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INTERNATIONAL COOPERATION

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CALIDENA Workshop Nepal – Medicinal and Aromatic Plants (MAPs) and Essential Oils Value Chain

THE CALDENA METHODOLOGY

May 13 - 15, 2014, Kathmandu

Figure 1: Group Photograph with all participants of CALIDENA workshop taken at Khaptar Aroma Distillation, Godavari, Lalitpur

Acronyms

CRM	: Customer Relationship Management
DFTQC	: Department of Food Technology and Quality Control
DPR	: Department of Plant Resources
FAO	: Food and Agriculture Organization
GAP	: Good Agricultural Practices
GC-MS	: Gas Chromatography/Mass Spectrometry
GIZ	: German Society for International Cooperation
IAF	: International Accreditation Forum
ILAC	: International Laboratory Accreditation Cooperation
ISO	: International Organization for Standardization
IUCN	: International Union for Conservation of Nation
MC	: Master of Ceremonies
MoFSC	: Ministry of Forests and Soil Conservation
NABL	: National Accreditation Board for Testing and Calibration Laboratories
NBSM	: Nepal Bureau of Standards and Metrology
NEPHHA	: Nepal Herbs and Herbal Products Association
NPRL	: Natural Products Research Laboratory
PTB	: The National Metrology Institute of Germany
QI	: Quality Infrastructure
SME	: Small and Medium Enterprises
SPS	: Sanitary and Phytosanitary
VC	: Value Chains
WHO	: World Health Organization

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I. INTRODUCTION

Medicinal and Aromatic Plants (MAPs) are one of the major export items from Nepal. Nepal's export of MAPs and herbal products is estimated to be around 12 million[1] USD per year. Collection, processing and trading of MAPs have created employment opportunity and income generation in remote rural areas.

Notwithstanding the given importance for the economy of the MAPs and essential oil sector in Nepal, there is still a considerable and untapped growth potential. Especially the application of good agriculture, collection and manufacturing practices is a significant deficit in order to meet the requirements of highly demanding and lucrative markets. Furthermore, a functioning system of standards, testing, accreditation, metrology and certification, which is summarized under the term "Quality Infrastructure" (QI), is essential.

To kick-start a participatory process, the Department of Plant Resources (DPR) invites stakeholders of the whole MAPs and essential oil value chain in a three days workshop in Kathmandu. Invitees are the selected representatives of each link of the value chain, including traders, processors and national and international buyers. Similarly, the representatives of the national quality infrastructure, including regulatory bodies, testing and calibration laboratories, metrology institution and certification bodies will also join the workshop.

What is CALIDENA?

DPR proposes to apply the CALIDENA methodology to analyze and improve quality issues and quality infrastructure gaps in the MAPs value chain. Due to the export potential and the need of more sophisticated QI services of processed plant material, the focus of the first CALIDENA workshop will lie on essential oils.

CALIDENA helps to identify and promote practical activities to strengthen quality services for a value chain in order to increase the competitiveness of SMEs. It is based on a rapid participatory assessment of a value chain. The focus is on the present quality of the processes and products in each one of the links. It specifically addresses the capacities and weaknesses of the services of the national quality infrastructure, including certification, inspection, testing, and calibration laboratories.

CALIDENA begins with a workshop that combines training with an initial diagnosis, generating a precise picture of the chain and a plan of action for overcoming the gaps identified. Once a CALIDENA process has been initiated, the workshop results are followed up, and the action plan is implemented in a coordinated effort of the different stakeholders of the value chain. PTB will support this process by facilitating the follow-up phase and by providing specific quality infrastructure expertise, when needed. Companies, institutions of the national quality infrastructure, business associations and support institutions are invited to participate.

CALIDENA was originally developed in Latin America. During the last years it was applied successfully in Africa and Asia. It is PTB's methodology to create a more demand orientated Quality Infrastructure in developing countries. More information can be found at www.calidena.org.

[1] Trade Export Promotion Centre (TEPC), 2012/2013

About PTB

The National Metrology Institute of Germany, the Physikalisch-Technische Bundesanstalt (PTB) with its department for International Technical Cooperation, specializes in fostering Quality Infrastructure (QI) in developing countries. QI refers to all institutions and services ensuring that products comply with quality requirements, and encompasses the five elements standards, testing, accreditation, metrology and certification.

Since September 2007, PTB has been commissioned within the framework of Nepali-German development cooperation to implement a project aimed at supporting the national quality infrastructure of Nepal. The objective of this project is to strengthen central institutions of the Nepalese quality infrastructure, to interconnect them, and to improve their services. The national implementing partner is the Ministry of Industry. To efficiently support the quality infrastructure for the MAPs VC, PTB cooperates closely with the INCLUDE and TPP programs of GIZ.

II. OBJECTIVES

The general objective of the CALIDENA process is to strengthen the quality infrastructure and services for the Medicinal and Aromatic Plants (MAPs) and Essential Oils Value Chain and elaboration of an action plan for quality improvement in Nepal. The objective of the workshop is a rapid identification of quality issues in the MAPs Value Chain (VC), with a specific focus on essential oils, and the elaboration of an action plan.

Specific objectives are:

- To conduct a rapid diagnosis of the quality infrastructure needs of the MAPs and Essential Oils VC in Nepal.
- To identify bottlenecks and opportunities to strengthen the supply of Quality Infrastructure and services in a demand orientated way.
- To elaborate and agree on action plan to enhance the quality infrastructure for the MAPs and Essential Oil VC.

Participative approach to stimulate Quality Management in Value Chains

III. PROCEEDING OF THE WORKSHOP

1. Day 1, May 11, 2014, Sunday

One-day short training was conducted for CALIDENA facilitators in Hotel Himalaya. The objective of the training was practical introduction of the trainees in the CALIDENA methodology and preparation for the co-facilitation of the CALIDENA workshop scheduled from May 13 to 15, 2014.

With the opening remarks made by Ms. Julia and introduced Mr Ulrich Harmes-Liedtke as a key facilitator for the workshop. Mr. Ulrich introduced himself and all five facilitators with the help of cards. Rules for collaboration were discussed, and after consensus build, it is then displayed in the panel.

1. Be on time
2. inform before when you are off
3. Speak one person at a time
4. Be hard on issues - soft on people
5. Cell phone in silent mode
6. express you point concise
7. Use computer only for workshop purpose
8. Respect schedule and timing

Figure 3: Rules for collaboration

Figure 2: CALIDENA workshop objectives and schedule

Mr. Ulrich Harmes-Liedtke did brief presentation on CALIDENA concept by using PowerPoint slides. He introduced the card facilitation techniques and its explanations.

Living chain exercise was played and explained about the pushing and pulling strategy for building competitiveness of any value chains. The importance of market forces that drives the whole value chain was described with the help of the game.

After the lunch break, the next session was on preparation for meeting with QI bodies and three-day workshop and work division. Workshop schedule for the remaining days was revised and fine tuned. At the end, there was an evaluation of the whole day training by using cards.

Figure 4: Expectations rose by the participants

2. Day 2, May 12, 2014, Monday

Meeting with QI bodies

Mr. Sichan Shrestha started the meeting by briefly sharing the meeting objectives. He explained about the CALIDENA methodology, management of expectation of NSBM and final preparation of the CALIDENA workshop planned from May 13 to 15, 2014.

Ms. Julia Micklinghoff, PTB, Project coordinator expressed motivation behind PTB's interest in Nepal and working in MAP's value chain.

Round of Introduction

Mr. Sichan initially explained about the rules for card writing and briefed about the agenda of the meeting. Mr. Ulrich Harmes-Liedtke presented about the CALIDENA approach by PowerPoint slides (refer to presentation slides).

What does our organization expect to get out of the CALIDENA process?

Map of National QI

Mr. Puspa Raj Shrestha, Consultant presented the existing Quality Infrastructure with the help of the map (refer to Figure 5). He states that QI aspects are covered by CALIDENA workshop. There are three standardization bodies in Nepal: NBSM takes care of all industrial and agricultural products. DFTQC does food testing; Department of Drugs Administration (DDA) looks into medical, and recently DPR has come up with standardization activities in medicinal plants, etc. Standards and standardization activities have been liked with international and regional bodies (SAARC). There are certification and inspection bodies. In Nepal, three laboratories have been accredited so far. He explained how various quality bodies are interlinked.

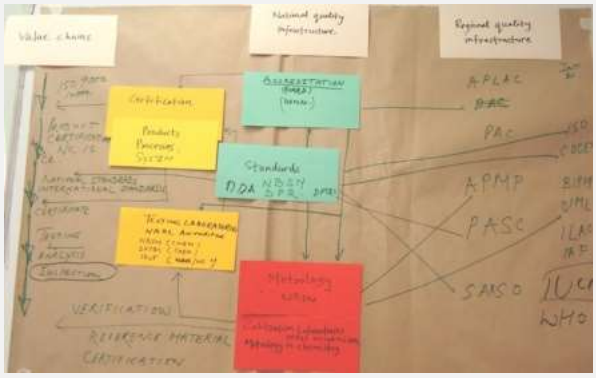

Figure 5: Maps of QI presented by Mr. Puspa Raj Shrestha, Consultant

Strategy of NQI and relevance to work with MAPs VC

Ms. Romi Manandhar, NBSM presented the strategy of national quality infrastructure (refer to presentation slides). She explained about quality infrastructure bodes of Nepal, National standards system of Nepal, standardization, volunteer and mandatory standards, international standards, accreditation, conformity assessment, management system certification, calibration, certification, laboratory testing, QI strategy for MAPs VC in Nepal.

