

Soils and Sustainable Development

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Sustainable Development and its journey

UN Charter – framed and signed 65 years ago; no inkling of the impending global environmental crisis; themes were peace, security, equal rights and self-determination

Fifty years later, Earth Charter of the UN needed; framed and signed in year 2000

“the dominant patterns of consumption and production of human society are causing environmental devastation and the gap between the rich and the poor is widening; the unprecedented rise in population has overburdened social and ecological systems” (UN Earth Charter)

Sustainable Development and its journey

Brundtland Report, 1987

Rio de Janeiro UNCED meeting in 1992

A new paradigm of development which moves away from just productivity and short-term economic goals which has caused environmental problems, increasing poverty and food insecurity

Sustainable Development

Complex, multi-dimensional and contextual state of development; ecological, economic and cultural are 3 key pillars

Generally adheres to the principle of utilizing the natural resource base in a such a manner that its capacity to provide current and future goods and services useful to human society is not impaired

It means that members of human society have secure access to the food required for a healthy and productive life; the ability to grow and purchase food as needed

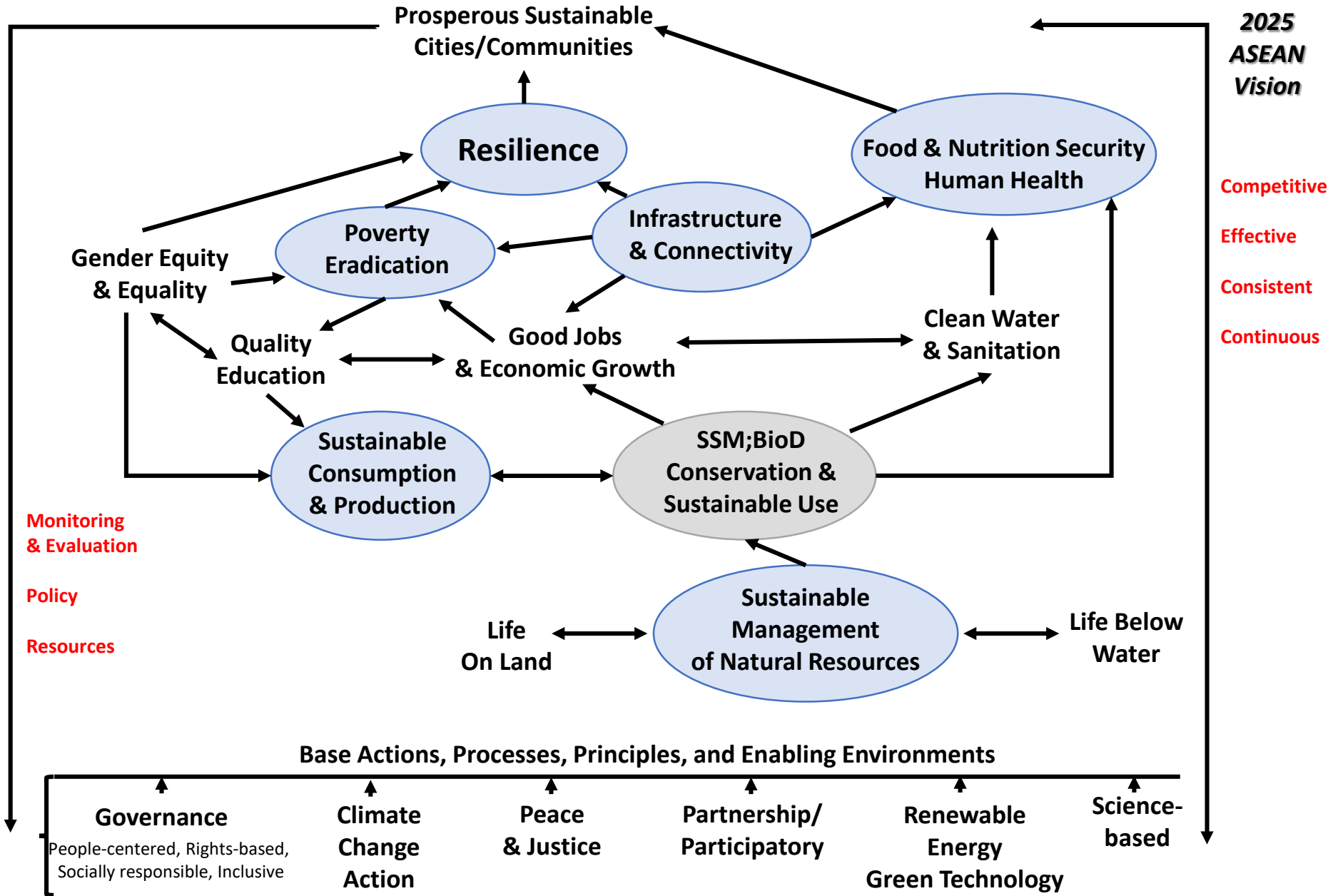
Sustainable Development

There are basic and necessary principles, processes and enabling environment required to promote the positive and synergistic actions of the SDGs; 17 SDGs are inter-related

