



Food and Agriculture
Organization of the
United Nations

3rd Workshop of the International Network of Black Soils



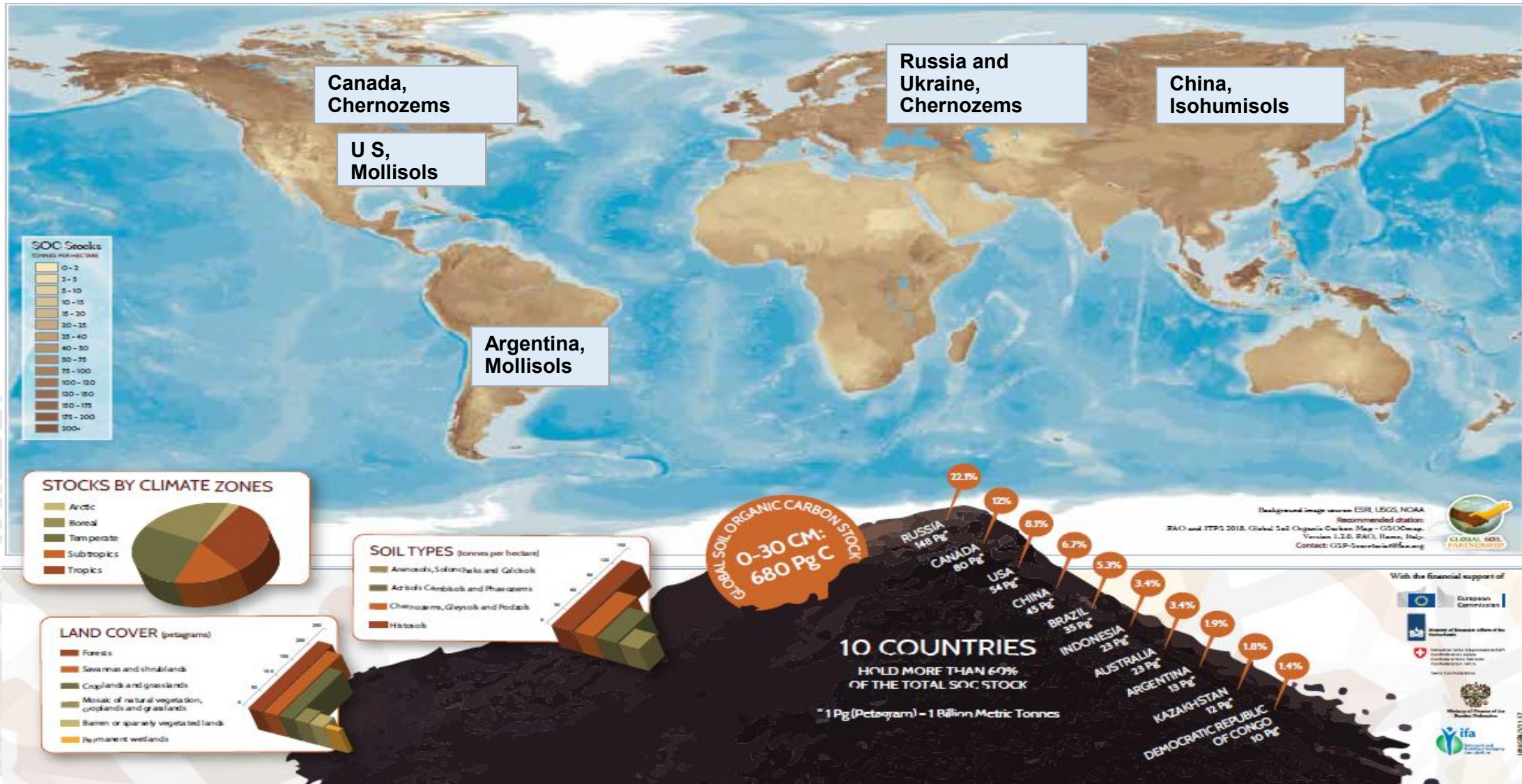
**Progress and challenges
of the INBS activities
implementation**

