

## Soil Atlas of Asia-I/18/Report



Food and Agriculture  
Organization of the  
United Nations



# Report of the Editorial Board kick-off meeting, Soil Atlas of Asia

Manila, Philippines, 13-15 March 2018

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome, 2018

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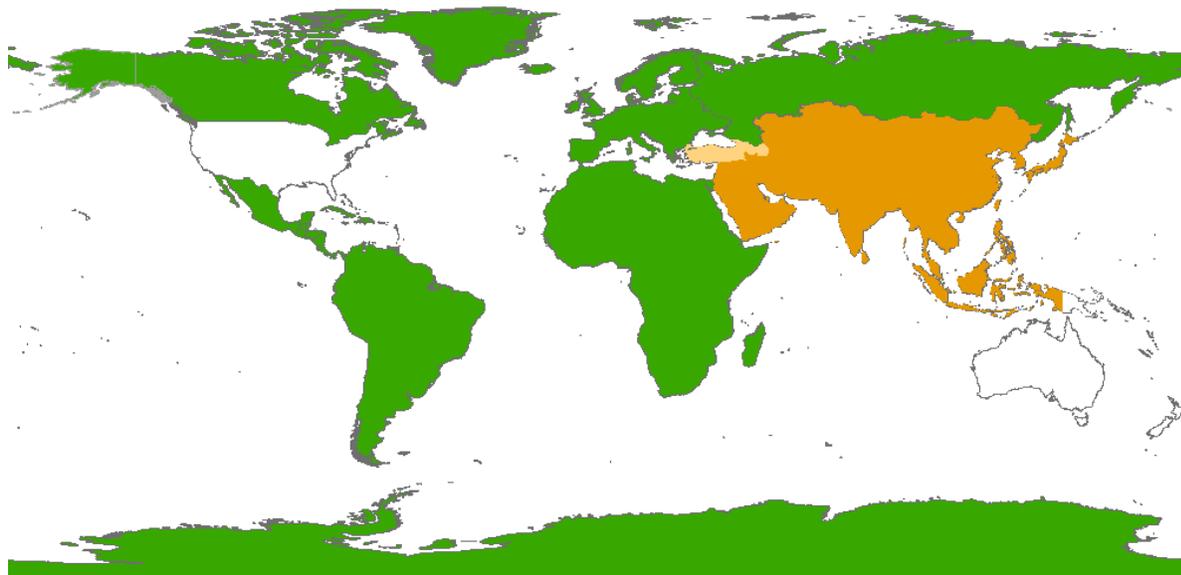
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## Introduction

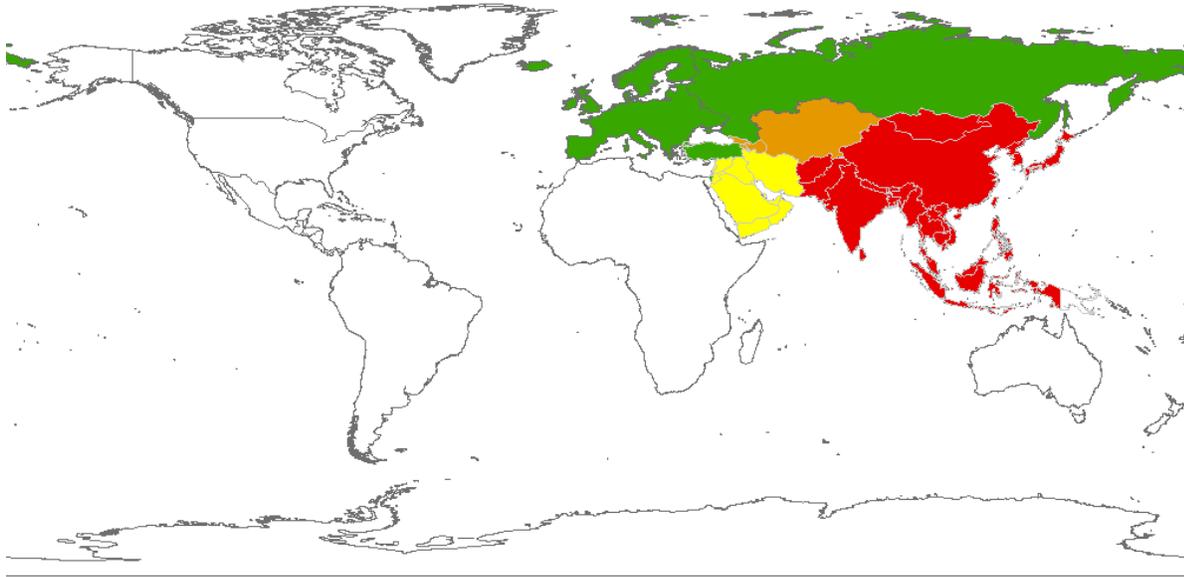
In December 2016, participants in the Third Asian Soil Partnership (ASP) meeting endorsed the ASP regional implementation plan, which envisaged the harmonization of various national soil polygon maps of Asia and the ultimate production of the Soil Atlas of Asia (Activity 4.1.3 in the plan). By stimulating countries to produce or improve national soil maps and in fostering the harmonization of soil data, the production of the Atlas also contributes to the execution of activities under GSP Pillars 4 and 5 as part of the Global Soil Information System (GLOSIS).

