

## South Asia Regional Training on Electronic Traceability and Market Access for Agricultural Trade Facilitation

24-26 September 2013, New Delhi, India

### Training Report





The Network for Knowledge Transfer on Sustainable Agricultural Technologies and Improved Market Linkages in South and Southeast Asia (SATNET Asia) aims to support innovation by strengthening South–South dialogue and intraregional learning on sustainable agriculture technologies and trade facilitation. Funded by the European Union, SATNET facilitates knowledge transfer through the development of a portfolio of best practices on sustainable agriculture, trade facilitation and innovative knowledge sharing. Based on this documented knowledge, it delivers a range of capacity building programmes to network participants.

SATNET Asia is implemented by the Centre for Alleviation of Poverty through Sustainable Agriculture (CAPSA) in collaboration with the AVRDC – The World Vegetable Center, the Asian and Pacific Centre for Transfer of Technology (APCTT), the Food Security Centre of the University of Hohenheim and the Trade and Investment Division of UNESCAP.

This report has been produced with the assistance of the European Union. The contents of this report are those of the authors and can in no way be taken to reflect the views of the United Nations or the European Union. The report has been issued without formal editing.

## **Acknowledgements**

This report has been prepared by Dr. Krishnan Srinivasaraghavan, In-Charge, Technology Transfer Services Group, Asian and Pacific Centre for Transfer of Technology (APCTT-ESCAP) and Mr. Suraj Pandey, Consultant, SATNET Asia, APCTT-ESCAP, New Delhi. The technical support extended by APCTT interns, Ms. Krithika Kandavel and Ms. Sumi Cho in the preparation of this report is duly acknowledged.

## Table of Contents

Executive Summary .....	5
Training Report .....	6
Introduction.....	6
Programme.....	6
Key Learning Outcomes.....	7
Workshop Evaluation .....	12
Annexes .....	15
Annex I: List of Participants.....	15
Annex II: Training Programme .....	21

## Executive Summary

The South Asia Regional Training on Electronic Traceability and Market Access for Agricultural Trade Facilitation organized under the Network for Knowledge Transfer on Sustainable Agricultural Technologies and Improved Market Linkages in South and Southeast Asia (SATNET Asia) was held from 24-26 September, 2013 in New Delhi, India. It was organized by APCTT in partnership with the Trade and Investment Division of ESCAP and the Agricultural and Processed Food Products Export Development Authority (APEDA), Government of India. This Regional Training was organized to build the capacity of public and private sector stakeholders mainly on “electronic traceability” to facilitate trade in agricultural or food products in countries in South Asia. In addition, a hands-on training session on technology transfer and establishing market linkages for facilitating cross-border trade was also held to provide an overview of APCTT’s Technology Transfer platforms and how countries in South Asia could effectively leverage these platforms for enhancing cross-border business cooperation and trade in agricultural products. A total of 38 persons participated in this workshop. A combination of interactive sessions, case studies, hands on training, group exercises and a field visit led to the following outcomes:

Participants learned about how different electronic traceability software could be used by traders and various other stakeholders in the supply chain to improve the quality of documentation and thereby able to establish the product flow at various stages of the supply chain.

Participants had also an opportunity to discuss their specific national context as well as problems involved in the implementation of electronic traceability process with the expert and received valuable suggestions on how to proceed with the planning and implementation of traceability of systems suitable to their needs

Participants also gained a valuable insight into some of the traceability systems developed by Government of India for electronic traceability of selected agricultural and horticultural produce.

Participants were also exposed to the work of GS1, a global standards organization that is dedicated towards design and implementation of global standards used in Supply Chain Management

This training helped to connect a smallholder farmers association in South India exporting bananas with the Agricultural and Processed Food Products Export Development Authority (APEDA) of India. Through the contacts and discussions had at the training, APEDA agreed to support 25% of transportation costs of bananas from the field to an export hub in India.

A field visit also paved the way for more focused discussions between APEDA and participants on various issues affecting agricultural exports in India. As a result of these discussions, APEDA also agreed to help the same representative from Banana Growers Association with a seed grant of INR 300,000 to help them visit few foreign countries to learn best practices related to agricultural exports.

# South Asia Regional Training on Electronic Traceability and Market Access for Agricultural Trade Facilitation

24-26 September, 2013, New Delhi, India

## Training Report

### Introduction

Due to increased awareness on food safety and the need to record information at various nodes of supply chain, ensuring traceability is emphasized for exporting food and agricultural products for developing countries. Linking e-traceability systems with the trade related regulatory procedures is also receiving attention. Therefore establishing traceability systems is considered as an important trade facilitation measure for agricultural trade. It aims at building capacity of public and private sector stakeholders involved with agricultural trade and are expected to improve the technical know-how of the participants. They are expected to in turn share the knowledge with others in their own countries and also apply them in their own capacities.

In this context, this three-day training programme titled “South Asia Regional Training on Electronic Traceability and Market Access for Agricultural Trade Facilitation” was organized by the Asian and Pacific Centre for Transfer of Technology (APCTT) based in New Delhi, India in partnership with the Trade and Investment Division of United Nations ESCAP and the Agricultural and Processed Food Products Export Development Authority (APEDA), Government of India. The facilitator for this training was Dr. Heiner Lehr, an expert trainer who has been actively involved in traceability and food management since 2003. Dr. Lehr was also the lead consultant for the Thailand National traceability project, the International technical supervisor for Malaysia National Food Information and Traceability project and in Vietnam, he has designed a traceability system for seafood for the Ministry of Agriculture and it has been implemented in Indonesia too. He has been officially accredited as an observer to the 10th MSE Malaysian International Advisory Panel and he also held the post of enterprise application director for the European Union Trace Project.

