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STDF PROJECT GRANT (PG)
APPLICATION FORM SUBMITTED BY SPICES BOARD INDIA

Project Brief

Project Title	Strengthening spice value chain in India and improving market access through capacity building and innovative interventions
Objective	<p>The overall goal of the project will be to expand exports of safe and high-quality spices from India to overseas markets. This will also contribute to improved food safety and consumer health in India and export markets. This is further expected to help to boost incomes of small-scale farmers, empower women and other marginalized (tribal) communities, and support efforts to reduce poverty (SDG 1) and hunger (SDG 2) in the selected project areas in India.</p> <p>The objective is to build the capacity of stakeholders in the spices value chain to improve the safety and quality of three seed spices (cumin, fennel and coriander) and black pepper in order to increase market access.</p>
Budget requested from STDF	<p>STDF Project Contribution US\$ 469,000</p> <p>Overhead US\$ 39,830</p> <p>Total STDF Funding US\$ 508,830</p> <p>Partner (FAO) estimated funding US\$ 100,000</p> <p>Government contribution US\$ 283,200</p>
Total project budget	US \$ 892,030
Full name and contact details of the requesting organization(s)	<p>Spices Board India Ministry of Commerce & Industry PB No 2277, NH Bypass, Cochin 682025, India Tel: 0091 484 2333304 E mail: jayathilak@nic.in</p>
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Abbreviations

APMC	Agriculture Produce Marketing Committee
AASSAV	Adivasi Abhivruddi Samskruthika Sangam Araku Valley
CCCF	Codex Committee on Contaminants in Food
CCPR	Codex Committee on Pesticide Residues
CCSCH	Codex Committee on Spices and Culinary Herbs
FDA	Food and Drug Administration of the USA
FPOs	Food producer organizations
FSSAI	Food Safety and Standards Authority of India
GAP	Good agriculture practices
GCC	Girijan Cooperative Corporation Limited
GHP	Good hygienic practices
HACCP	Hazard analysis and critical control point
IEC	Information, education and communication
IISR	Indian Institute of Spices Research
IP	Implementation Partner
IPSTA	India Pepper and Spice Trade Association
ITDA	The Integrated Tribal Development Authority
JECFA	Joint Expert Committee on Food Additives
LP	Local partner
MDG	Millennium Development Goals
MIDH	Mission for Integrated Development of Horticulture
MP	Madhya Pradesh
NAANDI	Naandi Foundation
NGO	Non-governmental organization
NPM	National Project Manager
RASFF	Rapid Alert System for Food and Feed of the EU
SB	Spices Board
SPS	Sanitary and Phytosanitary Measures
STDF	Standards and Trade Development Facility
TOR	Terms of Reference
TOT	Training of Trainers

I. BACKGROUND & RATIONALE

1. Relevance for the STDF

Despite having one of the fastest-growing economies in the world, and a sizeable consumer economy, poverty remains a significant challenge in India. A World Bank infographic published in 2016 shows that 270 million people in India are poor (equivalent to one in five persons). Most of the poor live in rural areas, belong to "tribal" communities, own small amounts of land (generally under one hectare) and depend on casual or farm labor for their livelihoods.¹ With a population of 1.34 billion, solving the challenge of poverty in India is crucial for the achievement of the UN's Sustainable Development Goals.

Agriculture and farming is essential for the livelihoods and food security of rural people in India, include the poor. Over 60% of India's population are directly or indirectly involved in farming operations. Most farmers are small and marginal, and depend on farming for their living. Over time, continuous efforts have been made to improve the living standards of the farming population. Given India's varied agro-climatic zones, there is great potential to use agriculture to boost development in rural areas, expand exports and help to reduce poverty. However, much more needs to be done in scaling up the standards of practices in farming, production and post-harvest to meet food safety standards and expand market access.

Spices and herbs contribute up to five percent of the farm production in India. Being a garden crop, most farming households rely on the production of spices. This means that developing the spices value chain has the potential to benefit very large numbers of people. This project focuses on developing the capacity of stakeholders in the spices value chain – including the poor and marginalized, tribal communities, women-headed households – in four selected areas (Paderu in Andhra Pradesh, Mehsana district of Gujarat, Jodhpur district of Rajasthan and Guna district of Madhya Pradesh) to implement improved food safety management systems and international food safety standards (Codex) in order to expand their production, improve food safety and quality, promote value addition and boost exports. The recent meta-evaluation of externally evaluated STDF projects has pointed to the potential of sector development and value chain projects – like the India Spices proposal – to make a clear contribution to impact and sustainability since they work with various stakeholders through the whole value chain and, importantly, reach out directly to small producers.

The project will focus on three seed spices (cumin, fennel and coriander) and black pepper, which are currently exported and consumed locally. As such, the project will also generate improvements which will have an important impact on domestic public health. The project will be implemented based on a collaborative, public-private partnership model, with the expectation that the spices training programme developed would be scaled up in other parts of India by the private sector and government agencies after the end of the project.

The project was developed through an STDF PPG ("Capacity building and knowledge sharing to address SPS issues in spices, STDF/PPG/517") and is based on clear local demand. The PPG provided a means to fully map and identify the issues, interact with stakeholders and develop an evidence and need based project proposal. Field visits – to farms, auction centres (*mandis*), pre-processors and processors, storage warehouses, universities/ research organizations – and discussions with various

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www.worldbank.org/en/news/infographic/2016/05/27/india-s-poverty-profile

local stakeholders (including at a final PPG workshop held in Delhi in June 2017) provided the basis for the development of the project. This participatory process also guarantees that the project has the support of all relevant government Ministries and Departments (Ministry of Agriculture, Ministry of Commerce, Export Inspection Council) and other stakeholders including the private sector, universities, research organizations, development banks, e-portal developers and trade associations.

During the PPG, seven key challenges (below) were identified across the selected spice value chains which negatively impact food safety and quality, and reduce the potential to use spices as a key sector to promote inclusive value chain development and exports.

1. Poor compliance with hygienic practices is the major issue observed across the entire value chain (production, storage, transportation, market yards and pre-processing stages). A main cause of this is poor understanding and awareness on hygiene.
2. Improper drying spices in the open with the potential of contamination due to birds, animals, rodents and dust and dirt.
3. Lack of facilities and equipment at farm level – for example in many cases threshers were not available and threshing was being done in a non-hygienic manner (driving motorcycles or tractors over the spice, drying directly on the floor – all this leads to high potential for contamination with micro-organisms.
4. Contamination through packaging material due to reuse resulting in cross-contaminations, marking with non-food grade ink on jute bags, etc.
5. Farmers operating at individual level due to which they do not have the benefits of group or cooperative working in terms of understanding and implementing food safety measures, getting a good price for their produce, certification charges, direct linkage to buyers.
6. Inappropriate pesticide usage including use of banned pesticides, at times, excessive use of pesticides; wrong pesticide use; many pesticides sold are not labelled, withholding period of pesticides not maintained, etc.
7. Lack of test equipment at market places/ auction centres due to which quality cannot be determined and resulting mixing of farmer lots can lead to contaminating safe with unsafe product.

This proposed project aims to address these challenges in three seed spices (cumin, fennel and coriander) and black pepper to enable poor, rural households to improve food safety and quality, and benefit from trade opportunities.

Although India is a major producer and exporter of spices, the volume of spice exports remains low, in large part due to food safety and hygiene issues. In spite of several initiatives by the Ministry of Agriculture and Ministry of Commerce through Spices Board, a lot more needs to be done to strengthen the safety of spices and meet SPS requirements of importing countries, especially the more quality sensitive markets (such as those in the EU, US, Australia and Japan). Many exporters are unable to meet the requirements of these markets, especially for aflatoxin and pesticide residues. As a result, they mainly export to the Middle East, where prices are significantly lower.

The project will aim to improve food safety issues in the production, post-harvest, processing and trading of Indian spices. It will build the capacity of institutions and stakeholders (including small and marginalized farmers) to implement good practices and improved safety managements systems that address the SPS requirements of major importing market. It will support development of Farmer Producer Organization (FPO) at community level for improved production, quality and value and use of added technologies. It will strengthen the testing system through lab networking, and improve marketing and links to buyers (exporters/ importers) through the existing e-portal of Spices Board. These features of the proposed intervention perfectly fit with the STDF's current thematic and capacity needs focus.

These four spice crops included in the project were selected based on the importance of SPS issues affecting them, and a high potential to address the challenges with maximum gains for the local populations. The selection of the geographic areas (see below) was done based on large areas of production, scope to improve implementation of hygienic practices across the entire value chain (production, storage, transportation, market yards and pre-processing stages) in the target areas and spices. The project is designed to address the specific hygiene and safety issues related to each spice value chain. As such, the project will be tailored to the specific challenges in each spice value chain. The project will also address cross cutting areas namely pest control, food safety and certification issues specifically in relation to good agriculture practices (GAP) and good hygienic practices.

The project will adopt an innovative approach by developing Package of Practices (POPs) for each spice linked with certification requirements and also taking in account the specific requirements of target markets (EU, USA and Japan). It will also work on development of a National Contaminant and Residue Monitoring Programme which will help to validate the POPs. Till date this approach has not been piloted in India. The project will look into the specific requirements of select spice growing villages to study the current practices and adapt the practices into more hygienic ones and will also support the establishment of Farmer Producer Organizations or alliances so that the benefits of collective activities are availed.

The project will also address the marketing aspects. One of the innovative components is the inclusion of activities to further develop the e-portal (www.espicebazaar.com) to include the four targeted spices and link farmers with buyers, which will take into account the food safety practices followed across the specific spice value chains. The e-Spice Bazaar is a market driven agricultural initiative, launched by the Spices Board, to use IT enabled knowledge centres to address the existing gap in agricultural information flow and transaction management for specific products. It does this in a phased manner enabling conversion of under-performing farms into high yielding farms of quality products in demand, by leveraging ICT enabled services. Currently focused on chilli and turmeric growing districts, this Project will provide a means for small farmers growing the four selected spices to benefit from this e-portal.

The project has been designed to build on and learn from existing initiatives, and explore positive synergies as far as possible. The project is designed in a way to maximize its sustainability and facilitate wider scaling up. The Spices Board has identified options to replicate the approach and content developed in other regions in the country. The approach could also be extended to other major spice producing countries in the South Asia region, which face similar problems on hygiene and safety practices, and beyond. The different good practice and training modules developed will be widely disseminated in India and globally, including through the STDF website.

2. SPS context and specific issue/problem to be addressed

India is a major producer, consumer and exporter of spices. Approximately 3 million metric tons of spices are produced annually, with exports of nearly 0.8 million tons, mainly to countries like the US, Europe, Japan, Middle East and East Asia. Data on production, productivity and export of spices targeted in this project is provided in **Appendix 9**. Indian exports of spices and spices products command a global market reach of nearly 50% in terms of both price and quantity.

Spice exports face rapid alerts and border rejections by importing countries due to SPS issues, which has negative effects on consumer health, incomes of stakeholders in the value chain and the national economy.² The key food safety issues faced are microbial contamination, excess pesticide residues (non-permitted ones or residues beyond limits), mycotoxin contamination specifically aflatoxins, filth and impurities, lack of implementation of good hygienic practices (GHP) at various stages of production and pre-processing. Many of the challenges faced are not very complex or difficult to address, provided there is a concerted and committed effort from the government and private sector.

The following table (based on USFDA and EU-RASFF data) highlights the key challenges faced. It is clear that aflatoxins and *Salmonella* are the two major factors for rejection of Indian spices in the respective regions. In addition to aflatoxin and salmonella, dirt and filth and labelling aspects are also a major cause of rejections especially in the US.

EU Rejections Data 2014-17³

Sl No.	Rejection Parameter	2014	2015	2016	2017 (till May)	Total
1.	Aflatoxin	17	19	33	9	78
2.	Pesticide residue		5	2		7
3.	<i>Salmonella</i>	5	2	4		11
4.	Absence of health certificate		4	9	13	26
5.	Improper health certificate			1	1	2
6.	Unauthorised colours				1	1
7.	Lead				1	1
8.	Mould and insects	3	1			4
9.	Smell of dead mites/ insects		1			1
10.	Ochratoxin	4	1	3	2	
11.	Particles			1		1
12.	<i>B.cereus</i>	1				1
13.	Irradiation		1			1
14.	Spoilage		2			2
15.	Traces of almond		1			1
16.	Uncleared mustard		2			2
	Total	30	39	53	27	149

² UNIDO Working Paper: *What do border rejections tell us about trade standards compliance of developing countries? Analysis of EU and US data 2002-2008.*

³ Source RASFF, extracted on May 2017

US Rejections Data 2014-17

Sl No.	Rejection Parameter	2014	2015	2016	2017 (till May)	Total
1.	Pesticide residues	44				44
2.	<i>Aflatoxin</i>			1	2	3
3.	<i>Salmonella</i>	144	229	236	79	688
4.	Filth	32	58	40	15	145
5.	Unsafe colours	8	9	10	2	29
6.	Lead			1		1
7.	Unmapped drugs				1	1
8.	Allergens			1		1
9.	Labelling / misbranding	39	45	39	5	128
10.	Excess sulphur/ others		1 + 1		2	4
11.	Foreign objects				9	9
	Total	267	343	328	115	1,053

Monitoring of EU alerts and US rejections on spices by the Spices Board points to three main causes for rejections: aflatoxins, pesticide residues and *Salmonella*. In addition, other countries (such as Japan, Australia and New Zealand) are not buying substantial amounts of spices from India due to food safety issues.

Work carried out under the PPG identified key food safety issues for black pepper, cumin, fennel and coriander, as well as opportunities and actions needed to address the key food safety issues faced:

Key food safety issues for black pepper:

- Poor hygienic practices especially during the drying stage. Drying is often done directly on roads and lanes, and the practice of walking over the black pepper to dry it is common. Poor personal hygiene practices are being followed such as spitting on the sides of the pepper drying area and no control on domestic animals in these drying areas. *Salmonella* and aflatoxin are major issues.
- Farmers in Paderu region have very poor knowledge and awareness on food safety issues with no exposure to food safety requirements and good practices that are important for pepper.
- Farmers generally operate at an individual level rather than as groups or associations. Farms are of small size because of which the individual quantities with each farmer is low and ranges between 200-1000 kg/ farmer/ year. This does not encourage them to invest on equipment, trainings on food safety, etc.

Key food safety issues for cumin, fennel and coriander:

- A weak understanding of food safety requirements in general across the value chain and low awareness of the requirements of importing countries.
- Poor hygienic practices maintained across the production, harvest and post-harvest, trading, storage, transportation and pre-processing stages.