Figure 6: Possible outcomes of CALIDENA MAPS for QI components

Possible outcomes of CALIDENA workshop

Possible outcomes on four main QI components were discussed with the participants forming four groups under Standards, Metrology, Conformity Assessment, and Accreditation. Presentations made by the groups are displayed in the panel (refer to Figure 6).

a. Standards /Regulations:

- Standards for collection, farming/GAP, extraction/GMP, testing,
- Make national standards compatible with the FAO, WHO, IUCN standards
- National mechanism to tackle national standards

b. Metrology

- Parameters - testing labs
- Traceability - measuring
- Instruments - range, uncertainty, re- calibration
- Refractive index
- Optical rotation
- Add Iodine value
- Density
- Viscosity
- CRM
- Mass/Balance
- Temperature
- Volume
- Major constituent analysis

c. Conformity Assessments

- Lab infrastructure
- Lab accreditation
- Competency development of personnel
- Proficiency testing
- CRM
- Standard revision

d. Accreditation

- Need accreditation of concerned labs (DPR, NBSM, DFTQC, RT)
- Accreditation by whom
- Long-term national accreditation body
- Accreditation by buyers recognized institution (India- NABL, Europe - IAF, ILLAC)
- Cost and accountability

Concerns and suggestions

Mr. Ulrich Harmes-Liedtke concluded the session by asking what was your major learning of the day? The feedbacks received were verbal documentation as follows.

a. We need to integrated out capacity of MAPs sector
b. Knowledge and requirements usually come from the traders
c. GAPs of the MAP sector

3. Day 3, May 13, 2014, Tuesday

3.1 Opening

Mr. Sichan Shrestha, co-facilitator and Master of Ceremony (MC) for the workshop started the program by brief introduction and overview of the three days workshop and requested Mr. Yam Bahadur Thapa, DPR, Director General to address welcome notes. Similarly, requested Mr. Bishow Babu Pudasaini, NBSM Director General, Ms. Julia Micklinghoff, PTB Project coordinator for opening remarks.

3.2 Technical Session

The technical session started with introduction of objectives and agenda of the three-day workshop by Mr. Ulrich Harmes-Liedtke (refer to Figure 7). He briefly explained the definition of the CALIDENA methodology and a summary of the workshop format that would be followed over the next three days. Briefing of three days workshop schedule and its contents were briefed.

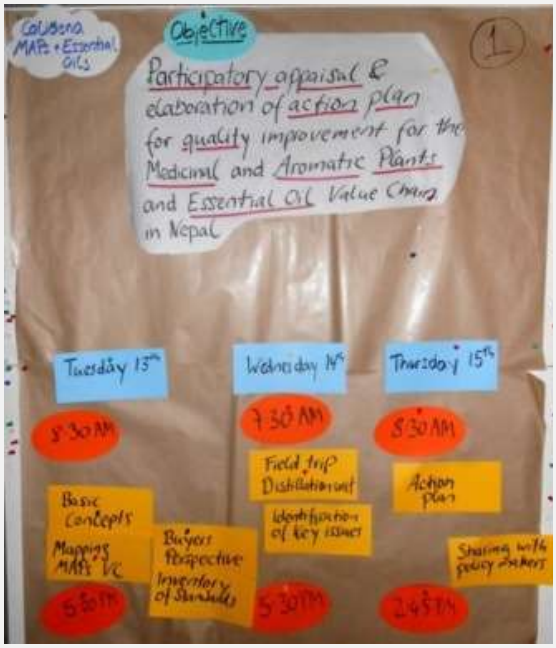

Figure 7: Calidena workshop objectives and schedule

3.3 Rules of collaboration

Mr. Sichan Shrestha explained about rules for collaboration and consensus build for the three days workshop.

Figure 8: Rules for collaboration

3.4 Thermometer of MAPs VC

Mr. Ulrich Harmes-Liedtke raised the question, "What is the growth potential of Nepal essential oil export?" Participants were asked to stick a red dot on a large thermometer drawn on the board, at the point that best represented their answer to the question. Participants were then asked to write the reasons why they gauged the prospect of the essential oil the way they did. The responses were pinned to a board (refer to the Figure 9). Out of 26 participants, mostly (14) think that Nepal has high potential, 8 medium and very less (4) in low scale.

The responses can be summed up in four main points:

a. Infrastructure in Himalayan area
b. Demand is not fulfilled
c. Resource availability and variety
d. Diverse topology

Many have also expressed constraints and difficulties for exporting Nepalese MAPs and essential oil which area as follows:

a. Market price information is not available
b. Weak contractual with foreign buyers
c. Weak Nepalese quality infrastructure
d. Ineffective coordination
e. Variable regulations of importing countries
f. Lack of inventory resources

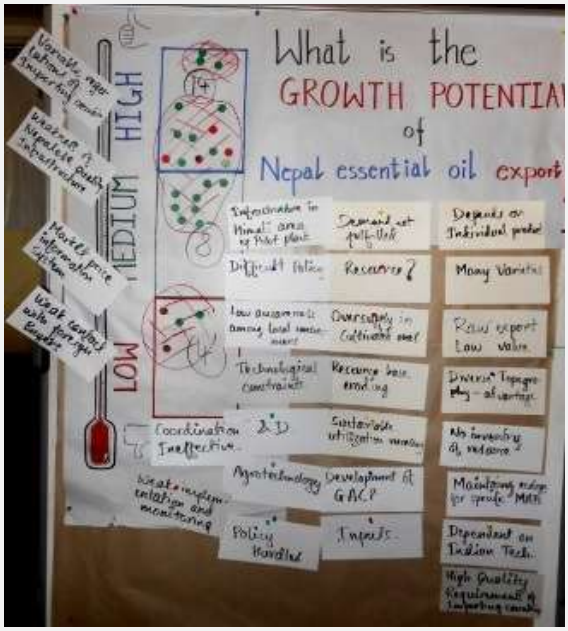

Figure 9: Growth potential of Nepal essential oil

3.5 Quality of MAPs

Mr. Ulrich Harmes-Liedtke asked the question "What means quality in regard of Medicinal and Aromatic Plants (MAPs) and/ or Essential Oils?" Responses received from the participants were listed in the flip charts (refer to the figure 5).

a. Meeting the requirements of customers /standards technical regulations
b. Customer satisfaction
c. Required composition present
d. Meeting expectations of buyers
e. The whole process from selection, production till the market
f. Brand and trade mark
g. Standards as per country requirements

At the end, Mr. Ulrich summarized the definition of quality according to the understanding of the ISO as voluntary requirements agreed by private and other stakeholders and technical regulations which are

mandatory (safety, security and environment to protect their citizens) adopted by the government and everybody has to comply.[2]

Figure 12: Quality defined by participants

Figure 12: Quality defined by participants

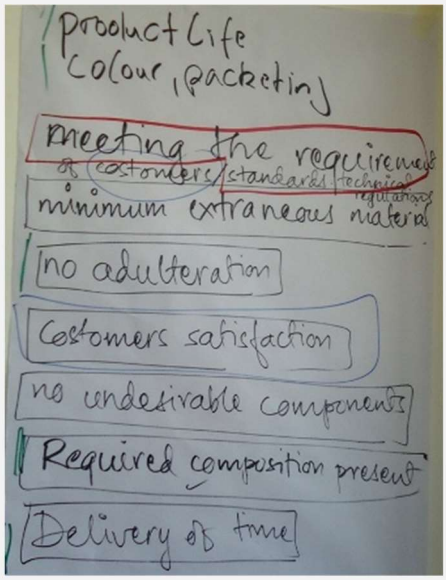

Figure 12: Quality defined by participants

3.6 Introduction to Quality Infrastructure

Mr. Indu Bikram Joshi, NBSM elaborated the Quality Infrastructure of Nepal with the help of chart paper in the panel (refer to Figure 13). Mr. Pramesh Lakhe, DPR further described the role of DPR. He explained quality infrastructure elements such as Accreditation body, Metrology, Certification, Standards, Testing, etc. He stressed the need of interactions of these QI bodies. There is no accreditation body in Nepal. Nepal is an ISO full member. There are various laboratories providing services. Nepal's national certification body has been accredited by India (NABL – ILAC, IAF signatories).