### Programme

<p>Day 1 Introduction Overview of SATNET Asia and ESCAP’s Effort in Agricultural Trade Facilitation PART I The SmartFood vision: inclusive, safe, accessible PART II What is E-Traceability</p>	<p>Day 2 PART III Design and implementation of E-Traceability systems PART IV Technology Transfer &amp; Market Linkages: Hands-on training on Using APCTT’s On-line Mechanisms for Technology Transfer and Market Linkages</p>	<p>Day 3 PART V Visit to the Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce &amp; Industry, Government of India PART VI Recap of the course and feedback from the participants</p>
---	--	---

## Key Learning Outcomes

### Part I. The SmartFood vision: inclusive, safe, accessible

A technical session on “The SmartFood vision: inclusive, safe, and accessible” was held to elaborate on how traceability systems could be leveraged for ensuring food safety. About 70% agricultural products are globally produced by the small farm holders and hence it is important for these farmers and various actors in the supply chain to be aware of traceability and its application in food safety. The global food trade is estimated to be worth about 1.46 trillion where European Union is the largest importer and exporter of food products with a share of 36% of global imports and 38% of global exports.

The UN SmartFood aims to achieve three points of vision namely: Inclusive, Safe and Accessible. The session provided ways to implement the traceability system in a country as following:

- Establish Industry – government partnership
- Choose a good case study
- Make a sufficient large pilot study
- Build necessary legislative and regulative framework
- Secure mix of public and private funds to build infrastructure
- Deploy the system sector by sector i.e. building one system that fits all (small holders don't understand the cross sector that well)

### Part II. What is E-Traceability?

#### 1. Electronic traceability: the theory

Consumers have the right for food information and they should have access to such kind of information. Briefing about quality assurance, monitoring critical parameters such as temperatures is a key. There are few standard for certain kinds of foods. For example, ISO standard on fish traceability where they want to make sure the food are secure but most of the times they are not part of the management team which turns out to be a major issue. Administration of traceability from the government perspective is a challenge. There needs to be a deal with the industry, public authority and the government to have a clear mandate on public health. Most government officials have interest but they forget to give back things to the food industry that makes them want the system in place.

The trade units (TU) are the unique codes and are part of the supply chain and the Logistic Unit (LU) are the ones that are transported throughout the supply chain. They need not necessarily be numbers and all steps of the transformations have to be recorded. The three main processes mentioned were Receive, Process and Dispatch.

To enable electronic data interchange, there are needs for standardizing practice, format and ontology. Process mapping methodology, Critical Tracking Events (CTEs), Tracepoints methods and Tracepoints types were briefly explained. There are different types of view of the traceability namely the stakeholder view, functional view and the detailed view. For example SMS can be used as a basic protocol for the mobile phones as it is a simple interface and it avoids red tape. The three major trends in traceability in the food sector are Food Safety, Sustainability, and Trade.

#### 2. Food Information System and Design

The session started with mentioning the world wide information needs for traded foods and gave a brief overview of the chain food information management that refers to the distributed collection,

storage and usage of information items, connected by traceability that can be accessed via electronic systems. The session also mentioned the types of chain food information management system from a functional point of view. The different dimensions for traceability can be categorized as:

- Depth - How many steps deep does a traceability system have to be?
- Breadth - How much data is necessary to store at each point?
- Precision - How big are the “traceability units” or batches?

Case studies on Halal Food and Palm Oil were introduced. Discussing about the case study on Halal Food, there are five levels of Halal traceability systems namely Valid Certificate, Basic Halal Practice, Toyyiba, Lot traceability and RFID logistics. For sustainable palm oil production and supply chain certification, the Roundtable Sustainable Palm Oil (RSPO) was established in 2004 as a standard setting organization. It currently uses electronic transaction system by UTZ certified to monitor sustainable volumes traded and to ensure the buyers that volume purchased are certified.

The Layer Model was then discussed where the different market forces in the establishment of paperless trade systems were presented. The different levels of data, the role of establishment of paperless system and the major obstacles where printed documents are preferred over the paperless documents were also indicated.

Implementation of chain food information management was explained with the data milestones for government oversight, disease control, technical milestones, the architecture and technology, additional considerations and the funding. Overall, it gives way for improved market access, avoiding fraud improves the market access and it is important to differentiate one’s product from the neighbour’s.

### **3. Roundtable: attendee’s own experience with traceability**

The participants from different countries were given a chance to present their own experiences with the traceability system.

- Challenges Faced by Indian Fresh Produce Exporters

The presentation described challenges which include the gap between farmer and the exporter, insufficient coordination among border agencies, non-availability of online export documentation processing, lack of basic infrastructure, lack of professional training and lack of aggressive working by the banking and insurance companies in the fresh agro export sector and farming sector.

The various benefits to farmers and exporters by implementing the traceability systems were widely pointed out. The findings were that the export share of the focused product has gone up considerably for fruits like grapes and pomegranates, increased quality of live for the farmers, 6-7 months of production was made possible instead of seasons and there has been an increase in the local demand.

- Traceability in Nepal

Nepal has opened the international agencies for investment in different sectors to increase in the volume of international trade for economic growth and to ensure fair practice in trade. The output of traceability is that the import certificates are to be assigned by the importing country, phyto-sanitary certificate of exporting country, bills of consignment, means of transportation and route, certificate of origin of the consignment should be attached during the phyto-sanitary certificate. These practices were equally adopted in animal health and food safety in Nepal.