- Farm level: non-availability of good quality seed to farmers; threshers are not available and threshing is being done with unclean motorcycles or tractors tyres; drying is done directly on the floor as they do not have drying yards or even plastic sheets; there is high potential for contamination with micro-organisms due to birds, animals, rodents and dust and dirt at various stages.
- Auction Centres: Buyers cannot do direct procurements but have to go through mandi where they also have to pay 2% usage charges. The hygiene conditions at auction centres are poor and this leads to further contamination of product. The importance of linking the farmers to markets is also an area that requires focus.
- Pre-processing and processing centres: hygienic practices are not maintained at many processing units, however some processors are maintaining hygienic practices and even implement HACCP and organic certifications
- Packaging material is reused so there is a strong potential of cross-contamination – one of the other crops in the area is groundnuts so cross contamination with *Aspergillus* fungus and allergens is a major risk. Bags are often marked with non-food grade ink which can cause the dyes to leach inside the bags.
- Seed spices have the problem of high pesticide residue. Cumin specifically has the problem of high use of mancozeb; aflatoxins, thrips/aphids.
- Specific issues in coriander are powdery mildew, wilt, stem gall and aphid as also weeds which require chemical or mechanical controls. Rat excreta and insects of same size as coriander is a major issue and a solution is needed.

In view of the above, and based on the available data and analysis, there are three main risks for public health and trade:

- 1) Risk to global health stemming from the consumption of adulterated and unhygienic spices;
- 2) Risk to Indian spice trade worldwide and hence to Indian economy –as declining reputation of the Indian farmers may cause the importers to avoid future trade with them
- 3) Grave concern of environmental pollution-deterioration of the soil and underground water due to the use of hazardous agrochemicals by farmers and spice processors as well as due to the dumping of the spice consignments which are not found fit for exports.

Considering the wide use of spices and their significant global demand, it is imperative to improve and strengthen the safety of the selected spices for enhancing their wide acceptance worldwide. Otherwise, exports of Indian spices will continue to face losses in future due to rejections, which could potentially escalate into importing countries imposing bans on spices import from India.

Work under the PPG identified a number of opportunities to address these problems:

Opportunities for strengthening the seed spices value chain:

- Supply of the right quality of coriander seeds and varietal selection especially to control against wilt and stem gall.

- Develop package of practices during production and storage especially related to use of the correct pesticides, fertilizers, weed controls (weedicides), controlling powdery mildew in the field and insect infestation during storage. Insects of same size as coriander is common and a solution is needed for this.
- Development of training material/ modules (including certification aspects) and series of trainings across value chain to include farmers, auction centres in the selected areas, storage facilities; including method for collection of data on amount of coriander sown with link to the Department of Statistics and Agriculture to provide correct data.
- Implementation of Good practices with preparation for certifications (GAP)
- Provision of mechanical drying process to avoid storage insects – possibly at village level, organising farmer groups (FPO) and providing some basic mechanical drying facilities/ grading-cleaning-sorting machines, polythene sheets, other equipment for communities/ group use
- The market yard practices need improvement in relation to hygiene, implementation of good hygienic practices and certifications.
- Marketing and links to exporters – providing for direct marketing and branding schemes, possible through E-spice bazaar which can be enlarged to cover coriander and all farmers in selected villages to be included.
- Provision of test facilities especially for pesticide residues, soil testing.

Opportunities for strengthening the black pepper sector:

- Supplying healthy plants through procurement of superior varieties and their further propagation in nurseries. The source of these could be the premier pepper planting production centre in Panniyur in North Kerala as well as the Peruvannamuzhi farm of Indian Institute of Spices Research, Calicut too – it can be also used for training farmers.
- Support implementation of GAP/GHP at all stages up to the markets right from production, harvesting, pre-processing, trading, etc by helping stakeholders understand importance of food safety.
- Trainings and awareness programmes – development of training material, development of communication videos/ material/ TV programmes and dissemination of these, study visits to areas in Kerala to understand the good practices successfully followed there.
- Support the farmers to implement organic practices including developing and maintaining all documentation so that they can be certified as organic. This could be done with little effort as the product is actually organic by default but requires the establishment and maintenance of procedures and records. This will also address the issue of traceability and pesticide residues, a major concern in many importing countries. This will also be supplemented by developing a strong image and branding of organic certified Araku black pepper which will lead to increased exports.

- Supporting in establishing Farmer producer organizations (FPOs) and providing support in establishing common facilities with simple equipment supplied such as threshers, sieves, dryers,
- Linking producers to markets is a very important aspect and this could be done through organising trade fairs in the State as well as linking farmers to domestic and overseas buyers, through the web portal, the e-Spice Bazaar of Spices Board. SPS requirements of different markets will also be collated for information of producers and other stakeholders and placed on the web-portal.

This project will address these issues with a focus on planting materials, agricultural inputs, training on hygienic and good practices across value chains, value addition in terms of certifications (GAP and organic), appropriate harvesting and post-harvest handling practices, organizing alliances or groups to enable farmers to avail the benefits of trainings, equipment, marketing, better bargaining power and finally linking the farmers to markets.

Spice	Geographic area of focus and rationale for inclusion in the project
Black pepper	<p>Paderu in Andhra Pradesh: This is a non-traditional black pepper growing area, which is organic by default. A significant amount of black pepper is grown here but it is not produced, harvested or processed hygienically. Therefore, yields and prices are low, and quality and safety is not assured. With improved practices, farmers would see higher yields, better quality and higher prices.</p> <p>As an area inhabited by extremely poor and marginalized tribal communities, there is great potential to develop the production and export of pesticide-free pepper to reduce poverty. Most pepper is grown as an intercrop on coffee plantations. Landless tribal communities work as wage labour on these plantations. Most of the pepper farmers in this area of Andhra Pradesh, as well as in neighbouring Odisha, belong to marginalized tribal communities who are not linked directly to markets. Many are exploited by traders who offer prices much lower than the market rate.</p> <p>With coffee prices (Robusta and Arabica) at around Rs 135-140 per kg, pepper production is becoming much more attractive with prices of around Rs 600 per kg. ITDA and the Coffee Board Research Station at Minumuluru in Paderu have been providing pepper-planting materials at the rate of 150 plants per hectare. There is good scope to expand the number of vines from 150 per hectare to nearly 500 vines per hectare (still under the recommendation of the Indian Institute of Spices Research). This is a substantial quantity and if the vines are well cared for, production can go up significantly.</p> <p>In this area, pesticides are not generally used on coffee or black pepper so most production is organic by default. With organic certification, there is potential for even higher prices. Many of the coffee plantations are already organically certified, which makes it easy to get a certification for Arakku pepper also.</p> <p>The Integrated Tribal Development Agency (ITDA) of Government of Andhra Pradesh, which supports development of tribal communities, has agreed to</p>

	<p>partner in this project. Girijan Cooperative Corporation Limited (GCC) would support marketing. Project activities and results in Paderu would create positive spillover effects in neighbouring border districts of Odisha, which also have high poverty rates and high numbers of tribal communities.</p>
<p>Cumin, fennel and coriander</p>	<p>The project will target the following areas in Gujarat, Rajasthan and Madhya Pradesh, the main states producing these three seed spices.</p> <ul style="list-style-type: none"> ● Cumin: Mehsana district of Gujarat, Jodhpur district of Rajasthan ● Fennel: Mehsana district of Gujarat, Jodhpur district of Rajasthan ● Coriander: Guna district of Madhya Pradesh <p>Gujarat and Rajasthan account for more than 99% of Indian cumin and fennel production. Madhya Pradesh is the second largest producer of coriander in India (after Rajasthan), with production in seven districts. Spice production is mainly carried out by small producers including farm labourers and poor, landless women in villages. Training them will have an impact in bringing up the entire village populations along with availability of a safe product.</p> <p>Although there has been some increase in production over the years (as seen from the production figures in Appendix 9), exports are relatively stagnant. Work during the PPG identified opportunities to improve safety and quality and expand exports for the benefit of poor small-holder farmers, in particular to address poor hygienic practices across the entire value chain that result in microbial contamination as well as dust and dirt. The spice seeds are generally sold through auction houses maintained by the public sector where again the focus on hygiene is minimal. There is very low understanding and awareness on food safety and hygiene. Awareness and education can make an impact in addressing hygiene, safety and thereby SPS issues.</p> <p>The selection of districts was done based on production figures, the attitude and interest of the farmers in these areas, and the advice of the National Research Centre for Seed Spices and the National Agriculture University.</p>

3. Links with national/regional development plans, policies, strategies, etc.

The Government of India accords high priority to the wellbeing and welfare of farmers and is implementing several farmers' welfare schemes to revitalize agriculture sector and to improve their economic conditions. The Government has rolled out a number of new initiatives like Soil Health Card Scheme, Neem Coated Urea, Paramparagat Krishi Vikas Yojana (PKVY), Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), National Agriculture Market (e-NAM), Pradhan Mantri Fasal Bima Yojana (PMFBY) and Interest Subvention Scheme. Besides for the tribal settlements like in Paderu of Andhra Pradesh, the Ministry of Tribal Affairs, Government of India has released Rs 25 crore for improving the working conditions of spices farmers especially pepper. However, these efforts need to be backed up with timely interventions like training and qualitative capacity building with a focus on food safety.

There are also a number of Central and State government schemes which support the spice sector. Some of these are given below.

- i. **Spices Board** – Spices Board is responsible for the development and worldwide promotion of 52 scheduled Indian spices. It has various schemes funded through MOC in relation to the promotion of export of Spices through support to farmers and other stakeholders on technology upgradation, quality upgradation, brand promotion, research and product development; monitoring the quality of export; promotion of organic production, processing and certification of spices; etc. The Board is implementing a compulsory inspection scheme for various spices for exports. The Board has also recently launched an initiative, the e-Spice Bazaar, a market driven agricultural initiative through IT enabled knowledge centres that addresses the existing gap in agricultural information flow and transaction management in chillies among the farmers of major chilli and turmeric growing Districts of Telangana and Andhra Pradesh States. Spices Board has set up Spices Parks, industrial park for processing and value addition of Spices and Spice products with common infrastructure facilities for both post-harvest and processing operations of spices and spice products, which also aims at backward integration by providing rural employment, at various locations. See also item 4.1

Spices Board is the main stakeholder involved in the project and will be the main implementing partner in India. Various activities of the project such as development of GAP packages, trainings, certifications, trade fairs, imaging and branding will be linked to the activities of the Board. The Board with the support of the Horticulture Commissioner of Government of Andhra Pradesh has already set up a master pepper nursery in Paderu of Andhra Pradesh to augment production and supply of qualitative pepper seedlings. The current e-spice initiative for chillies and turmeric will also be expanded to cover the four spices and locations identified under this project.

- ii. **Ministry of Agriculture** – a number of schemes under the banner of Mission for Integrated Development of Horticulture (MIDH) are being implemented. **MIDH** is a centrally sponsored scheme for holistic growth of the Horticulture sector covering fruits, vegetables, flowers, spices etc. The development programmes for spices under MIDH are implemented by State Agriculture / Horticulture Departments through State Horticulture Mission. The components of the programme include production of planting material, area expansion, replanting / rejuvenation, creation of water resources, promotion of INM, IPM and organic farming, horticulture mechanization, Integrated post-harvest management, soil health

management, etc. In addition, Spices Board is recognized as a National Level Agency for implementation of post-harvest programmes particularly mechanization in post-harvest operations viz. threshers, driers, boilers, polishers, deshellers, etc. in spices and HRD programmes for spices. Under the schemes, various amounts of subsidies, generally ranging from 35-50 percent are given for support to small and marginal farmers. Most of the support focuses on production rather than on SPS measures, but these have an impact on SPS issues also. ENAM, a virtual platform for marketing has also been established. In relation to this project, various project areas will get linked to some of the on-going schemes of the research stations in technology transfer including RKVY and MIDH schemes of the Ministry of Agriculture. Organizations like NRCSS, IISR and agriculture and horticulture universities will provide support in technology advocacy measures including the good agricultural practices to be implemented by farmers and in doing surveillance of crop related issues.

iii. National Agricultural Bank of Rural Development (NABARD) supports focus on support for formation of FPOs and for value addition. They give financial support in terms of registration of FPOs (50% cost) and loans for raising working capital. NABARD support of 50% to the farmers groups registered as FPOs under the project will be utilized.

iv. Ministry of Commerce have schemes to support export sector and also give subsidies for quality and safety certifications. They also provide support for promotional activities such as organizing and supporting trade to participate in international trade fairs (see http://indianspices.com/sites/default/files/Export_Development_Promotion.pdf for details of schemes). The GAP and organic certification fees will partially get supported through the MOC initiatives. In addition, EIC under Ministry of Commerce that has a role and significant experience in implementing NCRCPs, has been inducted into the project and will provide technical support in implementing the NCRCP for spices and will also support testing procedures and trainings. The trade fair organization will well link into the MOC priorities.

v. In addition, other institutions will act a resource bank and platforms for ground level initiatives, FSSAI will do advocacies in quality standards and training.

4. Past, ongoing or planned programmes and projects

While a number of programmes and projects focused on the spice sector have been implemented in India by national stakeholders, donors and development partners, the absence of a specific focus on SPS issues, combined with the scale of the spice production, means that needs continue to exist. This project has been designed to build on and complement existing initiatives.

4.1 Development related initiatives by Spices Board

Spices Board of India has been involved in several SPS related activities in spices, including capacity building and interventions to improve the existing practices of production, processing and marketing of spices, in collaboration with various national and international bodies. These activities will complement the present project proposal with the already developed knowledge base and experience. Some of these activities are described below:

4.1.1 Collaborative Training Cell (CTC)

Spices Board has taken initiative for the establishment of Collaborative Training Centre for Food Safety Supply Chain Management in spices/Botanical ingredients jointly with **CII/FACE** (Confederation of Indian Industry – Food and Agriculture Centre of Excellence). **JIFSAN** (The Joint Institute for Food Safety and Applied Nutrition) University of Maryland, (USFDA) is the knowledge partner in this endeavour.

The CTC has conducted a series of workshop and training programs in different regions of India as a capacity building exercise among various stakeholders. To broad base this capacity building exercise, CTC has started training programme for officers of horticulture departments of State Governments under the Mission for Integrated Development of Horticulture (MIDH), the Government of India. State Horticulture / Agriculture Departments, Extension departments, State Horticulture Missions and the Indian Spices Industry are the most critical links in this endeavour and play a crucial role in successfully conducting the capacity building programmes.