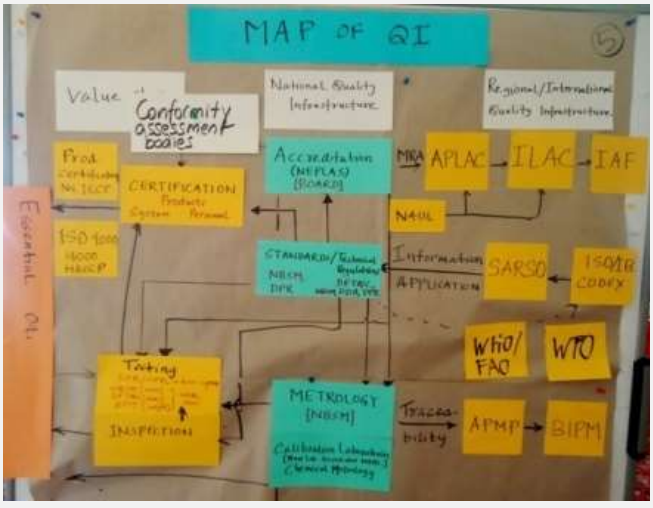

Figure 13: Map of Quality Infrastructure

There should be market demand for standards, testing, certification, etc., for investment in quality infrastructure. He states that Nepal has developed 6 to 7 standards but hardly people know it.

Mr. Lakhe explained that DPR has developed some standards and technical regulations. There are certain herbs that cannot be exported without processing such as Jatamansi, etc. He also asked Mr. Keshav and Ms. Samjana to explain on how DPR provides advance laboratory testing facilities (GC-MS certification) for export of MAPs from Nepal.

[2] The formal definition of quality in ISO 9000 is: Quality is the degree to which a set of inherent characteristics fulfils requirements.

3.7 Introduction to Value Chain

Mr. Sichan Shrestha introduced the concept of the value chain by inviting 10 participants for "living chain" exercise. Two groups were formed and asked each group to physically prepare a separate chain. In the first chain, one participants were asked to push the chain where as one participants in other group were asked to pull the chain. The previous group no doubt were not possible to push it and the chain broke and the next group were successful to pull from the market end.

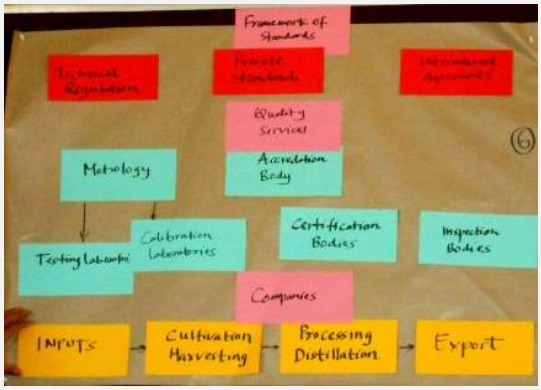

Figure 14: Diagnostic of the Value chain Map

After the group members were returned to their place, reflection of the exercise was discussed. Participants shared their experience and learning which was as follows.

1. Market driven (market drives)
2. It is always easy to pull and difficult to push as the person who is pulling knows the way where as person pull could not see the way.
3. Coordination and understanding between the actors is important.

With the help of diagram (refer to Figure 14) Mr. Sichan explained the concept of value chain and its approach that begins with clients' requirements and that is why pull strategy works.

3.8 Construction of Value Chain Map

Mr. Ulrich Harmes-Liedtke invited all participants in front of five panels (input, cultivation/harvesting, processing/distillation, export, and supporting institutions) and requested to write the name of their organizations. Those organizations having multiple functions were asked to write their names in all panels. After participants have finished writing their names, they were asked to introduce themselves by their name, organization and how they are linked with the MAPs. In the next step, all participants were requested to write the names of the other stakeholders those were not present in the workshop, but are equally important in the essential oil value chains.

1st step: Identification of participating stakeholders

2nd step: identification of missing stakeholders

After the introduction of all participants Mr. Ulrich asked them to be in four value chain groups (Input, collection/harvesting, distillation, and export) and requested for the group works. He explained to list out 5 to 7 key activities and critical control points with the help of facilitation-cards and to place it in the relevant panels. Members from supporting institutions were integrated into either of the four value chains.

3.11 Identification of Main Activities and Critical Control Points

After group formation on four major value chain functions Mr. Ulrich Harmes-Liedtke further explained about group work on identification of main activities (only 5 to 7 steps) of each value chain function (Input, collection/harvesting, processing, export), and it critical control points. He further emphasized using blue cards for main activities and red cards or critical control points.

Steps:
1. Identification of main activities (5-7)
2. Inventory of critical control points

Figure 17: Activities, critical control points presented by group for collection/harvesting

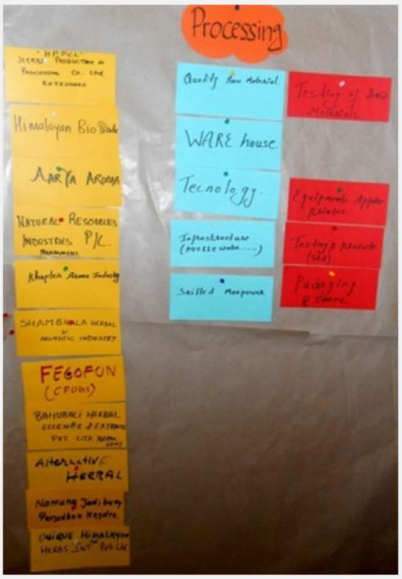

Figure 17: Activities, critical control points presented by group for processing

Figure 17: Activities, critical control points presented by group for export

The session took a lunch break at this point.

3.10 Buyers Perspective

Ms. Ulrike Lechner, PTB did necessary arrangements for skype call with Mr. Gerhard Benz, Primavera Life Company of Germany. She briefly introduced all participants and explained about the concept of the workshop and to understand Primavera requirements. The key points of the discussion was documented with the help of cards displayed in the panel (refer to Figure 18).

a. How is the Quality of Nepalese essential oil (high quality)
b. Prospect of Nepalese essential oil market in Germany (difficult to commercialized unknown product)
c. How do you ensure high quality of Nepalese essential oil (by GC-MS)
d. How do you support? (analysis and feedback to the producers)
e. SPS requirements of MAPS in Germany. (only for dried plants and not for essential oils)
f. Which external labs you are using?
g. Can you train someone from NPRL for training in Primavera lab? (yes)
h. If the results are similar with the NPRL can the sample be accepted? (No, Primavera will do the test again to be assured with the quality)
i. Is there a separate criterion for essential oil from wild and cultivation?
j. Is there a possibility of proficiency test?
k. What are future new requirements for export? (organic certification)
l. Are there other projects with you like Shambala in Nepal? (Bio Bhutan)

Figure 18: Questions and answers during the Skype conversation with Primavera Life, German based company

Mr. Gerhard Benz is ready to visit Nepal in the next follow-up workshop in Nepal.

3.12 Inventory of Standards and Regulations

Mr. Ulrich Harmes-Liedtke briefed the participants about the group work on inventory of standards and regulations at various levels (Nepal, International, Export to Europe and buyers specific). He asked the participants to volunteer to be in one of the four groups. After the group work, all relevant standards are displayed in the panel and grouped into four categories (Nepalese standards, Testing standards, European regulations and Private standards).

Figure 19: Inventory of Standards and regulations

3.13 Evaluation of the day

It was announced that before leaving the workshop venue, all participants were requested to vote for the work evaluation by putting dots in the relevant smiley placed in workshop evaluation panel with three major details (contents, methodology, and group dynamics).

The results show that out of total 16 participants who have voted, 14 are happy with the contents, 15 are happy with the methodology and 12 are happy with the group dynamics, whereas, very few are moderately satisfied with the workshop.

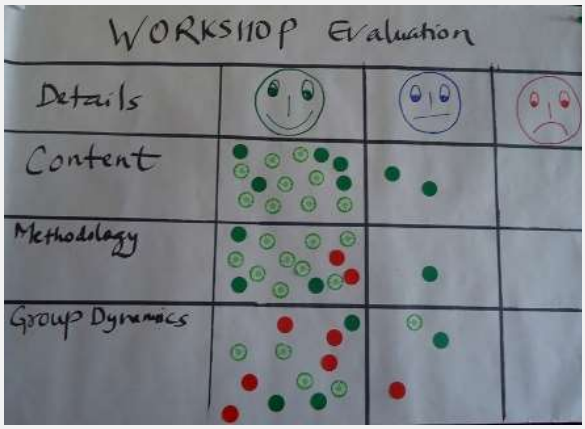

Figure 20: Day 1 Evaluation-Mood Meter

4. Day 4, May 14, 2014, Wednesday

4.1 Meeting and departure to the distillation unit

Field visit to Khaptar Aroma distillation unit was planned which is around 1 hour drive. Briefing on the field visit was done before hand to all participants in the Hotel Himalaya.

Three groups were formed (Input, distillation, and storage/packaging) by assigning 1, 2, 3 numbers to each of the participants representing the group name. Each individual participant was given a visit note format for things to observe during the trip (refer to annex 9). It was explained that this visit is not an audit of the distillation unit but it is just for the learning.

