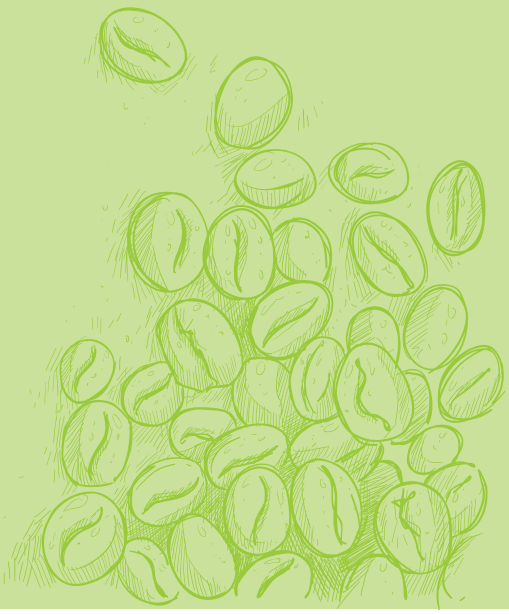
The module covers challenges with respect to the commodity, project idea, impacts, sustainability and financial details including cost-economics

This business model is on Organic Coffee.

CONTENTS

LIST OF TABLES

LIST OF FIGURES



01

BACKGROUND

The origin of Coffee is traced to a goat herder name Kaldi in Ethiopia, who is believed to have first discovered the coffee beans in 7th century AD. Around the 15th century coffee is believed to have made its way into Yemen. The Yemen port at which coffee beans first arrived was named as Mocha and today Mocha has become synonymous with coffee.

Coffee reaches India, through a Sufi saint Baba Budan, who during his pilgrimage to Mecca in 1670 AD smuggled some coffee beans to India and planted coffee on Chandragiri Hills in Chikkamagaluru district of Karnataka.

Today close to 3.5 lakh farmers are engaged in coffee cultivation in India, although a majority of them are small and marginal farmers having less than 1 ha land.

Table 1: Size of coffee farms in India (2016-17)

State/region	Size of landholdings (2016- 17)	
	<1 ha	> 1 ha
Karnataka	76960	2201
Kerala	77370	275
Tamil Nadu	17656	350
Odisha and AP	167370	26
North East	10477	9
	349833	2861

Source: Coffee Board, GOI

The total production of coffee in India (2017-18) is estimated to be around 3.15 lakh tonnes. Karnataka (70%) and Kerala (21%) are the main coffee growing states in India while coffee is also grown in small quantities in Tamil Nadu, Andhra Pradesh, Odisha and North east.

Table 2: Coffee Production in India (2017-18)

State/Region	Coffee Production (MT)
Karnataka	222300
Kerala	65375
Tamil Nadu	17440
Andhra Pradesh	9600
Odisha	740
North Eastern Region	185
Total	315640

Source: Coffee Board, GOI

The coffee cultivation, in India, mostly takes place during the Monsoon season that is why it is termed as 'Indian Monsoon Coffee'.

As per the estimates around 50% of Indian coffee is exported to Italy, Germany, Russia, Belgium, Turkey and U.S.A.

Table 3: Year-wise export of coffee from India

Year	Quantity (MT)
2015-16	317823
2016-17	355537
2017-18	267510

Source: Coffee Board, GOI

Organic Coffee

Organic coffee cultivation is at its nascent stage in India. According to the available data for the year 2008, an area of only 2600 ha was under organic coffee cultivation with an estimated production of around 1700 MT. Although organic coffee production is expected to have increased since then but there is a significant scope for expanding organic coffee cultivation in the country as the conditions here for organic coffee production are far more favourable than in any other coffee producing country. Some of them are[1]:

- In many parts of India, coffee is cultivated in fertile jungle soils under a two-tier canopy comprising of evergreen leguminous and non-leguminous shade trees. Cultivation under trees helps in reducing soil erosion and improved soil fertility by recycling nutrients in the form of leaf litter and by protecting coffee bushes from vagaries of changing weather conditions.
- Traditional farming practices such as the use of cattle manure, composting, manual weeding etc., are in vogue in vast majority of small holdings.
- Horticultural practices followed in Indian coffee plantations are considered as one of the best in the world, in which emphasis is mainly towards manipulation of microclimate and plant health, so as to reduce excessive dependence on agro- chemical inputs.

Apart from these natural advantages, the Indian coffee industry is characterised by small holdings. Majority of these small holdings especially in Idukki zone of Kerala, Bodinayakanur zone of Tamil Nadu and all the tribal holdings in Andhra Pradesh and the North-Eastern states are basically organic by default.