The programme was implemented in three phases. In the first phase, experts from JIFSAN and USFDA travelled to India to offer food safety training focused on spices to 50 officials from both government and private organizations. In the second phase, selected officials of the program underwent a two week internship program at University of Maryland in Washington DC & University of Mississippi National Centre for National Products Research, on further aspects of food safety, and in the third phase, these officials, as trainers, organized a series of workshops/ training programmes throughout the country as an effort to disseminate knowledge and capacity building. The details of these programmes are summarized below:

Year	Number of programs	Participants (Nos)
2013	3	State Agriculture Department officials (105)
2014	7	Members from Spice industry (185)
2015	8	State Agriculture Department officials (290)
2016	4	State Agriculture Department officials (on GAP and GHP) (225)

The CTC model was a unique PPP model involving government, non-government organizations, farmers, processors, traders, processors, exporters and academic institutes. Thanks to these interventions, government officials and spice industry officers benefitted from training. The proposed project will benefit from the existence of these trained officials (some of whom will be used in this project), and focus primarily on small and marginal farmers, and other key stakeholders in the value chain. In addition, it will develop POPs, support the development/ strengthening of FPO and direct producer buyer linkages to reduce the role of the middlemen.

4.1.2 The Capacity-building Initiative for Trade Development (CITD) project

The Capacity-building Initiative for Trade Development (CITD) is a collaborative Indo-EU effort to enhance capacity of India’s trade-related regulatory institutions and enforcement systems in order to meet international standards and requirements and business needs, to support India’s trade-related training institutions in strengthening their capacities (<http://citd-standards.com/>).

Under the CIDT project, Spices Board, as the regulatory authority of export of spices from India, had organized / participated in numerous training programmes. Under such initiatives, in order to gain

expertise in the EU regulatory framework, scientists and regulatory officials from the Board had participated in four study tours (2014-2016) to EU to examine at first hand the operations at border controls, EU Referral Labs on mycotoxins and pathogens and other regulatory offices.

Under the CIDT project, during 2015-16, Spices Board had organized three workshops at Kochi and Mumbai on sampling for the detection of mycotoxins in spices and spice products. These programmes were conducted by experts from EU regulatory offices, and the best practices in sampling methodology for mycotoxins adopted by EU were shared, including official sampling videos and handbooks. Officers from Spices Board, including sampling agents who undertake official sampling of export consignments for mandatory testing, and technical personnel from major exporting firms in Kochi and Mumbai had participated in the workshops.

4.1.3 Addressing SPS related issues in black pepper

Following SPS issues in black pepper exports to the US since the 1980s, the Spices Board carried out over 1,000 training programmes focused on the following:

1. Setting up of a task force on action comprising the officials of Spices Board, officials of the Department of Agriculture of State Governments, Export Inspection Agency, Agmark and Scientists from Agriculture Universities and Indian Institute of Spices Research, Calicut.
2. Production of literature and instructional videos in local languages for the understanding of farmers.
3. Training of master trainers among officials of the agriculture departments in states and farmers.
4. Training programmes on good post-harvest practices with focus on the use of good surfaces for drying.
5. Demonstration of use of bamboo mats for drying pasted with fenugreek Paste in place of conventional cow dung smeared mats as a treatment for giving durability for the mats.
6. Washing and blanching of green pepper before drying
7. Issue of leaflets and posters and use of radio and cinema theatres to reach out the campaign.

This work resulted in development of a new post-harvest schemes for farmers. As the output of this massive programme, the SPS issues in black pepper were brought under control to a large extent, and India was able to regain the position of being a major exporter of black pepper to USA.

4.1.4 Capacity building for addressing mycotoxins issues in spices

In addressing the issue of high levels of incidence in aflatoxins in nutmeg and mace in Kerala, Tamil Nadu states in India, capacity building programmes were conducted with the participation of scientists from Kerala Agriculture University, Indian Institute of Spices Research and officials from the Board with the participation of export trade associations. The following activities were embedded in the campaign:

1. Literature development for education and training
2. Audio Visuals development on aflatoxin causes and prevention methods
3. Interfaces were held with farmers
4. Formation of farmer groups for follow up of training

5. Interface of farmers/scientist/officials for information sharing and joint action
6. Showcasing of ideal post-harvest operations by progressive farmers for adoption
7. Creating ideal schemes/situations for adoption of practices
8. Evaluation and testing for Sustainability of this program

4.1.5 Field publicity campaigns

Publicity Campaigns focusing on aflatoxins, *Salmonella*, filth and extraneous matter in Coriander, Cumin and fennel were conducted in the States of Rajasthan, Gujarat and Madhya Pradesh to educate the farmers. Similar campaigns were also organized in Andhra Pradesh on aflatoxin in Chillies. Chilli growing villages in Guntur, Prakasom districts of Andhra Pradesh and in Warrangal and Khammam Districts now in Telangana were organized for an intermittent period.

4.1.6 Codex related activities

India, through the activities of Spices Board, has been an active participant in the development of Codex standards for spices and culinary herbs. The standards developed and the knowledge acquired during the course of this work will complement the proposed project. A summary of these activities are presented below:

- The Codex Committee on Spices and Culinary Herbs (CCSCH) was established during the 36th Session of Codex Alimentarius Commission held from 1-5th July 2013 at Rome. The first session of CCSCH was held from 11th to 14th Feb 2014 at Kochi, the second session from 14th - 18th September 2015, at Goa and the third session from --- Feb 2017 at Chennai.
- A number of standards for spices and culinary herbs are currently being elaborated by CCSCH. These include black, white and green (BWG) pepper, cumin, thyme, oregano. A strategy is also being developed for grouping of spices and culinary herbs into specific categories so as to ease the standards development process. Spices Board is actively participating in the standards development activity. The working groups on the standards for BWG pepper and cumin, and the working group for development of grouping strategy for spices and culinary herbs, are chaired by officials of Spices Board.
- Establishment of MRLs for mycotoxins in spices are under elaboration by Codex Committee on Contaminants in Food (CCCF), which had taken up this subject in its 10th session held from 4-8th April 2016 in Rotterdam and for which the Discussion Paper was presented by India. The matter has been referred to Joint Expert Committee on Food Additives (JECFA).
- MRLs are being considered for pesticide residues in spices by CCPR for which Spices Board is also providing monitoring data, as required. The following major areas are under consideration:
 - Elaboration of pesticide MRLs in curry leaves
 - Fixation of MRLs for certain pesticides in cardamom, cumin and black pepper
 - MRLs for dithiocarbamates in seeds spices which was referred to JMPR and placed in the priority list for 2014.

In addition to the above, India has co-hosted the CCPR in 2003, CCFH in 2007 and CCCF in 2015. In addition, CCASIA was hosted in 2016 and CCSCH in 2017 February.

- This work is specifically expected to add value to the ongoing Codex work of CCSCH in terms of identifying specific hygienic conditions that need to be maintained in the value chains of

the four identified spices. It will also collect data under the Indian conditions for pesticide residues and contaminants of the identified spices which will further be able to feed into the data for developing standards on the specific spices, two of which namely cumin and black pepper are currently under development.

4.1.7 World Bank support

During late nineties, with the support of the World Bank under the programme of Development of Market place, Spices Board implemented the project for poverty alleviation through innovative market intelligence. Under this project, culinary herbs of Nilgiris in Tamil Nadu were focussed upon. Farmers were trained and formed in groups, and marketing of herbs started with the involvement of the new group named HOPE of Nilgiris. Informal organisations like PDS (Peermade Development Society in Kerala) and WSS (Wynadu Social Service Societies) were supported in market initiatives overseas. Their work is still continuing.

4.1.8 UNDP Spices Project in India

During 1991-96 and 1996-2001, a UNDP project was introduced addressing the following areas:

1. Quality issues in chillies, pepper and turmeric
2. Organic farming
3. Post-harvest improvement

The offshoot of the programme was introduction of polythene sheets and setting up of cemented concrete yards for drying of chillies in AP, grouping of turmeric farmers in Odisha under KASAM in Khandmal district of Odisha (they are still working with the farmers in training and marketing besides packaging). The organic farmers of pepper in Kerala under PDS were given the opportunity and support to setup a processing plant (now working too) in Idukki district of Kerala.

4.2 Schemes of Ministry of Agriculture and Farmers Welfare – Ministry of Agriculture and Farmers Welfare also implements various schemes having a bearing on spices. These include Sub Mission on Mechanization in Agriculture, Pradhan Mantri Krishi Sinchai Yojana which focuses on providing subsidies for irrigation systems (both drip irrigation and sprinklers); Param Paragat Krishi Vikas Yojana under which soil health management cards are issues and villagers can get tests on soil tested free of charge; Pradhan Mantri Fasal Bima Yojana under which support can be claimed if crops are destroyed or damaged due to some calamity; ENAM, the virtual platform for marketing.

4.3 Other development activities of importance towards this project proposal

Some other projects and programmes at the international and regional level which can be used to provide inputs under this project are as below.

4.3.1 Enhancing the compliance and productive capacities and competitiveness of the cinnamon value chain in Sri Lanka (STDF/PG/343) - This project aimed to improve the food safety and hygiene as well as introduce GMP along the value chain through development and implementation of "National Competency Standards for Cinnamon Field and Factory Operations" were formulated and adopted by the relevant national authority. Outline curriculum and a training plan were developed to implement these standards. The project also developed an internationally accredited scheme to accredit the personnel in the cinnamon value chain as per ISO17024. Finally, the project supported

the creation, of the Cinnamon Training Academy (CTA), a public-private partnership led by the industry and supported by the Ministry of Industry and Commerce.

4.3.3 Ginger Competitiveness Project: Enhancing Sanitary and Phytosanitary Capacity of Nepalese Ginger Exports through Public Private Partnerships (STDF/PG/329) - This project focused on developing the ginger value chain, identified as a high-potential sector for export, value-addition, employment and income-generation by the Nepalese government and development partners. The project promoted public-private sector collaboration to improve the quality of ginger as well as added value to ginger for export, which was expected to enhance market access and increase incomes of rural people involved in the ginger value chains. In parallel a ginger washing/processing facility was established and operated to enable ginger farmers to add value to their production (via washing and simple processing) and ensure increased transparency and fairer prices for growers. The goal is to increase the incomes of ginger farmers through improvements in SPS arrangements for export to India and other countries. The purpose (outcome) is increased market opportunities for Nepalese ginger through a series of SPS related and value-addition interventions. The basic experience that will be utilised from this project will be using relevant training and technical materials on Good Agricultural Practices (GAPs) and methodology or procuring quality ginger rhizomes of improved marketable cultivars as well as IEC methodologies.

All the above activities will help in strengthening this programme. The e-spice bazaar project of Spices Board will be expanded to cover other spices, while from the other programmes, the good examples will be adapted as possible in this project.

5. Public-public or public-private cooperation

This project is led by Spices Board, which is part of the Ministry of Commerce and Industry, and is responsible for the development and promotion of all Indian spices. The Board's activities include export promotion, monitoring the quality of exports, development and implementation of better production methods through scientific, technological and economic research, guidance to farmers on getting higher and better quality yields through scientific agriculture practices etc. Other functions include the post-harvest improvement of all spices; promotion of organic production, processing and certification of spices; development of spices in North East; provision of quality evaluation services; export promotion of all spices through support for technology upgradation, quality upgradation, brand promotion, research and product development. In addition Spices Board is also doing registration of exporters, collection and documentation of trade information.

The Board has a testing laboratory at its headquarters in Kochi and regional laboratories at Mumbai, Chennai, Delhi, Tuticorin, Kandla and Guntur. These laboratories provide analytical services to the Indian spice industry, monitor the quality of spices produced and processed in the country and analyze all the samples collected by the Board under the compulsory inspection scheme.

The Spices Board has set up 'Spice Parks' with shared infrastructure facilities for processing and value addition that aim to also provide rural employment. The aim is to ensure a better price for farmers by shortening channels in the supply chain, and enable small farmers to sell directly to exporters. Based on a PPP model, the Spices Board allots land (initially for a period of 30 years) in the Park to private entrepreneurs to develop processing units for value addition and higher-end processing. Local farmers can use these processing units and sell their produce directly to the exporters to benefit from premium prices. Exporters benefit by developing links directly to farmers who can provide a reliable and uninterrupted supply of farm-fresh raw materials. Six spice parks

have been developed, however, few industries have so far been set up and support is needed to get this concept of the ground to enable small farmers to benefit.

In addition to the Spices Board, the Ministry of Agriculture, the Horticulture Commission and the Food Safety and Standards Authority of India (FSSAI) play an important role in the spices sector, and would cooperate in this Project. The Export Inspection Council (EIC), as competent authority for exports, would be involved in strengthening the laboratory network and the residue monitoring programmes. The collaboration of these diverse public sector agencies, based on their respective mandates, means that the activities to be carried out under this Project will be part of a larger framework of relevant government programmes.

In addition to strengthening coordination at the central level, the project will also support collaboration with organizations at the State and District levels, including Agricultural Universities, the National Research Centre for Seed Spices (Ajmer), the Integrated Tribal Development Authority (ITDA), Girijan Cooperative Corporation Limited (GCC), and Agricultural Produce Marketing Committees (APMCs) in various states.

The private sector is also a key part of the proposed project. The Indian Pepper and Spice Trade Association (IPSTA) and the Indian Spice and Foodstuff Exporters' Association (ISFEA), the major national associations dealing with spices, will provide the main link to buyers and exporters. Around 10 exporters will be associated with each spice throughout the project and have agreed to procure spices from the villages targeted under the project. These entities will have direct interface with the farmers and farmer groups in the project area who would supply products conforming to Food Safety norms. At the start of the project, they will be expected to sign agreements to the effect as also their support towards the project.

The private sector will also be a part of the training faculty especially in the areas of GAP/ GHP and SPS requirements for the importing countries. The private sector has generally agreed to provide these services free of charge. Other private sector organizations (such as ITC Limited, McCormicks, NED spices, Synthite, Plant Lipids, Griffith Laboratories) have undertaken many programmes to support development of the spice sector (covering approximately 2000 villages) in areas from which they procure spices. The sourcing by these companies are for their high-end process and usages in the premium markets in the UK, Europe and the US and hence had developed their own exclusive ways and means to train and capacity build their farmers. These areas are their private domains where they engineer their exclusive mechanisms for ensuring safety and quality. The buy-back is hundred percent from the farmers subject to confirmation of prescribed standards.

The reach of the backward linkages by these corporations are in their own controlled territories and benefits only negligible numbers of farmers when compared with the greater mass of farming population in the country which has significant numbers of small and marginal farmers who are generally illiterate and working with meagre subsistence. The dependence of illiterate farm labour mainly women in the villages cannot be ignored. The labour component for sowing, weeding, harvesting etc are mainly done by women labour. The hazardous job of pepper plucking from sky tall silver oak trees in Paderu, Andhra Pradesh (project area) is discharged by women besides men. While appreciating the efforts of these corporate as they are hand holding with farmers in their own outreach areas, there is a vast universe elsewhere. However, in non-traditional areas, the reach of large corporations is practically nil. Nevertheless, these larger companies would also be approached for any possible synergies.