The challenges faced were the scattered small farms and industries throughout Nepal, Agriculture is the major occupation for 66% of the population but it was not promoted to business. Public and private organizations have coordinated well for the country's economic growth. However, the preventive approaches such as the good practices are not part of the legislation. Also, there is an unstable political condition in Nepal that affects all the sectors.

- Current Status of Traceability in Aquaculture Products in Bangladesh

The present status of shrimp supply chain is very complicated and unique as most of the farmers are small holders (>90%). The Bangladesh Quality Support Programme which is an EU funded programme implemented by UNIDO (United Nations Industrial Development Organizations), in cooperation with the International Trade Center, to ensure that quality standards and the Bangladesh national quality management system are accepted internationally.

Bangladesh needs a proven traceability system. But the major challenges are the large number of small suppliers, irregular system of intermediaries, low educational level of farmers, and maintenance cost of e-traceability.

- Farm Fresh Banana- e-traceability

In coordination with GS1-128, label crates have been scanned using memor and the memor scanned file will be attached and uploaded as a part of the dispatch details. The positive points about the implementation were that the system considerably reduced the manual work, useful to trace assets and provide quality assurance, can share accurate data among trading partners and to improve the overall food quality. It also helps to identify each level of packing and accurate stock control.

The domestic challenges that the organization faced were that there were more manpower required and time consumed to place the GS1-128 labels. The stakeholders do not show interest to adopt new technology. Exporters are unwilling to incorporate the data that need to be capture for export details.

- eFarmDirect – First of Supply Chain Traceability in Agriculture

Unavailability of farm data, unavailability of supply chain participants and limited internet access were pointed out as the problems in the supply chain system. The solution to these constraints is to have a market enabled information portal providing supply chain participants and agriculture analytics using a unique combination of internet, mobile and call centres. e-Fram works on bridging the gap between the internal traceability and supply chain traceability.

- E-Traceability system by Star Farm

The presentation explained the entire e-traceability system model in Star Farm. The strength of the system is considered to be the information flow. It combines quality and traceability closely using IT, Databases, GPS and RFIDs.

The challenges are that there are lack of awareness at consumer level, there are no national regulation on traceability, the value of traceable products in the market are comparatively less and it involves complex production steps.

### **Part III. Design and Implementation of E-TRACEABILITY systems**

#### **1. Unique Identification – a crash course with practical exercises**

Global unique identification is one of the key principles required for chain food information management since food is being globally traded. At present, there are no globally unique identification

products for free of charge. The session provided the definition of significant and non-significant codes. In addition, Global Standard One (GS1), RGCodes, and RFID are introduced as unique identification schemes.

## **2. Basic Supply Chain Traceability – How to get smallholders into it**

The findings from the field for shrimp and pangasius were presented with the explanation of their supply chain. TraceFish, which is a major market for pangasius developed in Europe, was introduced as a successful fish traceability standard.

Electronic traceability for processors was briefly explained that the processors are named “caretakers” of the traceability system. The processors are the latest step when traceability information has to be entered into the electronic system. Barcodes reduce the workload of data entry. The entire process of the traceability records for Processor starting from Reception, Process and Despatch was then presented through screenshots of the online system.

## **3. Implementation Strategies**

The implementation strategies presentation introduced the role of laws and regulation in traceability system. The Food Safety Modernization Act was signed in January 2011 which requires electronic submission of data. The General Food Law 178/2002 uses a “one step forward and one step back” system. Papua New Guinea Fisheries Information Management System (FIMS) functions and activities were briefly explained.

Subsequently, case studies on animal passports, Malaysia Food Information and Traceability (M-FIT), trace verified system in Vietnam, and traceability system of Norway were introduced.

Implementation of chain food information management requires a change of attitude towards increased transparency. The technical milestones, legislative and administrative milestones were then explained with the audience.

## **4. Outlook – what’s next in traceability**

Adoption of traceability systems for purpose of food safety and disease control has been only been possible by mandate. Insistence of food scares has led to perception of traceability as a cost. Making traceability as a marketing tool is still under “evaluation”.

Sustainable monitoring methods range from simplified calculators to sophisticated life cycle assessment (LCA). Beaming towards solution, LCA has been an established method to determine footprint impacts. Sustainable Management and Critical Control Points (SMCCP) is a new method to determine which operational process or assets are essential to monitor.

In the world, between 30-40% of all cereal production goes to feed. Smart technologies like feed sensor, traceability, cough sensor, air quality sensor, weight sensor and activity sensor which are targeted at the pigs to optimize the feed can increase in the feed quality and defend against quality claims for the feed companies. At the farm level, it increases the growth process, peer comparison and increased control of delivered material.

#### **Part IV. Technology Transfer & Market Linkages: Hands-on training on Using APCTT's On-line Mechanisms for Technology Transfer and Market Linkage**

During this session, some critical issues related to technology transfer and market linkages were presented. Identifying a large number of technology providers allows a technology seeker to compare and evaluate the costs and benefits of acquiring a technology and to make informed decisions regarding technology acquisition. The common methods available for identifying potential suppliers of technologies were then listed out along with their advantages and disadvantages.

APCTT has been working towards strengthening the capabilities of countries in the Asia-Pacific region in the National Innovation Systems, Technology Transfer, and Technology Intelligence.

