

**SEALNET-I/17/Report**



**Food and Agriculture  
Organization of the  
United Nations**



# **Report of the launch meeting of the South-East Asia Laboratory Network (SEALNET)**

Bogor, Indonesia, 20-24 November 2017

**SEALNET-I/17/Report**

**REPORT OF THE LAUNCH MEETING OF THE SOUTH-EAST ASIA  
LABORATORY NETWORK (SEALNET)**

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome, 2017

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## Introduction

Following the endorsement of the global implementation plan for Pillar 5 in June 2017 and the launch of the Global Soil Laboratory Network (GLOSOLAN) on 1-2 November 2017, the Regional Soil Laboratory Network (RESOLAN) for Asia was established through its first meeting in Bogor, Indonesia on 20-24 November 2017. The meeting was co-organized by the Global Soil Partnership (GSP) and the Indonesian Soil Research Institute (ISRI), with the support of the Institut de Recherche pour le Developpement (IRD) of France and the Land Development Department (LDD) of Thailand. The meeting was attended by the lab managers of the national reference soil laboratories nominated by the national focal point at the Asian Soil Partnership (see Annex I). The full list of participants to the meeting is available in Annex II.

In order to take advantage of the already existing regional networks and activities on the harmonization of soil laboratory methods, the network was named after an initiative initiated by LDD and IRD in the '90s: the South-East Asia Laboratory Network (SEALNET). As such, SEALNET was part of the "Impact of rapid land use changes on soil ecosystem services" (LUSES) project under the Laboratoire Mixte International (LMI).

In this context, SEALNET aims to:

1. Calibrate and harmonize soil testing procedures and practices in laboratories in the ASEAN and wider Asian regions in the context of the Asian Soil Partnership; and
2. Set up a regional inter-laboratory proficiency program to implement QA/QC procedures and processes.

By implementing SEALNET, different soil laboratories should use a same method of analysis (standard operational procedure - SOP), obtain the same result from the analysis of a same soil sample, and their analyses should provide the same interpretation. Additionally, the program would allow to measure the uncertainty associated with analytical results (in particular for key soil properties such as pH and organic carbon) so that modelers and soil surveyors producing soil maps can provide documents indicating the precision of the outputs as was done for the Millennium Ecosystem Assessment (2005), or as is currently being done for the Intergovernmental Panel on Climate Change (IPCC) predictions. It is important to stress that good quality and reliable analytical soil data is crucial in evaluating the following issues/items: soil constraints to productivity, soil degradation and improvement, and the provision of advice on soil management options to mitigate and ameliorate soil constraints (or limitations because we already used constraints).

The strategy of SEALNET relies on:

- Facilitating contacts and networking;
- Developing harmonized Standard Operating Procedures (SOPs) for key soil tests;
- Providing training and capacity-building for lab staff-workshops and technical communications; and
- Implementing a regional inter-laboratory proficiency program to facilitate harmonized quality assurance/control (QA/QC) in labs.

These goals are seen as complementary to those in Pillar 5, especially with reference to the need for:

1. Identifying national and regional soil reference labs for training, soil analysis and sample exchange; and
2. Harmonizing procedures and guidelines on soil analysis methods and data interpretation.

## Highlights and conclusions

The meeting lasted five full days (see the agenda in Annex III) and consisted of presentations to introduce the network, assess the status of national laboratories participating to the meeting, and explain technical concepts related to lab analysis and data and methods harmonization. Ultimately, the presentations served to open the discussion and to define the work of SEALNET in 2018 and its position in GLOSOLAN.

### Work plan of SEALNET in 2018

All participating countries decided to join SEALNET and agreed on the herewith reported 2018 work plan:

1. Write regional **guidelines for implementing and maintaining Good Laboratory Practices and quality management in soil laboratories** by March 2018.
2. Improve lab precision by implementing an internal quality assessment using internal or master samples to monitor lab's analytical quality controls between March and July 2018. Each country will be asked to report on their **internal quality assessment** at the second SEALNET meeting. Results will be used to plan 2019 activities.
3. Improve lab accuracy by implementing an **external quality assessment (ring test)**. Reference soil samples (homogeneity soil samples and certified reference samples from WEPAL) will be prepared by LDD using LDD and IRD-LUSES budget. Thereafter, samples will be sent to participating laboratories using GSP/FAO budget. In order to support LDD in shipping reference soil samples, each laboratory will be asked to provide shipping and national customs information so that reference samples can be sent by March 2018. The proposed deadline for this exercise is July 2018, extensions might be granted following delays in shipping soil samples to national reference laboratories.  
The analysis of ring test results will be performed by the SEALNET working group and the GSP Secretariat, who will codify ring test results in order to grant labs' privacy in accordance to GSP Soil Data Policy

To note that this is meant to be an annual exercise in order for another laboratory providing reference soil samples to be identified at the second SEALNET meeting.