[1] *Coffee Board of India*

02

CHALLENGES IN CULTIVATION OF ORGANIC COFFEE

The following are some of the major challenges in the cultivation of organic coffee in India:

2.1 Coffee diseases

One of the major issues with coffee cultivation in India is fungal infection which adversely impacts coffee plants. Prevention of fungal diseases is a major challenge for the farmers as, so far, an effective cure for this has not been found. Coffee rot is another disease which damages the plantation considerably, particularly in the Karnataka region.

2.2 Climate change

Coffee, according to experts, has a specific preference in terms of rainfall and temperature. Prior to flowering it prefers a dry period of few weeks that stresses the plant into flowering, subsequently it needs a good soaking to stimulate actual opening of flowers and then it needs periodic rains to fill the berries. During the flowering stage, the temperature must be within reasonable limits. However, shift in rainfall patterns, erratic rainfall and rise in temperatures are believed to be having an adverse impact on coffee plantations.

2.3 Pest management

Coffee cultivation is susceptible to the pest attacks which reduce the yield considerably. Although in conventional cultivation chemical pesticides are used by farmers but in case of organic coffee cultivation farmers require knowledge about adequate pest management strategies such as - application of biological agents.

2.4 Harvesting and post harvest practices

There is a need to improve the Package of Practices (POPs) especially related to harvest and post-harvest management to be applied in coffee. Poor practices adversely impact the quality of coffee. Moreover, there is a need to improve post-harvest infrastructure such as processing, storage and warehousing.

2.5 Supply and demand mismatch

Coffee sector in the past, has been witnessing supply and demand mismatch related crisis. On several occasions over the past two-decade or so the production of coffee increased but farmers were not able to find suitable markets and it became difficult for them to even cover their costs of production. For example, reports indicate that in the Wayanad district of Kerala alone about 10 estates were closed down, (due to demand and supply mismatch) in 2005 which affected over 1500 workers. The need is therefore to not only expand coffee markets but also ensure adequate storage facilities for farmers so that they may be able to store their produce in case of low demand.

03

PROJECT IDEA

This business idea aims to promote organic cotton cultivation and create an enabling system wherein farmers can access the improved technology, POPs, financial services and leverage their collective strength to enhance incomes.

Since the demand for organic coffee in the domestic as well as international markets is growing thus the farmers would be able to get premium prices while issues related to impact of climate change on coffee cultivation are also expected to be minimised.

This project idea promotes a cluster-based approach wherein a Farmer Producer Organisation (FPO) will be formed and nurtured in order to link the farmer produce to the mainstream market. The FPO would support the farmers in aggregation, sorting, grading, processing, packaging, quality improvement, branding, sales promotion and marketing. It would also seek to secure organic premium for the farmers in a bid to enhance their incomes.

3.1 Intervention Strategies

It is being proposed that the interventions in coffee sector must be taken up on 150 acres of land. This would form a cluster wherein the targeted farmers would be organised into Farmer Interest Groups (FIGs) of coffee cultivators. At the cluster level FPO would be formed which would assist the farmers in aggregation and in achieving the economies of scale. Under this broad framework, the following specific interventions are proposed to be implemented:

For farmers groups:

Support may be provided through a local competent NGO or an existing FPOs for the following interventions.

a. Farmer's mobilisation and sensitisation for the adoption of organic coffee cultivation (grant/subsidy).

b. Training and extension services for the farmers on POPs for organic coffee (grant/ subsidy).

c. Facilitation of organic certification (grant/ subsidy).

d. Facilitate farmers to obtain financial benefits under different promotional schemes of Coffee Board of India and other schemes of the concerned state and central government.

e. Facilitate farmers to access quality planting material, assess the risks and develop risk management strategy in pre-harvesting, harvesting and post harvesting areas.

f. Introduce crop insurance in coffee sector (such as ICICI Lombard pilot initiative in Karnataka in coffee crop insurance).

g. Buy-back of farm produce through the FPO.

The cluster development approach under this model would be helpful in minimising the overhead costs including administrative, monitoring, certification and capacity development of the farmers/ FIGs.

For FPOs

a. Farmer mobilisation and sensitisation for the adoption of organic coffee cultivation.

b. Training and extension services for the farmers on POPs for organic cultivation.

c. Facilitation for organic certification and developing a robust internal control and traceability system.

d. Procurement of quality organic seeds for raising nurseries and supply of seeds to farmers.

e. Channelising credit to the members of FIGs for cultivation (based on the need for credit). The FPO may charge a small percentage of interest in order to recover facilitation costs. Linkages may be developed with financial institutions for providing loans to FIGs and also loan to the FPO.

f. Promote crop insurance and ensure farmers to go for crop insurance.

g. Development of systems for aggregation and supply chain management.

h. Creation of post-harvest infrastructure namely; processing unit, storage and related equipment/ machinery etc.

i. Processing, branding and marketing of organic coffee.

j. Convergence with various enabling schemes.