APCTT has also developed various free of cost, regional information repositories in the form of internet-based on-line tools and information platforms. Some of the key technology transfer on-line tools/information platforms are provided below:

- Technology4sme.net ([www.technology4sme.net](http://www.technology4sme.net))
- APTITUDE Search Engine ([www.apctt.org](http://www.apctt.org))
- Tech Monitor. Net ([www.techmonitor.net](http://www.techmonitor.net))

The target groups are namely the small and medium enterprises (SMEs), technology suppliers, technology seekers and policy makers.

As a conclusion, the internet-based screening offers the most cost-effective, efficient and convenient way of screening of technologies. For a successful technology transfer, due diligence, careful planning and execution at every stage is required. The search can serve good background information for one-to-one meeting with technology providers.

## Workshop Evaluation

The evaluation of the workshop was conducted based on two different approaches including (i) General feedback and (ii) Knowledge, Attitude and Practice questionnaire. The criterion of evaluation was based on the following ratings: of Excellent, Good, Fair and Poor. Further, general feedback part was divided into three segments i.e. Content and Process containing feedbacks of the workshop related to the workshop topic. The process part was indirectly related to the subject but this was mainly designed to ensure the workshop mobilization. The second part of the evaluation was prepared using perception based approach-Knowledge, Attitude and Practice. This segment of evaluation mainly discusses about individual knowledge gained from the workshop as well as implementation of specific knowledge in his/her own areas of research.

On 2nd day of the workshop twenty six evaluation forms were received from the participants out of 35 this includes 6 female participants to assess the workshop according to its dissemination of knowledge, quality and innovation. Overall the workshop was rated as excellent by more than 75% of the participants followed by good category.

### Usefulness of the Content and Quality of Processes and Logistics

Participants were given evaluation forms to rate the usefulness of the workshop content and quality of processes on the scale of “Excellent to Poor”.

**Table 1: Workshop Evaluation- South Asia Regional Training on Electronic Traceability and Market Access for Agricultural Trade Facilitation**

		Excellent	Good	Fair	Poor
Content	Topic 1: Overview of SATNET Asia and ESCAP's Effort in Agricultural Trade Facilitation	81%	19%		
	Topic 2: The SmartFood vision: inclusive, safe, accessible	58%	35%		
	Topic 3: Electronic traceability: the theory	74%	31%		
	Topic 4: Food information systems and their design	54%	35%	4%	
	Topic 5: Roundtable: attendee's own experience with traceability	27%	70%		
	Topic 6: Unique identification – a crash course with practical exercises	65%	35%	4%	
	Topic 7: Basic supply chain traceability – how to get smallholders into it	39%	54%	4%	
	Topic 8: Implementation strategies	46%	42%	4%	

		Excellent	Good	Fair	Poor
	Topic 9: Outlook – what’s next in traceability	35%	54%		
	Topic 10: Technology transfer & Market Linkages: Hands-on training on Using APCTT’s On-line Mechanisms for Technology Transfer and Market Linkages	70%	24%	4%	
	Visit to APEDA, Ministry of Commerce & Industry, Government of India	OVERALL GOOD (verbal feedback)			
Process	Agenda and flow	50%	42%	4%	
	Facilitation, feedback and discussion	54%	42%		

Overall, statistics presented in the table shows workshop was rated as excellent since more than 65% has been observed under this category in Topic1 under content part was rated excellent maximum by 81% of participants (Overview of SATNET Asia and ESCAP Effort in Agricultural Trade facilitation) and 74% followed by Topic 3 (Electronic traceability: the theory). The process part of the form was equally rated as approximately 50-50% in excellent and good category respectively. content and processes.

In addition, topic 5 which was Roundtable session rated as 70% in good category since it was innovative to know the field experiences from the participants during the proceedings of the session. Topic 10 and topic 6 were also given very high excellent remarks from 70 to 65% as well as topics under 9 and 7 were also rated as 54% for new dimension of traceability and basic supply chain management respectively. Statistics from the table also shows some fair rating by 1 or 2 participants on topic 4, 6 and 10 since theme of the training was purely new subject to them.

### Expectations

The large number of participants (90%) indicated that the workshop on the Electronic Traceability and Market Access for Trade facilitation in South Asia met their expectations on a large scale. Hence, it is followed by very large and large category of participant from 75% to 60% respectively.

### Aspects to be improved in the future

This segment of evaluation indicates that majority of participants have suggested the practical experience should have been covered during sessions as well as inclusion of brainstorming session on the specific topic of trade facilitation and electronic traceability. These areas are based on the suggestions that participants experienced during the workshop.

## **Content**

- Provide more practical and at least 2 days field experience.
- Include some sessions of software knowledge on electronic traceability.
- Focus on the small holder farmers, supply chain actors and NGO staff.
- Should not be more technical in terms of software learning.
- It should be interactive training between trainer and participants.

## **Process**

- Presentations should be more simplistic rather too technical.
- Improve the climate change adaption in integrated or comprehensive approach.
- Time allocation for the presenter.
- Group Exercise

## **Logistics**

- Presentation file should be given in advance to the participants
- Some session were too long
- Panel Discussion
- The duration of the workshop should be more than 3 days to learn.
- Improvement in pre-workshop communication

## **Facilitation**

- Such training should focus on the different aspects of agri business mobilization this includes supply chain management, viability of small holder farmers and export import policy.