4. Develop **Standard Operational Procedures (SOPs)** for soil pH, organic C, exchangeable potassium and available phosphorus. This task will be performed by the SEALNET working group and the GSP Secretariat. All countries were asked to submit available SOPs (in English), which will be used as baseline for the development of the regional SOPs. Deadline for this deliverable are:
  - First-order draft available in August 2018
  - Internal revision of the first-order draft between August and September 2018
  - Final draft ready by the end of September 2018
  - SOPs endorsed at the second SEALNET meeting

Inputs for the 2019 work plan were also provided. In 2019, SEALNET should work on developing SOPs for other soil parameters (to be confirmed at the second SEALNET meeting) and writing guidelines for the general interpretation of lab data. In this regard, the following points should be considered:

- Identify what is available at the national and international level (refer to FAO guidelines)

- List the limitations on data interpretation
- Identify which soil parameters guidelines for general data interpretation can be developed and which ones cannot.

### Position of SEALNET in GLOSOLAN

Participants discussed the involvement and position of SEALNET in GLOSOLAN, which will be presented at the second GLOSOLAN meeting. In this regard, it was agreed that:

- GLOSOLAN should work on data interpretation (development of general categories) and soil management practices recommendations in view of climate change. The work should focus on 1-2 major crops to serve as an example to the regions. At the regional level, SEALNET should adapt data interpretation (development of general categories) and soil management practices recommendations to regional and national characteristics. Therefore, they should work on major crops using the work of GLOSOLAN as a confident building;
- GLOSOLAN should focus on harmonizing methods and results on soil physical, chemical and biological indicators, and soil pollution indicators for soil health. As a consequence, SEALNET should develop regional-specific SOPs;
- A database for data and info exchange should be create under GLOSOLAN. The database should contain information such as the national profile of each lab, their equipment, results from online surveys launched under SEALNET, etc. In support to this proposal, regions should create a database with anonymous data coming from the proficiency testing (PT); and
- GLOSOLAN should develop a quick and quantitative test (e.g. link to IT, spectroscopy, etc.), soil testing kit, method or model to be used to improve national soil testing kits. The test should then be validated and eventually adapted at the regional level.

To conclude, SEALNET should identify qualified trainers to provide trainings on SOPs, ISO and human resources, and participate in PT with other regions.

### Resource mobilization

The importance of mobilizing financial resources to sponsor the activities of the network was highlighted. It was decided that each lab manager will ask for in-kind support to join the second SEALNET meeting. Additionally, countries will support the GSP in submitting proposals to major donors in the region such as JICA, KOICA, the World Bank and GEF. Funds will be used to organize annual meetings and trainings, and to promote knowledge sharing by supporting guest researchers visiting labs in the network.

### Governance

The representatives from Bhutan and the Philippines were nominated Chair and co-Chair of SEALNET respectively. Additionally, representatives from (in alphabetic order) Bangladesh, India, Indonesia, Mongolia and Myanmar volunteered to be members of the SEALNET working group, which is responsible for drafting all the technical documents in SEALNET.

**Chair:** Mr. Jamyang (Bhutan)

**Co-Chair:** Ms. Gina Nilo (Philippines)

The Terms of Reference for the position of Chair and Co-Chair of SEALNET are available in Annex IV.

**Members of the working group:** Ms. Su Su Win (Myanmar), Mr. Ashok Kumar Patra (India), Ms. Bazarradnaa Enkhtuya (Mongolia), Mr. Md. Moqbul Hossain (Bangladesh) and Ms. Lenita Herawaty (Indonesia)

The Terms of Reference for the Working Group of SEALNET are available in Annex V.

## Venue and time of the next meeting

A decision was made to organize the second SEALNET meeting in Bhopal, India on 19-23 November 2018. The final date of the meeting will be confirmed in the first quarter of 2018 by Mr. Ashok Kumar Patra.