The funds can either flow directly to the FPO or through an NGO, which will have the overall responsibility of achieving the project objectives.

3.2 Potential for upscaling

A couple of decades ago, the annual per capita average consumption of coffee in India was less than a quarter-pound of coffee compared to 9 pounds average annual per capita consumption in USA. However, according to the Coffee Board of India, the annual per capita consumption of coffee has tripled during the last decades. The accelerated growth can be attributed to the two successful retail business chains that sell mass-market Indian coffee: Cafe Coffee Day, a Bangalore-based company with more than 1,600 outlets nationwide; and Starbucks, which arrived in 2012 and brews its espresso drinks exclusively with coffee from Indian farms owned by its corporate partner, the Tata Coffee conglomerate.

In addition to the growing domestic demand for coffee, the demand for organic products, including coffee, is also growing in national and international markets. However, currently organic coffee cultivation is being done on a limited scale and hence there are significant possibilities for up-scaling production of organic coffee.

3.3 Comparison with conventional

As compared to conventional cultivation of coffee, organic coffee cultivation helps in promoting biodiversity and reduces environmental pollution. At the same time organic cultivation has the potential to reduce the input costs for farmers. In fact, battling with the impacts of climate change, coffee producers have the option to adopt organic farming in order to mitigate the impacts of climate change to some extent.

Moreover, organic coffee fetches higher prices for the farmers which results in higher economic gains. In fact, online survey of prices of conventional and organic coffee revealed that retail prices of organic coffee powder were nearly 25% to 30% higher than conventional coffee. As far a wholesale prices were concerned, it was observed that wholesale prices of organic coffee were around 10% to 15% higher.

3.4 Case example Umbrella Programme for Natural Resource Management (UPNRM)

The project idea is based upon a model developed by Wayanad Social Service Society (WSSS) which is based in Wayanad, Kerala. WSSS implemented organic coffee cultivation programme with the support of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and National Bank for Agriculture and Rural Development

(NABARD) under UPNRM. This model has been quite successful in terms of promoting organic cultivation of two prominent cash crops, pepper and coffee which have been providing significant economic benefits to the farmers.

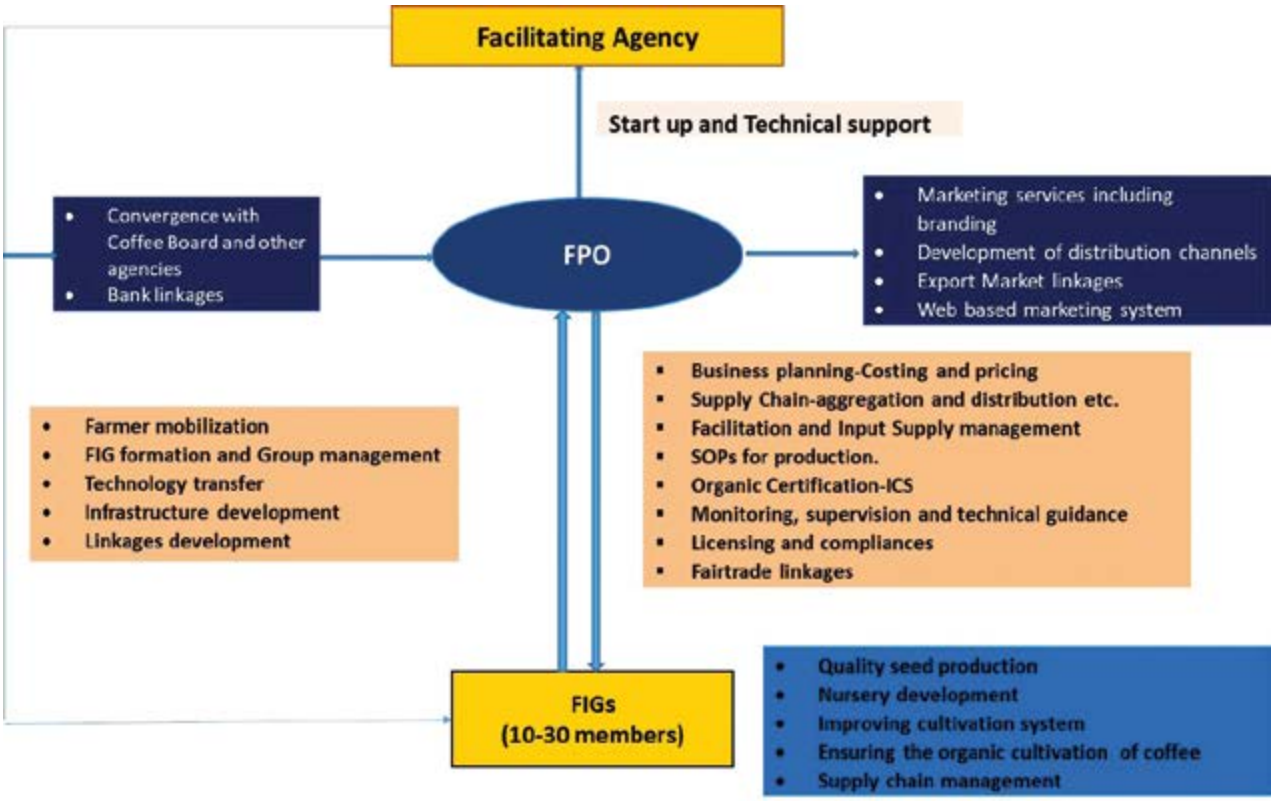
WSSS with its partner organisation Bio-Win (a section 8 NPO) has developed a strong value chain in organic sector. It has established state of the art facilities for processing, packaging and value addition. The key highlights of the model are as follows.

