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MOUNTAIN FUTURE



World  
Agroforestry  
Centre



# Circular Agriculture and Ecosystem-based Solution for Climate Change Mitigation and Adaptation

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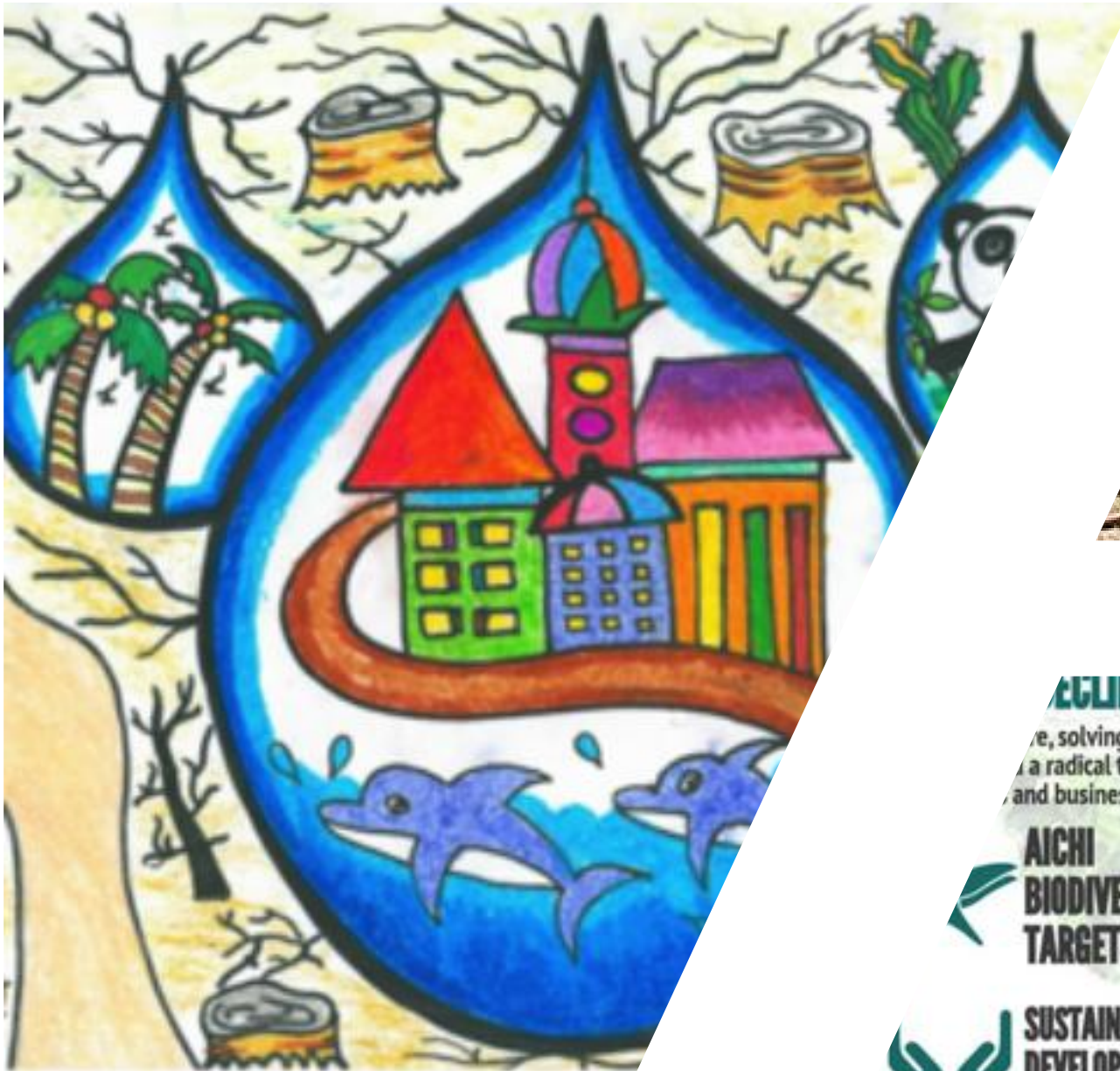
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# Outline