4.2 Field trip to the distillation unit

Shuttle bus service was arranged for transportation from the workshop venue. After reaching the distillation unit, Mr. Sameer Dhungel briefed to all participants about the distillation unit, processing facilities, infrastructure, processing steps, etc. Major essential oils processed are Jatamasi, Ginger, Timur, Termuric, etc. and exported to Europe. There was a brief introduction of all participants. After briefing everyone observed the processing facilities and did discussion with the owner as per the given format. Proprietor is facing difficulty in getting raw materials. Mr. Yam B. Thapa, DG, DPR was present in the occasion and provided necessary feedback and suggestions. Three groups formed on thee VC levels interacted by raising questions and receiving feedback. At the end, on behalf of participants, Mr. Khilendra Gurung thanked Ms. Swetha Dhungel, proprietor for giving opportunity to observe and learn everyone.

Figure 21: Participants observing distillation unit (Khaptar Aroma, Godavari, Laltipur)

4.5 Maps quality Quiz

Mr. Pramesh Lakhe facilitated the quiz session by throwing a paper-ball to the participants who had the choice to select any one question from the matrix in the panel. Mr. Puspa Raj Shrestha was unanimously selected as a jury of the quiz session. The following questions were asked to the participants.

1. What is the difference between standards and technical regulation?
2. What is the difference between testing and inspection?
3. What is the difference between certification and accreditation?
4. Where is technical regulation published?
5. Do we have NTFP policy?
6. What is collaborative testing (ILC)?
7. What is PTB?
8. Who is the national standard body?
9. What is the function and role of DPR?
10. How technical capacity of laboratory is internationally recognized?
11. What is product certification?
12. From where CALIDENA originated?

Figure 22: Quiz questions

www.global.ihs.com
www.iso.com
www.aoac.com
www.beuth.de/en
www.infostore.saiglobal.com
www.epa.gov
http://exporthelp.europa.eu/

Figure 23: Reference web resources for standards and technical regulations

4.6 Research of Standards and Regulations

Four groups were formed on four categories (Nepalese standards, Testing standards, European regulations and Private standards) and worked on standards and regulations with the help of standard template as provided in the Annex 11. Each group worked on major standards in the given template mentioned in the Figure 19 by using computer and internet access and other hard copies of standards. Standards on voluntary, testing, European regulation and private standards were prepared by using standard template and details were filled by using internet and available documents which is provided in the annex 13.

4.6 Requirements on VC Map

The final group work was on identification of major requirements and gaps in four major value chain links. Four groups worked on identifying major requirements and gaps by using cards and displayed in the panels as shown below.

Figure 25: Requirements on quality improvements in input

Figure 25: Requirements on quality improvements in collection/harvesting

Figure 27: Requirements on quality improvements in processing

Figure 27: Requirements on quality improvements in export

4.8 Evaluation of the day

The result shows that out of total 12 participants all seems very happy with the contents of the workshop.

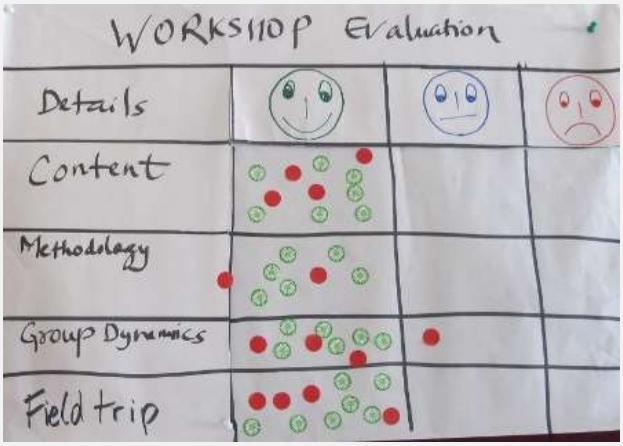

Figure 28: Day 2 Evaluation-Mood Meter

5. Day 5, May 153, 2014, Thursday

Mr. Ulrich Harmes-Liedtke started the program with an overview of the whole day schedule. He highlighted the action plan prepared will be presented to the government officials in the afternoon session the show the ownership by the concerned organization.

5.1 Live Essential Oil TV show

To recap the previous day sessions, live TV show program using fake camera and mike by Mr. Sichan Shrestha as a news reader and Mr. Pharmesh Lakhe as a reporter from the CALIDENA workshop. Various questions asked and the answers provided by the participants were live telecast. Major questions asked were as follows:

a. What needs to be done for increasing export from Nepal?
b. Raw materials
c. What do buyers seek from the organic products
d. Infrastructure of distillation unit observed

5.2 Proposals for improvements

Mr. Ulrich Harmes-Liedtke explained about the group works on finalizing the proposals and action plans on four major intermediate results: a. good practices (raw materials, transportation, storage, etc.), b. metrology & calibration (what are the measurement mandatory standards specified in the law and what is the actual reality), c. standards, and d. laboratories. He added that proposal should answer what and how aspects. There are available documents available but not implemented. Three criteria for proposal: 1. the activities proposals are small doable within existing resources with external financial resources, 2. It should be able to start immediately without external approval. 3. The proposed activities should show first results within short duration (aprox. 3 month). For example, dissemination of good agricultural practices is a broader activity and takes more time to implement, but what would be the first step to do this will be important for this proposal.

Figure 29: Proposal writing groups and procedure

Each working group for each activity will propose what is the activity and how to do it in two different colours cards. Four groups were formed. In the metrology and calibration group NBSM and association members are proposed. In the standards group they should work more on the documents. There are many standards what is also a work of the standards committee. Group should think of possibilities of improving the level of competency of existing laboratories of Nepal. All four groups presented their proposals in the panel.

5.3 Ritual Dissent

Mr. Pramesh Lakhe, DPR explained all group members about the process of ritual dissent. The process of ritual dissent is as follows.

1. Each group identify one speaker
2. Speaker move clockwise to other table.
3. He/she present group proposal using cards prepared.
4. Only clarifications and no discussion
5. Group critiques proposal
6. He/ She returns back to his own table
7. Devil's advocate
8. Returns back to own group
9. Group revisit and improves their proposal

Based on the presentation and discussion as per the ritual dissent process, all four groups presented action plans in the panels.

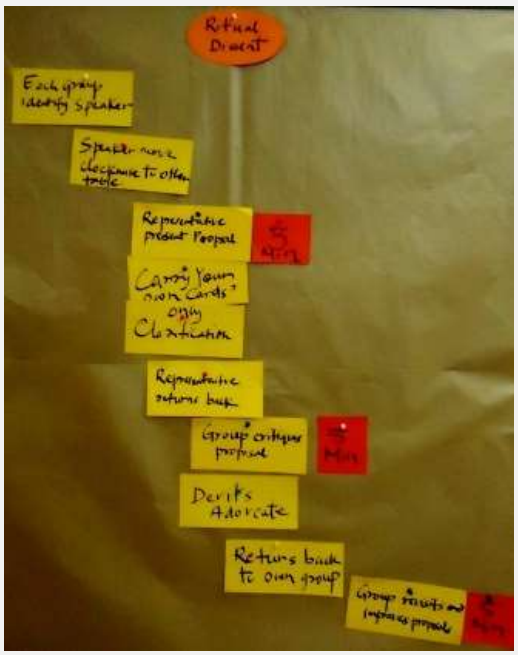

Figure 30: Process of ritual dissent

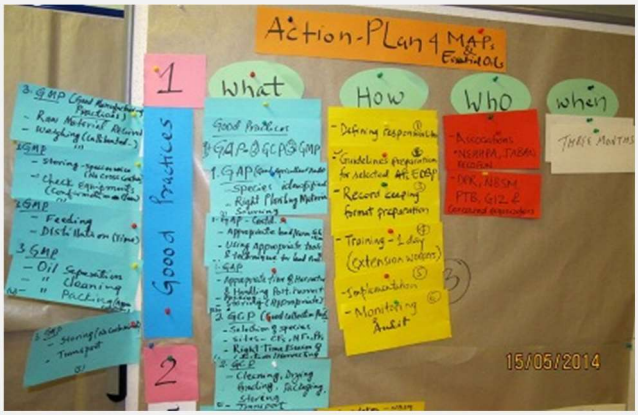

Figure 32: Group work on Good Practices

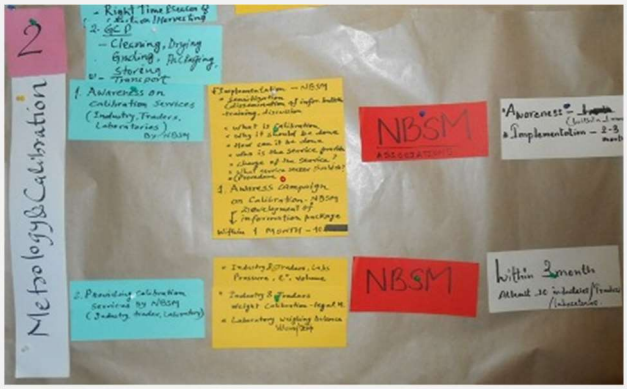

Figure 32:

5.4 Commitments and follow-up committee

Mr. Ulrich Harmes-Liedtke explained that the all group members are now the champions of your work and you should take responsibilities of the activities. He briefed about the institutions (Association, DPR, NBSM, GIZ, and PTB) involved in the follow-up committee. He introduced four major facilitators (Mr. Sichan Shrestha, Puspa Raj Shrestha, Pramesh lakhe, and Jyoti Joshi) in the follow-up committee. Major follow-up activities are finalized to take the activities forward (refer to annex 14).