## Annex I. National reference laboratories in SEALNET

The list of countries and their national reference laboratories in SEALNET is reported in Table 1 together with the name of their representatives (official contact person). To note that national reference laboratories were nominated by national focal points at the GSP in accordance with the compliance of the following criteria.

### Guidelines for the selection of the laboratory:

- They should be public (government office, university, etc.). Please avoid referring to private companies; and
- They should provide the highest quality data in your country. Therefore, the laboratory should preferably:
  - o have ISO certification;
  - o and/or participate to proficiency tests;
  - o and/or have procedures of quality assessment and quality control;
  - o and/or use analytical procedures in agreement with international standards; and
  - o etc.

### Guidelines for the selection of the contact person inside the selected laboratory:

- They should be able to speak English;
- They should have a good knowledge of the soil testing procedures conducted in the laboratory; and
- They should be an executive, i.e. taking decision for the laboratory management and analytical procedures.

Table 1. National Reference Labs in SEALNET

ASP Country	National Reference Laboratory	Official contact person
Afghanistan	NA	NA
Bangladesh	Central Laboratory, Soil Resource Development Institute Central Laboratory (CL), Soil Resource Development Institute (SRDI), Ministry of Agriculture, 'Mrittika Bhaban', Krishi Khamar Sarak, Dhaka-1215, Bangladesh.	Md. Moqbul Hossain <i>Principal Scientific Officer</i>
Bhutan	Soil and Plant analytical Laboratory National Soil Services Centre, Ministry of Agriculture and Forest, Department of Agriculture, Simthokha, Thimphu, Post Box NO: 907	Jamyang <i>Soil Specialist</i>
Cambodia	National Agriculture Laboratory No. 54B/49F, Street 395-656, Sangkat Toeuk Laak 3, Khan Tuol Kok, Phnom Penh, Cambodia	Sun Sarak <i>Laboratory Assistant</i>

China	Soil and Fertilizer Supervision and Testing Center, MOA No.2 Nanxinyuan, Songyuanlu, Chaoyang District, Beijing	Ren Yi <i>Manage office Director</i>
India	ICAR-Indian Institute of Soil Science, Bhopal, India ICAR-Indian Institute of Soil Science, Nabi Bagh, Berasia Road, Bhopal - 462038, Madhya Pradesh, India	Ashok Kumar Patra <i>Director</i>
Indonesia	Laboratorium Pengujian, Balittanah, Soil Test Laboratory, Indonesian Soil Research Institute Tentara Pelajar No 12, Cimanggu, Bogor 16114, Indonesia	Lenita Herawaty <i>Deputy Technical Manager</i>
Japan	National Agriculture and Food Research Organization (NARO)	Kazuyuki Yagi <i>Research Manager for Climate Change</i> & Yuji Maejima <i>Senior Researcher</i>
Lao	Soil Analysis Unit, Agricultural Land Use Planning Center Department of agriculture land management, Ministry of agriculture and forestry, Lao PDR. Nongviengkham Village, Xaitany district, Vientiane capital, Lao PDR	Xaysatith Souliyavongsa <i>Deputy head</i>
Malaysia	Analytical Service Section, Soil Management and Conservation Division Laboratory Analytical Service Section, Soil Management and Conservation Division, Jalan Sultan Salahuddin, 50632 Kuala Lumpur, Malaysia.	Abd Razak Bin Abu Samah <i>Senior Science Officer</i>
Mongolia	Soil, Agro-Chemistry Laboratory Soil, agro-chemistry laboratory of Institute of Plant and Agricultural Sciences, Darkhan-Uul, Mongolia	Bazarradnaa Enkhtuya
Myanmar	Soil and Plant Analysis Laboratory Soil and Plant Analysis Laboratory, Soil Science Section, Soil science, Water utilization and Agricultural Engineering Division, Department of Agricultural Research, Yezin, Nay Pyi, Myanmartaw	Su Su Win <i>Director</i>