Wherever possible, this Project will take into account and re-use these existing materials and also establish demonstration plots in villages where a certain level of capacity has already been reached.

The private and government labs will be involved for the testing. Some NGOs have also shown interest to be part of the project and this will be explored at project inception in an effort to scale up the coverage and results.

For GAP and organic certification, the services of a certification body operating in India will be utilized under this project to provide training to farmers on the certification aspects including the development of various documents and records that need to be kept by farmers or farmer groups.

The value addition that the government (both Central and State) brings to the project is that on the one hand they contribute to the technical base and on the other hand they will be able to ensure that the outputs and activities are integrated with their regular and programme activities. The importance of the private sector will be the direct market links that the producers will have access to thereby reducing the role of the middlemen.

6. Ownership and stakeholder commitment

This Project has been developed through an STDF PPG which included extensive consultations with relevant public and private sector stakeholders. As such, the project has the strong commitment of several government agencies, the private sector, universities, research organizations, farmers and others. The major stakeholders involved in the Project and their roles are given at **Appendix 1**.

II. PROJECT GOAL, OBJECTIVE, OUTPUTS & ACTIVITIES (LOGICAL FRAMEWORK)

7. Project Goal / Impact

The goal of the project will be to expand exports of safe and high-quality spices (cumin, fennel, coriander and black pepper) from India to overseas markets. This will also contribute to improved food safety and consumer health in India and export markets. This is further expected to help to boost incomes of small-scale farmers, empower women and other marginalized (tribal) communities, and support efforts to reduce poverty (SDG 1) and hunger (SDG 2) in selected geographic areas in India.

Improved food safety will lead to increased acceptability of farmers' produce in domestic, regional and global markets resulting in increased exports and thereby better price realization for spices produced by small and marginal farmers which will lead to increase in farmers' incomes and reduction in poverty.

8. Target Beneficiaries

The project will directly benefit up to 1,200 smallholder farmers (men and women) and their families, who rely on farming as their only source of income. Many of these farming households depend on subsistence agriculture and live in poverty, with little land and inputs at their disposal. With very limited knowledge and skills, and without being part of groups or networks that could support their bargaining power, they have not been able to connect to value chains or to benefit from agricultural trade opportunities. At the same time, few if any other livelihood options exist, and development of the spices sector for export shows real potential. While other development projects and government programmes have targeted the spice sector in India (particularly the black pepper sector – few if any projects have targeted cumin, fennel and coriander), poor and marginalized smallholder farmers targeted here (including tribal communities) not benefited from these interventions.

The participating small farmers will get a better price for their spices when they are able to meet national and international standards, and have direct connections to buyers and exporters. In addition, the Project will improve occupational health and safety through better handling of produce, safer application of chemicals and better storage practices, creating a safer working environment for farmers and farm labourers.

Poor village women account for a major share of farm labourers engaged in spices cultivation, and will be major beneficiaries of this Project. Women play an important role in sowing, transplanting, weeding, harvesting, post harvesting and pre-processing. Following participation in this project, these women farmers and labourers will be able to produce higher-quality produce and get higher prices. This will boost wages and incomes and wages of women, helping to improve their social and financial status. It is expected that women will account for at least 50% of the farmers benefitting from this Project.

In addition to women, marginalized men and women belonging to tribal groups in the Paderu region will benefit from the projects activities focused on black pepper.

The project will benefit other stakeholder groups along the value chain. Training activities will enhance the ability of agro-dealers to offer effective advice and to sell targeted inputs to farmers. Their improved ability to advise and provide inputs to farmers will enhance and foster their relationships with customers. The knowledge and capacity of producers, operators of market yards/

auction centres and storage godowns, processors, transporters and traders will also be enhanced by the project, encouraging good practices and adherence to high standards in storage, transportation and processing.

Research institutions, extension services also stand to benefit from collaboration in this project, directly or via its extended reach. Staff of Spices Board, ITDA and other organizations and the extension workers of provincial governments will be equipped with the knowledge and materials to conduct training in these fields beyond the timeframe of the project.

At the macro level, trade organizations and the government will benefit from the improved market access, as spice exports represent a major source of foreign exchange. Further along the value chain, importers and the spice processing industry as a whole and exporters would benefit from more reliable supplies of good quality spices. Finally, the benefits will also be evident to consumers who will be ensured a safe and clean product.

This project is a first of its type in terms of the spices identified, specifically the seed spices, and could be replicated in other regions in the country as well as in other major spice producing countries. The different good practice and training modules will be widely disseminated globally through the STDF website for use.

(a) Gender-related issues

A major share of farm labourers engaged in spices cultivation are poor and often landless women in villages. They take part in various operations like sowing, transplanting, weeding, harvesting, post harvesting and pre- processing sectors. During fieldwork carried out under the PPG, the low status and position of these women was noted. By directly targeting and involving these women in activities under this project, these women will benefit directly and be empowered in the same way that other women in Bangladesh, Vietnam and elsewhere have benefitted from STDF's projects focused on SPS capacity building and value chain development. Training activities under the project will result in higher wages and more respect for women farmers and labourers, which will improve their social, educational and financial status.

In addition to gender, marginalized and vulnerable groups in tribal communities will benefit. In particular, in the case of black pepper, specific benefits will be seen for the tribal groups in Paderu region as black pepper has been targeted specifically for the tribals in Paderu and Araku mandals with the support of the ITDA.

9. Project objective, outputs and activities (including logical framework and work plan)

9.1 Objective

The objective of the project is to build the capacity of stakeholders in the spices value chain to improve the safety and quality of three seed spices (cumin, fennel and coriander) and black pepper in order to increase market access.

The mechanism to achieve this will be by establishing appropriate interventions for improving the safety, hygiene and quality of spices production, storage, transportation, packaging and pre-processing operations, which can then be replicated by the Government of India on a larger scale across other spice growing areas.

The interventions will include implementation of good practices along the value chain, awareness and training to various stakeholders, introduction of a system of linking farmers to exporters by reducing the interim stages, strengthening the traceability systems and introducing a system of certification to ensure credibility of the products.

Success will be measured by the degree of increased acceptability of farmers produce in domestic, regional and global markets resulting in better price realization for small and marginal farmers of spices with increase in farmers' incomes and reduction in poverty. Success of this initiative could also be assessed by the acceptability of produce by the countries in the region and globally leading to reduced rejections and over a period of time increasing trade of spices.

9.2 Outputs and Activities

The project is based on four main outputs and areas of intervention. These were selected based on an independent study of each spice value chain. While there are some similarities across the main outputs and activities, particular interventions for each spice will be tailored based on the specific needs and context, as well as the partners involved and level of capacity, etc.

Output 1 Capacity (in the public and private sector and academia) to deliver trainings / awareness programmes on risk-based assessments and Good Practices along the identified spice value chains (institutions, producers, growers and workforce) improved

1.1 Review of existing Package of Practices for farmers on GAP based on international standards - Package of Practices have been developed for seed spices by National Research Centre for Seed Spices and for black pepper by Dr YSR Horticultural University. These generally contain the package of practices for production of specific spices but do not contain the hygiene requirements, the certification and management systems requirements. These will be reviewed in line with international requirements to make them more internationally aligned as well as comprehensive. The international requirements that will be taken into account will be the Codex standards on spices and Good Hygienic Practices and the ISO standards on certification aspects. In addition, the requirements of the target markets specifically the EU, US and Japan with specific reference to pesticide residues, contaminants such as aflatoxins, pathogens, requirement for implementation of HACCP, etc will be taken into account. Some important references and standards that will be taken into account are given at **Appendix 2**.

1.2 Development of Package of Good Hygienic Practices for market yards/ auction centres, storage godowns, pre-processing / simple processing units – Good hygienic practices are sometimes not being implemented at various stages of the value chain especially at auction centres which are handled by the government, at storage godowns, during transportation, at pre-processing stage and the importance of the same has not been realized by the value chain actors as most of the activities are in the small scale sector. Under this activity, GHP modules will be developed for all the post-harvest stages namely at market yards/ auction centres, storage godowns, pre-processing / simple processing units. This will lead to implementation of food safety and hygienic practices during all these stages which is expected to result in reduced microbiological load as well as pathogens, reduced aflatoxin levels and better cleanliness of products. The modules will be developed taking into account the work already done by private sector (such as ITC for seed spices) and NGOs (such as NAANDI for black pepper) and in line with international standards (Codex and ISO) and the EU and US requirements.

1.3 Development of standardized training modules based on the Package of Practices developed – Based on the POPs, training modules and communication material (including videos, posters, publicity material) will be developed to be further used for trainings, communication and awareness

programmes. The subjects covered will include good agricultural practices, good hygienic practices (for input suppliers, producers, transporters, market centres/ auction sites, pre-processors, buyers/ traders), identification of food safety risks, traceability, labelling, requirements of major markets, etc. The training and communication material will also be made available on the Spices Board website for use by all interested stakeholders.

1.4 Delivery of training of trainers (TOT) programmes – 60 trainers will be identified from universities, the private sector and individual experts (30 for seed spices and 30 for black pepper). They will benefit from a comprehensive training covering GAPs, GHPs, risk assessment, traceability, modern inspection methods, market requirements. They will be tested on their understanding of agricultural practices, as well as certification requirements. Based on their performance, some will be used for trainings under this project, while others will be available to support farmers and other stakeholders as required. Depending on the subjects, international and national trainers will be identified to conduct the TOT courses.

1.5 – Workshop for related Agriculture University faculty/ others on the Package of Practices – Such workshops will be carried out for the faculty in Agriculture Universities so that they have uniformity on understanding specifically in relation to certification and management systems aspects. It is expected that these aspects will be incorporated into University programmes and curriculum for further sustainability.

Output 2 Capacity of farmers and other value chain actors to adopt GAP / GHP enhanced to improve yields, quality and safety of spices

2.1 Selection of villages, farmers/ farmer groups and other value chain actors - The villages and list of farmers in each village will be finalised. The groups will be identified or established (around 25 members per group, i.e. around 4 groups per village). Other value chain actors (namely input suppliers, auction centres, storage godowns, pre-processors and traders) to be part of the project in each State will be identified. A total of up to 1,200 farmers, and 100 other value chain actors, are expected to benefit. The villages identified included the following:

- Black pepper: one village in Paderu and the other in Araku Mandals.
- Seed spices:
 - Fennel – Bilara village in Rajasthan and Bantwada village in Palanpur mandal in Gujarat
 - Cumin - Khariamittapur village in Rajasthan and Binsuwada village in Ahmedabad district
 - Coriander - 1 village supplying coriander to Kumbharaj market yard and the other supplying to Guna market yard both in Madhya Pradesh.

2.2 Developing a baseline for monitoring and evaluation (M&E) – A questionnaire will be developed covering parameters such as various good practice parameters being implemented, food safety issues, level of awareness on food safety, etc. This will be completed by each farmer/ farmer group and other value chain actors at the beginning of the project to provide the M&E team with a baseline for assessment of the successful delivery of the project objective. At the end of the project period, the same questionnaire will be used and improvements measured. Impacts of training and communication initiatives will be monitored and evaluated.

2.3 Farmer Producer Organization (FPO) developed / strengthened at community level for improved production and value added technologies

Currently most farmers operate at individual level. They are not able to avail facilities of group operation such as access to facilities provided by government (NABARD), benefits of group certification, use of common basic facilities and machinery, etc. They will be supported to organise themselves in groups and registered as Farmer Producer Organizations (FPO). Some basic facilities/ equipment/ material needed to maintain hygienic conditions will be identified and each group will be provided these. These will be identified based on the specific requirement for the spice and village. Some examples are i) cleaning, grading, sorting and packing machinery, ii) post-harvest stem cutters, iii) tarpoline/ polythene sheets, drying nets/ poly houses, others for drying spices for individual use or at central processing areas for group use.

2.4 Nurseries to provide seedlings to farmers (only for black pepper) developed – Healthy plants is of great importance in the case of black pepper. These will be procured and propagated in nurseries by ITDA and further supplied to farmers.

2.5 – Roll out of training programs to farmers and other relevant stakeholders on the package of practices developed under Output 1 – The farmers will be trained on the good practices and other value chain actors on GHP/ HACCP. They will be supported to develop procedures and maintain records. The groups will be assisted in establishing the Group management and will be supported in setting up the Internal Control Systems and assisted in maintaining these as well as carrying out audits and other group activities. They will also be supported in getting certification for GAP/ organic (for farmers) and GMP/HACCP (for other value chain actors) including the first year certification fees. The IEC material developed will also be used for communication and awareness to farmers through street plays, TV channels, posters, etc. Up to 1200 farmers will be trained, of which 50 percent are expected to be women. In addition, at least 50 other value chain actors will be trained.

2.6 Study visits / Sharing experiences and lessons learnt - 2 farmers of each village (total 8) will be sent to other regions in the country/ other farms to practically observe how better practices are being implemented and learn from these. For black pepper, the study tour will visit Kerala. Sites for the seed spices study tour will be identified at inception. The results of the visits and lessons learned will be documented and disseminated to other farmers in the village. Experiences will also be disseminated through national/regional stakeholder workshop.

Output 3 Marketing and links to buyers (exporters/ importers) strengthened

3.1 - E-spice bazaar, the e-portal developed by Spices Board enlarged to cover black pepper cumin, fennel and coriander (to connect farmers to buyers) – Spices Board is already operating a portal for red chillies in Guntur and ginger. The portal will be expanded to cover the specific spices. Information of farmers in the selected villages and major buyers/ exporters in the region or at national/ global level will be collated and input into the web portal. The portal will also be available in local languages. Currently the portal is only open to domestic buyers, who in many cases are also exporters. Under this project, it is proposed to make it also available to foreign buyers for registration so that they can directly be linked up to local farmers.

3.2 – Registration of exporters and linking them to producer groups for direct procurements – 10 exporters will be identified with involvement and support of Indian Spice and Foodstuff Exporters Association who will be involved in the entire process. They will be facilitated to sign an Agreement with the producer groups for direct procurement of the safe spices from farms implementing GAP.

3.3 - Image and branding of organic/ GAP certified spices through trade fairs and other publicity measures - For black pepper an international trade fair in Araku valley/ Paderu with support of Spices Board will be organised. Similar branding, advertising and marketing activities will be carried out for the seed spices.

3.4 – SPS requirements of major trading partners procured and made available through e-portal to producers and other stakeholders in English, Hindi and local languages – Farmers are often not aware of the international requirements as well as requirements of importing countries in relation to food safety parameters. The requirements of Codex, EU, USA, Japan, China and other major buyers for these specific spices will be collated and made available on the e-portal in a simplified way for use by farmers and exporters.