**Mr. Yuxin Tong,
INBS Coordinator, GSP, FAO**

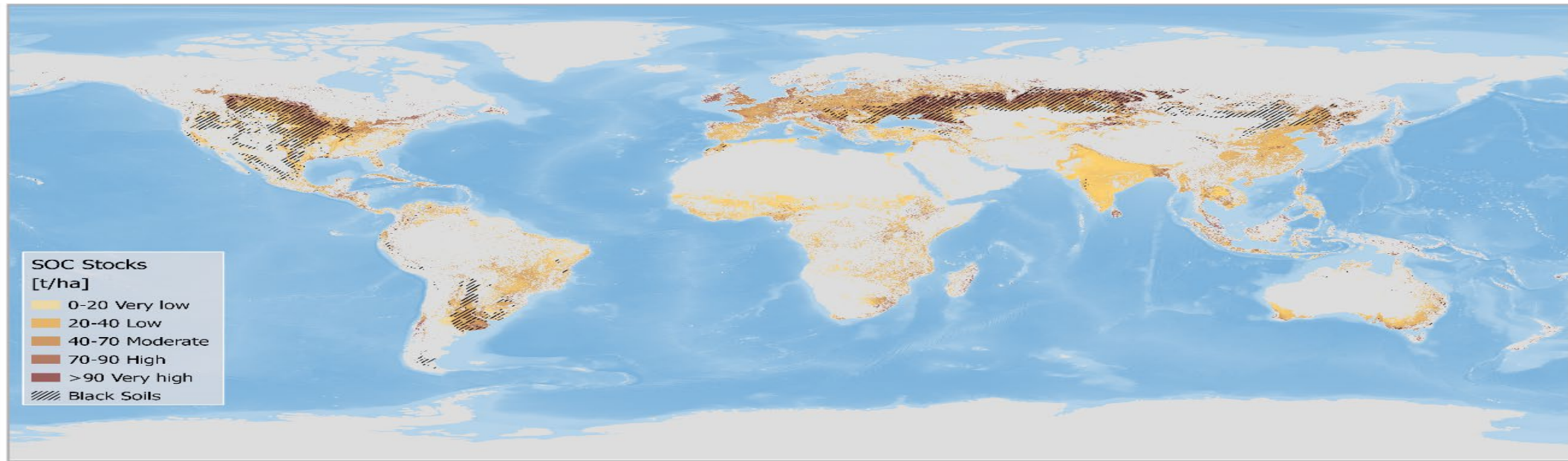
13-14 December 2021



Black soils are soils that are black in colour with a high soil organic carbon



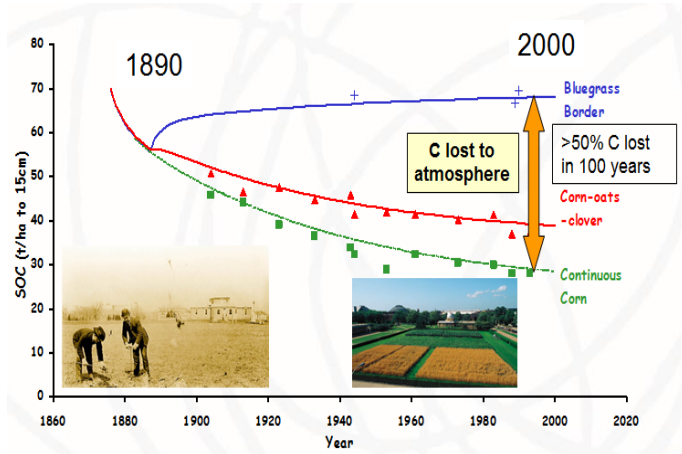
Food security



Global Soil Organic Carbon distribution of the first 30 cm. Data taken from the Global Soil Organic Carbon map (GSOCmap V 1.2.0). Cropland mask taken from NASA Making Earth System Data Records for Use in Research Environments (MEaSUREs) Global Food Security Support Analysis Data (GFSAD) Crop Mask 2010 Global 1 km V001. Black soils are defined as Chernozems, Phaeozems and Kastanozems according to the HWSD 1.2.

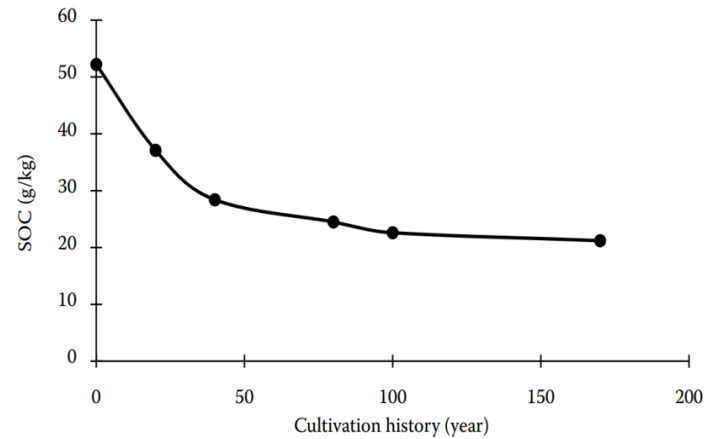
- Out of the total land dedicated to growing crops, 19% of the farmland is currently comprised of black soils, and out of the total area covered by black soils, 62% is used as croplands. (USGS, 2015; HWSD, 2009)