Nepal	Soil Management Directorate Hariharbhawan, Kathmandu, Nepal	Janardan Khadka <i>Senior Scientist</i>
Pakistan	Land Resources Research Institute, Islamabad National Agriculture Research Centre, Park Road, Islamabad - Pakistan: 44000, Islamabad	Arshad Ali <i>Director</i> Excused
Philippines	Bureau of Soil and Water Management, Laboratory Services Division SRDC BLDG., Elliptical Road, Corner Visayas Avenue, Diliman, Quezon City, Philippines	Gina P. Nilo <i>Chief Laboratory Services Division and Laboratory Manager</i>
Republic of Korea	Soil and Fertilizer Division, National Institute of Agricultural Sciences, RDA 166, Nongsaengmyeong-ro, Iseo-myeon, Wanju-gun, Jeollabuk-do 55365, Republic of Korea	Chang Hoon Lee <i>Researcher</i> & Yeon Kyu Sonn <i>Researcher</i>
Sri Lanka	Horticultural Research and Development Centre Department of Agriculture, Gannoruwa, Peradeniya, Sri Lanka	Priyantha Weerasinghe
Thailand	Office of Science for Land Development Office of Science for Land Development, Land Development Department. 2003/61 Phahonyothin Rd. Lard Yao, Chatuchak, Bangkok 10900	Rattanachart Chuaybudda <i>Acting Specialist on Chemistry</i>
Vietnam	Central Analytical Laboratory - Soils and Fertilizers Research Institute Le Van Hien street, Bac Tu Liem district, Ha Noi - Viet Nam	Do Duy Phai <i>Head of laboratory</i>

## Annex II. List of participants

### Opening:

Prof. Dr. Dedi Nursyamsi, Director of ICALRD, Ministry of Agriculture as on behalf of the Minister of Agriculture

Mr. Smith Thummachua, Thai Minister Counsellor (Agriculture), Office of Agricultural Affairs, Jakarta

Dr. Edmond Dounias, Representative of IRD for Indonesia and Timor Leste, and IRD focal point for ASEAN

Dr. Husnain, Director, Indonesian Soil Research Institute

### Technical moderators:

Ms. Nopmanee Suvannag, Land Development Department, Thailand

Dr. Philip Moody, Soil Management Solutions, Nathan Australia

Dr. Christian Hartmann, IRD, France

### Official participants

Dr. Md. Moqbul Hossain, Central Laboratory, Soil Resource Development Institute, Bangladesh

Dr. Jamyang, Soil and Plant analytical Laboratory, Bhutan

Dr. Ashok Kumar Patra, ICAR-Indian Institute of Soil Science, Bhopal, India

Mr. Xaysatith Souliyavongsa, Soil Analysis Unit, Agriculture Land Use Planning Centre, LAO PDR

Mr. Abd Razak BIN Abu Samah, Analytical Service Section, Soil Management and Conservation Division, Malaysia

Ms. Bazarradnaa Enkhtuya, Soil, agro-chemistry laboratory, Mongolia

Ms. Su Su Win, Soil and plant analysis laboratory, Myanmar

Dr. Janardan Khadka, Soil Management Directorate, Nepal

Dr. Gina P. Nilo, Bureau of Soils And Water Management Laboratory Services Division, Philippines

Mr. Yeon Kyu Sonn, Soil and Fertilizer Division, National Academy of Agricultural Sciences, RDA, Korea

Mr. Chang Hoon Lee, Soil and Fertilizer Division, National Academy of Agricultural Sciences, RDA, Korea

Dr. Priyantha Weerasinghe, Horticultural Research and Development Centre, Department of Agriculture Gannoruwa, Peradeniya, Sri Lanka

Mr. Rattanachart Chuaybudda, Land Development Department, Thailand

Mr. Do Duy Phai, Soils and Fertilizers Research Institute, Vietnam

Mr. Sun Sarak, National Agriculture Laboratory, Cambodia

Mr. Ren Yi, Soil and Fertilizer Supervision and Testing Center, MOA, China

Dr. Kazuyuki Yagi, NARO, Japan

Dr. Y. Maejima, NARO, Japan

Ms. Lenita Herawati, Laboratory Manager, Indonesian Soil Research Institute, Indonesia