## **Additional comments**

- The following are additional comments and suggestions have been highlighted during the workshop:
- "Training as well as trainer both are perfect" (Sunita Pandey)
- "It will create a win-win situation for farmers/stakeholders as well as other agencies (Manikandan).
- "Try to learn and certify myself to be a traceability consultant for horticulture supply chain" (Srivalli Krishnan)
- "Will implement traceability system in the organization (Anjaney Bhutada).
- "Try and create a portal with in CII-FACE" (Srikanth Kunigal)
- "The training content is excellent and knowledge level of the trainer is very rich" (Biswajit Mondal).
- "It was excellent training in fact" (Muhammad Shafiq Khalid)

## Annexes

### Annex I: List of Participants

No	Name/Current Position	Organization	Address	Country	Contact
1.	Mr. Asadullah Vice President	Nazeeb Manzoo Co. Ltd.	B-139, APP-28, 3rd Macroryan, Kabul, Afghanistan	Afghanistan	T: +93-788863322 E: <a href="mailto:asad.niazi87@yahoo.com">asad.niazi87@yahoo.com</a>
2.	Mr. Saida Jan President	Afghanistan National Seed Organization	Karte-4-opposit, 3rd police station, street I, House No: 3, Kabul, Afghanistan	Afghanistan	T: +93-70601824 E: <a href="mailto:saidajan_abdiani@yahoo.com">saidajan_abdiani@yahoo.com</a>
3.	Mr. Shafiqullah Hakimi Private Sector Development Director	Ministry of Agriculture, Irrigation and Livestock	Ministry of Agriculture, Irrigation and Livestock, Planning Building, MAIL, Kabul, Afghanistan	Afghanistan	T: +93798999704 E: <a href="mailto:shafiq.hakimi@mail.gov.af">shafiq.hakimi@mail.gov.af</a>
4.	Mr. Haroon Ahady Research Scholar	TERI University	TERI University, Plot No. 10 Institutional Area, Vasant Kunj, New Delhi - 110 070	Afghanistan	T: +91 88600-95203 E: <a href="mailto:haroon_ahadi2001@yahoo.com">haroon_ahadi2001@yahoo.com</a>
5.	Mr. Daryosh Tabesh Research Scholar	TERI University	TERI University, Plot No. 10 Institutional Area, Vasant Kunj, New Delhi - 110 070	Afghanistan	T: +919873751444 E: <a href="mailto:daryoshtabesh@yahoo.com">daryoshtabesh@yahoo.com</a>
6.	Mr. M.D. Khalilullah Vice President	Bangladesh Frozen Foods Exporters Association	No-5, Municipal Tank Road, Khulna, Bangladesh	Bangladesh	T: 88041-811809, 731390 F: 880-41-812925 E: <a href="mailto:satkhira.khalil@yahoo.com">satkhira.khalil@yahoo.com</a>
7.	Mr. Mohammad Enamul Haque Ena Joint Secretary	Ministry of Commerce	Bangladesh Secretariat, Dhaka – 1000, Bangladesh	Bangladesh	T: 8802-9574222 F: 8802-9545741 E: <a href="mailto:enahaque2010@yahoo.com">enahaque2010@yahoo.com</a>
8.	Mr. Moin Uddin Ahmed Agricultural Specialist	Solidaridad	Solidaridad South & South-East Asia, Country Office – Bangladesh, Apartment #A1 House #32 Road	Bangladesh	T: +88 01713 185406 E: <a href="mailto:moin@solidaridadnetwork.org">moin@solidaridadnetwork.org</a>

No	Name/Current Position	Organization	Address	Country		Contact
			10-A, Dhanmondi, Dhaka-1209, Bangladesh			
9.	Mr. Biswajit Mondal Agricultural Specialist	Solidaridad	Solidaridad South & South-East Asia, Country Office – Bangladesh, Apartment #A1 House #32 Road 10-A, Dhanmondi, Dhaka-1209, Bangladesh	Bangladesh	T: E:	1717417264 <a href="mailto:biswajit@solidaridadnetwork.org">biswajit@solidaridadnetwork.org</a>
10.	Mr. Kabir Nath bhattari Regulatory and Quarantine Officer	Bhutan Agriculture and Food Regulatory Authority, Ministry of Agriculture and Forests	Bhutan Agriculture and Food Regulatory Authority, Ministry of Agriculture and Forests, Post Box No: 252, Thimpu, Bhutan	Bhutan	T: F: E:	+975-3-741311, +975-17555318 +97-5-3741344 <a href="mailto:bafrazhemgang@gmail.com">bafrazhemgang@gmail.com</a>
11.	Mr. Tshering Yeshi General Secretary	Bhutan Exporters Association	Bhutan Exporters Association, Post Box No: 256, Phuentsholing, Bhutan	Bhutan	T: F: E:	+975-5-251917, +975-17628577 +975-5-251918 <a href="mailto:tshringys@yahoo.co.in">tshringys@yahoo.co.in</a>
12.	Mr. Sonam Tobgay Managing Director	Sonam Thunderl Import and Export House	Sonam Thunderl Import and Export House, Post Box No. 1658, Thimphu, Bhutan	Bhutan	T: F: E:	+975-02-322425, +975-17119676 +975-02-322425 <a href="mailto:sonamtobgay@yahoo.com">sonamtobgay@yahoo.com</a>
13.	Ms. Srivalli Krishnan CEO, Co-Founder	eFarm (MVS eFarm Pvt Ltd)	eFarm (MVS eFarm Pvt Ltd), New number 11, Logathan Colony, Mylapore, Chennai-600004	India	T: E:	+91-44-2466-0613, +91-74188-44275, +91-91760-72449 <a href="mailto:srivalli@efarm.com">srivalli@efarm.com</a> <a href="mailto:coolcatvalli@gmail.com">coolcatvalli@gmail.com</a>
14.	Mr. Shashikanth Nanjundiah Kunigal Consultant- Food Safety and Quality	Confederation of Indian Industry (CII), CII FACE	Confederation of Indian Industry (CII), CII FACE, 1086, HAL 2nd Stage, 12th Main, Indira Nagar, Bangalore, Karnataka aka 560008, INDIA	India	T: F: E:	+91-080-42889595, +91-080-25276544, +91-99451-66648 +91-080-25276709 <a href="mailto:kunigalshashikanth@gmail.com">kunigalshashikanth@gmail.com</a> <a href="mailto:kn.shashikanth@cii.in">kn.shashikanth@cii.in</a>
15.	Mr. Manikandan	Farm Fresh	Farm Fresh	India	T:	+91-04554-246655,