- What is EBS in Mountain?
- Why circular agriculture?
- How we do it? Case studies







2019 Scientific Consensus :  
 “Climate Change” to “Climate Crisis”



In 2019, IPBES announced a Biodiversity Crisis

UN Sustainable Development Goals Suffer Major Setbacks









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# Developing Climate S&T and building new relationship

人与科技

*Human – S&T Knowledge*



**Innovation**

**Integrating science, technology and traditional ecological knowledge**

人与自然

*Human – Nature*



**Sustainability**

**Optimizing natural resources & social capital**

人与人

*Human – Human*



**Compassion**

**Cross-culture learning and promoting better livelihoods**

# India-China Collaboration on Climate Change



Meeting with former Ambassador S Jaishankar  
23 Prithviraj Road, New Delhi

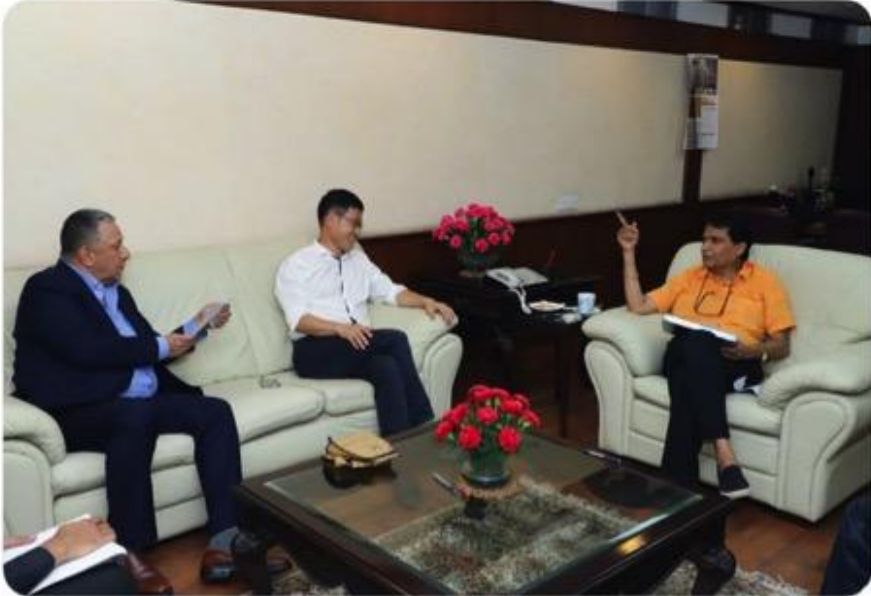


Tweet



Commerce Minister   
@CimGOI

Prof. Jianchu Xu, Kunming Institute of Botany met CIM [@sureshprabhu](#) to discuss on collaboration and investment opportunities in the field of climate change.