- Approximately 10,000 households across 40 revenue villages have been engaged in cultivation of coffee and pepper in around 6000 ha area.
- Organic certification has been secured for approximately 7261 certified organic farmers covering over 4940 ha land.
- A Section 8 company has been set up to trade organic products and two community-based organisations (CBOs)/FPOs have been formed to provide extension, aggregation and supply chain management services at the local level.
- Linkages with prominent research, technical, government and private sector institutions have been established in order to strengthen the production base and build the access of farmers over the various services.
- An online portal (Vikaspedia) of GOI has been introduced among the farmers in order to educate and dominate the information among them.
- Fairtrade certification/linkage has been developed for farmers.

3.5 Business model with flow chart representation

The following figures represents the business model in coffee sectors for the FPOs to be promoted.

Figure 1: Diagrammatic representation of the proposed business model



04

IMPACTS AND SUSTAINABILITY

4.1 Impacts – Social, Economic and Environmental

Social impacts

a. Vibrant economic institutions developed in the form of FIGs in the villages to address issues that relate to the economic, social and environmental well-being of the habitants.

b. Awareness, education and skill development of the farmers in coffee value chain.

c. Enhanced scope for women's participation in coffee value chain and improvement in women's status in the society due to their increase engagement in economic activities and exposure to diverse ideas.

d. Enhanced leadership among the small and marginalised farmers due to their role in business decision making, management of production, infrastructure and supply chain.

Economic impacts

a. Increase in income of the farmers (estimated-10-15%) due to improved cultivation practices, quality improvement, sorting, grading and moreover due to organic intervention in the coffee sector.

b. Reduced cost of production of coffee in the long run (no purchase of chemical fertilisers, pesticides, insecticides etc. with farm yard manure being prepared by farmers themselves. Reduced number of spraying saves labour costs).

c. Improved economic security for the farmers by integrating them into the market directly through FPO. This will make them free from the exploitative intermediary-based marketing system.

d. Capacity buildings of the farmers/ FIGs on risks assessment and mitigation in all the stages of coffee value chain for assuring economic security.

Environmental Impacts

a. Reduction of soil, water and air pollution because of use of organic manures, FYM and organic pesticides and IPM.

b. Organic soils retain more water.

c. Increase in biodiversity – agri-biodiversity, micro-organisms etc.

d. Eco-balance between pests and beneficial insecticides.

e. Improved soil fertility.

4.2 Mainstreaming Options

The proposed model is suitable for enhancing incomes of the small coffee growers in the existing coffee belt i.e. Karnataka, Kerala and Tamil Nadu. At the same time, it could be replicated in areas where coffee cultivation is currently on a limited scale i.e. Andhra Pradesh, Odisha and the North-Eastern region.

The model can be promoted/ replicated elsewhere jointly with Coffee Board of India, NABARD, Banks, State Horticulture Dept. and financial institutions.

As part of replication, interested groups/ stakeholders may be taken to Wayanad at WSSS for the exposure, learning visits and accordingly the model may be replicated with necessary customization to the local context.

4.3 Climate resilience or adaptability of the model

Climate change is having an adverse impact on coffee production across the world. According to a report by The Climate Institute[2] rising temperatures are changing rainfall patterns are believed to be affecting coffee yields and quality in coffee growing regions while increasing pests and diseases. The report mentions that climate change is projected to reduce global area suitable for coffee production by as much as 50% by 2050.

Indian coffee too has been facing issues arising out of shift in rainfall patterns, erratic rainfall and rise in temperatures, which are having an adverse impact on coffee plantations. Farmers are reporting decline in yields while the quality of coffee beans is also reportedly being affected.

Organic cultivation of coffee can help in building resilience of coffee farms to the changing climate. In the long term, organic cultivation can enhance the capacities of farms to better adapt to moisture and temperature stress while also building resilience to diseases and insects. It has the potential to improve the yields and also improve the quality of coffee.

