

ONE HEALTH ATLAS

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Soil health must be included in One Health

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Soil health is defined as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals and humans, and connects agricultural and soil science to policy, stakeholder needs and sustainable supply chain management. Initiatives aimed at investigating how human health is influenced by animal and plant health and the environment should automatically include soil health.

Soil, the most biodiverse habitat on Earth, supports human health through essential ecosystem services like nutrient cycling and pollutant remediation. Soil is a natural source of antimicrobial resistance. Moreover, overuse of antimicrobials in human and animal health has increased antimicrobial resistance (AMR) in soils, with negative impacts on human health. It is becoming critical to have effective antimicrobial drugs for human health, and more research on soil microbiomes could be highly beneficial.

With a growing human population, sustainable crop practices must be prioritized to maintain environmental balance. Agroecological practices include reduced chemical inputs and the use of beneficial microorganisms to optimize yields and reduce pathogen attacks. Adopting these practices significantly reduces greenhouse gas emissions while improving soil biodiversity and soil health in general. While intensive management can optimize crop

yields in the short term, promoting sustainable agricultural practices like agroecology that prioritize soil biodiversity will have a lasting impact on soil and human health and make a major contribution to the concept of One Health.

There is growing interest in soil health and adopting environmentally-friendly practices in the agricultural sector. However, it takes time to implement new strategies, and actions are needed to promote these practices for sustainable agriculture. In response to this need, CIRAD, the Agricultural Genetics Institute, the Alliance of Bioversity & CIAT and Deakin University in Melbourne, Australia, created the Common Microbial Biotechnology Platform (CMBP) network in January 2019¹ (Figure 1). The CMBP network, with 70 partners across 20 countries, fosters collaboration on agroecology and soil health in the Asia-Pacific region (Figure 2).

Our research activities have a positive impact on the soil health of smallholder farms, leading to increased and more sustainable livelihoods for farmers. Several scientific publications were published to reach the international scientific community. The network is open to new partners, ideas and projects, and we look forward to moving ahead with new opportunities with the common goal of achieving sustainable agriculture in Southeast Asia.

1. www.cmbp-network.org

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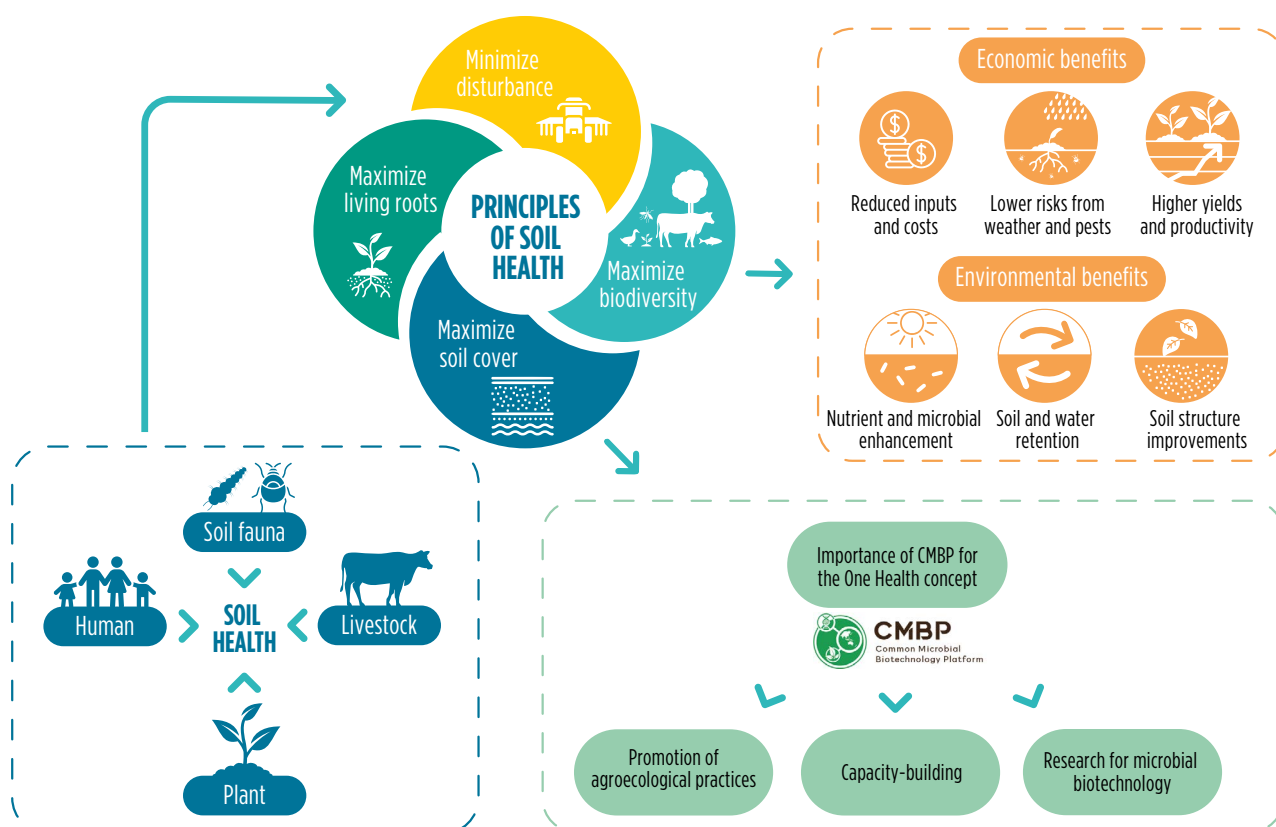