Climate change



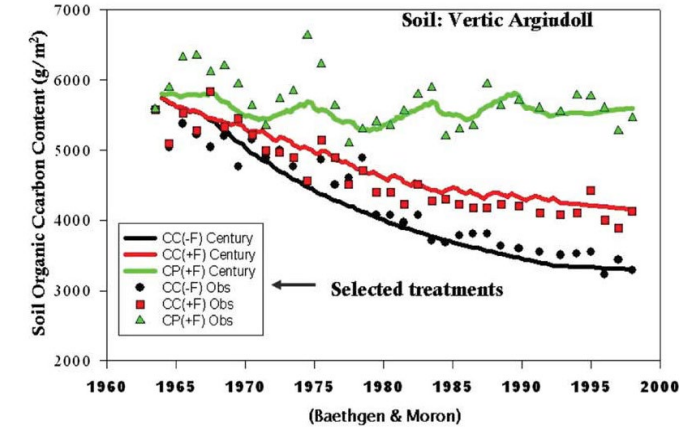
Illinois, USA

Gollany et al , 2011



Heilongjiang Province , China

Ren et al, 2018



Uruguay

Liu, Xiaobing, et al, 2012.

- Black soils are extensively and intensively farmed (cereal, pasture, range and forage system).
- According to various estimates, black soils lost over 20-50% of SOC, and this trend is still ongoing in most black soil countries.
- The significant decrease of SOC in black soils contributes to climate change through greenhouse gas emissions from soils especially CO₂.

➤ Black soils remain very sensitive to anthropogenic intervention. They are prone to severe degradation not only on SOC loss, but also on:

Soil erosion



Salinization or sodification



Loss of stable aggregates



Soil compaction



Soil nutrient unbalance



Soil biodiversity losses



Anthropogenic soil acidity



- Considering the great importance of black soils and their risk of severe degradation, it has become crucial to promote their conservation and sustainable use.
- And to unlock their potential in the longer term to support food security while protecting the environment and mitigating climate change.
- On the basis of recommendation of the FAO's Global Soil Partnership (GSP) on the UN's Sustainable Development Goals (SDG), the International Network of Black Soil (INBS) has been launched in Rome in March 2017.



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Members of INBS

32 Countries and 1 Union

Canada

USA



Argentina

Brazil

Uruguay

Colombia

Chile

Mexico

Indonesia

Morocco

Zambia

South Africa

Thailand

Mozambique

EU

Hungary

Russia

Slovak Republic

Poland

Bulgaria

Armenia

Moldova

Georgia

Ukraine

Turkey

Iraq

Syria

Kazakhstan

Kyrgyzstan

Mongolia

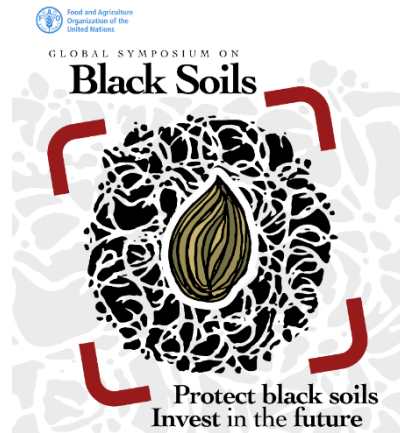
Nepal

China

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Workshops of the INBS



- First Workshop of the International Network of Black Soils have been held in Harbin on 10 - 12 September 2018. The members of the INBS signed on a black soil declaration “Harbin Communiqué” .



- Second Workshop of the INBS, Chisinau, Moldova on 4 - 5 October 2019

Workshop of the International Network of Black Soils | 13-14 December 2021



What are Black Soils?

World Reference Base for Soil Resources – A Tool for International Soil Correlation		Soil Classification and Diagnostics of the Former Soviet Union, 1977		The United States Soil Taxonomy		Soil Classification of People's Republic of China	
Soil Classification of Canada		Russian Soil Classification, 2004		French Soil Classification System		German Soil Classification	
Soil Classification of Switzerland		Soil Classification of The Netherlands		Soil Classification of Poland		Soil Classification of Japan	
Soil Classification of Czech Republic		Soil Classification of Slovakia		Soil Classification of Hungary		Soil Classification of Cuba	
Soil Classification of Romania		Soil Classification of Bulgaria		Soil Classification of the United Kingdom		Soil Classification of Austria	
Soil Classification of Israel		Soil Classification of Brazil		Soil Classification of Switzerland		Australian Soil Classification	
Soil Classification of New Zealand		Soil Classification of Ghana		Soil Classification of the Republic of South Africa		Soil Classifications of the New Independent States	

Pavel Krasilnikov, et al 2015

Chernozems in Russian classification?
Mollisols in US taxonomy or
Isohumisols in Chinese classification?