4.4 Sustainability

The proposed model is based on the experience gained in Wayanad, Kerala, and it seeks to address the various issues relating to the sustainability of the intervention. It is strongly felt that with the initial financial and handholding support – comprising of FIGs and FPO – this model would be able to achieve sustainability after a period of 2 to 3 years. The major factors that are expected to contribute towards sustaining this model are:

1. Facilitating agency to provide initial facilitation, startup and handholding support.
2. Capacity building of FIGs and FPOs in governance, business planning and financial management including Disaster Risk Reduction (DRR) in the coffee sector.
3. FIGs to be linked with banks and bank loans provided to farmers.
4. Convergence with the ongoing government schemes to be achieved.
5. The economics of this model indicate moderate to high returns from the farmers and the FPO.
6. This model factors the cultivation of one crop only, however farmers would be able to do intercropping which would result in higher economic gains for the farmers.

[2] *The Climate Institute (2016). A brewing storm: The climate change risks to coffee.*

05

FINANCIAL DETAILS

5.1 Scope of financing and subsidy

The members of FIGs (farmers) would require loan– for purchasing seeds/planting materials of coffee. For cultivation of coffee in one-acre land, a farmer would require a loan of INR 78,480 spread over a period of 4 years. Although the farmer may meet their working capital requirement partly from schemes of Coffee Board of India and other government sources but under the present model the entire working capital requirement has been projected through bank loans. The facilitating agency and/or the FPO would assist the farmers in obtaining loans.

The FPO is expected to require capital assistance (for equipment) to the tune of INR 38.60 lakhs and working capital assistance to the tune of INR 300 lakhs. Working capital requirement would be met primarily through loan from NABARD and other banks while capital costs would be met partially through loans and partially through grant assistance.

The facilitating agency/ FPOs may look at the following schemes of the Coffee Board to meet out the cost of FIGs / FPOs

Integrated Coffee Development Project: Following support is available for coffee growers in traditional coffee growing areas:

- **Development support for coffee in traditional areas:** Small farmers having up to 10 ha holdings are eligible to receive subsidy up to 40% of unit cost (unit cost for Arabica is INR 2.75 lakh and for Robusta INR 2.00 lakh) for plantations of high yielding, disease tolerant coffee varieties. SC/ST households having up to 4 ha holdings are eligible for an additional support of 10% of the unit cost.
- **Water augmentation:** Individual growers, joint ownerships holding(s), family members are eligible for subsidy up to 10 ha for (a) Water harvesting structures like water storage tank or open well or ring well (b) Procurement of irrigation equipment (sprinkler / drip). Subsidy is available up to 40% of unit cost subject to a ceiling of INR 2.50 lakhs per beneficiary. ST/ SC households with holding size of up to 4 ha are eligible for an additional support of 10% of the unit cost, subject to a ceiling of INR 2.50 lakhs per beneficiary.
- **Eco-certification of coffee.** Individual growers having up to 10 ha area and groups of small growers (SHGs, collectives) who obtain certification for their plantations are eligible for subsidy up to 50% of the certification cost subject to a maximum of INR 50,000/- per individual grower/grower groups (in case of organic certification, spread over a period of 3 years or the conversion period whichever is less; in case of other certificates, one year, during the MTF). SC/ ST households having holdings upto 4 ha are eligible for an additional support of 10% of the certification cost subject to a maximum of INR 55,000/- per grower.

- **Support to Small Growers' Collectives/SHGs/Cooperatives for coffee marketing:** All Small Growers' Collectives/Self Help Groups (SHGS) / Co-operatives in traditional coffee growing states are eligible to receive financial assistance up to INR 4 per kg subject to the condition that coffee marketing is taken up in the name of small growers' SHGs/ Collectives and or Cooperative.

It is to be noted that subsidy for cultivators of coffee in non-traditional areas (NTA) under Coffee Development Program (CDP) is also available under this scheme's various components.

Paramparagat Krishi Vikas Yojana (PKVY): Under PKVY farmers taking up organic farming (minimum group size of 50 farmers) are provided grant assistance of INR 20,000 per acre spread over three-year period. Farmers could utilise these funds for purchasing seed, crop harvesting and transportation of produce.

Small Farmers' Agribusiness Consortium (SFAC) Scheme: SFAC supports FPOs by extending the loan guarantee and equity capital support schemes: The following two schemes of SFAC would be helpful for the FPOs to leverage the loan from banks:

a. *Loan/ equity guarantee cover scheme:* Loans to Producer Organisations (POs)/FPOs/FPCs under credit guarantee cover. Under this scheme FPOs can get term loan, working capital loan and or both. However, to be eligible to get the loan, the FPO must be 1 to 2 years old having audited balance sheet for at least one year and a minimum share capital of INR 3 lakhs. The rate of interest is charged as per the NABARD refinancing rate. The loan is given up to 6 times of the net worth of FPOs or INR 1 crore whichever is less.

b. *Equity Grant Fund Support to FPCs:* The Equity Grant Fund enables eligible FPCs to receive a grant equivalent in amount to the equity contribution of their shareholder in the FPC, thus enhancing the overall capital base of the FPC. The Scheme shall address nascent and emerging FPCs, which have paid up capital not exceeding INR 30 lakh as on the date of application.