After the finalization of the commitments from key members, Mr. Ulrich further explained about the afternoon formal dissemination session to the chief guest.

Figure 33: Follow-up committee proposed in the workshop

5.6 Feedback

Mr. Ulrich Harmes-Liedtke collected feedback of the workshop in yellow and blue colour cards. In yellow cards doubts and in blue colour cards learning from the participants were mentioned.

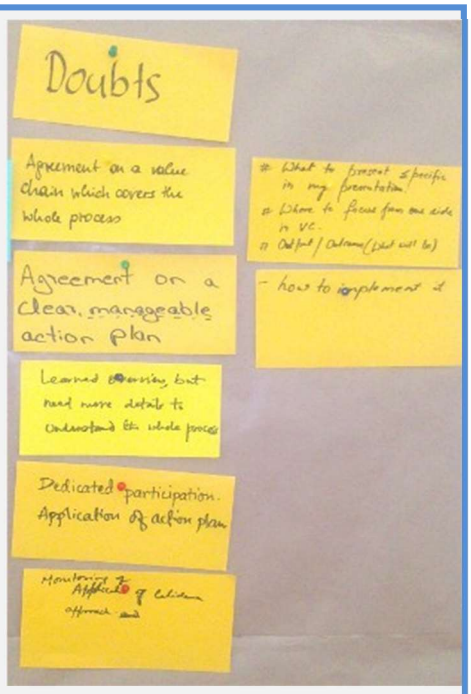

Figure 35: Feedback from participants - doubts

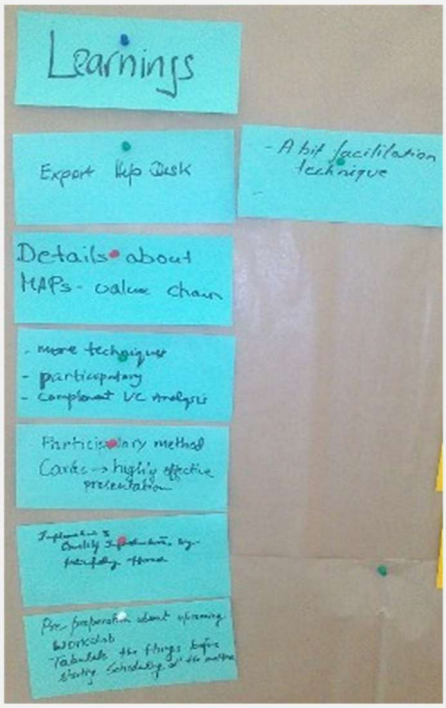

Figure 35: Feedback from participants -

Major doubts were expressed were application of action plan, monitoring of application, agreement, and detail process of CALIDENA.

5.7 Workshop Closing Session

Dr. Ganesh Raj Joshi, Secretary, MoFSC was invested as a chief guest for sharing workshop outcomes and action plan. Mr. Pramesh Lakhe briefly explained about workshop overview, process, key highlights of agenda etc. Mr. Govinda Ghimire, NEPHHA highlighted the major gaps identified in the whole essential oil value chains as outcomes of the three days workshop. MR. Krishna Ram Amatya, Shambhala Herbal & AIPC and Mr. Ganesh Pd. Pathak, NBSM shared action plan prepared by various groups. Mr. Sichan Shrestha, PTB briefed on the follow-up committee plan and organizations involved in taking the plan forward for implementation of the proposed short-term activities.

Dr. Ganesh Raj Joshi, Secretary, MoFSC in his closing remarks thanked the PTB for organizing CALIDENA workshop and all participants for their contribution in preparing detail action plan for promotion of essential oil value chains. To gain competitive advantage of Nepalese essential oil, he stressed the importance of quality infrastructure and role of stakeholders' commitments. He expressed the Ministry of Forest and Soil Conservation commitment to support in the process. "This is just a beginning and not an end," says Ganesh Raj Joshi.

Figure 36: Closing remarks by Dr. Ganesh Raj Joshi, Secretary, MoSFC

Mr. Ulrich Harmes-Liedtke expressed his happiness being here in Nepal and seeing interaction and commitments. He talked about competitiveness is necessary in general terms but stressed there should be value additional potential and access to market, and certification to have proper infrastructure in place. Everyone is working on its own and there is a need to collaboration and joint action plan. There is an importance of DPR in leading and the major role in laboratory. There is a lot to do and challenges on calibration, accreditation, and needs quick win activities.

Mr. Yam B. Thapa, DG, DPR expressed that MAPs sector have not been in priority for Department of Forests. After joining DPR he has now realized the importance of quality infrastructure for exports. He thanked PTB and GIZ for their valuable technical inputs in providing support to successfully organize this workshop. He especially thanked Mr. Pursotam Shrestha, consultant for giving untiring efforts and knowledge to make this event successful.

IV. Annexes

6. Agenda for Short training for CALIDENA Facilitators

Short training for CALIDENA Facilitators

May 11th 2014, Kathmandu

Objective: Practical introduction of the trainees in the CALIDENA methodology and preparation for the co-facilitation of the CALIDENA workshop planed from May 13th to 15th

Program sequence

Time	Activity	Responsible	Methodology/ Materials
10:00	Opening remarks	JM	Motivation of PTB working with MAP VC
10:10	Round of presentation	UHL	Why I am here? What is my professional background? What I like to contribute to the CALIDENA process?
10:25	Presentation of CALIDENA approach	UHL	Presentation PPT and Q&A
11:00	Coffee break		
11:15	Introduction in card facilitation	UHL	Basic Rules of Card Facilitation plus explanation/ panel with cards
11:30	Interaction Matrix	UHL	Application to the cooperation between Stakeholders of MAP VC and Department of Plant Resources (DPR)/ Department of Plant Resources (DPR) and Nepal Bureau of Standards and Metrology (NBSM) See Tool P4: Management of Expectations in CALIDENA Toolbox
12:15	Mapping of National QI	UHL	Elaboration of MAP for QI Presentation in Workshop see CALIDENA Handbook Rapid assessment of the development of Nepal's QI For background see SANETRA, C. & MARBÁN, R.M. 2007. The answer to the global quality challenge: A national quality infrastructure. PTB, OAS and SIM, http://www.ptb.de/de/org/q/q5/docs/OAS_EN07.pdf, Fig 35, p. 107.
13:00	Lunch break		
13:45	Living chain exercise	UHL	Show difference between Pushing of Pulling the VC. Highlight role of global buyers. Exercise see CALIDENA Handbook, p. 18
14:00	Mapping of MAP VC	UHL	Identification of key links, key stakeholders and key issues related to quality See Tool P2: Prior Mapping of the Chain
14:45	Preparation workshop	UHL	Revisiting CALIDENA workshop sequence and attribution of different roles Preparation of panels and flipcharts

15:30	Hypothesis of possible outcomes of CALIDENA workshop	UHL	Brainstorming in Matrix with main QI components: Standards, Metrology, Conformity Assessment and Accreditation
16:00	Evaluation	UHL	Round of comments: My most important learning; my mayor doubt
16:30	End of the day		

7. Agenda for meeting with Nepalese QI bodies

Meeting with Nepalese QI Bodies

Monday, May 12th 2014, Kathmandu

Objective: Introduction of CALIDENA methodology, management of expectation of NSBM and final preparation of the CALIDENA workshop planed from May 13th to 15th

Program sequence

Time	Activity	Responsible	Methodology/ Materials
10:00 hs	Opening remarks	JM	Motivation of PTB supporting NSBM and working with MAP VC
10:05	Round of introduction	SS/ JBL	Written discussion: What does our organization expect to get out of the CALIDENA process?
10:20	Presentation of CALIDENA approach	UHL	Presentation PPT and Q&A
11:00	Coffee break		
11:15	Map of National QI	PRS	Presentation of MAP for QI Presentation in Workshop
11:25	Strategy of NQI and relevance to work with MAPs VC	NBSM	Strategy of NBSM and discussion about strategic relevance of the work with the MAP VC
11:50	Possible outcomes of CALIDENA workshop	UHL/ JB	Revisiting hypothesis of possible outcomes for main QI components: Standards, Metrology, Conformity Assessment and Accreditation
12:50	Final round of comments	UHL	Concerns and suggestions
13:00	Lunch break		