The Soil Atlas of Asia will be prepared by contributing authors and members of the Editorial Board under the facilitation of the Global Soil Partnership (GSP-FAO) and the Joint Research Centre of the European Commission (JRC-EC) (see Terms of Reference in Annex I). In this regard, the Soil Atlas of Asia will form part of a collection of Atlases initiated and produced by the JRC-EC, who will sponsor its development. The Atlas aims to (1) raise awareness amongst the general public, land managers/owners, policy makers, politicians, NGOs and other scientific communities of the importance of soil in Asia, (2) support policies and instruments for investment, agriculture, environmental issues, climate change, development and aid assistance, urban planning, and more, (3) provide educational material to schools and universities to support learning, and (4) provide a baseline for further soil assessments in the region.

The geographic scope of the Soil Atlas of Asia is presented in Figure 1. This involves countries in the Asian Soil Partnership, the Near East and North African Soil Partnership (Yemen, Oman, United Arab Emirates, Saudi Arabia, Jordan, Israel, Bahrain, Qatar, Kuwait, Iraq, Iran, Syria, Lebanon) and the Eurasian part of the European Soil Partnership (Armenia, Georgia, Azerbaijan, Turkmenistan, Uzbekistan, Kazakhstan, Tajikistan, Kyrgyzstan), see Figure 2. This scope also reflects areas outside of the existing Soil Atlases (i.e. Europe – currently under revision, Northern Circumpolar and Africa).



*Figure 1. Geographic scope of the Soil Atlas of Asia (surface area in dark orange). The lighter colour indicates inclusion in the revised Soil Atlas of Europe. Green areas denote coverage by existing Soil Atlases.*



*Figure 2. Regional Soil Partnerships involved in the production of the Soil Atlas of Asia. Red: Asia Soil Partnership; Orange: Eurasian part of European Soil Partnership (in Green) ; Yellow: Near East and North African Soil Partnership.*

The kick-off meeting of the Editorial Board was hosted by the Bureau of Soils and Water Management (BSWM) of the Philippines – Department of Agriculture in Quezon City, Manila, Philippines on 13-15 March 2018. During the meeting, the work plan to write the Atlas was set up and an agreement was reached on the milestones to deliver in order to publish the Soil Atlas of Asia on the World Soil Day 2020. The list of participants and the agenda of the meeting are available in Annex II and Annex III, respectively.

## Highlights and conclusions

The meeting lasted three full days (see the agenda in Annex III) and consisted of presentations to introduce the members of the Editorial Board to the scope, overall structure and content of the Atlas. Additionally, the base for soil maps, the soil classification scheme and the dissemination plan were discussed taking the Soil Atlas of Africa as an example. In order to facilitate the writing of the Table of Contents and the assignment of roles, it was agreed to collect personal profile and country profile information. The process will be facilitated by the GSP Secretariat.

**Personal profile information:** each member of the Editorial Board and contributing author is kindly invited to provide information on their field of expertise and the type of contribution they can give to the production of the Atlas (writing, submission of original pictures, maps, data, expand the network, other).