NABKISAN's Support to newly formed FPOs: There is provision for the loans to emerging/ nascent POs which are not in a position to provide collaterals. Funding is provided to such FPOs up to INR 50 lakh in the form of loan which depend purely on the merits and prospects of their business plan.

Ministry of Food Processing Industries: Financial assistance is provided for setting up of primary processing centres/collection centres at farm gate and modern retail outlets at the front end upto a maximum of INR 10 crores per project. The Scheme envisages grants-in-aid of upto 35% to 50% subject to proportionate utilisation of bank loan and promoter's equity.

Mahatma Gandhi National Rural Employment Guarantees Act (MGNREGA): In case of unculturable wastelands and erstwhile fallow lands are proposed to be used for cultivation then under 'land development works' component of MGNREGA labour cost for bunding and land levelling are provided under this scheme.

5.2 Cost Economics

The proposed business model provides estimates of cost-benefits at two levels i.e. at the level of individual farmer and at the level of the FPO for organic coffee cultivation, processing and marketing.

5.2.1 Cost-benefit for farmers[3]

The following tables provide details of the expected cost of cultivation and the expected revenue for individual farmers engaged in cultivation of organic coffee on one-acre land:

[3] *It must be mentioned that the costing and yield taken under this model are based on experiences from Wayanad. Therefore, the cost-benefit estimates would be valid under similar geographic conditions. However, costing and yield may show slight variations from region to region.*

Table 4: Cost-benefits for individual farmers engaged in organic coffee cultivation (1 acre landholding)

S.No	Particulars	Unit	Quantity	Unit Cost (INR)	Total Cost (INR)				
					Year 1	Year 2	Year 3	Year 4	Year 5
A	**Inputs/Practices**								
A.1	**Sowing Practices**								
1	Cost of raising seedlings (per Acre)	Nos	300	15	4500	0	0	0	0
	Total (A.1)				**4500**	**0**	**0**	**0**	**0**
A.2	**Main Field cultivation**								
2	Land preparation	Person days	6	250	1500	0	0	0	0
3	Manure / compost	Kg	300	10	3000	3150	3308	3473	3647
4	Plantation of coffee	Person days	10	250	2500	0	0	0	0
5	Labour cost in agricultural operations (weeding etc.)	Person days	15	250	3750	3938	4134	0	0
6	Bio-fertilizers / Bio agents	Kg	1500	10	15000	15750	10000	10500	11025
	Total (A.2)				**25750**	**22838**	**17442**	**13973**	**14672**
A.3	**Harvest and post-harvest costs**								
7	Labour cost for harvesting	Person days	8	250				2000	2100
8	Primary drying and grading	Person days	3	250				750	788
9	Packaging and transportation cost	Per Qtl	12	250				3000	3150
	Total (A.3)				**0**	**0**	**0**	**5750**	**6038**
A.4	**Other costs**								
10	Crop Insurance (per acre)	Per annum		1700	1700	1700	1700	1700	1700
11	Interest on working capital				2904	5724	8212	9039	7723
	Total (A.4)				4604	7424	9912	10739	9423
	Cost of Cultivation (A1+A.2+A.3+A4)				**34854**	**30262**	**27354**	**30461**	**30132**
A.4	**Total Cultivation Cost**								
12	Total yearly cost of cultivation				34854	30262	27354	30461	30132
13	Total cumulative cost of cultivation				34854	65116	92470	122932	153064
B	**Other information**								
14	Yield per Acre (4th year plantation)	Kg	1350					1350	1485
15	Selling prices (currently Rs. 80; assuming 5% inflation per year)	INR	80					93	97
B.1	**Income of Coffee Farmers**								
17	Total Cultivation cost							122932	30132
18	Net Return after 5 years	INR							116531
B.1.1	**Annualised net return per acre (over 5 years)**								**23306**

Assumptions:

- The cost of cultivation may be sourced from the ongoing schemes of the Government, including those of the Coffee Board of India and Paramparagat Krishi Vikas Yojana.
- Since the farmers would get first harvest at the end of fourth year, they would therefore require loans to meet the cultivation costs during the first four years. The FPO could arrange loan from the bank for the farmers.
- Since this model is based upon organic cultivation therefore organic premium has been factored in the pricing while every year 5% price inflation has been factored in.
- The above assumption does not factor in drip irrigation system. In case drip irrigation is factored in then the yields are expected to increase by about 15 to 20%.
- The yield in fifth year would increase by 10% while it would increase by further 10% in the sixth year. The maximum expected yield from one acre is 1600 kg.
- Working capital requirement has been calculated on all material costs (excluding labour costs).