Ms. Chanida Charanworapan, Land Development Department, Thailand

#### Participants from Indonesia

Dr. Linca Anggria, Technical Manager, Indonesian Soil Research Institute

Dr. Diah Setyorini, Quality Manager, Indonesian Soil Research Institute

Eviati, S.Si., Administration Manager, Indonesian Soil Research Institute

Tia Rostaman, S.Si., Assistant Lab Manager, , Indonesian Soil Research Institute

Dr. Adha F. Siregar, Indonesian Soil Research Institute

Jubaedah, MSc, Indonesian Soil Research Institute

Ibrahim Adam, MSc, Indonesian Soil Research Institute

Dr. I. Wayan Suastika, Indonesian Soil Research Institute

Muhammad Asri, S.Si., M.Si, AIAT South Sulawesi, IAARD

Dr. Siti Maryam Harahap, MP, AIAT North Sumatra, IAARD

Kiki Yolanda, SP, AIATJogyakarta, IAARD

Dyah Prita Saraswati, AIAT East Java, IAARD

Arifin Fahmi, Indonesian *Swampland* Agriculture Research Institute (ISARI)

Asep Kurnia, Indonesian Agricultural Environment Research Institute (IAERI)

Imas Suraya Dewi, Indonesian Vegetables Research Institute (IVEGRI)

Ir. Syafruddin, MSi, Indonesain Cereal Research Institute (ICERI)

Andy Wijanarko, Indonesian Legumes and Tuber Crops Research Institute (ILETRI)

Dr. Juniarti, SP., MP, Andalas University

Dr. Maya Damayani, Padjadjaran University

Dr. Ir. Arief Hartono, Bogor Agricultural Institute

## Annex III: Agenda

**19 November:** meeting with the organizers and the technical moderators

Monday, 20 November 2017	
8:30 – 9:00	<b>Registration</b>
9:00 – 9:40	<p><b>Item 1. Opening</b></p> <p><b>Dr. Husnain</b>, Director of ISRI on behalf of the organizing committee</p> <p><b>Ms. Lucrezia Caon</b>, FAO, on behalf of Mr. Mark Smulders, FAO Representative for Indonesia and Timor Leste</p> <p><b>Mr. Smith Thummachua</b>, Minister Counsellor (Agriculture), Office of Agricultural Affairs, Jakarta</p> <p><b>Dr. Edmond Dounias</b>, Representative of IRD for Indonesia and Timor Leste, and IRD focal point for ASEAN</p> <p><b>Prof. Dr. Dedi Nursyamsi</b>, Director of ICALRD, Ministry of Agriculture as on behalf of the Minister of Agriculture</p>
9:40 - 9:45	<b>Item 2. Endorsement of the agenda.</b> Ms. Lucrezia Caon, FAO
9:45 - 10:00	<b>Group picture</b>

Session 1: National profiles	
Moderator : Ms. Lucrezia Caon, FAO	
10:00 – 10:30	<b>Item 3. Introduction to GLOSOLAN and SEALNET, the REgional SOil Laboratory Network (RESOLAN) for Asia.</b> Ms. Nopmanee Suvannang, LDD, and Lucrezia Caon, FAO
10:30 – 11:00	<b>Item 4. Short introduction to the origins of SEALNET.</b> Ms. Nopmanee Suvannang, LDD
11:00 – 11:30	Tea break
11:30 – 12:30	<p><b>Item 5. National laboratories' presentation (in alphabetic order)</b></p> <p><b>Dr. Md. Moqbul Hossain</b>, Central Laboratory, Soil Resource Development Institute, Bangladesh</p>

	<p><b>Dr. Jamyang</b>, Soil Plant Analytical Laboratory, Bhutan</p> <p><b>Mr. Sun Sarak</b>, National Agriculture Laboratory, Cambodia</p> <p><b>Mr. Ren Yi</b>, Soil and Fertilizer Supervision and Testing Center, China</p> <p><b>Dr. Ashok Kumar Patra</b>, ICAR – Indian Institute of Soil Science, India</p> <p><b>Ms. Lenita Herawaty</b>, Laboratorium Pengujian, Balittanah, Soil Test Laboratory, Indonesian Soil Research Institute, Indonesia</p>
12:30 – 14.00	<b>Lunch</b>
14:00 - 15:00	<p><b>Item 5. Continued</b></p> <p><b>Mr. Kazuyuki Yagi</b>, Institute for Agro-Environmental Sciences, Japan</p> <p><b>Mr. Xaysatith Souliyavongsa</b>, Soil Analysis Unit, Department of Agricultural Land Management , Lao DPR</p> <p><b>Mr. Abd Razak Bin Abu Samah</b>, Analytical Service Section, Soil Management and Conservation Division, Malaysia</p> <p><b>Ms. Bazarradnaa Enkhtuya</b>, Soil, agro-chemistry laboratory of Institute of Plant and Agricultural Sciences, Mongolia</p> <p><b>Miss Su Su Win</b>, Soil and Plant Analysis Laboratory, Department of Agricultural Research, Myanmar</p> <p><b>Dr. Janardan Khadka</b>, Soil Management Directorate, Nepal</p>
15:00 – 15:30	Tea break