Output 4 Establishment and implementation of a National Contaminant and Residue control Programme (NCRCP) for identified spices

4.1 – Mapping lab capacity in district and state (government/ NGO/ University/ Research organizations) – Currently various labs in the government, University and private sector are supporting testing for farmers for water, soil, end products. However, the same is being done by non-uniform methods and reporting systems. The total lab capacity in the area is not identified or known, so the aim under this Output is to first do a mapping of lab capacity in the related districts based on the tests as well as their implementation of ISO 17025 with the aim that these could be used for testing.

4.2 – Approving labs based on capability – The labs will be approved spice and parameter wise by Spices Board for testing based on their capacity and capability. EIC will provide support to carry out this activity. The facilities of the labs will be made available to farmers and other stakeholders.

4.3 – National Contaminant and Residue control Programme (NCRCP) developed and implemented for identified spices – An NCRCP for the identified spices will be established and implemented with support of EIC. Specific villages covered under the project will be included and samples of produce from the farms and other post-harvest points covered under the project will be tested based on a scientifically developed sampling plan over 2 crop seasons. This will serve to validate the POPs developed and implemented and also focus on implementation of a preventive approach in terms of Good Practices rather than testing of products from all consignments prior to export. The data will be made available on the Spices Board website.

Logical framework, a detailed work plan and Terms of Reference (TORs) for key national/ international experts to be involved in implementation of activities included in the work plan are given at **Appendix 3, 4 and 5** respectively

10. Environmental-related issues

With a focus on the use of good pest management practices, the project will help to reduce the use of pesticides. It will also work with farmers to eliminate the use of banned pesticides, which will have positive benefits on the environment by reducing the burden of toxic pesticides on the land.

Implementation of GAPs is also expected to have positive impacts on food safety and quality, as well as worker's health and welfare, and environmental management.

11. Risks

The main risk is that the farmer and other value chain actors do not get an increased price for implementing good agriculture and hygienic practices and thereby do not have any motivation towards implementing these. This will be countered through support in better marketing, as well as awareness to buyers and consumers on importance of hygiene and food safety. Other risks, probability, impact and mitigation measures are given in the table below:

Risk	Impact	Probability	Mitigation
Low motivation of farmers and other value chain actors to implement good practices	Not fully involved and committed to implementation of the project and continuing with existing traditional practices	Medium	Strengthened marketing as well as awareness to buyers and consumers on importance of hygiene and food safety. Education of spice producers and processors in Good Practices. It may require provision of financial and technical assistance to the recipient stakeholders in the initial stages until the benefits are experienced by them.
Continued availability of sufficient financial resources	Affect sustainability of programme	Medium	This would be addressed in a number of ways including: increasing awareness of the importance of food quality and safety to state governments; examining public-private partnerships or increased involvement of private sector in supplying farmers; ensuring sustainability of all major activities
Economic and political conditions in global and domestic markets not conducive	Low export/ trade volumes	Low	Direct marketing tie-ups
Weather unfavourable conditions	Due to this good planting material not available and production of spices low	Medium	Use of closed nurseries to grow planting material. Close monitoring of weather situation
Challenges of	Some components of the	Low	Close collaboration between

coordination between Ministries/ Departments – especially Ministry of Agriculture, Health and State governments	project may not be well implemented		many Departments/Ministries and various stakeholders such as producers, storage warehouses, market yards, traders and others will be ensured by involving them in all planning and implementation meetings
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12. Sustainability

This project and its budget (less than USD 900,000) is relatively small, particularly in a country the size of India. Therefore, the project is designed as a pilot to demonstrate the results that can be achieved from improving food safety and quality in selected spice value chains, forming farmers into groups, improving marketing and providing more direct links between farmers and exporters. Dissemination of the training materials and further roll-out by the Spices Board, government agencies, universities and other stakeholders involved, including key local organizations focused on supporting tribal communities, will help to ensure the sustainability and wider impact of the project's activities. Other SPS capacity building projects focused on particular value chains, which have been supported by the STDF point to the benefits of building SPS capacity in particular chains.

The project addresses 4 spices and works with 8 villages (2 villages for each spice). It aims to pilot innovative and sustainable approaches to improve food safety and hygiene conditions of these spices and promote trade. These initiatives which form a model that can be replicated and extended by the Government across other spices and spice growing regions. The collaboration of the Ministry of Commerce and Industry and the Ministry of Agriculture and Farmers Welfare will ensure synergies and linkages to their existing schemes, which will further strengthen the results and sustainability.

Farmer training will build capacity of farmers and other stakeholders which in itself is a contributor to sustainability. Activities like developing the package of good practices, standards and certification schemes also ensure sustainability. Workshop for related Agriculture University faculty and others on the package of practices, and its expected incorporation into the University programmes and curriculum, will further ensure sustainability of practices. The marketing and direct links of farmers to buyers will ensure a better price and help sustain the quality measures by farmers. Strengthening the activities of the e-spice portal which is already in existence for 2 spices, will ensure linkage of producers with exporters for other spices and as this is already being maintained by Spices Board and is not a fully new activity, it will ensure sustainability.

Around 10 exporters, generally SMEs, will be associated with each spice throughout the process at all stages. These exporters have agreed to contribute their time and money to ensure improvements, as well as procure from the identified villages. To participate in the project, they will be required to sign an agreement to procure spices from the villages supported. This will help in making the project further sustainable. Additionally, it will help the exporters to grow through participation in the project which will have the potential to create jobs and get them involved in value addition.

Supporting the APMC's through trainings and GHP certification will ensure continuity of such systems.

Collaboration with Agriculture Departments, Agriculture Universities and Spice Research Station, and Spices Board as well as other government entities providing training and advisory services to farmers, will ensure that such activities continue even after the project period. The capacity building of field

level extension officers will ensure that the farmers will continue to receive training and guidance on how to produce safe and quality spices even after the end of the project. Training modules and TOT program will ensure continuity of training on SPS standards and quality and safety management after the end of the project. The task of trainers will be made easy further by making available the training materials, manuals and leaflets developed through the project on the Spices Board website. Thus, the knowledge imparted will be continuously made availability and disseminated.

The project strengthens the testing infrastructure by providing support to build up a network of labs that can be used for testing and linking the same to farmers will enable availability of requisite services even after the completion of the project.

As part of the business management training, contract farming and backward integration will be encouraged and opportunities provided at the networking sessions to negotiate contracts. These contract farming arrangements will ensure that farmers will continue to produce high quality and safe spices because they have a guaranteed market and a better price for their products. In turn the exporters, processors will have opportunity to get involved in ensuring quality of the products. The support of private sector will also be taken to strengthen the initiative.

Promoting establishment/strengthening of farmer organizations will enable better benefits of all cooperative activities such as procurements, value addition, sales, etc to farmers and thereby encouraging sustainability.

BUDGET

13. Estimated budget

Budget summary is given below. The detailed budget is given at **Appendix 6**.

	Activities	Funds in USD (Consolidated)	
		Requested Project contribution	In-kind
1.	Output 1 Capacity (in the public and private sector and academia) to deliver trainings/ awareness programs on risk-based assessments and Good Practices along the identified spice value chains improved	98,000	70,000
2.	Output 2 Capacity of farmers and other value chain actors to adopt GAP / GHP enhanced to improve yields, quality and safety of spices	287,000	122,000
3.	Output 3 Marketing and links to buyers (exporters/ importers) strengthened	44,000	41,200
4.	Output 4 Establishment and implementation of a National Contaminant and Residue Control Programme (NCRCP) for identified spices	30,000	37,000
5.	Expertise to support delivery of the four project outputs (National Project Manager and consultants)	80,000	
	Sub-total	539,000	270,200
6.	Others (Office space, furniture, time of officials over a period of 3 years)		13,000
7.	Contingency	15,000	
8.	External evaluation	15,000	
9.	Project Servicing Costs for international partner (7%)	39,830	
	Total	608,830	283,200

Note: FAO has offered an amount of US\$100,000 towards this project, which brings the amount requested from the STDF to US\$508,830.

14. Cost effectiveness

At the project implementation level also, cost effectiveness has been continuously built into the various outputs and activities. The initiative of validating the Good Practices implemented through development and implementation of a Contaminant and residue control programme would lead to lowered costs on end-product testing. The focus is on establishing FPOs, which would mean that a single set of post-harvest/other equipment is procured to be used by the entire village or group. For most of the activities national resource persons/ consultants are being used at national rates rather than international consultants. The National institutes/ Universities are supporting the project and providing their knowledge to facilitate the project implementation. The role of the private sector is also built in the project especially for implementing the GAP and certification schemes and to support direct procurements.

The alternatives are to allow a status quo to be maintained which would mean poor awareness on food safety, no marketing links, end-product testing as a means to determine safety rather than a preventive approach to address SPS issues. It would also mean that the traders or middlemen would continue to exploit farmers who are unable to take advantage of FPOs or group initiatives. Import rejections by quality and safety conscious buyers and importing countries such as EU, US, Japan would continue, the reputation of India as a quality spice exporter would be lowered and exports will reduce along with income of farmers.

II. PROJECT IMPLEMENTATION & MANAGEMENT

15. Implementing organization

This proposal results from a PPG which was submitted to STDF by Spices Board, India. Spices Board took the lead and worked with the international consultant to develop the proposal for a project grant for strengthening the spice value-chain in India and improving market access through capacity building and innovative interventions. While developing the project proposal, as there are many organizations involved in the spice value chain, it was felt that an international partner will be able to better support the coordination and implementation and FAO was proposed as the international implementation partner.

FAO will be the international implementation partner. The FAO Regional Office for Asia and the Pacific through its country office in India will be responsible for the implementation under the technical guidance of the Senior Food Safety and Nutrition Officer at the Regional FAO Office at Bangkok. The Spices Board will be the Local partner of the project and will ensure the implementation of all local activities and their coordination. A Steering Committee will be set up chaired by Spices Board and with other Ministries/ Departments and stakeholder as members. The Secretariat will also be with Spices Board.

16. Project management

FAO Regional Office for Asia and the Pacific will be responsible for the implementation of activities including the provision of technical assistance and procurement of goods and services according to the provisions listed in the Funding Agreement signed with the STDF. FAO India office will be the budget holder and will be responsible for the overall supervision of the project including administration and financial issues in accordance with the procedures of the international partner. An Operations Officer will be assigned the role and will work under the overall supervision of the FAO India Representative. All activities listed in the project document will be implemented in direct partnership with the Spices Board and in close collaboration with appropriate Departments under it in various states.

A full-time National Project Manager (NPM) to support the programme execution would be recruited by the international partner who would work with the Spices Board and also take on national and international specialists as needed. The NPM will be responsible for the successful implementation of the project. The specific activities and areas of responsibility are given in Appendix 5. A senior level officer of Spices Board would be responsible for the implementation, monitoring and reporting of the programme activities.

At the onset of the programme, a Project Steering Committee will be formed under the chair of the Chairman, Spices Board with representatives of Food Safety and Standards Authority of India, National Horticulture Mission of India (represented by Horticulture Commissioner), Ministry of Commerce (TPD Division), Export Inspection Council, Indian Institute of Spices research, National

Centre for Seed Spices, Indian Pepper and Spice Trade Association, Indian Spice and Foodstuff Exporters Association, Implementing Partner (FAO).

The officer of Spices Board will be the member secretary of this Steering Committee and he/she would coordinate all programme related issues and agenda to be discussed during the Steering Committee meetings. The Project Steering Committee would need to meet once each programme year, at a time suitable for approving the annual work plan and budgets and reviewing the annual progress reports. The NPM would be the ex officio members of the Project Steering Committee.

A Project Implementation Committee will be formed for each of the States, the composition of which will be as follows:

- Paderu, Andhra Pradesh: Coffee Board, ITDA, GCC, representative of traders, representative of producers, representative of exporters, NPM and Spices Board who will also serve as the Secretariat
- Rajasthan – Agricultural University Jodhpur (Vice Chancellor), APMC Chairman, Federation of Indian Spices Stakeholders’ Association, Representative of farmers from the 2 selected villages, Certification Body representative, NPM and Spices Board who will also serve as the Secretariat.
- Gujarat – Spices Research Station, APMC Chairman, Federation of Indian Spices Association, Representative of farmers from the 2 selected villages, Certification Body, representative, NPM and Spices Board who will also serve as the Secretariat.
- Madhya Pradesh – District collector, representative of traders, representative of exporters, APMC Chairman, Representatives of the 2 villages, NPM and Spices Board who will also serve as the Secretariat.

II. REPORTING, MONITORING & EVALUATION

17. Project reporting

- A meeting will be held with major project stakeholders in the first 3 months in which the project log frame and the activity plan will be further refined and the budget further detailed out. A national inception workshop and a Project Steering Committee meeting will be held within the first quarter and report of these activities will be submitted within 6 months of the initiation of the project. Subsequently 6-monthly progress reports will be submitted. A final report will be submitted within 3 months of completion of the project.

18. Monitoring and evaluation, including performance indicators

- The monitoring will be done as per the logical framework and baseline data collected. A monitoring and evaluation plan will be developed and endorsed through the Project Steering Committee. This will meet 6 monthly to review the progress. At the State level, the project implementation Committee will review the progress. A monitoring and evaluation expert will be contracted to carry out the basic monitoring tasks and report to the project management.

19. Dissemination of the projects results

The project results will be disseminated through the websites of the Spices Board as well as that of the implementation partner (FAO). At the conclusion of the project the results will also be put up on the STDF website with all related documents developed.

ATTACHMENTS

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Major Stakeholders involved

The profile and capacities of stake holder organisations listed as stake holders in the project are:

1. **Spices Board (Ministry of Commerce & Industry, Government of India), established in 1987 through an Act of Parliament in 1986** is responsible for the development and worldwide promotion of Indian spices. The Board is responsible for export promotion of the 52 scheduled spices and development of Cardamom. The activities of Board includes the promotion of export of Spices, monitoring the quality of export, development and implementation of better production methods through scientific, technological and economic research, guidance to farmers on getting higher and better quality yields through scientific agriculture practices etc. Spices Board functions also include the post-harvest improvement of all spices; promotion of organic production, processing and certification of spices; development of spices in North east; provision of quality evaluation services; export promotion of all spices through support for technology upgradation, quality upgradation, brand promotion, research and product development. In addition Spices Board is also doing registration of exporters, collection and documentation of trade information.

The Board has a testing laboratory at its headquarters in Kochi and regional laboratories at Mumbai, Chennai, Delhi, Tuticorin, Kandla and Guntur. These laboratories provide analytical services to the Indian spice industry, monitor the quality of spices produced and processed in the country and analyze all the samples collected by the Board under the compulsory inspection Scheme.