**Country profile information:** each member of the Editorial Board and contributing author is kindly invited to provide information on the main threats to soil affecting their country and their possibility to provide country or regional specific case studies on the identified threats. Additionally, they are kindly asked to submit inputs on the topics they consider relevant to address in the Atlas.

These information will add to those collected during the meeting.

The meeting agreed that initially, one coherent Atlas will be produced for the commonly accepted geographical definition of Asia (see above). Eventually, three separate regional summary reports could be

produced for the Near East, Central Asia, and Southern and Eastern Asia to highlight soil issues that are specific that to those regions. The meeting discussed in detail the expected content and structure of each section of the atlas. The atlas will contain nine key chapters, plus annexes, addressing

1. An Introduction
2. The Soils of Asia
3. Maps
4. Geographical perspectives
5. Issues affection soils in Asia
6. Measures to combat soil degradation
7. National summaries
8. Policies, education and outreach
9. Conclusions

Chapter 1 will address the scope of atlas, explain what is meant by soil, highlight the role and importance of soil, describe soil forming factors and soil forming processes in the context of the Asian environment, and introduce the reader to the main soil functions/ecosystem services.

Chapter 2 will provide an introduction to soil classification (with a focus on the development of soil classification in Asia and local soil classification systems. There will be a summary of WRB together with a graphical explanation of the individual Reference Groups found in Asia. Finally, there will be an assessment of the individual WRB Reference Groups in the context of their strengths, weaknesses, opportunities and threats.

Chapter 3 is the main mapping section and will show the distribution of soils across Asia. The section will contain the legend and an index to the individual map sheets. There will be a small scale overview map of the major soils of Asia, followed by a block of regional scale soil maps. The chapter will also contain a few examples of medium and large scale soil maps, maps of key soil properties together with information on issues relevant to soil mapping such as databases, digital soil mapping, Soil Information Systems, Apps, etc.

Regarding the mapping section, information will be presented on a series of A2 sized map spreads (i.e. x2 A3) with an approximate scale of 1:3,000,000 (to be decided). The default base mapping will be the Harmonized World Soil Database (HWSD) plus the North-Central Asia SOTER. This should be updated where possible by country contributions. Given the small scale, mapping units will reflect dominant soil types (although information on heterogeneity of soils can be presented as ancillary information). The WRB 2015 system will be used for soil names. Each spread will be accompanied by supporting text explaining the distribution of soil types. The map spreads will take the model of a road atlas. Where possible, soil types should be harmonized across national borders. A dedicated meeting will be planned to ensure harmonisation of spatial data and soil classification. The section will also contain maps of key soil properties (e.g. texture, pH, organic carbon, water storage capacity).

Chapter 4 will look at soils of specific habitats such as mountains, deserts, wetlands (including mangroves), etc., explaining how specific environmental controls condition soil characteristics.

Chapter 5 will reflect on the main issues affecting soils in Asia by presenting an overview of the pressure, describing the key drivers, mapping its extent and highlighting the impacts. Topics will include land management and land use change, climate change, erosion, pollution, sealing/land take, acidification, land use change, overgrazing, nutrient overloading, fire, etc. Linked to this, Chapter 6 will how soil degradation can be reduced through sustainable soil and land management practices and spatial planning initiatives such as land sparing/sharing, bioremediation, erosion control, tillage practices and soil amendments.

Chapter 7 will contain short summaries of soil resources, critical issues affecting soil and interesting stories on soils from each country. A standard format will be used. Key statistics will also be provided (e.g. area, pollution, land use distribution, etc.)

Chapter 8 will look at how policies are being developed to protect soils, at both global level (e.g. SDGs, UNCCD, CBD, etc.) and national or regional levels, key research drivers, examples and resources of good soil education.

Chapter 9 will present key messages on soil in Asia with challenges still outstanding and a roadmap for continued effort.

The annexes will provide additional information such as a glossary of key terms, suggestions for further reading, and national contact details together with overviews of the EC-JRC, FAO and the GSP.

Presentations were made on potential contributions from Sri Lanka, Bangladesh, Indonesia, Mongolia, Philippines, Nepal, Indonesia, Japan, India and South Korea, in relation to underpinning data and supporting material. It is clear from these presentations that a wealth of information and data exist on the topics of interest for the Atlas. However, the challenge will be to harmonize the material.