8. Main 3 days Workshop Agenda

Program sequence

First day: Tuesday, May 13th			
Time	**Activity**	**Responsible**	**Methodology/ Materials**
8:00	Registration	Poonam Thapa SS	Hand out name stickers; sign in registration form Master of ceremony
8:30	Welcome note	Yam Bahadur Thapa, DPR Director General	Regional QI / CROSQ Project CROSQ – PTB
8:40	Opening remarks	Bishow Babu Pudasaini, NBSM Director General	Present NBSM Why NBSM is working with MAPs
8:50	Opening remarks	Julia Micklinghoff, PTB Project coordinator	What is PTB Why it cooperates with Nepal
9:00	Introduction of objectives and agenda	Ulrich Harmes-Liedtke (UHL)	Flipchart
9:15	Rules of collaboration	SS UHL/ PBL	Flip chart: Rules of collaboration
10:15	Thermometer of MAPs VC		How do you evaluate the growth potential of essential oil exports from Nepal?: (1) (low) Exports have already met its peak; (2) (high) There is an high untapped potential for export growth Written comments on panel (Facilitators write cards)
10:30	Coffee break		
10:45	Quality of MAPs	PRS/ JB	What means quality in regard of Medicinal and Aromatic Plants (MAPs) and/ or Essential Oils? Written comments on panel (Facilitators write cards)
11:05	Introduction to Quality Infrastructure	Indu Bikram Joshi, NBSM & JB	Why QI? How does it work in Nepal? Presentation of NQI, NBSM and DPR
11:45	Induction Value Chain	SS/ UHL	Exercise Live Value Chain Presentation of General Map

			Final decision on Scoping (proposal MAP's and/ or essential oils) Flipchart with Chain graph
12:00	Construction of Value Chain Map	UHL/ SS	Links: Inputs (PBL), Cultivation/ Harvesting (PRS), Processing/ Distillation (JB), Export (SS)/ support institutions 1st step: Identification of participating stakeholders 2nd step: identification of missing stakeholders Sharing of results and personal introduction (name, organization, link with MAPs)
12:45	Lunch break		
13:45	Buyers Perspective	Gerhard Benz of Primavera Life/ Germany UL/ SS	Skype-Interview Document key points on cards
14:45	Identification of critical control points	UHL/ SS	Integrate members of support institutions group into the other four VC groups 3rd step: Identify main activities (5- 7) 4th step: Inventory of critical control points
15:30	Coffee break		
15:45	Inventory of standards and regulations	SS/ PBL	Brainstorming with cards on matrix: Standards/ regulations Nepalese Market/ Export to Europe/ Buyer specific
16:45	Evaluation of the day	SS	Smiles: Content, Methodology, Group dynamic
17:00	End of the day		

Second day: Wednesday, May 14th			
Time	**Activity**	**Responsible**	**Methodology/ Materials**
7:30	Meeting and departure to the distillation unit		Bus/ Meeting at Hotel Himalaya
8:30	Field trip	PRS	Visit to distillation unit
10:00	Transport back to hotel		
10:15	Coffee break in Hotel		Participants fill out form of visit notes
10:30	Recapture of learning's	UHL/ SS	Quiz panel: With previously prepared questions 4 x 4
10:50	Research of Standards and Regulations		Working groups: Regulations on Nepalese Market/ Export to Europe/ Buyer specific standards Each group summarizes main information on several standards and technical regulations in corresponding form Computer and Internet access required (at least one laptop or tablet required per group; 4 groups)
12:30	Lunch break		
13:30	Locate requirements an VC map	UHL	Each group writes most important requirements (maximum 7) on cards clarifying specific requirements (i.e. maximum residuum level; relevance for conformity assessment) and referring standard or regulation (name and number) Cards are located on the panel of the corresponding link of the VC
14:15	Identification of hot topics	UHL	New work groups: Inputs, Farming/ collection, Processing, Export/ Buyer Each group identifies gaps in quality management, quality infrastructure and conformity assessment – write each hot topic on red cards and locate on panel Presentation and sharing of findings
15:15	Coffee break		
15:30	Proposals for actions of improvement		Working groups identify for action proposals to improve quality infrastructure, services and management Group work: Specify proposals (maximum 3 proposals) which respond to following criteria: doable with available resources, immediate implementation, visible results in three month

16:30	Presenting and improving proposals	Ritual dissent (two rounds – clockwise and counter-clockwise): a. One representative presents proposals to another group. b. Group critiques proposals (representative turns around and listens only) c. Representative returns back to his initial group and reports back d. 4. Group revisits and improve its proposals
17:15	Evaluation of the day	Smiles: Content, Field visit, Group dynamic
17:30	End of the day	

Third day - Thursday, May 15th

Time	Activity	Responsible	Methodology/Materials
8:30 am	Essential TV	UHL\SS\PT\PBL	Fake microphone Fake box camera Fake microphone Question from quiz session
8:45 am	Proposal for action plan improvement	UHL/SS	Group Discussion Four Groups: 1. Good collection, cultivation and manufacturing (PBL) / 2. Metrology and calibration (IBJ) / 3. Standards (PRS) / 4. Laboratories (JB) What to do? and How?
9:15 am	Presentation and Improvement of proposals	SS	Ritual dissent (two rounds - clockwise and counter-clockwise): a. One representative presents proposals to another group b. Group critiques proposals (representative turns around and listens only) c. Representative returns back to his initial group and reports back d. Group revisits and improves its proposals
9:45 am	Preparation of Action Plan	PBL/UHL/SS	Clarify for each action: what, how, who, which and when
10:15 am	Agreement about follow up committee	UHL/SS/PBL	Define time plan Follow up meeting
10:30 am	Coffee Break		
10:45 am	Evaluation of Workshop	SS	What is my commitment on this process? (with cards) Hand out Evaluation form.

11:00 am	Preparation of presentation		DPR - PBL NBSM - IBJ? Traders - RBR?
12:00 pm	Lunch		
1:00 pm	Presentation of workshop	SS/PBL/IBJ/RBR	Who participated, how, field visit etc
	Presentation of action plan		Ask the secretaries to comment Ask for commitment of authorities
2:00 pm	Hand out certificates		
2:30 pm	End of the day		

9. T3: Notes Sheet for the Field Work

Instructions for application

Objective / Function	To orient the field work more towards results and facilitate the transfer of information to the mapping.
Application	Used during the field trip to one or more companies, as well as in individual and group interviews.
Those involved:	The CALIDENA facilitators and the participants
Time required	The visits last between 90 and 120 minutes
Setting	As part of the applied research
Resources	Notepad, pen

Description

If the visit or interview is carried out at a company in a specific link, it is a good idea to fill out a separate sheet for each one of the activities identified. That is to say, a maximum of five can be filled out for each link.

QI Aspect or Component	Current situation	Gaps	Proposals for improvement
Quality System or Good Practice System	Does any concept or handbook of this kind exist?	In management or of a technical nature?	
Standards + TR	Which standard or technical regulation applies?	Are there any regulatory gaps?	Which standard is lacking or needs to be improved?
Certification	What certification do you use? What kind of external audits do you undergo?	Is there a lack of certification? What limiting factors are there?	
Testing Laboratories	Which kind laboratory tests are done?	Is there a lack of laboratories for relevant tests?	

Metrology/ Calibration	What measurements are carried out? How often? With traceability?	Is there a lack of skilled personnel or technical teams?	How can the usefulness of the calibrations be improved?
Accreditation / National or international recognition	Are you accredited? And do you know who accredited the conformity assessment bodies: • certifier • laboratory • Inspection body? Is it recognized within the country or abroad?		

Blank matrix to fill out during the field work

QI Aspect or Component	Current situation	Gaps	Proposals for improvement
Quality System or Good Practice System	Does any concept or handbook of this kind exist?	In management or of a technical nature?	
Standards + TR			
Certification			
Testing Laboratories			
Metrology/ Calibration			
Accreditation / National or international recognition			

10. List of Participants

SN	Name	Organization	Email	Mobile No.
1	Yam Bahadur Thapa	Department of Plants Resources	ybthapa46@hotmail.com	9851010997
2	Bishwo Babu Pudasaini	Nepal Bureau of Standards & Metrology (NBSM)	bishwo006@yahoo.com	9841440568
3	Anju Poudel	JABAN	luosang2002@gmail.com	9841193333
4	Bhanu Bhakta Rijal	Jaban Nepalgunj	rijal_bhanu@hotmail.com	9748007094
5	Bimala Shrestha	Himalayan Essence	bimalastha35@yahoo.com	9841419797
6	Birkha Bahadur Shahi	FECOFUN	birkha.shahi@gmail.com	9851124316
7	Govinda Ghimire	NEHHPA	gpg@info.com.np	9851120541
8	Himdri Palikhe	Trade promotion Programme GIZ	Himadri.palikhe@giz.de	
9	Julia Micklinghoff	PTB	julia.micklinghoff@ptb.de	
10	Jyoti Joshi	NPRL	jrjyoti@yahoo.com	9841410365
11	Kanti Shrestha	Nepal Academy of Science and Technology	kantishrestha2006@gmail.com	9841554587
12	Keshav Paudel	Department of Plants Resources	piuskp@yahoo.com	9803118520
13	Krishna Ram Amatya	Shambhala Herbal &AIPC	amatya@sambhula.wlink.com.np	9851043054
14	Minoba Yonzon	HPPCL	yminoba@hotmail.com	9849011313
15	Parikshit Khemka	NRIPC	info@msinp.com	9801030545
16	Peter Richter	Trade promotion Programme GIZ	peter.richter@giz.de	
17	Pramesh Bahadur Lakhey	Department of Plants Resources	permeshorover@hotmail.com	9841435303
18	Rajendra K.C	FAO-Nepal	rajendra.kc@fav.org	9851149420
19	Romi Manandhar	Nepal Bureau of Standards & Metrology (NBSM)	romimdr@gmail.com	9841722258
20	Samjhana Pradhan	Department of Plants Resources	pradhansamjhana@yahoo.com	9849779336
21	Sanjay Jain	Bahubali Herbal Essential oil Extract Ind. Pvt. Ltd.	jainsanjay829@yahoo.com	9858021081
22	Sushma Upadhyay	Department of Plants Resources	upadhyay_sushma@hotmail.com	9841-343371
23	Ulrike Lechner	PTB	henke_lechne@web.de	
24	Ganesh Dawadi	SMTQ Forum	ganeshdawadi@gmail.com	9841364722
25	Ganesh Pd. Pathak	Nepal Bureau of Standards & Metrology (NBSM)	ganeshpathak2003@yahoo.com	9841272080
26	Indu Bikram Joshi	Nepal Bureau of Standards & Metrology (NBSM)	indubjoshi@gmail.com	9841221050
27	Kailash Dixit	Aarya Aroma	kailash@essencenetal.com	9851003700
28	Khilendra Gurung	Himalayan Bio Trade	hbtlp@wlink.com.np	9851164113
29	Poonam Thapa	PTB	poonam.thapa@ptb.de	9851159671
30	Puspa Raj Shrestha	Consultant	pusparajshrestha@hotmail.com	9841467831
31	Rana B. Rawal	Unique Himalayan Herbs International Pvt Ltd	rbrawal@herbsonweb.com	9851092461
32	Suresh Shrestha	Trade promotion Programme GIZ	suresh.shrestha@giz.de	9851010036
33	Sweta Dhungel	Khaptar Aroma	d.sweta@hotmail.com	9841703545
34	Ulrich Harmes Liedtke	International Faciliator PTB		