21/08/18, 8:00 PM





Public Engagement

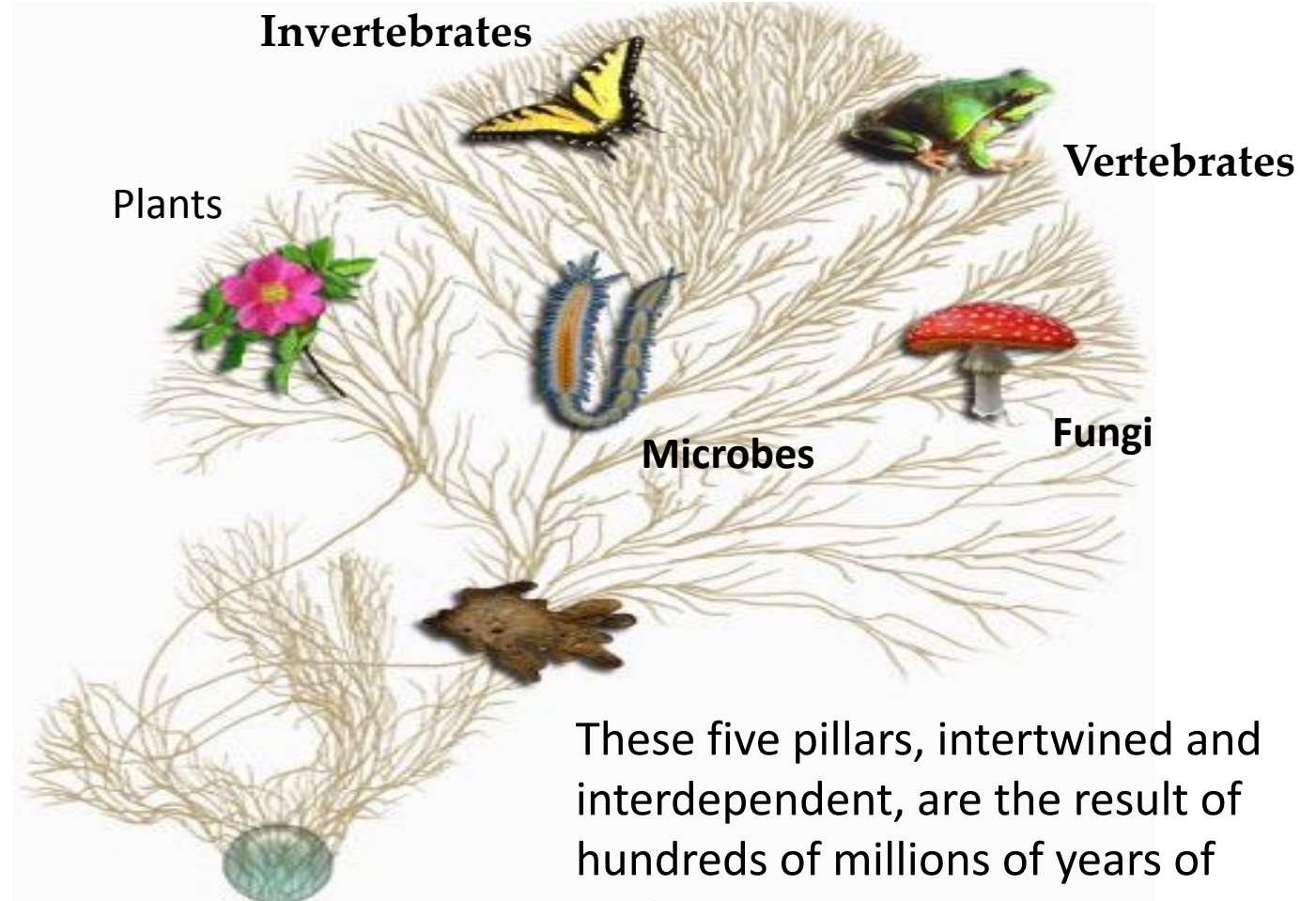




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# The Five Pillars of Biodiversity and Ecosystems

Our wealth.  
Our health.  
Our beauty.  
Our lives are maintained by  
countless other living things.