Ultimately, the Editorial Board agreed on the work plan to publish the Soil Atlas of Asia on the World Soil Day 2020:

- The Table of Contents of the Atlas should be made available by the end of April 2018. This will build on countries' inputs and could change during the writing of the Atlas;
- The graphical structure of the Atlas should be ready by June 2018;
- Members of the Editorial Board should express a preference on their contribution to the Atlas by the end of May 2018;
- The first-order draft of the Atlas, developed by compiling countries' inputs, should be ready by March 2019 and should be discussed at the second meeting of the Editorial Board.
- The second-order draft should be available by November 2019;
- The third-order draft should be ready by May 2020;
- Final proof reading by the 1st of July 2020
- Send to printer by the 1st of September 2020;
- Publication on the World Soil Day 2020.

In order to facilitate the communication between the members of the editorial board, the contributing authors, the GSP Secretariat and the JRC-EC, an organigram of the network will be prepared. The meeting agreed to send emails up-dating progress at least once every three months.

## Venue and time of the next meeting

A decision was made to organize the second meeting of the Editorial Board in March 2019. Bangladesh, the Republic of Korea and Sri Lanka candidate to host the meeting, which could also include a two-days training on soil classification. Depending on the availability of funds, a proposal was made to have an additional meeting in 2019, at which a soil mapping training can be organized with the possibility to invite young researchers and University professors that are able to transfer the acquired knowledge to their national fellows will be explored.

## Annex I. Terms of Reference

### **Terms of Reference for members of the Editorial Board**

Each member of the Editorial Board for the Soil Atlas of Asia will:

- i) Be responsible for coordinating the activities of the contributing authors in his/her network;
- ii) Collect pictures, maps, data and sections of text from contributing authors in his/her network;
- iii) Keep his/her network alive and be timely in communicating with the coordinators for this activity, namely the GSP Secretariat and the JRC-EC; and
- iv) Be responsible for writing and editing the sections of the Atlas under their responsibility.

### **Terms of Reference for the contributing authors**

Each contributing author to the Soil Atlas of Asia will:

- i) Contribute to the Atlas by writing sections of the Atlas and/or submitting original picture, data, maps and/or case studies;
- ii) Be timely in submitting his/her contribution; and
- iii) Be responsible for communicating with the members of the Editorial Board and the coordinators for this activity, namely the GSP Secretariat and the JRC-EC.

### **Terms of Reference for GSP Secretariat and JRC-EC**

The GSP Secretariat and the JRC-EC will:

- i) Facilitate and sponsor the production of the Soil Atlas of Asia;
- ii) Organize the annual meetings of the Editorial Board;
- iii) Overall coordinate the activities of the Editorial Board and the contributing authors. This implies collecting and compiling inputs, and taking the leadership over the final writing of the Atlas;
- iv) Prepare the maps to be used in Atlas;
- v) Edit the Atlas; and
- vi) Take care of all other matters related to the production and dissemination of the Soil Atlas of Asia.

## Annex II. List of participants

Dr. Arwyn Jones, JRC-EC, Italy

Ms. Lucrezia Caon, GSP Secretariat, FAO

Dr. Pavel V. Krasilnikov, Lomonosov Moscow State University, Eurasian Center for Food Security, Russia

Prof. Pandi Zdruli, Land and Water Resources Management Department, CIHEAM Mediterranean Agronomic Institute of Bari, Italy

Prof. Erika Micheli, Soil Science Division, IUSS/Szent István University, Hungary

Dr. Md. Altaf Hossain, Soil Survey and Land Classification Section, SRDI, Ministry of Agriculture, Bangladesh

Dr. Saroj Kumar Sanyal, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, West Bengal, India

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Dr. U.W.A. Vitharana, Department of Soil Science, Faculty of Agriculture, University of Peradeniya, Sri Lanka

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Dr. Sangho Jeon, Soil and Fertilizer Management Division, Rural Development Administration, National Institute of Agricultural Science, Republic of Korea

Dr. Markus Anda, Indonesian Center for Agricultural Land Resources, Research and Development, Ministry of Agriculture, Indonesia

Mr. Wan Mohd Rusydan Wan Ibrahim, Soil Resource Management and Conservation Division, Department of Agriculture, Ministry of Agriculture, Malaysia

Dr. Yuji Maejima, National Institute for Agro-Environmental Sciences, National Agriculture and Food Research Organization (NARO), Japan

Ms. Angel C. Enriquez, Bureau of Soils and Water Management, DA-BSWM, Philippines

Ms. Edna D. Samar, Bureau of Soils and Water Management, DA-BSWM, Philippines

Mr. Dominciano D. Ramos, Jr., Bureau of Soils and Water Management, DA-BSWM, Philippines

Apologies were received from the other members of the Editorial Board who unfortunately were unable to join the meeting but have communicated their desire to be involved in the activity and contribute as required.