35	Sichan Shrestha	Co-Facilitator	sicmansa@gmail.com	9841333358
36	Kanchha Kaji Maharjan	General Mechanical Workshop		9851006774

11. Form for Recording the Results of Internet Research

Institution or Company the visited website belongs to	
Website address	
Name of the standard	
Brief Description of the standard	
Relevant requirements for the different links (fill in according to the name of the link)	**Link 1**
	Link 2
	Link 3
	Link 4

12. Action plan

Topic 1: Good Practices

What	How	Who	When
Good Agricultural Practices (GAP): a. Species of plants should be identified b. Sourcing of right planting materials c. Selection of appropriate land/Farm d. Appropriate land/farm selection e. Using appropriate tools and techniques for land preparation f. Appropriate time of harvesting and handling post-harvest g. Packaging h. Storing in appropriate manner	1. Defining responsibilities 2. Guidelines preparation for selected Essential Oil Bearing Plants 3. Record keeping format preparation 4. Training - 1 day (extension workers) 5. Implementation 6. Monitoring and audit	1. Associations 2. NEHHPA 3. JABAN 4. FECOFUN DPR, NBSM, PTB, GIZ and other concerned organizations	Three months
Good Collection Practices (GCP) a. Selection of species b. Sites – Community Forest, National Forest, Private Forest c. Right time and season of collection/harvesting. d. Cleaning, drying, grading, packaging, storing, and transport.			
Good Manufacturing Practices (GMP) a. Receiving raw materials b. Weighing (calibrated) c. Storing in segregated manner(no cross contamination) d. Check equipment e. confirmation of cleanliness f. Feeding g. Distillation h. Oil separation i. Oil Cleaning j. Proper storing (no contamination and leakage/spillage) k. Transport			

Topic 2: Metrology and Calibration

What	How	Who	When
Awareness on calibration services (Industries, Traders, laboratories) by NBSM	a. Implementation - NBSM b. Sensitization (dissemination of information bulletin, training, discussion on -What is Calibration? -Why it should be done? -How can it be done? -Who is the service provider? -how much is the service fees -What service seeker should do? c) Procedure -Awareness campaign on calibration - NBSM -Development of information package within 1 month	NBSM, Associations	Awareness – within 1 month Implementation – within 2 to 3 months
Providing calibration services by NBSM	a. Industry and traders, labs pressure, temperature, volume b. Industry and traders - weight calibration – legal metrology Laboratory weighing balance - volume/Temperature	NBSM	Within 3 months [At least 10 industries/ Traders/ laboratories]

Topic 3: Standards

What	How	Who	When
GAP guidelines develop for Jatamasi, Sunpati, Juniper and others Testing methods, Standards required GMP to be developed to Nepalese context Procedures of license collection permits based upon species MSDS has to be developed Implementation of standards	I. a. Identification of standards to be developed b. Discussion with stakeholders c. Formulation of standards draft sub- committee II. d. Standards drafting committee prepares - first draft III. e. First draft is reviewed by standard technical committee	a. Lead by NBSM b. With the consultation of stakeholders c. DRP has to lead with consultation agency d. Awareness to DPR/NBSM/Association e. Forest Act review by HNCC/MoFSC NPRL, NBSM has to develop	6 months to one year

	f. If approved goes to public committee for 60 days IV. g. If no adjustments in the first draft is required then goes to National Council of Standards and when approved by NCS that becomes as a national standard.		

Topic 3: Laboratory

What	How	Who	When
Collaborative Test (ILC) - 4 participants	ILC - Refractive index, optical rotation, Specific gravity (triplicates) in Lemon grass oil	DPR/NPRL	
NPRL confirms standards	a. Shambhala confirms with buyers b. Shambhala/NPRL provides samples (6 x 50 ml) c. NPRL distributes standards method/samples d. Collection of results e. Meeting of participants to discuss results	Shambhala Herbal	Within 15 days Within 30 days Within 45 days Within in 3 months

13. Standards forms Compiled from the group work

Group A:

Institution or Company the visited website belongs to	DPR
Website address	www.dpr.gov.np
Name of the standard	Quality standards, Good Agricultural and collection Practices (Essential oil bearing plants)
Brief Description of the standard	Xanthoxyllum aramatum DC, Valerina Jatamasii, Jones. The standards prescribes the good agricultural and collection practices of the plants and their quality requirements. They also describe relevant test methods.
Relevant requirements for the different links (fill in according to the name of the link)	Link 1: Input- It is applicable to this link. It describes the quality requirements of the plants and their collection from wild as well as cultivated practices
	Link 2: -GACP and quality requirements. It describes major chemical constituent and general quality requirements for assessment for adulteration purposes
	Link 3: NA
	Link 4: NA

Institution or Company the visited website belongs to	Ministry of Forest and Soil Conservation
Website address	www.mofsc.gov.np
Name of the standard	Technical regulations published in Nepal Gazette dated 2058/9/16 vol51.section 3.No.36
Brief Description of the standard	As per CITES Annex III, the government of Nepal made it mandatory that three essential oil namely valerian jatamasi, cinnamonum glaucenscens, Nordostachys grandiflora could be exported only after processing their products and mark could be exported
Relevant requirements for the different links (fill in according to the name of the link)	Link 1: Input- NA
	Link 2: -NA
	Link 3:
	Link 4: TR The requirements of more these plants have been developed

Institution or Company the visited website belongs to	NBSM
Website address	www.nbsm.gov.np
Name of the standard	Essential oils- Preparation of test samples NS/ISO-356:1977
Brief Description of the standard	This is a national standard adopted from ISO which gives general guidance for the preparation for analaysis of samples of essential oils submitted to the laboratory
Relevant requirements for the different links (fill in according to the name of the link)	Link 1: Input- Not applicable
	Link 2: Harvesting and collection-NA
	Link 3: Processing- This is the standard method for preparation of test sample of essential oil in two cases e.g, essential oil in solid or partly solid and in liquid form at ambient temperature. Detail procedure has been mentioned in this standard.
	Link 4: Export- NA

Institution or Company the visited website belongs to	NBSM
Website address	www.nbsm.gov.np
Name of the standard	Essential oils- sampling (NS/ISO-212:1973)
Brief Description of the standard	Collection of sample (small portion) representative of the properties and composition of the consignment of the sampled essential oil.
Relevant requirements for the different links (fill in according to the name of the link)	Link 1: Input- Not relevant
	Link 2: Not relevant
	Link 3: Processing- sampling consginments of essential oils for the purpose of determining their organoleptic, physical and chemical characteristics
	Link 4: Export-

Institution or Company the visited website belongs to	NBSM
Website address	www.nbsm.gov.np
Name of the standard	Essential oils- Determination of refractive index (NS/ISO 280:1998)
Brief Description of the standard	This IS specifies a method for the determination of the refractive index of essential oils. This std measures either the angle of refraction directly or limit of total reflection is observed according to the type of instrument used based on condition of the isotropism and transparency
Relevant requirements for the different links (fill in according to the name of the link)	Link 1:
	Link 2:
	Link 3: Processing-describe principle for determination of RI. Describes standards products and reagents, sampling]procedure, determination ,calculation, test report contents
	Link 4: Export-

Institution or Company the visited website belongs to	NBSM
Website address	www.nbsm.gov.np
Name of the standard	Essential oils- Determination of relative density at 20C (Refernece method) NS/ ISO 279
Brief Description of the standard	This is a national standard (NS/ISO 279:1981) adopted from ISO. This standard specifies the reference method for the determination of the relative density of essential oils at 20C.
Relevant requirements for the different links (fill in according to the name of the link)	Link 1: Input- NA
	Link 2: Harvesting and collection-NA
	Link 3: This is the standard method for determination of relative density at 20C of an essential oil.
	Link 4: Export-The test report from this std. method is applicable to show to the buyer.