Providing a healthy natural resource base is necessary

Overall impact would be the sustainable development goal of resilience

The ultimate sustainable development goal is to bring about prosperous and sustainable cities and communities



Merging goals of SDGs 2030 as drivers and impacts with ASEAN Vision 2025

**Soil is fundamental
to life and is a key
foundation of
sustainable
development**

Soil is the foundation of agriculture and of life itself!

Soils host a quarter of our planet's biodiversity and yet 20-30% of lands are degraded and the estimated global rate of soil erosion in croplands corresponds to 193 kg of soil organic carbon per hectare per year.

Over 1000 species of invertebrates can be found in 1m² of forest soil, yet the global loss of forest is around 6.5 million hectares between 2010-2015

Soil organic carbon and soil biodiversity are important for food availability and adaptation to climate change (FAO. 2018. Biodiversity for Sustainable Agriculture. FAO Brochure. www.fao.org)

S U S T A I N A B L E D E V E L O P M E N T

H u m a n w e l l - b e i n g a n d e c o s y s t e m h e a l t h

F o o d a n d n u t r i t i o n s e c u r i t y a n d e c o s y s t e m f u n c t i o n s

Primary production
Nutrient cycling
Soil formation

Genetic resources
Habitat
Surface stability
Raw earth material
Supply of food,
fibre, fuel, timber,
water

Water supply and
quality
Carbon
sequestration
Climate regulation
Control of floods
and erosion

Aesthetic
Cultural

Supporting
services

Provisioning
services

Regulating
services

Cultural
services

S O I L S

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UNSUSTAINABLE DEVELOPMENT

Poverty, Poor Human Health, Lack of Basic Human Needs

Food and nutrition Insecurity; Impaired Ecosystem Services

Low, Lacking or Impaired

Low, Lacking or Impaired

Low, Lacking or Impaired

Low, Lacking or Impaired

UNSUSTAINABLE

SOIL

MANAGEMENT

Supporting services

Provisioning services

Regulating services

Cultural services

S O I L S

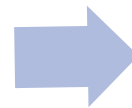
Drivers of Soil Degradation

Population Growth
Urbanization
Pollution
Waste Disposal
Climate Change
Unsustainable Soil Management Practices



Forms of Soil Degradation

Biodiversity Loss
Salinization and Acidification
Nutrient Imbalance
Compaction
Sealing
Pollution
Erosion
Loss of Organic Carbon
Hydrologic Impairment



Impacts

Water scarcity
Food and Nutrition insecurity
Poverty and Social Insecurity
Migration
Faster Climate Change
Reduction of Ecosystem Services