The Spices Board has recently initiated an initiative, the e-Spice Bazaar. This is a market driven agricultural initiative through IT enabled knowledge centres that addresses the existing gap in agricultural information flow and transaction management in chillies among the farmers of major chilli and turmeric growing Districts of Telangana and Andhra Pradesh States in a phased manner enabling conversion of under-performing farms into high yielding farms of quality products in demand, by leveraging ICT enabled services. The online portal www.espicebazaar.com developed by Spices Board with the support of Department of Electronics and Information Technology, Government of India, is aimed at the facilitation and integration of economic activities of all possible stake holders involved in chilli and turmeric farming. The major objectives are:

- To fully utilize the power of web, mobile and other digital media to reach targeted farmers and provide information on demand to enhance their productivity and quality improvements.
- To develop a detailed farmers database of the project area, providing unique ID.
- To enhance the awareness among the farmers-especially medium and small farmers and make them capable for better negotiation with traders.
- To identify potential traders and exporters to explore the market opportunity.
- To establish active enrolment and involvement of agricultural input providers, ware housing facility providers, logistic service support providers, banks and insurers etc.
- Improving food safety and traceability.
- To establish an active collaboration with the department of Horticulture and Agricultural University/research centers so as to solve the problems faced by farmers without any delay.

Spices Board has set up Spices Parks, industrial park for processing and value addition of Spices and Spice products with common infrastructure facilities for both post-harvest and processing

operations of spices and spice products, which also aims at backward integration by providing rural employment, at various locations. The Spice Parks (six as of now) are expected to ensure a better pricing for the produce by shortening the channels in the supply chain system currently followed locally. The common processing facilities available in the Spice Park can be utilized by the farming community for primary processing for improving the quality of their product and thereby they can directly sell to the exporters. The Board will also develop the common infrastructure facilities like Roads, water supply system, power stations, firefighting and control systems, weighing bridges, effluent treatment plants, quality Lab for checking basic parameters, etc.

Under the PPP concept of the Spices Park, the Board also allots land (initially for a period of 30 years) in the Park to prospective private entrepreneurs for developing their own processing units for value addition and higher end processing. The grower community can make use of these facilities for selling their produce directly to the exporters so that they can avail the premium price for their produces. On the other side the exporters can develop a link with reliable farming community for an uninterrupted supply of farm fresh raw material for their business.

Spices Board is the main stakeholder involved in the project and will be the main implementing partner in India. It will also build on the above e-spice initiative to cover other spices and locations identified in the project.

1. Ministry of Commerce and Industries – The Spices Board is an autonomous body under the administrative control of the Ministry of Commerce and Industry. The MOC&I has provided support to the project and letter of support from the Ministry is enclosed. In addition, the Department of Commerce under the Ministry has various schemes to support export sector and also give subsidies for quality and safety certifications. The approaches in the project will be linked with already existing government schemes so as to have a synergistic effect. Further the Ministry will also play a role in providing further grants, as needed, to reproduce the project in other areas and for other spices.

2. Food Safety and Standards Authority of India (FSSAI) under the Ministry of Health and Family Welfare, Government of India is the statutory organisation for national level regulatory standard setting for food articles and regulating their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption. It is responsible for implementation of the Food Safety and Standards (FSS) Act, 2006 and Food Safety and Standard Rules, 2011. Under this project, it would support in facilitating compliance to food law for spices in domestic market

3. National Horticultural Mission of Government of India was launched in 2005-06 as a Centrally Sponsored Scheme to promote holistic growth of the horticulture sector through an area based regionally differentiated strategies, to enhance horticulture production, to establish convergence and synergy among multiple on-going and planned programmes for horticulture development; to promote, develop and disseminate technologies, through a blend of traditional practices and modern scientific knowledge. National Horticultural Mission will support in terms for linking all related supporting schemes in various states and also providing technical advice as needed

4. Export Inspection Council (EIC) under the Ministry of Commerce and Industries was set up under the Export (Quality Control and Inspection) Act, 1963 (22 of 1963), in order to ensure sound development of export trade of India through Quality Control and Inspection by the Government of India is responsible for certification of notified commodities for the purpose of exports. In February

2016, through an Order issued by the GOI, chillies, nutmeg and mace were brought under mandatory inspection for export to the EU. Black pepper is also being inspected and certificates issued for export to the US since 1987, in the absence of which entry into US is not allowed. EIC could play an important role in the trainings, the networking of labs which are currently being streamlined and the NCRCP visualized under this project.

5. Indian Institute of Spices Research (IISR) of the Indian Council of Agricultural Research, Kozhikode in Kerala is the premier Spices Research station for R & D for high yielding spice varieties, prescription of Good Agricultural Practices and post-harvest management of spices like pepper, cardamom, tree spices, turmeric, ginger etc. Currently the Institute is running 11 mega Institute projects and four externally funded projects on different spices. Support is expected from IISR in terms of multiplication of seed material and training of farmers, especially for black pepper.

6. National Research Centre for Seed Spices, Ajmer is an apex centre of Indian Council of Agricultural Research (Government of India) working on improvement of seed spices and betterment of their stakeholders since its inception in 2000. The mandate of this institute is to carry out basic, applied and strategic research for the improvement of seed spices crops. Agronomic practices are being standardized for different crops. The Centre will provide support in the development of Package of Practices for cumin, fennel and coriander and also provide training support.

7. Dr YSR Horticultural University, Andhra Pradesh was established by the Government of Andhra Pradesh on 26-06-2007 at Venkataramannagudem. Presently university is having two Horticultural Colleges, four Horticulture Polytechnics and 16 Research Stations throughout Andhra Pradesh. The major thrust areas of research in the University are increasing productivity, sustaining productivity under biotic and abiotic stresses, improving nutritive value and food safety, environmental protection, increasing profitability to farmers, export promotion, minimization of post-harvest losses and Processing and value addition. The university is expected to provide technical support in terms of development of package of practices and training support especially for red chillies.

8. Indian Spice & Foodstuff Exporters Association, founded in 1991, was formed with the participation of exporters dealing in a variety of spices and other agricultural produces. This organisation has strong operational base in the export business and is connected to the farm lands for their purchases. This organization is also expected to support market access and procurement activities.

9. The Integrated Tribal Development Authority (ITDA), established by the government of Andhra Pradesh under the Tribal Welfare Department in the year 1975 as single line administrative agencies to cater to holistic development of the tribal people. The ITDA is working in an area categorized as Schedule 5 Area under the Constitution of India commonly known as the Agency Area. The ITDA was registered under the Societies Registration Act XXI of 1869 which include preparation of Projects and initiation of Socio-economic surveys, re-organization and strengthening of Administrative Structure; preparation of land records; setting up or strengthening credit-cum-marketing structure; debt redemption schemes, preliminary work on plantation schemes and execution of Minor Irrigation Schemes etc., The Project Officers of ITDAs have been vested with the administrative control over Agriculture, Horticulture, Livestock Farms, Ashram Schools etc. Accordingly black pepper grown in Araku valley is also under their purview and they could well support the activities. It is proposed that ITDA, will be an implementing partner for black pepper and will coordinate the activities as given under the LOA at **Appendix 9**.

10. District Collector, Guna, Madhya Pradesh (MP) –Guna district of Madhya Pradesh is a major production and marketing hub for coriander which is a crop identified in the project. Though Guna district has a vast production base for coriander (75,000 hectare under coriander and is the largest market yard for this product), the marketing facilities and infrastructure are not well developed. In the administration of this project in Guna district, SPS issues are more visibly seen in marketing sector and this part of the project requires a major initiative from the District administration under the Madhya Pradesh Government headed by the District Collector. The involvement of the District Collector is required in terms of administrative and coordination support to influence Kumbhraj and Guna Agriculture Produce Marketing Committee (APMCs) to drastically upgrade markets or mandies in terms of SPS. The Collector was present in the interface session in Guna and offered his full support.

11. Rajasthan Agricultural University, Jodhpur - Jodhpur district of Rajasthan has been identified for the implementation of the project with respect to cumin and fennel. Two villages have been chosen for administering the project and the Agriculture University of Jodhpur is emerging as a major partner in development of cultural practices, training and execution. The Vice Chancellor of the University has offered support for the project and is proposed as a partner for Rajasthan.

12. Commissioner of Horticulture, Government of Andhra Pradesh - Black pepper has been selected under the project for implementation in Paderu districts covering two locations. The Horticulture Department headed by the Horticulture Commissioner, Government of Andhra Pradesh has a big stake in development of horticultural crops in Andhra Pradesh including black pepper. The Horticulture Commissioner is the decision making authority for horticultural development schemes. Being a senior functionary of the Spice Development Agency of Andhra Pradesh, the Horticulture Commissioner is an important partner and supporter for implementation of SPS initiatives from the part of the Andhra Pradesh State Government.

Appendix 2: Some important references and standards that will be taken into account during implementation of the project

The proposed project supports implementation of improved food safety management systems and inspection/auditing procedures based on international standards. The project will use the following Codex Alimentarius Commission (CAC) and International Standards Organisation (ISO) standards as well as references from EU and US.

Codex References

CAC/RCP 78-2017 Code of Practice for the Prevention and Reduction of Mycotoxins in Spices

CAC/RCP/1-1969 Recommended International Code of Practice for general principles of food hygiene.

CAC/GL/60-2006 Principles of traceability/product tracing as a tool within a food inspection and certification system.

Pesticide residue online database (<http://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/pt/>)

ISO standards

ISO standards ISO 19011:2011 Guidelines for auditing management systems.

ISO 22000:2005 Food safety management systems – Requirements for any organisation in the food chain.

ISO 22005:2007 Traceability in the feed and food chain – General principles and basic requirements for system design and implementation.

ISO TS 22003:2007 Food safety management systems – Requirements for bodies providing audit and certification of food safety management systems.

ISO TS 22004:2005 Food safety management systems – Guidance on the application of ISO 22000:2005.

European Union (EU) Requirements

Commission Regulation (EC) No. 178/2002 laying down the general principles and requirements of food law, Regulation

Commission Regulation (EC) No 852/2004 Hygiene of Food Products,

Commission Regulation (EC) No 882/2004 Official Controls

Commission Regulation (EC) No 1881/2006. of 19 December 2006. setting maximum levels for certain contaminants in foodstuffs

US requirements

Requirements of spices in the US markets (ASTA website www.astaspices.org)

APPENDIX 3: Logical Framework⁴

	Project description	Measurable indicators / targets	Sources of verification	Assumptions and risks
Goal	The overall goal of the project will be to expand exports of safe and high-quality spices from India to overseas markets. This will also contribute to improved food safety and consumer health in India and export markets. This is further expected to help to boost incomes of small-scale farmers, empower women and other marginalized (tribal) communities, and support efforts to reduce poverty (SDG 1) and hunger (SDG 2) in the selected project areas in India	<p>Safer spices in terms of reduced pesticide residues and contaminants.</p> <p>Increased value of the four spices to quality sensitive markets (EU, US, Japan, etc) by 20%</p> <p>Increased incomes of farmers that are part of the project by 20%</p>	<p>Test reports before and after the project</p> <p>Export data on spices</p> <p>Baseline surveys</p>	<p>Economic and political conditions in global and domestic markets conducive.</p> <p>Weather conditions favourable.</p>
Immediate objective (purpose)	The objective is to build the capacity of stakeholders in the spices value chain to improve the safety and quality of three seed spices (cumin, fennel and coriander) and black pepper in order to increase market access.	Capacity of stakeholders built (around 1200 farmers and 50 other value chain actors) to produce safe spices	Project reports	Farmers, exporters, universities and other value chain stakeholders are motivated to join the programme

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See the CIDT Handbook on Project Identification, Formulation and Design, available on the STDF website, for guidance on the preparation of logical frameworks.

Expected results (outputs)				
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<p>Output 1 Capacity (in the public and private sector and academia) to deliver trainings/ awareness programs on risk-based assessments and Good Practices along the identified spice value chains improved</p>	<p>Package of practices on GAP reviewed and strengthened Package of practices on GHP for post-harvest stages developed Standardized training modules developed Trainings imparted IEC material developed and disseminated</p>	<p>4 Package of practices on GAP – one for each spice 1 POP on GHP for post-harvest activities 4 training modules - one for each spice, and 1 training module on post-harvest GHP 60 persons trained in TOT programmes. Series of IEC materials developed for each spice</p>	<p>Documentation available Training records IEC material available</p>	<p>Support from Agricultural Universities and Research Centres</p> <p>Low motivation of farmers and other value chain actors to implement good practices And may continue with existing practices</p>
<p>Activities</p>	<p><u>1</u> Review of existing Package of Practices for farmers on GAP based on international standards</p> <p><u>2</u> Development of Package of Good Hygienic Practices for market yards/ auction centres, storage godowns, pre-processing / simple processing units</p> <p><u>3</u> - Development of standardized training modules based on POPs developed.</p> <p><u>4</u> – Delivery of trainings of trainers (TOT) programmes.</p> <p>5 – Workshop for related Agriculture University faculty/ others on the POPs carried out</p>			

<p>Output 2 Capacity of farmers and other value chain actors to adopt GAP / GHP enhanced to improve yields, quality and safety of spices</p>	<p>Baseline study covering the different aspects such as level of awareness on SPS issues, income levels, current production data, rejection data, etc conducted at beginning and end of project</p> <p>Villages and farmers selected, and FPO established in each village</p> <p>Farmers and FPO management trained for improved production and ICS systems</p> <p>Other value chain actors trained on GHP and HACCP and certified</p> <p>Healthy good quality seedlings supplied to farmers</p> <p>Benefits of group activities availed</p> <p>Better practices observed and understood by farmers – exchange of information</p>	<p>8 Registered FPOs</p> <p>Equipment installed and being used with guidance for use</p> <p>8 Groups implementing group controls for GAP or Organic Certification</p> <p>At least half the groups have certification</p> <p>Around 1200 farmers and 50 other value chain actors trained</p> <p>Seedlings distributed to farmers</p> <p>8 farmers exposed to practices in other States/ areas</p> <p>Documented lessons learnt</p> <p>Sharing information with other farmers</p>	<p>Registration document for FBOs</p> <p>Equipment installed and being used with guidance document for use</p> <p>Group systems documented</p> <p>Certifications</p> <p>Outcome of m&e study</p> <p>Documented reports</p>	<p>Consensus on equipment to be supplied</p> <p>Number of farmers interested in organising as a group</p>
<p>Activities</p>	<p>1 Selection of villages, farmers/ farmer groups and other value chain actors</p>			