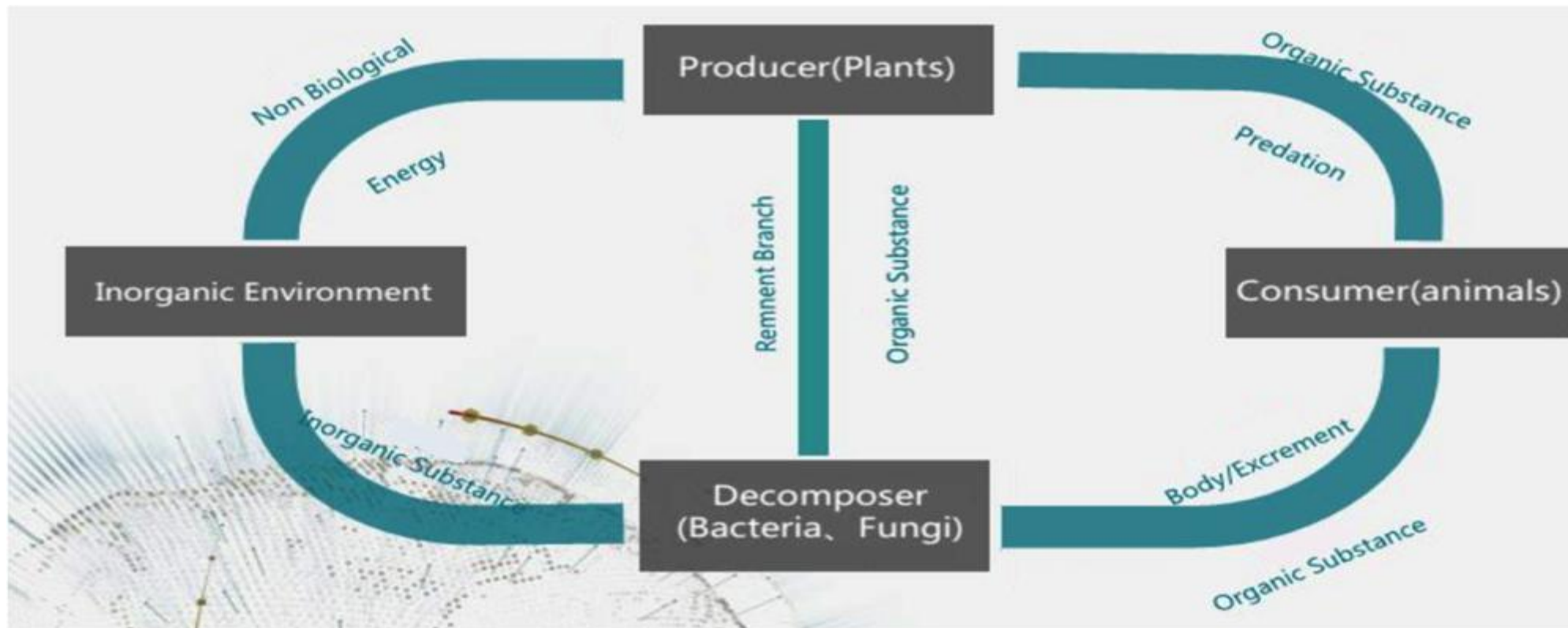
These five pillars, intertwined and interdependent, are the result of hundreds of millions of years of evolution.



# Circular Agriculture means that Outputs from all processes are Inputs to other processes

## Nature-based solution

- ☐ Resources-saving
- ☐ Environment-friendly





# What is ethnoecology?

- 'Ethno' refers to human culture and 'ecology' refers to interactions between organisms and the physical environment.
- Ethnoecology is the way of looking at the relationship between people and the ecology of the environments in which they live.
- Ethnoecology is the cross-cultural study of how people perceive and interact with their environments.
- (Conklin, Trans of NYAS, 1954)