15:30 – 17:30	<p><b>Item 5. Continued</b></p> <p><b>Dr. Gina P. Nilo</b>, Bureau of Soils and Water Management Laboratory Services Division, Philippines</p> <p><b>Mr. Chang Hoon Lee</b>, Soil and Fertilizer Division National Institute of Agricultural Sciences, Rep. of Korea</p> <p><b>Dr. Priyantha Weerasinghe</b>, Horticultural Research and Development Centre, Sri Lanka</p>
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	<p><b>Mr. Rattanachart Chuaybudda</b>, Office of Science for Land Development, Land Development Department, Thailand</p> <p><b>Mr. Dr. Phai Đổ Duy</b>, Central Analytical Laboratory - Soils and Fertilizers Research Institute, SFRI, Vietnam</p>
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<b>Tuesday, 21 November 2017</b>	
<b>Session 2: Precision &amp; Accuracy in soil analysis</b>  Moderator: Christian Hartmann, IRD	
8:30 – 10:30	<p><b>Item 6. What is Good Laboratory Practice?</b></p> <ul style="list-style-type: none"> <li>i) the concept of Quality in soil analysis</li> <li>ii) ‘Precision’ of an analysis</li> <li>iii) ‘Accuracy’ of an analysis</li> </ul> <p>Dr. Christian Hartmann, IRD, and Ms. Nopmanee Suvannang, LDD</p>
10:30 - 11:00	Tea break
11:00 – 12:00	<p><b>Item 7. Why are Proficiency Testing Programs useful?</b></p> <p>Dr. Phil Moody, ASPAC</p>
12:00 – 12:30	<p><b>Item 8. Why joining SEALNET? The case of Vietnam</b></p> <p><b>Mr. Dr. Phai Đổ Duy</b>, Central Analytical Laboratory - Soils and Fertilizers Research Institute, SFRI, Vietnam</p>
12:30 – 13:30	<b>Lunch</b>
13:30 – 14:30	<p><b>Item 9. INTERACTIVE DISCUSSION</b></p> <p><b>Paths and barriers to the implementation of ‘Good Laboratory Practices’ (GLP) and how an Inter-laboratory Proficiency Testing Program can assist in improving GLP.</b></p> <p>Moderator: Christian Hartmann, IRD</p>
14:30 – 15:00	<b>Item 10. Key soil fertility analyses</b>



	<p>Why do we do soil analyses? Which analyses are most informative for soil fertility assessment? (i.e. indicate why we are concentrating on soil pH, organic C, available P, available K, soil texture)</p> <p>Dr. Phil Moody, ASPAC, and Ms. Nopmanee Suvannang, LDD</p>
15:00 – 15:30	Tea break
15:30 – 16:30	<p><b>Item 11. General principles of soil test interpretation</b></p> <p>i) Why do different soil test methods for the same soil property give different results?  ii) How can these different results be interpreted?</p> <p><b>INTERACTIVE DISCUSSION</b> on interpretation of the key soil fertility analyses</p> <p>Dr. Phil Moody, ASPAC, and Ms. Nopmanee Suvannang, LDD</p>
<b>Session 3: Standardization and harmonization</b>	
16:30 – 17:30	<p><b>Item 12. Soil pH-</b></p> <p>i) Overview of methods used by SEALNET labs  ii) Are the methods likely to be correlated?  iii) What are the key procedures in the analysis that need to be specified in an SOP</p> <p><b>INTERACTIVE DISCUSSION</b> on SOP for soil pH</p> <p>Dr. Phil Moody, ASPAC, and Ms. Nopmanee Suvannang, LDD</p>
Wednesday, 22 November 2017	
<b>Session 3: Standardization and harmonization (continued)</b>	
8:30 – 9:30	<p><b>Item 13. Available potassium</b></p> <p>i) Overview of methods used by SEALNET labs  ii) Are the methods likely to be correlated?  iii) What are the key procedures in the analysis that need to be specified in an SOP</p> <p><b>INTERACTIVE DISCUSSION</b> on SOP for available potassium</p> <p>Dr. Phil Moody, ASPAC, and Ms. Nopmanee Suvannang, LDD</p>