Economic analysis

It is evident from the table below that under the proposed business model the farmers are able to get a cumulative return of more than INR 1 lakhs over five years. While the gross returns are expected to be around INR 1.25 lakhs to INR 1.44 at the end of 4th and 5th year respectively. The Benefit Cost ratio for an individual farmer is calculated to be 1.38.

Table 5: Economic analysis of organic coffee cultivation in one-acre landholding

Particulars	Amount in INR					
	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Capital cost		0	0	0	0	
Recurring cost	34854	30262	27354	30461	30132	
Total cost	34854	30262	27354	30461	30132	153064
Total benefits				125550	144045	269595
Net benefits	-34854	-30262	-27354	95089	113913	116531
Net present worth of cost @15%	103600					
Net present worth of benefits @15%	143405					
Benefit Cost Ratio	1.38					

LOANS

It is envisaged that organic coffee cultivators would require loan to meet their cultivation costs during the first four years. However, at the end of fourth year the farmers would be able to sell their first crop and earn revenues and subsequently they would not require loans to meet the cultivation costs. The repayment of loan is projected from the 4th year onwards.

Table 6: Working capital loan for farmers

Working capital loan	INR in Lakhs									
	Y 1	Y 2	Y 3	Y 4	Y 5	Y 6	Y 7	Y 8	Y 9	Y 10
Yearly Working Capital Requirement	24200	20600	15008	18673	0	0	0	0	0	0
Repayment	0	0	0	20000	20000	20000	20000	20000	20000	6367
Interest on net working capital Loan (Diminishing) @ 12% per annum	2904	5724	8212	9039	7723	6250	4600	2752	682	0
Total Loan outstanding	27104	53428	76648	84360	72083	58333	42933	25685	6367	0

5.2.2 Cost-benefit for FPOs

The estimated cost-benefit for FPOs is discussed below:

Table 7: Cost-benefits for FPO engaged in processing and marketing of coffee (150 acres)

S.No	Particulars	Unit	Quantity	Cost (Rs.)	Amount in INR lakhs				
					Year 1	Year 2	Year 3	Year 4	Year 5
A.1	**Capital Cost**								
1.1	Storage (transit storage) cum office	Sq. ft.	1800	700	12.60	0	0	0	0
1.2	Office equipment (Chairs, table, shelf, computer, printer etc.)	Lumpsum	1	100000	1.00	0	0	0	0
1.3	Coffee processing unit- Dryer, coffee peeler, polisher, roasting machine, grinding machine, packaging machine, weight machines and sealing machine etc.)	Nos	1	1000000	10.00	0	0	0	0
1.4	Purchase of vehicle for transportation	Nos	1	1500000	15.00	0	0	0	0
	Total capital cost				38.60	0	0	0	0
A.2	**Recurring cost**				**0**	**0**	**0**	**0**	**0**
2.1	Mobilisation of farmers, training and technical guidance or organic farming (per year for 3 years)	Acre	300	1000	3.00	3.15	3.31	0.00	0.00
2.2	Capacity building of farmers in POPs, primary processing etc	Acre	300	3500	10.50	11.03	11.58	0	0
2.3	Certification cost (including overheads)	Acre	300	1000	3.00	3.15	3.31	3.47	3.65
2.4	Procurement of coffee berries from the farmers (16 quintal from one acre; total 150 acres)	Quintals	2400	9300	223.20	234.36	246.08	258.38	271.30
2.5	Operational and maintenance expenses of processing unit	Quintals	2400	1000	24	25.20	26.46	27.78	29.17

S.No	Particulars	Unit	Quantity	Cost (Rs.)	Amount in INR lakhs				
					Year 1	Year 2	Year 3	Year 4	Year 5
2.6	Packing and transportation expenses	Per quintal	720	250	1.80	1.89	1.98	2.08	2.19
2.7	Staff, administration, travel, coordination, marketing etc.	Month	12	180000	21.60	22.68	23.81	25.00	26.25
2.8	Interest on loan for working capital (12%)	Half yearly			18.00	18.00	18.00	18.00	18.00
2.9	Interest on loan for capital cost (12%)	Per annum			4.63	4.29	3.90	3.47	2.99
	Total recurring cost				**309.73**	**323.74**	**338.43**	**338.20**	**353.55**
	Total cost - capital and recurring (A1+A2)				**348.33**	**323.74**	**338.43**	**338.20**	**353.55**
B	**Income/ Benefits**								
3.1	Sale of Coffee	Quintals	720	55000	396.00	415.80	436.59	458.42	481.34
	Net returns				**47.67**	**92.06**	**98.16**	**120.22**	**127.79**