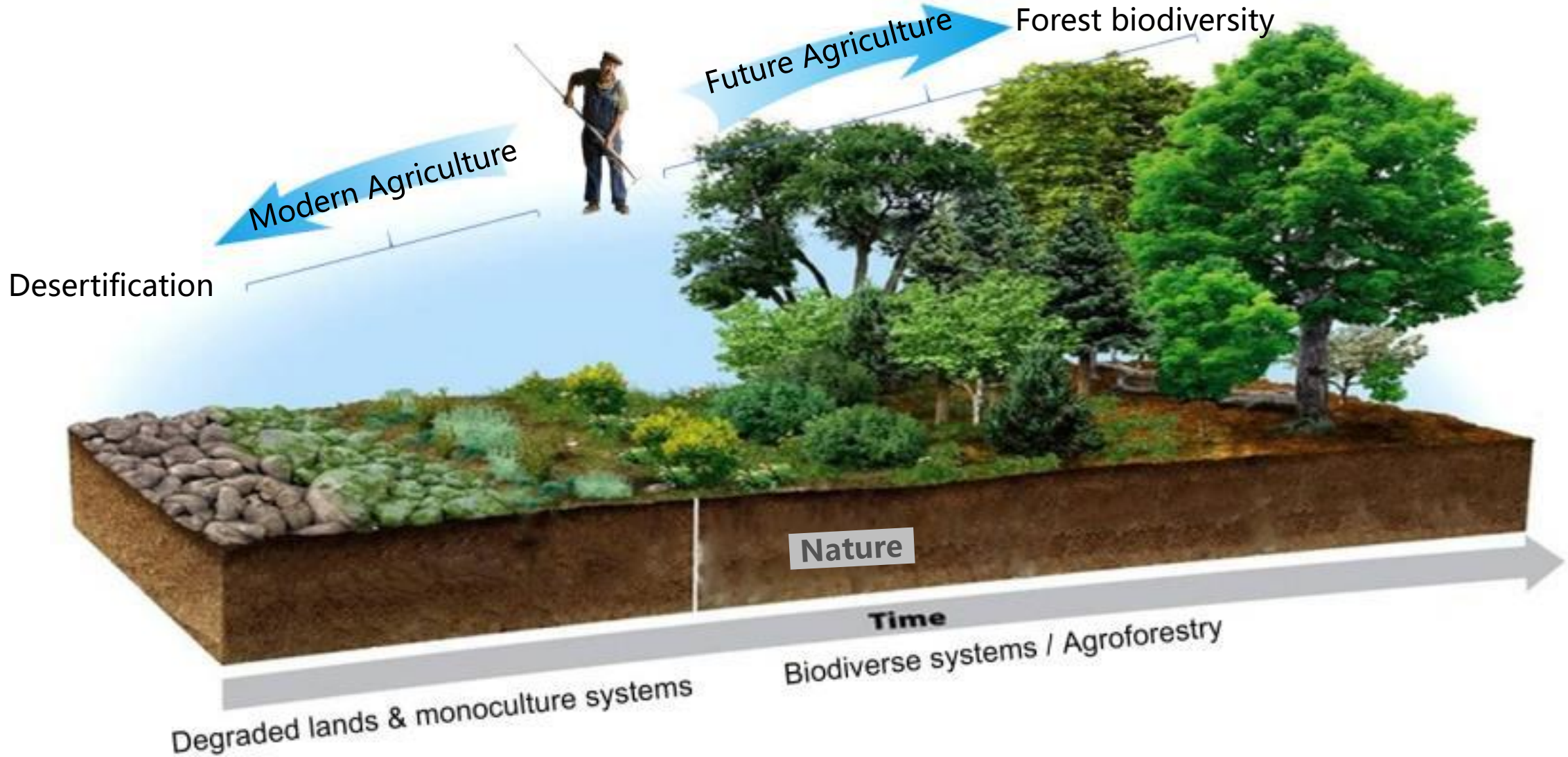


*Harold C. Conklin*

## Culture-based solution