9:30 – 10:30	<p><b>Item 14. Available phosphorus-</b></p> <ul style="list-style-type: none"> <li>i) Overview of methods used by SEALNET labs</li> <li>ii) Are the methods likely to be correlated?</li> <li>iii) What are the key procedures in the analysis that need to be specified in an SOP</li> </ul> <p><b>INTERACTIVE DISCUSSION on SOP for available phosphorus</b></p> <p>Dr. Phil Moody, ASPAC, and Ms. Nopmanee Suvannang, LDD</p>
10:30 – 11:00	Tea break
11:00 – 12:30	<p><b>Item 15. Organic carbon-</b></p> <ul style="list-style-type: none"> <li>i) Overview of methods used by SEALNET labs</li> <li>ii) Are the methods likely to be correlated?</li> <li>iii) What are the key procedures in the analysis that need to be specified in an SOP</li> </ul> <p><b>INTERACTIVE DISCUSSION on SOP for organic carbon</b></p> <p>Dr. Phil Moody, ASPAC, and Ms. Nopmanee Suvannang, LDD</p>
12:30 – 13:30	Lunch
13:30 -14:30	<p><b>Item 16. Soil texture-</b></p> <ul style="list-style-type: none"> <li>i) Overview of methods used by SEALNET labs</li> <li>ii) Are the methods likely to be correlated?</li> <li>iii) What are the key procedures in the analysis that need to be specified in an SOP</li> </ul> <p><b>INTERACTIVE DISCUSSION on SOP for soil texture</b></p> <p>Dr. Christian Hartmann, IRD, and Ms. Nopmanee Suvannang, LDD</p>
<p><b>Session 4: The Way Forward</b></p> <p>Moderator: Lucrezia Caon, FAO</p>	
14:30 – 15:30	<p><b>Item 17. The way forward</b></p> <ul style="list-style-type: none"> <li>- Review of the main conclusions of the interactive discussions in Session 3</li> <li>- Identification of priority activities for laboratories in SEALNET</li> </ul> <p><b>Moderator:</b> Lucrezia Caon, FAO</p>
15:30 – 16:00	Tea break

16:00 – 17:30	<p><b>Item 17: To be continued</b></p> <ul style="list-style-type: none"> <li>- How SEALNET can work under the umbrella of GLOSOLAN</li> <li>- Topics to bring to the attention of GLOSOLAN</li> </ul> <p><b>Moderator:</b> Lucrezia Caon, FAO</p>
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Thursday, 23 November 2017	
<b>FIELD TRIP</b>	
8:00 – 8:30	Departure from the hotel
8.30-10.00	Visit to the Indonesian Soil Research Institute (ISRI) ISRI: presentation of facilities and activities
10.00-17.30	Visit to the Taman Mini Indonesia Indah (TMII) or "Beautiful Indonesia Miniature Park" Museums
17.30	Return to the hotel

Friday, 24 November 2017	
<i>Session 4 (continued)</i>	
Moderator: Lucrezia Caon, FAO	
8:30 – 9:30	<p><b>Item 17. To be continued</b></p> <ul style="list-style-type: none"> <li>- Appointment of the Chair for SEALNET, review of the Terms of Reference for the position and mandate (reference to GLOSOLAN decisions).</li> <li>- Establishment of the working group and endorsement of its Terms of Reference</li> </ul> <p><b>Moderator:</b> Lucrezia Caon, FAO</p>
9:30– 10:30	<p><b>Item 18. Labs' assesement</b></p> <ul style="list-style-type: none"> <li>- Reference soil samples analysis "at home": ring test</li> <li>- Data submission: instructions</li> </ul>