No	Name/Current Position	Organization	Address	Country	Contact
	Paulsamy Kamatchi Manager	Banana	Banana, 170/1B, Cumam road, Chinnamanur, Theni District, Tamil Nadu – 625515		+91-80125-79964  E: <a href="mailto:manikandankp6@gmail.com">manikandankp6@gmail.com</a>
16.	Mr. Kriti Bardhan Gupta Associate Professor	Indian Institute of Management, Lucknow	Indian Institute of Management, Lucknow, Off sitapur road, Lucknow- 226013, Ultra Pradesh, India	India	T: +91-522-6696986, +91-99364-67295;  F: +91-522-2734027  E: <a href="mailto:kriti@iiml.ac.in">kriti@iiml.ac.in</a> <a href="mailto:kritibardhan@gmail.com">kritibardhan@gmail.com</a>
17.	Mr. Anjaney Vishnudas Bhutada Business Head	Future Group	Future Group, 24x7 Business Park, C-wing, 9th floor, above hometown, LBS Road, Vikhroli (West), Mumbai- 93, Maharashtra, India	India	T: +91 98200-51403  E: <a href="mailto:anjaney.bhutada@futuregroup.in">anjaney.bhutada@futuregroup.in</a> , <a href="mailto:anjaney.bhutada@gmail.com">anjaney.bhutada@gmail.com</a>
18.	Dr. Deepika Rohatgi Scientist-C	Department of Scientific and Industrial Research, Ministry of Science and Technology	Department of Scientific and Industrial Research, Ministry of Science and Technology, Technology Bhavan, new mehrauli road, New Delhi- 110016	India	T: +91-11-26590534, +91 99992-25979  E: <a href="mailto:deepika.roh@nic.in">deepika.roh@nic.in</a> , <a href="mailto:deepikarohatgi@gmail.com">deepikarohatgi@gmail.com</a>
19.	Ms. Dhanashree R. Shukla Business Development Manager	Bhoomi Fruits and Vegetables (P) Ltd	Bhoomi Fruits and Vegetables (P) Ltd, SNEH Vihar Building A, No. 22 D.P. Road, Aundh Pune, Maharashtra	India	T: + 91 9561094893 E: <a href="mailto:ghanashreeshukla@hotmail.com">ghanashreeshukla@hotmail.com</a>
20.	Dr. Sunita Pandey Assistant Director	Directorate of Plant Protection Quarantine & Storage	Directorate of Plant Protection Quarantine & Storage, NH-IV, Faridabad- 121 001 (Haryana)	India	T: +91 88269-24568;  E: <a href="mailto:sunitapandey01@yahoo.co.in">sunitapandey01@yahoo.co.in</a>
21.	Mr. Sunil Kumar General Manager	Agricultural and Processed Food Products Exports Development Authority	Agricultural and Processed Food Products Exports Development Authority (APEDA), NCUI	India	T: +91 11 2651-4564  E: <a href="mailto:sunilkumar@apeda.gov.in">sunilkumar@apeda.gov.in</a>

No	Name/Current Position	Organization	Address	Country		Contact
		(APEDA)	Building 3, Siri Institutional Area, August Kranti Marg, New Delhi - 110 016			
22.	Mr. Man Prakash Vijay Assistant General Manager	Agricultural and Processed Food Products Exports Development Authority (APEDA)	Agricultural and Processed Food Products Exports Development Authority (APEDA), NCUI Building 3, Siri Institutional Area, August Kranti Marg, New Delhi - 110 016	India	T: E:	+ 91-11-2651-7019 <a href="mailto:mpvijay@apeda.gov.in">mpvijay@apeda.gov.in</a>
23.	Mr. Bijoy Peter Senior Manager	GS1 India	GS1 India, 330, 2nd Floor, 'C' Wing, August Kranti Bhawan, Bhikaji Cama Place, New Delhi 110 066, India	India	T: E:	+ 91-11-2616-8720; <a href="mailto:bijoy@gs1india.org">bijoy@gs1india.org</a>
24.	Mr. Parashu Ram Adhikari Senior Plant Quarantine Officer	Ministry of Agriculture Development, Department of Food Technology and Quality Control (DFTQC)	Ministry of Agriculture Development, Department of Food Technology and Quality Control (DFTQC), Babarmahal, Kathmandu, Nepal	Nepal	T: F: E:	+977-01-4256947, +977-9841564804  +977-014262337  <a href="mailto:pradhikari01@gmail.com">pradhikari01@gmail.com</a> , <a href="mailto:parashu.adhikari@gmail.com">parashu.adhikari@gmail.com</a>
25.	Mr. Bishnu Prasad Adhikari Senior Officer	Federation of Nepalese Chambers of Commerce and Industry (FNCCI)	Federation of Nepalese Chambers of Commerce and Industry (FNCCI), shaid suka FNCCI, Milan Marg, Teku, Kathmandu, Nepal	Nepal	T: F: E:	+977-01-4262061, +977-9841492388  +977-01-4262007  <a href="mailto:adhikari_bipsd@hotmail.com">adhikari_bipsd@hotmail.com</a>
26.	Mr. Muhammad Shafique Khalid Assistant Manager – Supply Chain	Pakistan Horticulture Development & Export Company	Pakistan Horticulture Development & Export Company, 30-N Model Town Extension, Lahore, Pakistan	Pakistan	T: F: E:	+92-42-99232210-16, +92-321-661-2293  +92-42-99232220;  <a href="mailto:skhalid@phdec.org.pk">skhalid@phdec.org.pk</a> , <a href="mailto:shafiquemalik81@yahoo.com">shafiquemalik81@yahoo.com</a>