Figure 1. Principles of soil health and its relevance to One Health.

Soil health is crucial for sustainable agriculture and must be considered within the One Health initiative. The strategic significance of the Asia-Pacific network CMBP is to promote agroecological practices that enhance soil health.

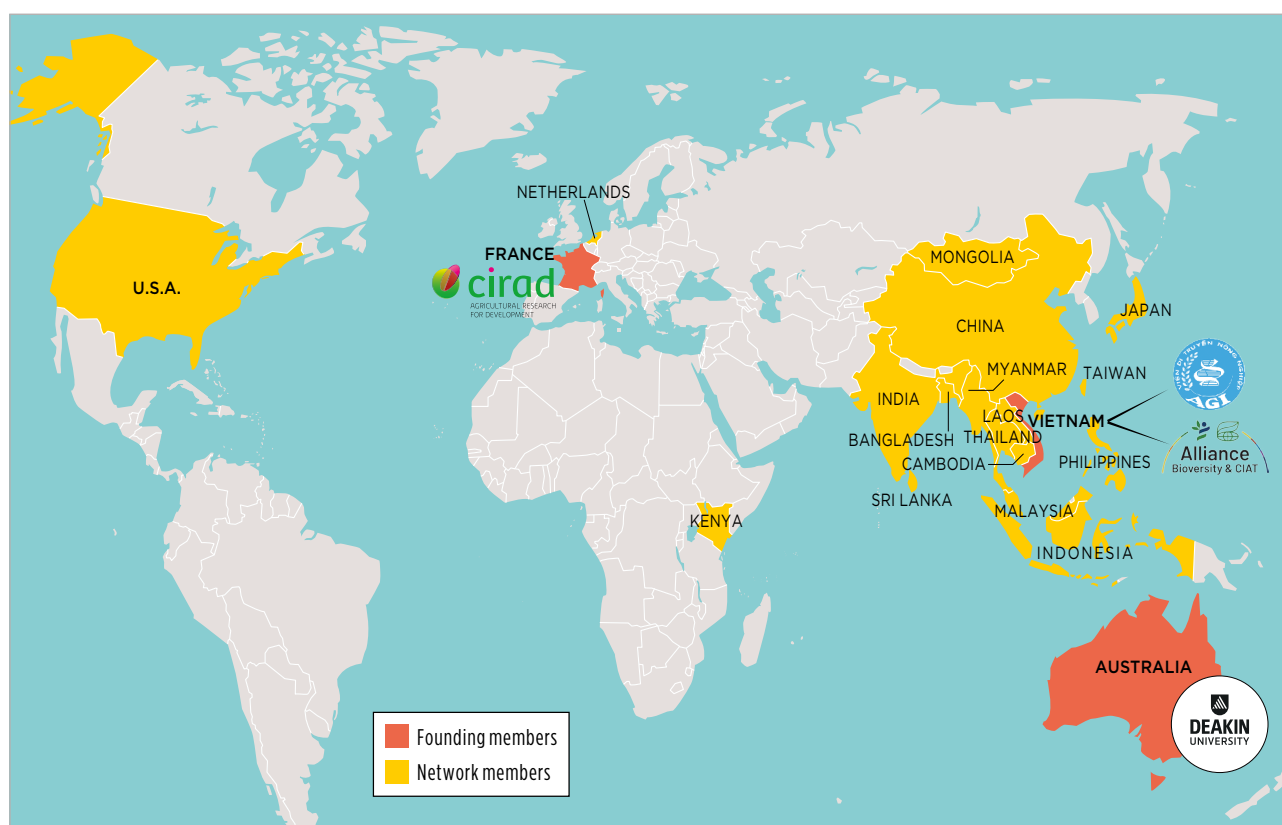


Figure 2. Map displaying the countries from which members joined the CMBP network. Source: CMBP network (www.cmbp-network.org).