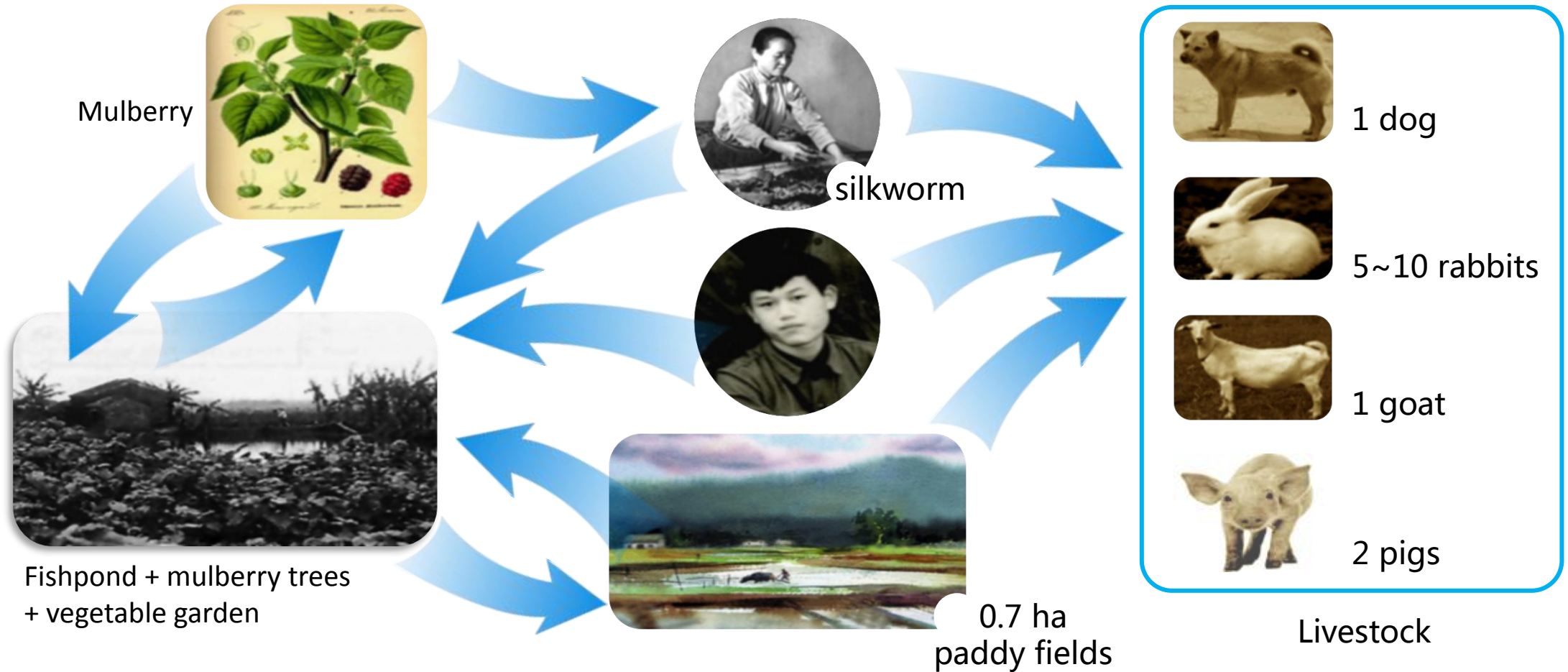
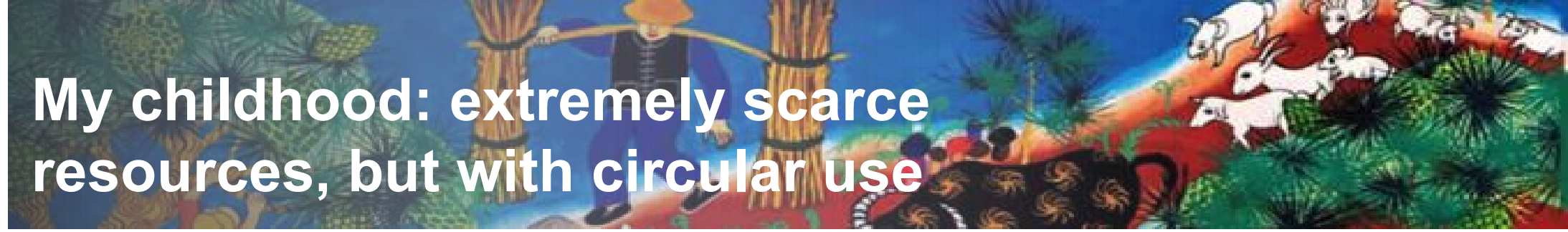