No	Name/Current Position	Organization	Address	Country		Contact
27.	Mr. Muhammad Zeshan Saqib Director of Quality Assurance & Traceability System	Star Farm Pakistan (Pvt) Ltd	Star Farm Pakistan (Pvt) Ltd, 803-D, City Towers, 6-K Main Boulevard Gulberg II, Lahore, Pakistan	Pakistan	T: F: E:	+92-42-3578-8783, +92-300-8113906  +92-42-3578-8784  <a href="mailto:zeshan.saqib@starfarm.com.pk">zeshan.saqib@starfarm.com.pk</a> , <a href="mailto:zeshansaqib@hotmail.com">zeshansaqib@hotmail.com</a>
	Resource Person					
28.	Dr. Heiner Lehr Partner	Syntesa	Syntesa, Rambla Exposicio 89 1 <sup>o</sup> 1 <sup>a</sup> , E-08800 Vilanova i la Geltru, Spain	Germany	T: E:	+ 34 676810236  <a href="mailto:heiner@syntesa.eu">heiner@syntesa.eu</a>
	SECRETARIAT - ESCAP					
29.	Mr. Khan M.F. Salehin Associate Economics Affairs Officer	Trade and Investment Division, UNESCAP	4 <sup>th</sup> Floor, UN building Rajdamnern Avenue Pranakorn, Bangkok 10200	Thailand	T: E:	+ 662-288-2118  <a href="mailto:salehin@un.org">salehin@un.org</a>
30.	Ms. Vicky Couture-Adams Intern	ESCAP-Sub Regional Office for South and Southwest Asia (ESCAP-SRO-SSWA)	C-2, Qutab Institutional Area, New Delhi - 110016, India	Canada	T: E:	+91 8375085543  <a href="mailto:vicky.coutureadams@gmail.com">vicky.coutureadams@gmail.com</a>
	SECRETARIAT - APCTT					
31.	Dr. Krishnan S. Raghavan In-Charge, Technology Transfer Services Group	Asian and Pacific Centre for Transfer of Technology (APCTT), (UNESCAP)	C-2, Qutab Institutional Area, New Delhi - 110016, India	India	T: F: E:	+91-11-26865003  +91-11-26856274  <a href="mailto:srinivasaraghavan@un.org">srinivasaraghavan@un.org</a>
32.	Dr. Satyabrata Sahu In-Charge, Technology Monitoring and Assessment	Asian and Pacific Centre for Transfer of Technology (APCTT), (UNESCAP)	C-2, Qutab Institutional Area, New Delhi - 110016, India	India	T: E:	+91-11-3097-3756  <a href="mailto:sahus@un.org">sahus@un.org</a>
33.	Mr. Suraj Pandey Consultant - SATNET Asia	Asian and Pacific Centre for Transfer of Technology (APCTT), (UNESCAP)	C-2, Qutab Institutional Area, New Delhi - 110016, India	India	T: E:	+91-11-3097-3761  <a href="mailto:pandey@un.org">pandey@un.org</a> , <a href="mailto:pandeysuraj09@gmail.com">pandeysuraj09@gmail.com</a>
34.	Mr. Raju Rana	Asian and	C-2, Qutab	India	T:	+91-11-3097-3754

No	Name/Current Position	Organization	Address	Country		Contact
	Programme Assistant	Pacific Centre for Transfer of Technology (APCTT), (UNESCAP)	Institutional Area, New Delhi - 110016, India		E:	<a href="mailto:rana13@un.org">rana13@un.org</a>
35.	Mr. N. Surya Prakash Administrative Assistant	Asian and Pacific Centre for Transfer of Technology (APCTT), (UNESCAP)	C-2, Qutab Institutional Area, New Delhi - 110016, India	India	T: E:	+91-11-3097-3759 <a href="mailto:suryaprakash@un.org">suryaprakash@un.org</a>
36.	Mr. Rakesh Raman IT Assistant	Asian and Pacific Centre for Transfer of Technology (APCTT), (UNESCAP)	C-2, Qutab Institutional Area, New Delhi - 110016, India	India	T: E:	+91-11-3097-3753 <a href="mailto:ramanr@un.org">ramanr@un.org</a>
37	Ms. Kalpana Shibu Receptionist	Asian and Pacific Centre for Transfer of Technology (APCTT), (UNESCAP)	C-2, Qutab Institutional Area, New Delhi - 110016, India	India	T: E:	+91-11-3097-3710 <a href="mailto:info.apctt@un.org">info.apctt@un.org</a>
38.	Ms. Krithika Kandavel Intern	Asian and Pacific Centre for Transfer of Technology (APCTT), (UNESCAP)	C-2, Qutab Institutional Area, New Delhi - 110016, India	India	T: E:	+91 9962296478 <a href="mailto:krithika002@e.ntu.edu.sg">krithika002@e.ntu.edu.sg</a> <a href="mailto:krithika29121989@gmail.com">krithika29121989@gmail.com</a>