	<p>2. Developing a baseline for monitoring and evaluation (m&e)</p> <p><u>a.</u> A questionnaire for baseline for m&e developed</p> <p><u>b.</u> Questionnaire filled by farmers/ farmer groups and other value chain actors at beginning and end of project</p> <p>3. Farmer Producer Organization (FPO) developed/ strengthened at community level for improved production and value-added technologies (including organic / GAP certification)</p> <p><u>a.</u> New FPOs developed/ existing FPOs strengthened at community levels in each village.</p> <p><u>b.</u> – Basic facilities/ equipment/ material identified for each village for group use and procured (based on cost sharing project)</p> <p>4. Nurseries developed and seedlings provided to farmers (only for black pepper)</p> <p>a. Procurement of healthy plants and propagating these in nurseries by ITDA</p> <p>b. Supply of plants to farmers by ITDA</p>			
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	<p>5. Roll out of training programs to farmers and other relevant stakeholders on the package of practices developed under Output 1</p> <p><u>a.</u> – Trainings on GAP/ organic practices/ certification/ maintaining documentation and records at individual farmer and group level.</p> <p>b. Assisting on establishing group management and internal control systems (ICS)</p> <p><u>c.</u> – Facilitate group certification of farmers including first year certification fees (link to other schemes such as NABARD)</p> <p>d. Communication and awareness through street plays, posters, TV programmes.</p> <p>6. Study visits/ Sharing experiences and lessons learnt</p> <p>a. visits of 2 farmers from each village to other farms (total 8 farmers)</p> <p>b. Results/ experiences disseminated to other farmers</p> <p>c. Results and experiences shared in national/ stakeholder workshops</p>			
Output 3 Marketing	Farmer and buyers connected	All farmers of 8 villages	Check e-spice bazaar portal	

<p>and links to buyers (exporters/ importers) strengthened</p>	<p>through Web portal e-spice bazaar Branding and marketing exercise for all 4 spices</p>	<p>covering 4 spices enlisted on web portal 10 exporters will sign Agreements for direct procurements from farmers International Trade fair in Araku organised Marketing activities of specific brands carried out</p>	<p>Evidence of marketing</p>	
<p>Activities</p>	<p><u>1</u> - E-spice bazaar enlarged to cover black pepper cumin, fennel and coriander (to connect farmers to buyers) and portal also to cover local languages and include foreign buyers</p> <p>a. Portal enlarged</p> <p>b. information of all farmers in the selected villages compiled and uploaded on the web portal</p> <p>c. Information of major buyers in the region or at national/ global level compiled and uploaded onto the portal.</p> <p><u>2</u> – Registration of exporters and linking them to producer groups for direct procurement</p> <p><u>3</u> - Image and branding of organic/ GAP certified spices</p>			

	<u>4</u> – SPS requirements of major buyers made available on website			
Output 4 Establishment and implementation of a National Contaminant and Residue Control Programme (NCRCP) for identified spices	<p>Labs approved for testing required parameters</p> <p>NCRCP for spices developed and implemented</p>	<p>Report on lab capacities available At least 12 labs approved</p> <p>NCRCP for the 4 spices developed and implemented over 2 crop seasons</p>	Reports	
Activities	<p><u>1</u> – Mapping lab capacity in district and state (government/ NGO/ University/ Research organizations)</p> <p><u>2</u> – Approving labs based on capability through recognition by Spices Board and making labs available to farmers</p> <p><u>3</u> – National contaminant and residue control programme developed and implemented for identified spices (involving the villages covered)</p>			

Appendix 4 – Work Plan

WORK PLAN – Activity	Responsibility	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1 Capacity (in the public and private sector and academia) to deliver trainings/ awareness programs on risk-based assessments and Good Practices along the identified spice value chains improved													
Activity 1.1 Review of existing Package of Practices for farmers on GAP based on international standards	IP+SB+NPM+LP		X	X	X								
Activity 1.2 Development of Package of Good Hygienic Practices for market yards/ auction centres, storage godowns, pre-processing / simple processing units	NPM + IP + LP		X	X									
Activity 1.3 Development of standardized training modules based on POPs developed and communication material	NPM + IP + LP		X	X	X	X							
Activity 1.4 Delivery of trainings of trainers (TOT) programmes.	IP + NPM				X								
Activity 1.5 Workshop for related Agriculture University faculty/ others on the POPs carried out	IP + NPM + SB								X				
Output 2 Output 2 Capacity of farmers and other value chain actors to adopt GAP / GHP enhanced to improve yields, quality and safety of spices													
Activity 2.1 Selection of villages, farmers/ farmer groups and other	NPM + IP + SB		X										

value chain actors													
Activity 2.2 Developing a baseline for monitoring and evaluation (m&e) a. A questionnaire for baseline for m&e developed b. Questionnaire filled by farmers/ farmer groups and other value chain actors at beginning and end of project	NPM + IP		X									X	
Activity 2.3 Farmer Producer Organization (FPO) developed/ strengthened at community level for improved production and value added technologies (including organic / GAP certification) a. New FPOs developed/ existing FPOs strengthened at community levels in each village. b. – Basic facilities/ equipment/ material identified for each village for group use and procured (based on cost sharing project)	NPM + IP + LP			X	X	X	X						
Activity 2.4 Nurseries developed and seedlings provided to farmers (only for black pepper) a. Procurement of healthy plants and propagating these in nurseries by ITDA b. Supply of plants to farmers by	ITDA + SB		X	X			X	X					

ITDA													
<p>Activity 2.5 Roll out of training programs to farmers and other relevant stakeholders on the package of practices developed under Output 1</p> <p><u>a.</u> – Trainings on GAP/ organic practices/ certification/ maintaining documentation and records at individual farmer and group level.</p> <p><u>b.</u> Assisting on establishing group management and internal control systems (ICS)</p> <p><u>c.</u> – Facilitate group certification of farmers including first year certification fees (link to other schemes such as NABARD)</p> <p><u>d.</u> Communication and awareness through street plays, posters, TV programmes.</p>	NPM with IP + LP			X	X		X	X	X	X			
<p>Activity 2.6 Study visits/ Sharing experiences and lessons learnt</p> <p><u>a.</u> visits of 2 farmers from each village to other farms (total 8 farmers)</p> <p><u>b.</u> Results/ experiences disseminated to other farmers</p> <p><u>c.</u> Results and experiences shared in</p>	SB + NPM				X	X							

national/ stakeholder workshops													
Output 3 Marketing and links to buyers (exporters/ importers) strengthened													
Activity 3.1 E-spice bazaar enlarged to cover black pepper cumin, fennel and coriander (to connect farmers to buyers) and portal also to cover local languages and include foreign buyers a. Portal enlarged b. information of all farmers in the selected villages compiled and uploaded on the web portal c. Information of major buyers in the region or at national/ global level compiled and uploaded onto the portal.	SB + NPM					X							
Activity 3.2 Registration of exporters and linking them to producer groups for direct procurement	IP+NPM+SB			X	X	X	X						
Activity 3.3 Image and branding of organic/ GAP certified spices	SB + NPM							X	X	X	X	X	
Activity 3.4 SPS requirements of major buyers made available on website	SB + NPM			X	X								
Output 4 Establishment and implementation of a National Contaminant and Residue control Programme (NCRCP) for identified spices													
Activity 4.1 Mapping lab capacity in district and state (government/ NGO/ University/ Research organizations)	SB + NPM					X							

Activity 4.2 Approving labs based on capability through recognition by Spices Board with support of EIC and making labs available to farmers	SB + EIC + NPM						X	X					
Activity 4.3 National contaminant and residue control programme developed and implemented for identified spices (involving the villages covered)	SB + EIC + NPM				X	X				X	X		
Operational Activities													
Procurement	IP				X								
Recruitment of National Project Manager	IP and SB	X											
Recruitment of - Project Supervisors for each village - Other consultants as and when needed	SB + NPC		X										
LoA	IP	X											
...													

Appendix 5 – Terms of Reference for Key Staff Involved in Project Implementation

Job Title:	National Project Manager
Minimum number of years of relevant experience required:	Advanced university degree (or a relevant comparable experience) in food science, food safety and/or agriculture or a related field. Fifteen years of relevant experience in the field of food safety and quality of primary agricultural products or agriculture extension. Experience in the area of spices. Working knowledge of English and Hindi.
Expected Start of Assignment:	Start of the project
Duration:	3 years (around 133 days per year) – total of 400 days
Location:	India
Reports to:	Implementing Partner

Description of task(s) and objectives to be achieved (per mission if applicable)		
<p>Under the overall guidance of the Implementing Partner and the direct technical supervision and management of the project budget holder, and in close collaboration with Spices Board and other project partners, the incumbent will:</p> <ul style="list-style-type: none"> • Design, coordinate and execute the activities conceptualized in the project document on all four spices and all districts indicated; • Prepare TORs for consultants and resource persons, contracts, Letters of Agreement (LOAs) if necessary; • Coordinate with the implementing partner and Spices Board • Ensure achievement of all project Outputs and activities successfully • Implement all trainings and awareness programmes as indicated • Prepare specifications for equipment to be purchased and support the procurement of the same • Maintain budgets and ensure compliance with the same • Prepare all reports as specified in the project document, such as mission reports and six-monthly progress reports outlining progress of actual work against planned, problems encountered, findings and detailed planning for the next period; • Draft a terminal report outlining project results, recommendations and impact according to standards of the implementing partner; • Perform other duties as required in relation to the project. 		
Key performance indicators		
Expected Outputs	Required	Completion Date:
All Outputs and Activities implemented as per action plan	As indicated in the action	Plan
Estimated rates for budgeting purposes		
Honorarium rate	DSA rate	Standard air ticket cost
USD 125/-day for days worked (WAE basis)	As per national rates when not in duty station	

Job Title:	Supervisor at District/ Village level (8 positions)
Minimum number of years of relevant experience required:	Advanced university degree (or a relevant comparable experience) in agriculture or a related field with at least 5 years' experience in spice sector. Working knowledge of English, Hindi and the local language.
Expected Start of Assignment:	Start of the crop sowing season
Duration:	Total 200 days – in 2 crop cycles
Location:	Village
Reports to:	National Project Manager/ National Implementing Partner

Description of task(s) and objectives to be achieved (per mission if applicable)		
<p>Under the overall guidance of the National Project Manager/ National Implementing Partner and the overall technical supervision and management of the project budget holder, and in close collaboration with Spices Board and other project partners, the incumbent will:</p> <ul style="list-style-type: none"> • Facilitate all activities at the district/village level • Impart in-field trainings and facilitate trainings at market yard, cold storages, pre-processing and processing centres • Ensure achievement of all project Outputs and activities successfully in the assigned District/ village • Implement all trainings and awareness programmes as indicated • Prepare specifications for equipment to be purchased and support the procurement of the same • Maintain budgets and ensure compliance with the same • Prepare report of the activities carried out • Prepare case study of the project and its achievements • Perform other duties as required in relation to the project. 		
Key performance indicators		
Expected Outputs		Required Completion Date:
All Outputs and Activities implemented as assigned		As indicated in the action Plan
Estimated rates for budgeting purposes		
Honorarium rate	DSA rate	Standard air ticket cost
USD 35/-day	-	

Job Title:	International/ National Consultants (as and when required)
Minimum number of years of relevant experience required:	Advanced university degree (or a relevant comparable experience) in agriculture or a related field with at least 15 years of experience in the specific sector in which expertise is sought. Working knowledge of English, Hindi and the local language.
Expected Start of Assignment:	As and when needed
Duration:	Total 330 days maximum distributed over different consultants
Location:	Village/ home station
Reports to:	National Project Manager/ National Implementing Partner

Description of task(s) and objectives to be achieved (per mission if applicable)		
Under the overall guidance of the National Project Manager/ National Implementing Partner and the direct technical supervision and management of the project budget holder, and in close collaboration with Spices Board and other project partners, the incumbent will carry out the specific duties assigned.		
Key performance indicators		
Expected Outputs	Required Completion Date:	
Specific task assigned Project report for the activity Any material produced	As indicated in TORs	
Estimated rates for budgeting purposes		
Honorarium rate	DSA rate	Standard air ticket cost
International Consultant: USD 300/- day for days worked (WAE basis) National consultant: USD max 100/- day (WAE basis)	As per implementing partner/ national rates when not in duty station	

Job Title:	IT Extension Field Coordinator
Minimum number of years of relevant experience required:	Advanced university degree (or a relevant comparable experience) in agriculture with background of IT with at least 5 years' experience in the IT sector. Working knowledge of English, Hindi and the local language.
Expected Start of Assignment:	Over the period of the project
Duration:	Total 120 days maximum distributed over 2 seasons (will be one for each district/ village as decided). Total man-days of all coordinators put together is 960 days
Location:	Villages
Reports to:	National Project Manager/ National Supervisor consultants

Description of task(s) and objectives to be achieved (per mission if applicable)		
Under the overall supervision of the National Project Manager and the direct technical supervision of the national supervisors and overall guidance of Spices Board and other project partners, the incumbent will carry out the specific duties as below:		
<ul style="list-style-type: none"> - Compile information of all farmers in the selected villages and input into the web portal. - Prepare a report at the end of the assignment 		
Key performance indicators		
Expected Outputs		Required Completion Date:
Compiled information inputted into web portal on continuous basis Project report for the activity Any material produced		As indicated in TORs
Estimated rates for budgeting purposes		
Honorarium rate	DSA rate	Standard air ticket cost
National IT field coordinator consultant: USD max 25/- day (WAE basis)	As per implementing partner/ national rates when not in duty station	

Job Title:	Monitoring and Evaluation Expert
Minimum number of years of relevant experience required:	Advanced university degree (or a relevant comparable experience) in agriculture or a related field with at least 5 years' experience in working with international organizations and doing project management. Working knowledge of English and Hindi.
Expected Start of Assignment:	As and when needed
Duration:	Total 30 days maximum
Location:	Kochi/Village
Reports to:	Implementing Partner

Description of task(s) and objectives to be achieved (per mission if applicable)		
<p>Under the overall guidance of the Implementing Partner and the direct technical supervision and management of the project budget holder, and in close collaboration with Spices Board and other project partners, the incumbent will carry out the following specific tasks:</p> <p>Develop a monitoring and evaluation (M&E) plan Evaluate the implementation every 6 months and report to the project management Suggest measures in case the implementation is not proceeding as envisaged</p>		
Key performance indicators		
Expected Outputs	Required Completion Date:	
M&E Plan Specific task assigned 6-monthly reports End of assignment report Any material produced	As indicated in TORs	
Estimated rates for budgeting purposes		
Honorarium rate	DSA rate	Standard air ticket cost
International Consultant: USD 300/- day for days worked (WAE basis) National consultant: USD max 100/- day (WAE basis)	As per implementing partner/ national rates when not in duty station	

APPENDIX 6: Project Budget (US\$)⁵

The following table provides the broad budget; however this will need to be fine-tuned as the project is implemented.