# Perennial, vertical and circular agriculture



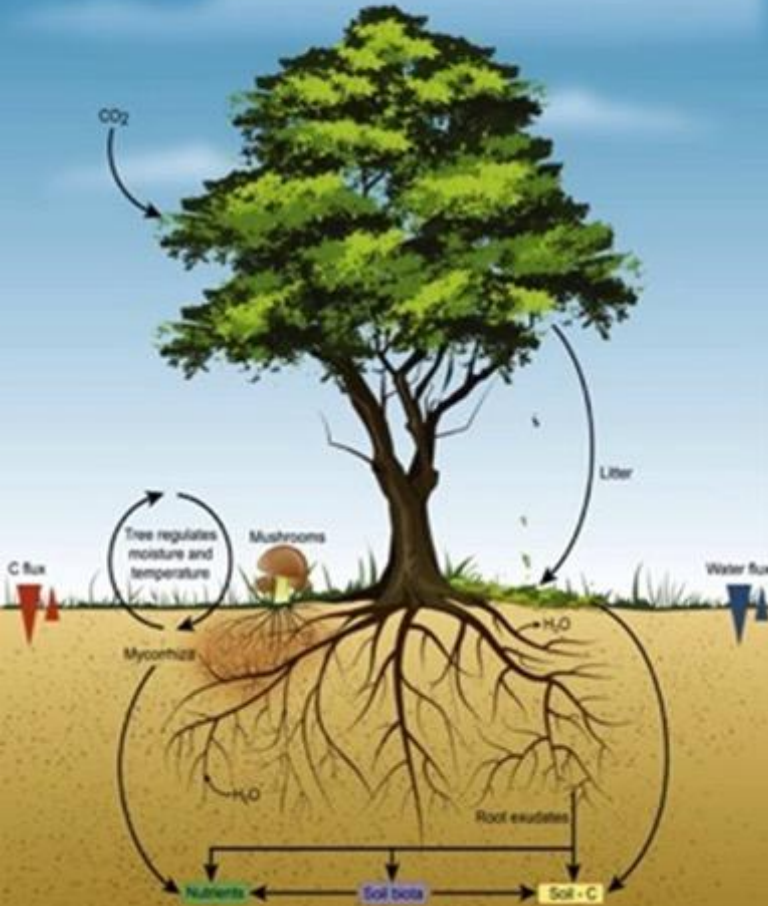


# My childhood: extremely scarce resources, but with circular use





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# Four Steps to restoring landscapes

- ❑ The right species in circular loop
- ❑ Vertical planting of tree-shrub-grass
- ❑ Tree-crop-livestock integration
- ❑ Biomass-based circular agriculture



# UNESCO Heritage Sites: Fish-duck-in-rice paddy





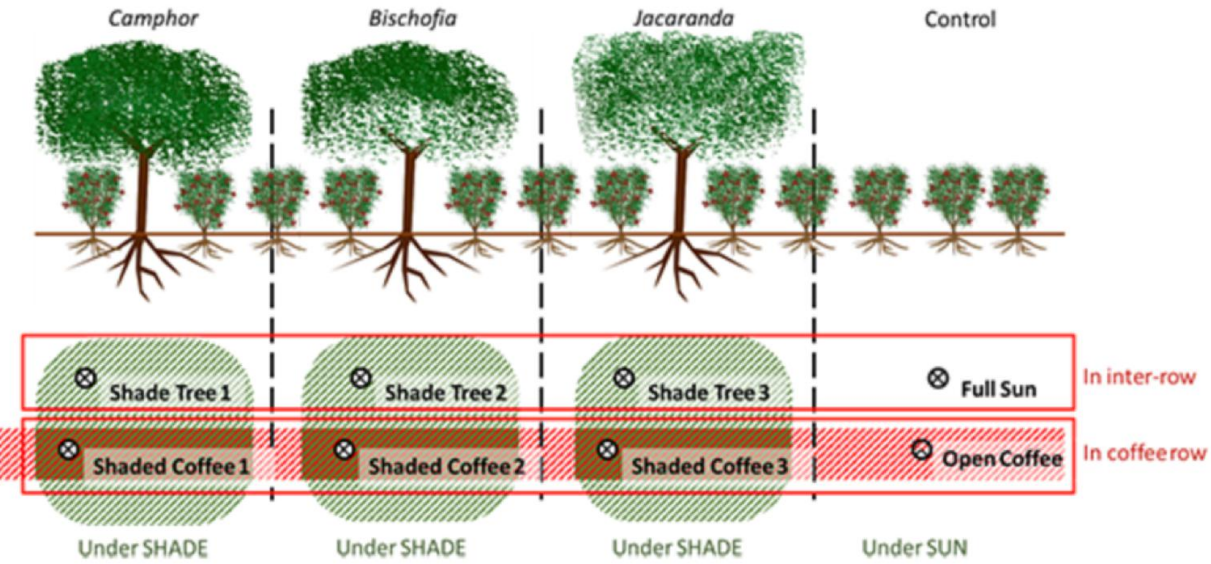


Innovations based on traditional rice paddy terraces



# Ecological Planting of *Coffea arabica*

The lifespan of a coffee tree is approximately 20 to 30 years. They thus grow from generation to generation. Decisions today are gains for tomorrow. Mountain Futures will cooperate with Agricultural Research for Development (CIRAD) to cultivate a new F1 coffee variety called starmaya, which is drought resistant, high quality and high yield, thus making it adapted to a post-climate change environment. We will carry out shade tree planting in Honghe and Pu'er City, putting into effect an international coffee chain by which Yunnan coffee can enter both European markets and artisanal domestic markets.