## Annex III: Agenda

### March 13, 2018

- 8:00 - 9:30 Registration
- 9:30 - 10:15 Opening Program
- Welcome remarks by Director Angel C. Enriquez, CESO III, Bureau of Soils and Water Management, Department of Agriculture, Philippines
- Acknowledgment of delegates
- Message from Asst. Sec. Andrew B. Villacorta on behalf of Secretary Emmanuel F. Piñol, Department of Agriculture, Philippines
- Message from Ms. Tamara Palis-Duran, Assistant Representative, Food and Agriculture Organization of the United Nations, Philippines
- Message from Dr. Arwyn R. Jones, Joint Research Centre, European Commission
- 10:15 – 10:30 Coffee break
- 10:30 – 10:35 Item 1. Tour de table
- 10:35 – 10:45 Item 2. Objectives of the meeting and endorsement of the agenda
- By Dr. Arwyn Jones, JRC-EC
- 10:45 – 12:00 Item 3. What is the Soil Atlas of Asia
- Scope of the Atlas
  - Target audience
  - Style (look and feel)
  - Derived products
  - Overall structure and content
  - Base for soil maps
  - Soil classification scheme
  - Technical considerations (text, images, graphics, formats)
- 12:00 – 13:00 Lunch and administrative matters
- 13:00 – 14:00 Item 3. Continuation
- 14:00 – 15:00 Item 4. Short contribution from individual countries on availability of material (poster presentation)
- 15:00 – 15:30 Coffee break
- 15:30 – 16:30 Item 5. Reflections
- 16:30 End of the day

## **March 14, 2018**

8:30 – 11:30 Item 6. Content overview

- Introduction Chapter
  - Soil forming factors in Asia & Soil processes
  - Soil functions in an Asian context
  - Other
- Soils of Asia
  - Soil classification in Asia
  - WRB
  - The main soil types in Asia
- Soil maps
  - Soil mapping and new technologies
  - Map spreads
  - Regional representations
  - Maps of soil properties

11:30 – 12:30 Lunch and administrative matters

12:30 – 14:30 Item 6. Continuation

- Issues affecting soils of Asia
  - Threats
  - Solutions
  - Policy framework
  - Awareness raising
- Conclusions and ancillary material (GSP, etc.)

14:30 – 15:00 Coffee break

15:00 City tour

## **March 15, 2018**

8:30 – 10:00 Item 7. Dissemination of the Atlas

- Covers
- Alternative language edition
- Credits and contributions
- Target launch events and derived products

10:00 – 10:30 Coffee break

10:30 – 12:00 Item 8. Milestones

- Internal communication
- Timeframe for completion and publication of the Atlas
- Next meeting

12:00 – 13:00 Lunch

14:00 – 15:00 Close of the meeting and outstanding administrative issues

## Annex IV. Proposed Table of content

### **PREAMBLE**

Authors and Affiliations

Acknowledgements

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### **THE SOILS OF ASIA**

Soil Classification: Naming and grouping soils together

Development of soil classification in Asia

The World Reference Base for Soil Resources

The main soil types of Asia

Strengths, Weaknesses, Opportunities and Threats of WRB RG

### **SOIL MAPS**

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Overview map: the major soil types of Asia

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Examples of large-scale soil maps

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### **SOILS OF ASIA: AN ECOSYSTEM PERSPECTIVE**

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## **KEY SOIL ISSUES: NATIONAL PERSPECTIVES**

### **POLICY, EDUCATION AND OUTREACH**

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### **ANCILLARY INFORMATION**

Glossary

Bibliography

Contacts

The European Union and Asia

The Joint Research Centre

FAO and GSP

JRC Soil Atlas Series