Assumptions:

In the above analysis the following assumptions have been made:

- The above analysis assumes that the FPO is promoting cultivation of organic coffee with about 150 to 300 farmers cultivating an aggregated area of 150 acres.
- Estimating a production of 16 quintals of coffee beans per acre a total of 2400 quintals coffee beans would be procured by the FPO.
- Coffee beans would be dried at the FPO level with around 70% weight loss upon processing.
- The cost of cultivation/conversion to organic coffee farming for the farmers will be sourced from different schemes of the Government including those of Coffee Board of India and Paramparagat Krishi Vikas Yojana.
- The FPO would assist the farmers in obtaining organic certification.
- The storage infrastructure will be made of low-cost materials.
- Loan will be obtained for INR 3.00 crores during the first as working capital for procurement of coffee from the farmers. This amount for procurement will be taken on loan for about 6 months each harvesting season.
- A loan of INR 0.38 crores would be obtained for meeting capital costs.
- An increment of 5% each year for price escalation in the market value of coffee has been factored in.
- An increment of 5% each year for price escalation in the purchase price of coffee beans from the farmers has been factored in.
- An increase of 5% each year in the cost of processing as well as administrative costs has been factored.
- The staff of FPO will coordinate the entire business operation including monitoring of conversion of conventional to organic farming.

Economic Analysis

The economic analysis seems to suggest that from the first year of operation onwards the FPO would gain sizeable revenues (around INR 86 lakhs excluding the capital costs) which are expected to increase over the years (over INR 100 lakhs in 5th year). The Benefit Cost ratio is calculated to be 1.24 which is very good and which indicates that this business model is viable.

Table 8: Economic analysis of operations of FPO

Particulars	Amount in INR Lakhs					
	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Capital cost	38.60	0	0	0	0	
Recurring cost	310	324	338	338	354	
Total cost	348	324	338	338	354	1702
Total benefits	396	416	437	458	481	1376
Net benefits	48	92	98	58	128	423
Net present worth of cost @15%	**1140**					
Net present worth of benefits @15%	**1412**					
Benefit Cost Ratio	**1.24**					

LOANS

It is envisaged that for this business model the FPO would require a loan of INR 38.6 lakhs for capital expenditure and a loan of INR 300 lakhs for meeting the working capital requirements for procurement of coffee from farmers. Working capital would be required for 6 months each year. The interest payable on working capital loans and on the loan for capital cost have been included in the overall cost economics of FPO.

Table 9: Working capital loan for FPO

Working Capital Loan	INR in Lakhs				
	Year 1	Year 2	Year 3	Year 4	Year 5
Yearly Working Capital Requirement	300	300	300	300	300
Repayment	300	300	300	300	300
Interest on net working capital Loan (Diminishing) @ 12% per annum	18	18	18	18	18

As far as loan for capital expenditure is concerned, its repayment would be initiated from second year onwards and it is expected to be repaid over a period of 10 years.

Table 10: Capital expenditure loan for FPO

Capital expenditure loan	INR in Lakhs									
	Y 1	Y 2	Y 3	Y 4	Y 5	Y 6	Y 7	Y 8	Y 9	Y 10
Capital expenditure	38.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Repayment	0.00	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	3.72
Interest on capital loan (Diminishing) @ 12% per annum	4.63	4.29	3.90	3.47	2.99	2.45	1.84	1.16	0.40	0.00
Total loan outstanding	43.23	40.02	36.42	32.39	27.88	22.83	17.16	10.82	3.72	0.00

06

RECOMMENDATIONS AND WAY FORWARD

The proposed business model for organic coffee shows economic viability for the farmers as well as profitability for the FPO. At the farmer level the production estimates per acre have been taken on the conservative side while the costs of cultivation have been taken on the higher side. It is expected that the actual revenues for the farmers might be higher that the projected. Moreover, the value of financial support through various government programmes has not been included in the financial calculations.

Similarly, at the FPO level the actual costs of operation might turn out to be less than that is projected in this model, resulting in higher gains for the FPO. However, it would be critical for the FPO to ensure that adequate quantities of coffee beans are procured from the farmers.

Support of financial institutions for obtaining loans for the farmers as well as for the FPO would be critical for this business model. It is therefore important to publicize this model with financial institutions so that they get an opportunity to analyse this business model and, if found suitable, they may support such a model. At the same time this model needs to be communicated widely with NGOs who may facilitate the implementation of this model through the support of financial institutions.

NABARD may consider providing assistance to farmers/FPOs/facilitating agencies for cultivation of organic coffee.

Deutsche Gesellschaft für Internationale
Zusammenarbeit (GIZ) GmbH

A2/18 Safdarjung Enclave
New Delhi-110029 India

T: +91-11-494953535
E: nrm@giz.de
www.giz.de/India