Solutions

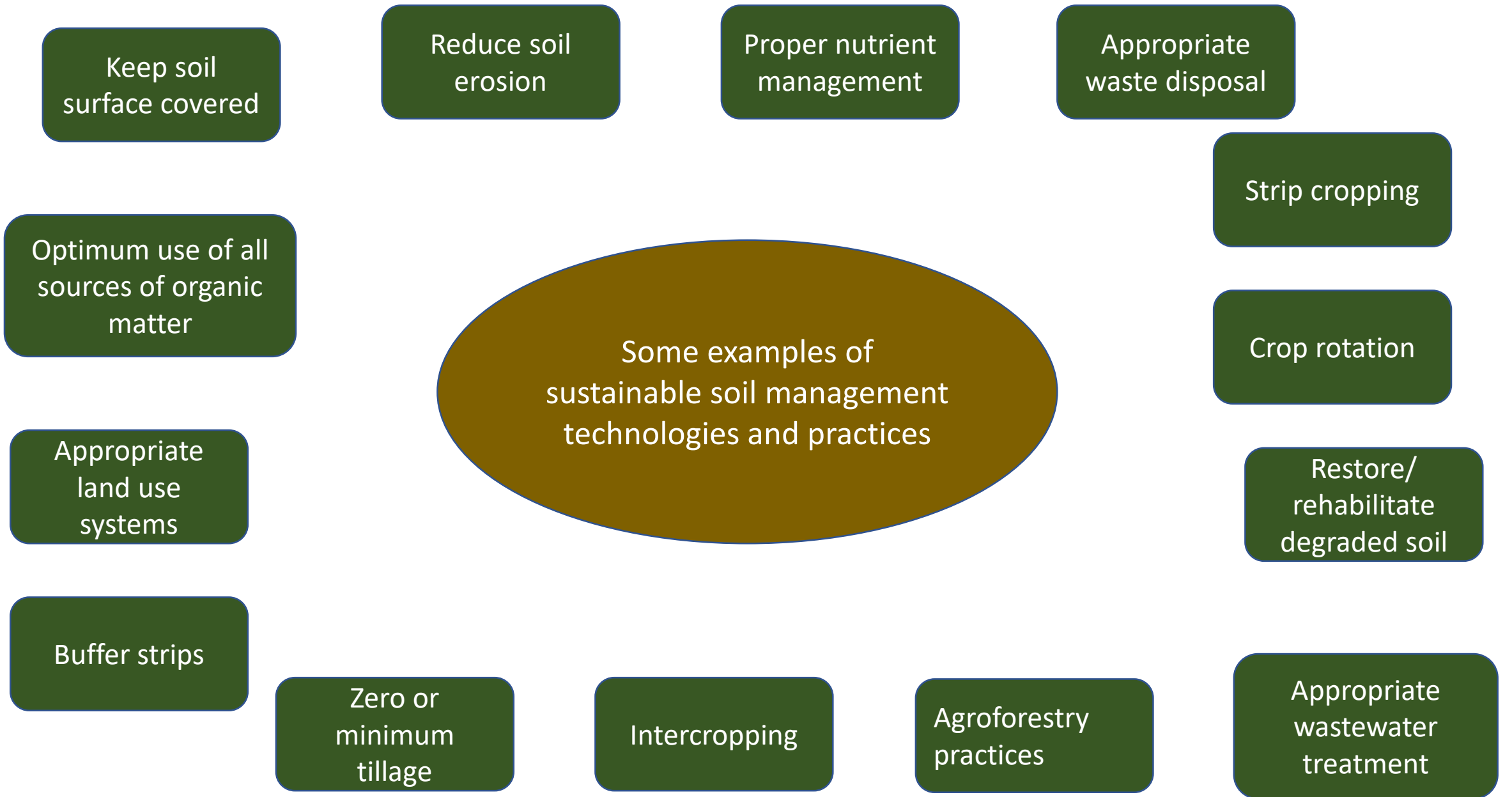
Sustainable Soil Management Technologies Application
Appropriate Policy Formulation
Capacity Building for Extension, information System and Soil Analysis and Assessment