	<ul style="list-style-type: none"> <li>- GSP Soil Data Policy</li> </ul> <p><b>Moderator:</b> Lucrezia Caon, FAO</p>
10:30 – 11:00	Tea break
11:00 – 12:00	<p><b>Item 18. To be continued</b></p> <ul style="list-style-type: none"> <li>- Presentation on “Measuring data quality”</li> </ul> <p><b>Moderator:</b> Lucrezia Caon, FAO</p>
12:00 – 13:30	Lunch
13:30 – 15:00	<p><b>Item 19. Planning and co-funding</b></p> <ul style="list-style-type: none"> <li>- Thanks to IAARD and the Indonesian government for their support: Indonesia gave a substantial financial support to the organization of this meeting!!</li> <li>- Venue and time of the next meeting</li> <li>- Brainstorming around potential sponsors for SEALNET</li> <li>- Review of the activities to be performed before the next meeting (planning, timing and roles)</li> </ul> <p><b>Moderator:</b> Lucrezia Caon, FAO</p>
15:00 – 15:30	Tea break
15:30 – 17:00	<b>Item 19. To be continued</b>
18:00 – 20:00	<p><b>Closure dinner</b></p> <p>Speech by <b>Dr. M. Prama Yufdi</b>, Secretary DG of IAARD</p>

## Annex IV: Terms of Reference for the positions of Chair and Co-Chair of SEALNET

### **Terms of Reference for the Chair of the Regional Soil Laboratory Network for Asia, the South East Asia Laboratory Network (SEALNET)**

The Chairperson of the Regional Soil Laboratory Network for Asia (SEALNET) will:

- i) ensure that the Pillar 5 Implementation Plan, Section “Soil Sampling and Analysis”, is implemented and the SEALNET is established under GLOSOLAN;
- ii) ensure that the Asian Soil Partnership Implementation Plan for Pillar 5, Activity 5.3.3, is implemented;
- iii) chair the SEALNET meetings, and oversee the respective Asian Soil Partnership Implementation Plan and GLOSOLAN Roadmap, thus ensuring their work objectives and deliverables are met in time, and updated when necessary;
- iv) maintain active communication between SEALNET and GLOSOLAN, the GSP Secretariat and the Pillar 5 Working Group, in relation to the implementation of the SEALNET activities as documented in the Roadmap agreed upon at the launch of the SEALNET;
- v) participate in the Pillar 5 Working Group at global level (see ToR for the Pillar 5 WG in the Pillar 5 Implementation Plan);
- vi) represent SEALNET at official national and international meetings;
- vii) report (jointly with the GSP Secretariat, the ITPS Chair and the GLOSOLAN Chair) to the GSP Plenary Assembly about the SEALNET progress;
- viii) advocate for the mobilization of resources to execute the SEALNET activities, supported by the working group for SEALNET.

The appointment of the Chair of the SEALNET will take place during the annual meeting of SEALNET. The term for the Chairperson is two years after election, extendable via SEALNET decision to a second term. The Chair is, whenever possible, supported by a Co-Chair in all activities and tasks.

## Annex IV: Terms of Reference for the Working Group of SEALNET

### **Terms of Reference for the Working Group of the Regional Soil Laboratory Network for Asia, the South East Asia Laboratory Network (SEALNET)**

The Working Group of the Regional Soil Laboratory Network for Asia (SEALNET) will:

- ix) Support the Chairperson of SEALNET in advocating for the mobilization of resources to undertake the SEALNET activities;
- x) Write proposals for the mobilization of financial resources, supported by the GSP and ASP Secretariats;
- xi) Prepare Standard Operational Procedures (SOPs), PT programmes and other documents and material relevant to the activities of SEALNET, to be endorsed by member countries in SEALNET;
- xii) Assess the quality of laboratories in SEALNET: data collection and analysis, formulation of conclusions and points of discussion to inform and review the roadmap of SEALNET;
- xiii) Offer support to countries in need, e.g. provision of laboratory-specific recommendations, training of guest researchers, visit of laboratory facilities, etc.
- xiv) Develop the workplan of SEALNET

The appointment of the members of the Working Group of the SEALNET will take place during the annual meeting of SEALNET. The Working Group is led by the Chair and Co-Chair of SEALNET and is composed of five laboratory managers who meet the following criteria:

- Demonstrated hands-on approach to facilitating and implementing good laboratory practices (GLP) in their lab;
- Demonstrated ability to network and interact with other lab managers, encouraging others to implement changed lab procedures and processes to improve lab proficiency;
- Ability to write and communicate with others in English;
- Manage a well-equipped soil testing lab that demonstrates GLP and proficiency in soil analyses.

The term for the members of the working group is two years after election, extendable via SEALNET decision to a second term. The nomination of the members of the working group is by person and not by country.