Institution or Company the visited website belongs to	NBSM

Website address	www.nbsm.gov.np
Name of the standard	Essential oils- General rules for labelling and marking of containers (NS/ISO/TR 211:1999)
Brief Description of the standard	This TR specifies the general rules for labelling and marking for essential oils to enable identification of the contents (Adopted from ISO/TR 211:1999)
Relevant requirements for the different links (fill in according to the name of the link)	Link 1: Input- NA
	Link 2: -NA
	Link 3: NA
	Link 4: Export- labelling/marking shall be easily understandable. -figure in a visible location -be clearly legible and indelible Labelled or marked a) Commercial name of the essential oils b) Trademark and address c) Production process, particular treatment (e.g, fractional distillation, extraction etc.) d) % of main constituent e) Gross mass,trade and net mass f) Specific condition g) Batch has manufacturing date, method of production h) Country of origin of the provenance i) Symbols and indication of hazards relating to the substance and the indicators of the particular risks j) The flashpoint for storage, if any, in a place reserved for flammable products k) And for essential oils for human consumption - The shelf life date until which the essential oils retains all its properties(??) - If needed, the component or component group content, the addition of which is quantitatively limited in food products, following regulations in force in the countries concerned or any other indication allowing the purchaser to comply with these regulations.

Institution or Company the visited website belongs to	NBSM
Website address	www.nbsm.gov.np
Name of the standard	Essential oils- General rules for labelling oil and marking of containers (NS/ISO/TR 210:1999)
Brief Description of the standard	It is a national standard adopted from ISO standard. It describes the specification to be met by the containers intended for containing essential oil as well as recommendation relating to

	their storage conditions. It describes the materials to be used for containing essential oil and also provided general rules and recommendations relating is the properties of containers and storage conditions
Relevant requirements for the different links (fill in according to the name of the link)	Link 1: Input- NA
	Link 2: -NA
	Link 3: It represents 1 selection of containers as per nature of essential oil that does not cause adulteration 2 materials for containers for various use (food, pharmaceuticals, reference samples or test samples) 3 characteristics of containers (types, capacity, closures, external shielding) 4
	Link 4: Export

Group B:

Institution or Company the visited website belongs to	International Organization of Standards (ISO)
Website address	www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=14397
Name of the standard	ISO 7609:1985 Essential oils- Analysis by GC on capillary columns General method
Brief Description of the standard	The Standard gives detailed information on all recurrent parameters, apparatus, products, methods and formulae for the analysis. The method consist in analyzing a small quantity of essential oil on a column of small diameter but great length, the inside wall of the column having been previously coated either directly with a specified stationary phase or with an impregnated support. If required different constituents are identified from their retention indexes. Quantitative determination of specific constituents is carried out by measurement of peak areas.
Relevant requirements for the different links (fill in according to the name of the link)	Input: identification of quality planting material
	Collection/harvesting: right time for harvesting
	Processing:

	Export: conformity assessment

Institution or Company the visited website belongs to	International Organization of Standards (ISO)
Website address	https://webstore.ansi.org/Standards/ISO/ISO5921998
Name of the standard	ISO 592:1998 Essential oils- Determination of Optical rotation
Brief Description of the standard	This International Standard specifies a method for determining the optical rotation of essential oils. When dealing with solid oils, partially solid oils, oils that are highly viscous at room temperature, or highly coloured oils, this determination is carried out on a solution of the oil.
Relevant requirements for the different links (fill in according to the name of the link)	Link 1:
	Link 2:
	Link 3:
	Link 4: confirmation of standard requirement

Institution or Company the visited website belongs to	NBSM
Website address	www.nbsm.gov.np
Name of the standard	NS/ ISO 289:1998 (E) Essential oils- Determination of Refractive Index
Brief Description of the standard	This International Standard specifies a method for determining the refractive index of essential oils.
Relevant requirements for the different links (fill in according to the name of the link)	Link 1:
	Link 2:
	Link 3:QC test confirmation for export
	Link 4: QC test in production to export

Group C:

Institution or Company the visited website belongs to	Official journal of EU
Website address	www.eur-lex.europa.ceu
Name of the standard	Regulation EC 1223/2009
Brief Description of the standard	Standards of cosmetic products
Relevant requirements for the different links (fill in according to the name of the link)	Link 1: Collection of raw materials
	Link 2: processing
	Link 3:storage and packaging
	Link 4: sales and marketing

Institution or Company the visited website belongs to	International Federation of Organic Agriculture Movements
Website address	http:/www.ifoam-eu.org/
Name of the standard	European Organic Regulations (EC) No 834/2007, 889/2008 and 1235/2008
Brief Description of the standard	Standard criteria on organic regulation
Relevant requirements for the different links (fill in according to the name of the link)	Link 1: Review on background
	Link 2: Physical inspection of overall operation
	Link 3: Feedback and comments
	Link 4: Conformations

Institution or Company the visited website belongs to	Intertek
Website address	www.intertek.com
Name of the standard	Genetically modified organism testing and certification

Brief Description of the standard	GMO undergo change in DNA structure through biotechnology
Relevant requirements for the different links (fill in according to the name of the link)	Link 1: Inspection, Analysis and testing
	Link 2: Auditing and certification
	Link 3:Traceability
	Link 4: Commodity risk free certification

Group D:

Institution or Company the visited website belongs to	Fair trade international
Website address	www.fairtrade.net
Name of the standard	Generic standards applicable to all value chain
Brief Description of the standard	Small producers organizations, hired labour, contract production, trade standards, geographical scope, fair trade minimum price and premiums
Relevant requirements for the different links (fill in according to the name of the link)	Hired labour, contract production
	Trade standards
	Trade standards
	Fair trade premiums

Institution or Company the visited website belongs to	Rainforest Alliance
Website address	www.ra.org
Name of the standard	FSC Forest Management Unit Certification Standard; FSC Chain of Custody
Brief Description of the standard	FSC-STD-01-001 (V4-0) FSC Principles and Criteria for Forest; FSC-STD-40-004 (V2-1) EN FSC Standard for Chain of Custody Certification
Relevant requirements for the different links (fill in according to the name of the link)	Sustainable forest management
	Collection
	Processing, handling
	Storage and shipment

Institution or Company the visited website belongs to	OneCert
Website address	www.onecert.com
Name of the standard	USDA National Organic Program (NOP); European Organic Regulations (EC 834/2007); Japan Agricultural Standard (JAS)
Brief Description of the standard	US National Organic Program 7 CFR Part 205; Organic Standard EC Article 29 (1) of Regulation (EC) No 834/2007 and Regulation (EC) No. 889/2008
Relevant requirements for the different links (fill in according to the name of the link)	Harvest, crop production
	Handling
	Handling
	Certificate of inspection

14. Follow-up Committee

Follow-up Committee and its activities prepared during the CALIDENA workshop

The following names and focal persons of the institutions/organizations are proposed in the follow-up committee as below.

Name of the Institution/Organization	Focal Person Name
Associations (NEHHPA, JABAN, FECOFUN)	Govinda Ghimire
DPR	Director General (DG) and one focal person name
NBSM	Director General (DG) and one focal person name
GIZ	Himadri Palikhe
PTB	Poonam Thapa and Sichan Shrestha

Facilitators proposed for the follow-up on action plan:

a. Mr. Puspa Raj Shrestha
b. Ms. Jyoti Joshi
c. Mr. Pramesh B. Lakhey
d. Mr. Sichan Shrestha

The following activities/actions and timeframe are proposed:

Activities	Time frame	Responsibility
First follow-up meeting	May 26, 2014	DPR
First follow-up workshop	End of August, 2014	DPR
Workshop proceedings report	By May 30, 2014	Sichan, Poonam, Pramesh, and Ulrich
Summary of standards		Association and NBSM

15. Certificate

Certificate

Mr. Puspa Raj Shrestha

has participated in a training of facilitators of the CALIDENA in Nepal.

This certificate enables to co-facilitate participatory value chain analysis to sensitize the private sector for quality issues and to improve quality infrastructure and services.

The workshop and the following process to implement the agreed action plan is a joint initiative of the Department of Plant Resources (DPR) and the Nepal Bureau of Standards and Metrology (NBSM) with the support of the International Technical Cooperation of the German National Metrology Institute (PTB)

Kathmandu, 11 of May 2014

Mr. Yam Bahadur Thapa Director General Department of Plant Resources (DPR)	*Mr. Bishow Babu Pudasaini* Officiating Director General Nepal Bureau of Standards and Metrology (NBSM)	*Dr. Julia Micklinghoff* Project Coordinator German National Metrology Institute (PTB)