Activities	Funds in USD	
	Project contribution	In-kind
Output 1 Capacity (in the public and private sector and academia) to deliver trainings/ awareness programs on risk-based assessments and Good Practices along the identified spice value chains improved		
Activity 1.1 Review of existing Package of Practices for farmers on GAP based on international standards - National consultant fee (40 days @ US \$ 100 per day) for review and development of Package of Practices (4 spices – 10 days/spice) - Validation by University/ Research organization - Translation into local language - Printing costs	4000 2000 2000	8000
Activity 1.2 Development of Package of Good Hygienic Practices for market yards/ auction centres, storage godowns, pre-processing / simple processing units - National consultant fee (20 days @ US \$ 100 per day) for development of Package of Practices (4 spices) - Validation by Spices Board - Translation into local language - Printing costs	2,000 2,000 2,000	8,000
Activity 1.3 Development of standardized training modules based on POPs developed and communication material <u>Training Modules</u> - National consultant fee (45 days @ US \$ 100 per day) for development of training modules – producers and other stakeholders - Review by University/ Research organization/ Spices Board - Translation into local language - Printing costs <u>Communication material</u> Development of IEC material including videos, posters,	4,500 2,000 2,000 40,000	8,000 40,000

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<i>publicity material – videos on POPs (4 spices) – contract</i>		
Activity 1.4 Delivery of trainings of trainers (TOT) programmes. - National consultant fee (20 days @ US 100 per day) - Travel for consultants and participants - Training venue - Lunch / coffee breaks for participants	2,000 24,000	
Activity 1.5 Workshop for related Agriculture University faculty/ others on the POPs carried out	9,500	6,000
TOTAL - Output 1	98000	70000
Output 2 Capacity of farmers and other value chain actors to adopt GAP / GHP enhanced to improve yields, quality and safety of spices		
Activity 2.1 Selection of villages, farmers/ farmer groups and other value chain actors	500	2,000
Activity 2.2 Developing a baseline for monitoring and evaluation (m&e) Developing questionnaire for m&e Filling of questionnaire (5 days X 8 locations) – consultant fee – 40 days X 50 USD (same at end of project) Analysis of questionnaire at end of project (10 days) Travel and stay of consultant Monitoring and evaluation specifically of the trainings M&E Expert (30 daysX300 \$ fees) + travel	1,000 4,000 1,000 4,000 1,500 13,000	2,000 1,000
Activity 2.3 - Farmer Producer Organization (FPO) developed/ strengthened at community level for improved production and value-added technologies (including organic / GAP certification) a. New FPOs developed/ existing FPOs strengthened at community levels in each village. b. – Basic facilities/ equipment/ material identified for each village for group use and procured - Registration of groups into FPOs – registration charges (4 groups in each village) – 32 groups Prepare specifications, procurements and installations (10,000 USD for each village)	7,000 80,000	7,000 80,000
Activity 2.4 - Nurseries developed and seedlings provided to farmers (only for black pepper) a. Procurement of healthy plants and propagating these in nurseries by ITDA b. Supply of plants to farmers by ITDA	24,000	10,000

<p>Activity 2.5 – Roll out of training programs to farmers and other relevant stakeholders on the package of practices developed under Output 1</p> <p>a. – Trainings on GAP/ organic practices/ certification/ maintaining documentation and records at individual farmer and group level and b. Assisting in establishing group management and ICS</p> <p>- National Consultant (Supervisor) at each district level: 1 for each village (200 days per person X 8 numbers X 35 \$/ day) – includes travel and stay (hand holding by supervisors)</p> <p>c. – Facilitate group certification of farmers including first year certification fees (link to other schemes such as NABARD)</p> <p>Training fees – 830\$/ training X16 trainings + training arrangements (venue, food, transportation)</p> <p>Certification fee 1250 \$ per group for 8 groups (done through a certification company)</p> <p>d. Communication and awareness through street plays, posters, TV programmes.</p>	<p>56,000</p> <p>25,000</p> <p>10,000</p> <p>50,000</p>	<p></p> <p></p> <p>10,000</p> <p>5,000</p>
<p>Activity 2.6 – Study visits/ Sharing experiences and lessons learnt</p> <p>a. visits of 2 farmers from each village to other farms (total 8 farmers); b. Results/ experiences disseminated to other farmers; c. Results and experiences shared in national/ stakeholder workshops</p> <p>- Travel and stay of farmers</p> <p>- Arrangements by Spices Board (including accompanying farmers)</p>	<p>10,000</p>	<p></p> <p>5,000</p>
<p>TOTAL - Output 2</p>	<p>287,000</p>	<p>122,000</p>
<p>Output 3 Marketing and links to buyers (exporters/ importers) strengthened</p>		
<p>Activity 3.1 E-spice bazaar enlarged to cover black pepper cumin, fennel and coriander (to connect farmers to buyers) and portal also to cover local languages and include foreign buyers</p> <p>a. SB web portal enlarged</p> <p>- Adapting web portal to additional spices and languages</p> <p>- manpower to maintain portal</p> <p>- metrological information for all villages (1000/ year X 3 years)</p> <p>b. information of all farmers in the selected villages compiled and uploaded on the web portal</p> <p>- IT extension field coordinator (60 days / season) X 8 villages X 25/ day X 2 seasons</p> <p>c. Information of major buyers in the region or at national/ global level compiled and uploaded onto the portal.</p>	<p>24,000</p>	<p>20,000</p> <p>5,000</p> <p>3,000</p>

- IT coordinator (30 days per year – 1 month salary)		1,200
Activity 3.2 Registration of exporters and linking them to producer groups for direct procurement		2,000
Activity 3.3 Image and branding of organic/ GAP certified spices - Stall at a trade fair - Travel and stay of 2 farmers from each village 16X625/ day including travel, and stay - Organizing trade fair for black pepper	10,000 10,000	5,000
Activity 3.4 SPS requirements of major buyers made available on website		5,000
TOTAL - Output 3	44,000	41,200
Output 4 Establishment and implementation of a National Contaminant and Residue control Programme (NCRCP) for identified spices Activity 4.1 Mapping lab capacity in district and state (government/ NGO/ University/ Research organizations)		5,000
Activity 4.2 Approving labs based on capability through recognition by Spices Board with support of EIC and making labs available to farmers		2,000
Activity 4.3 National contaminant and residue control programme developed and implemented for identified spices (involving the villages covered) NCRCP development and testing (30 samples/ spice X 8 spices= 240 samples); USD 250/ sample test costs (240X250 = USD 60,000)	30,000	30,000
TOTAL - Output 4	30,000	37,000
Expertise to support delivery of the four project outputs (National Project Manager and consultants) [National Project Manager (133 days/ year X 3 years X USD 125 per day) - total 400 days International consultants (100 days @USD300/day)]	80,000	
Subtotal	539,000	270,200
Others (Office space, furniture, time of officials over a period of 3 years)		13,000
Contingency	15,000	
External evaluation of project (cost of expert 20 days X USD600/ day)	15,000	
Project management costs for international partner (IP)/ Overheads (7% of total)	39,830	
GRAND TOTAL	608,830	283,200

Note: FAO has offered an amount of US\$100,000 towards this project, which brings the amount requested from the STDF to US\$508,830.

**DRAFT Letter of Agreement between Project Implementing Partner and
the Integrated Tribal Development Authority (ITDA)**

The Integrated Tribal Development Authority (ITDA), established by the government of Andhra Pradesh under the Tribal Welfare Department in the year 1975 as single line administrative agencies to cater to holistic development of the tribal people. The ITDA is working in an area categorized as Schedule 5 Area under the Constitution of India commonly known as the Agency Area. The ITDA was registered under the Societies Registration Act XXI of 1869 which include preparation of Projects and initiation of Socio-economic surveys, re-organization and strengthening of Administrative Structure; preparation of land records; setting up or strengthening credit-cum-marketing structure; debt redemption schemes, preliminary work on plantation schemes and execution of Minor Irrigation Schemes etc. The Project Officers of ITDAs have been vested with the administrative control over Agriculture, Horticulture, Livestock Farms, Ashram Schools etc. Accordingly, black pepper grown in Araku valley is also under their purview and they could well support the activities. It is proposed that ITDA, will be an implementing partner for black pepper and will coordinate the activities as given below. The LOA is expected to be for an amount of around USD 75,000 (to be confirmed) .

1. Purpose

The purpose for which the funds provided by under this Agreement shall be used are the following:

- 1. Objective:** The Services will contribute to Strengthening black pepper value chain in Paderu district of Andhra Pradesh
- 2. Outputs/outcomes:** *The Implementing Partner will produce, achieve or deliver the following outputs or outcomes:*
 - a. Identified villages with list of farmers in each village being part of project
 - b. Support in baseline survey and end-of-project survey
 - c. Trained farmers on POPs
 - d. Farmer Producer Organizations developed and strengthened in terms of equipment, ICS development, certifications for organic/ GAP.
 - e. Inventory of current One-Health tools available
 - f. International trade fair in Araku valley organised
 - g. Nurseries developed and healthy plants supplied to farmers
- 3. Activities:** *The Implementing Partner will undertake the following activities:*
 - a. Identify villages with list of farmers in each village to be part of project
 - b. Support in baseline survey and end-of-project survey
 - c. Support in development of Package of Practices
 - d. Organise farmers in groups and facilities for training farmers
 - e. Facilitate the development of Farmer Producer Organizations
 - f. Support farmers in getting registered with NABARD and getting subsidies
 - g. Identify equipment required to be supplied and develop specifications for these and help in installing these at villages
 - h. Support Certification Body in establishing group certifications
 - i. Organise International trade fair in Araku valley with at least 10 countries
 - j. Procure healthy plants, develop nurseries and supply healthy plants to farmers

- k.** Submission of 6-monthly reports on activities and financial aspects
- l.** Submission of final report and financial report
- m.** Any other activities in relation to the project as identified during implementation

A detailed description of the Services including technical and operational requirements, budget, work plan and timeframe, performance indicators and means of verification, as well as inputs to be provided free-of-charge by the Service Provider and Implementing Partner will be worked out prior to signing the LOA.

Appendix 8: Written consent from an STDF partner that agrees to implement the project OR evidence of the technical and professional capacity of another organization proposed to implement the project

The technical and financial capacity of FAO Regional Office for Asia and the Pacific and the India office was discussed in detail with the FAO country office. The FAO office has significant and prior experience of managing projects funded by external donor agencies including food safety projects. Letter of support from FAO is attached.

Appendix 9: Overview of production and trade of the selected spice crops

Black Pepper in Paderu, Vishakhapatnam District of Andhra Pradesh

Production and Trade figures

As seen from the figures below, pepper production and trade has not grown much. In fact there has possibly been some decline. One of the reasons is that the soils in these regions are no longer able to support the crops and also the prices are not lucrative most likely due to food safety issues.

Area, Production and Export of Black pepper in India (Karnataka, Kerala, TN)				
Year			Export	
	Area	Production	Quantity	value
	Hectare	Tons	Tons	Rs Cr
2013-14	122,400	37,000	21,250	940.02
2014-15	123,900	70,000	21,450	1208.43
2015-16	131,790	48,500	28,100	1730.42
2016-17 [#]	131,230	55,500		

[#] Estimates

^{*}Source - Production figures from State Agriculture/ Horticulture Departments/ DASD Kozhikkode and export figures from Spices Board

However, as observed these figures relate to only 3 states and the pepper cultivation in non-traditional areas along Andhra Pradesh - Odisha State borders and further in the hinterlands of Odisha is currently on the increase and in these areas the potential for pepper production is as yet untapped. Data on production also has not been included in the above figures of Spices Board. The production figures of black pepper in Paderu and Araku mandals as per current records of The Integrated Tribal Development Authority (ITDA) are as follows:

- Production – 30,000 tonnes
- Area under coverage – 56,000 acres
- Farmers – 53, 000

The districts of Koraput, Rayagharh and Kalahandi in Odisha also have innumerable plantations. However, although in this project only Paderu District in Andhra Pradesh is being selected for black pepper, the implementation of this project in Paderu may create positive spill over effects in neighbouring border districts of Odisha also.

Cumin and Fennel (Mehsana district of Gujarat, Jodhpur district of Rajasthan) and Coriander (Guna district of Madhya Pradesh)

Production and Trade figures

Major production areas are Gujarat, Rajasthan and Madhya Pradesh. The area under coverage, production, and export both quantity and value over the last three years is given in the table below. As seen from the figures, the production and exports over the year is more-or-less constant. The prices have however, decreased and the farmer is getting a lesser remuneration.

Area, Production and Export of Cumin in India				
			Export	
Year	Area	Production	Quantity	value
	Hectare	Tons	Tons	Rs Cr
2013-14	690,080	445,030	121,500	1600.06
2014-15	701,560	372,290	155,500	1838.20
2015-16	808,230	503,260	98,700	1566.99
2016-17 [#]	760,130	485,480		

Area, Production and Export of Fennel in India				
			Export	
Year	Area	Production	Quantity	value
	Hectare	Tons	Tons	Rs Cr
2013-14	94,070	60,110	17,300	160.01
2014-15	46,760	85,550	11,650	131.66
2015-16	76,000	129,350	15,320	172.40
2016-17 [#]	74,660	124,610		

Area, Production and Export of Coriander in India				
			Export	
Year	Area	Production	Quantity	value
	Hectare	Tons	Tons	Rs Cr
2013-14	516,070	496,240	45,750	371.86
2014-15	604,090	546,800	46,000	498.13
2015-16	624,780	572,990	40,100	426.81
2016-17 [#]	662,350	609,350		

**Source - Production figures from Directorate of Spices and Export figures from Spices Board*

For coriander, there are 3 croppings per year in Guna and coriander is a rabi crop which is harvested from Feb – April (latest). In Guna 75,000 hectares is under coriander farming with 90,000 metric tonnes production (total 2 lakh metric tonnes is produced in Madhya Pradesh). The oil content is around 1% which is generally on the low side. Price realization is currently around Rs 160-200/kg.

Appendix 10: Letters of support from organizations that support the project request

Support letters are attached from:

1. FAO Senior Food Safety and Nutrition Officer, FAO Regional Office for Asia and the Pacific
2. FAO Office of the Representative in India
3. Horticulture Commissioner, Ministry of Agriculture and Farmers Welfare
4. Food Safety and Standards Authority of India (FSSAI)
5. Agriculture University Jodhpur, Rajasthan
6. Collector, Guna
7. Integrated Tribal Development Agency (ITDA), Paderu
8. Export Inspection Council (Ministry of Commerce and Industry)
9. ICAR- National Research Centre on Seed Spices
10. Directorate of Research Services, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya
11. ICAR- Indian Institute of Spices Research
12. India Pepper and Spice Trade Association
13. Indian Spice & Foodstuff Exporters Association
14. Dr. Y.S.R. Horticultural University
15. National Bank for Agricultural and Rural Development (NABARD)