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Definition of Black Soils

In 2019, the definition of Black Soils was approved in 11th ITPS Working Session.

- Black soils are mineral soils which have a black surface horizon, enriched with organic carbon that is at least 25 cm deep.

1st category Black Soils (the most vulnerable and endangered, needing the highest rate of protection at a global level)

2nd category Black soils (mostly endangered at the national level)



The presence of black or very dark surface horizons typically with a chroma of ≤ 3 moist, a value of ≤ 3 moist and ≤ 5 dry (by Munsell colours);

The total thickness of black surface horizons ≥ 25 cm;

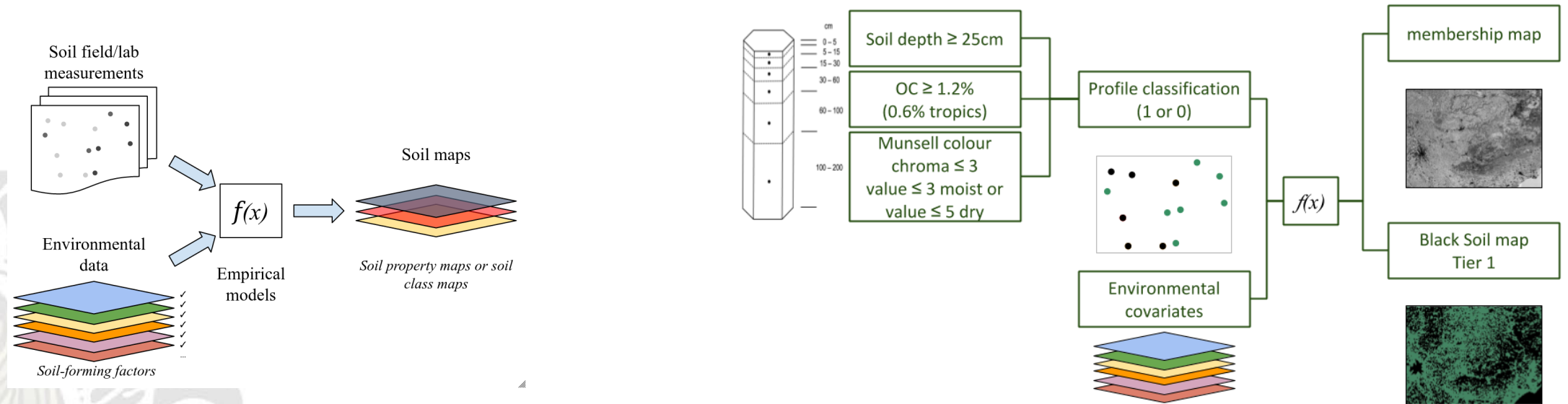
Organic carbon content in the upper 25-cm of the black horizons of $\geq 1.2\%$ (or $\geq 0.6\%$ for tropical regions) and $\leq 20\%$;

CEC in the black surface horizons ≥ 25 cmol/kg;

A base saturation in the black surface horizons $\geq 50\%$

Where are Black Soils?

The approach of the Global Black Soil Distribution Map has been developed by the data and mapping group of the GSP.



What is the Status of Black Soils

Report of Global Status of Black Soil

Structure:

1. Introduction
2. Portrait of black soils
3. Regional status of black soils: status of land use, management, changing trend of soil properties
4. The challenges to black soils and the ways/practices to overcome them
5. Potential response (Policy recommendation)
6. The way forward

- 83 black soil experts from 26 black soil member countries have contributed to the development of the report.
- The report is planned to be launched in FAO next year.



Guillermo Pe, Argentina

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What information can black soil report and map bring to us? and what actions next ?



Workshop and training of INBS

➤ Working sessions on the black soil report and map

12 - 13 October 2020

The online discussion will allow countries to progress on the Black Soils Report and the Global Black Soil Distribution Map.

➤ Global Black Soil Map online training session

09 - 11 December 2020

In order to create the Global Black Soil map following the indications provided in the guidelines “Technical specifications and country guidelines for Global Black Soil Map”

➤ International Forum on Black Soil Conservation and Utilization

09 - 11 July 2021

Organized by the Ministry of Agriculture and Rural Affairs of the People’s Republic of China (MARA) in partnership with INBS.



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Challenges

- Supports and contributions from black soil countries to finalize the landmark publications of INBS (Black Soil Report and GBSmap)
- Rise awareness globally on the topic of black soils and outreach.
- Field implementation of INBS activities
- Resources for activities of INBS



Xingzhu Ma, China



Skye Wills, US



SDGs



Protect Black Soils, Invest In The Furfure

Thank you for your attention

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