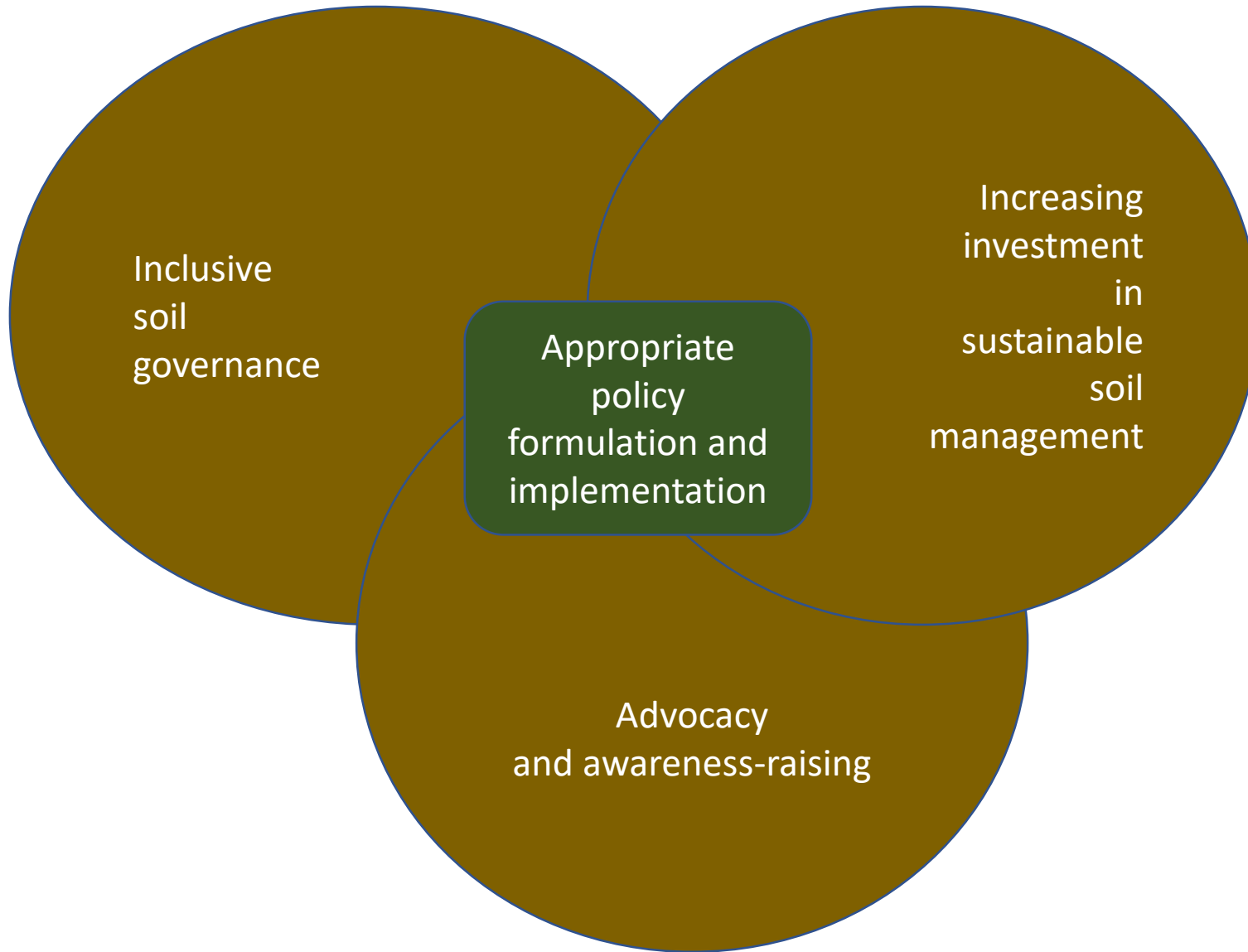
Sustainable Soil Management

Soil management is sustainable if the supporting, provisioning, regulating and cultural services provided by soil are maintained or enhanced without significantly impairing either the soil functions that enable those services or biodiversity (World Soil Charter, 2015).

Threats to Soil Functions

- Soil erosion
- Soil organic carbon loss
- Nutrient imbalance
- Soil Acidification
- Soil Contamination
- Waterlogging
- Soil Sealing
- Soil Compaction
- Salinization
- Loss of Soil Biodiversity





Develop and
strengthen extension
on soils and
sustainable soil
management

Establish a Soil
Information System

Establish a system for
analysis and
assessment of soil
condition as well as for
monitoring and
evaluation

CAPACITY DEVELOPMENT FOR SUSTAINABLE SOIL MANAGEMENT



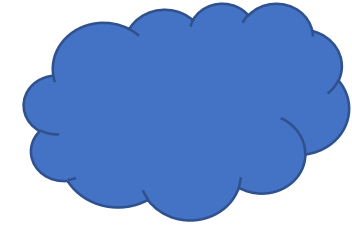
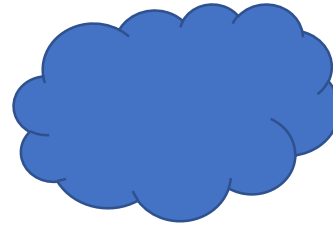
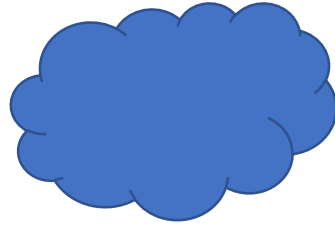
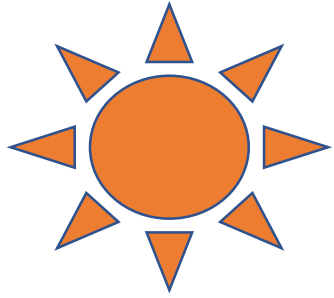
WAY FORWARD

Voluntary Guidelines for Sustainable Soil Management already in place

There is an urgent and compelling need for strong political will to put these into action at different hierarchical levels – local, national and regional

Key References

- FAO and ITPS. 2015. Status of the World's Soil Resources (SWSR) – Technical Summary. Food and Agriculture Organization of the United Nations and Intergovernmental Technical Panel on Soils. Rome, Italy.
- FAO. 2017. Voluntary Guidelines for Sustainable Soil Management. Food and Agriculture Organization of the United Nations. Rome, Italy.



*Khoopkhun Khráp
Maraming Salamat po
Thank you*