## Annex II: Training Programme

### Day1: 24 September 2013

Time	Programme	Presenters
09:00-09:10	Welcome	Dr. Krishnan S. Raghavan, APCTT-ESCAP
09:10-09:20	Overview of SATNET Asia and ESCAP's Effort in Agricultural Trade Facilitation	Mr.Khan M.F. Salehin, TID-ESCAP
	<b>WHAT IS E-TRACEABILITY</b>	
09:20-09:40	Scope of the seminar and roll call of participants	All
09:40-10:00	The SmartFood vision: inclusive, safe, accessible	Dr. Heiner Lehr, Partner, Syntesa
10:00-10:30	<i>Tea/coffee break</i>	
10:30-12:00	Electronic traceability: the theory <ul style="list-style-type: none"> <li>• Concepts</li> <li>• The cornerstones: the principle of unique identification and the principle of documenting transformations</li> <li>• Tracepoints and critical path methods</li> <li>• Internal vs. external traceability</li> <li>• Different types of traceability systems</li> <li>• Stakeholder benefits of electronic traceability</li> </ul> Discussion of the presented material with attendees	Dr. Heiner Lehr
12:00-13:00	<i>Lunch and networking opportunity</i>	
13:00-14:30	Food information systems and their design <ul style="list-style-type: none"> <li>• Definition of food information systems</li> <li>• Case studies:               <ul style="list-style-type: none"> <li>○ Process: Halal traceability</li> <li>○ Origin: Palm oil traceability</li> <li>○ Social: Coffee traceability</li> </ul> </li> <li>• The layer model of food information system</li> <li>• The dimensions of a food information system: depth, width, breadth and precision</li> <li>• Relevant traceability standards</li> <li>• Milestones towards the implementation of large scale e-traceability systems</li> </ul>	Dr. Heiner Lehr

Time	Programme	Presenters
14:30-15:00	<i>Tea/coffee break</i>	
15:00-16:00	Roundtable: attendee's own experience with traceability <ul style="list-style-type: none"> <li>• Selected participants relate experience related to animal tracking, food and feed traceability, eSPS, food trade with large importing blocks etc.</li> <li>• Discussion</li> </ul> Exercise: <ul style="list-style-type: none"> <li>• Organising a traceability roundtable for stakeholder involvement</li> </ul>	Presentation by Ms.Dhanashree Shukla  Presentation by selected participants
16:00-16:30	Recap of the day and feedback from the participants	

### Day 2: 25 September 2013

Time	Programme	Presenters
	DESIGN AND IMPLEMENTATION OF E-TRACEABILITY SYSTEMS	
09:00-09:15	Good morning! Key points from yesterday	Dr. Heiner Lehr
09:15-10:30	Unique identification – a crash course with practical exercises <ul style="list-style-type: none"> <li>• Why globally unique identification and why not local identification</li> <li>• Who's who in global identification and what they offer</li> <li>• What do we need identification for</li> <li>• Data carriers and code size limitations</li> <li>• The challenge of smallholder identification</li> </ul> Exercise <ul style="list-style-type: none"> <li>• Designing unique identification for aquaculture products</li> </ul>	Dr. Heiner Lehr
10:30-11:00	<i>Tea/coffee break</i>	

Time	Programme	Presenters
11:00-12:00	Basic supply chain traceability – how to get smallholders into it <ul style="list-style-type: none"> <li>• Introduction into a smallholder traceability system Exercise               <ul style="list-style-type: none"> <li>○ Tracing aquaculture products</li> </ul> </li> </ul>	Dr. Heiner Lehr
12:00-13:00	<i>Lunch and networking opportunity</i>	
13:00-14:00	Implementation strategies <ul style="list-style-type: none"> <li>• The role of laws and regulations in the adoption of traceability (with examples)</li> <li>• The ownership challenge</li> <li>• Case studies:               <ul style="list-style-type: none"> <li>○ Public: M-FIT (Malaysia)</li> <li>○ Public-private: eSporing (Norway)</li> <li>○ Private: TraceVerified (Vietnam)</li> </ul> </li> </ul>	All
14:00-14:30	Outlook – what's next in traceability? <ul style="list-style-type: none"> <li>• Beyond food safety and origin traceability</li> <li>• Feed optimisation using traceability</li> <li>• Operationalisation of LCA calculations Exercise</li> <li>• Where to get more information</li> </ul>	Dr. Heiner Lehr
14:30-15:00	<i>Tea/coffee break</i>	
15:00-16:00	Technology Transfer & Market Linkages: Hands-on training on Using APCTT's On-line Mechanisms for Technology Transfer and Market Linkages	Dr. Krishnan S. Raghavan, APCTT-ESCAP
16:00-17:00	Recap of the course and feedback from the participants	

**Day 3: 26 September, 2013**

Time	Programme	Presenters
10.00-12.30	<p>Visit to the Agricultural and Processed Food Products Export Development Authority ( APEDA), Ministry of Commerce &amp; Industry, Government of India</p> <p>Welcome Address</p> <p>Session-I</p> <p>APEDA Component</p> <p>Presentation on APEDA and its work programme</p> <p>Demonstration of Traceability Software : GrapeNet</p> <p>Session-II</p> <p>GS1 Component</p> <p>Presentation by GS1 India (Global Standards Organization)</p> <p>Closing</p>	<p>Mr. Sunil Kumar, General Manager (APEDA)</p> <p>Mr. Bijoy Peter (GS1)</p>