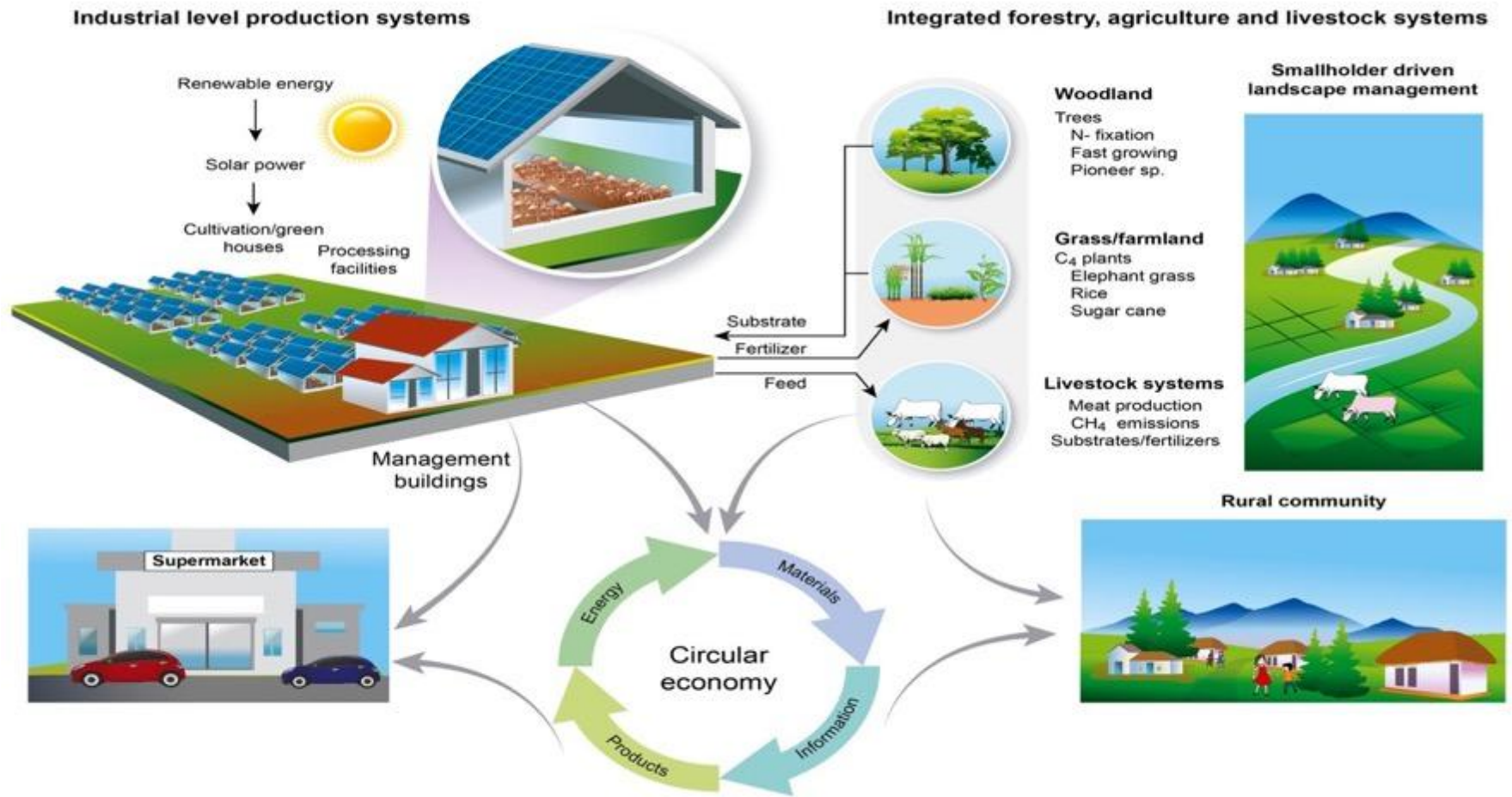


# Chickens, Insects, and Fishfarm





# Edible Mushrooms in Agroforestry Systems



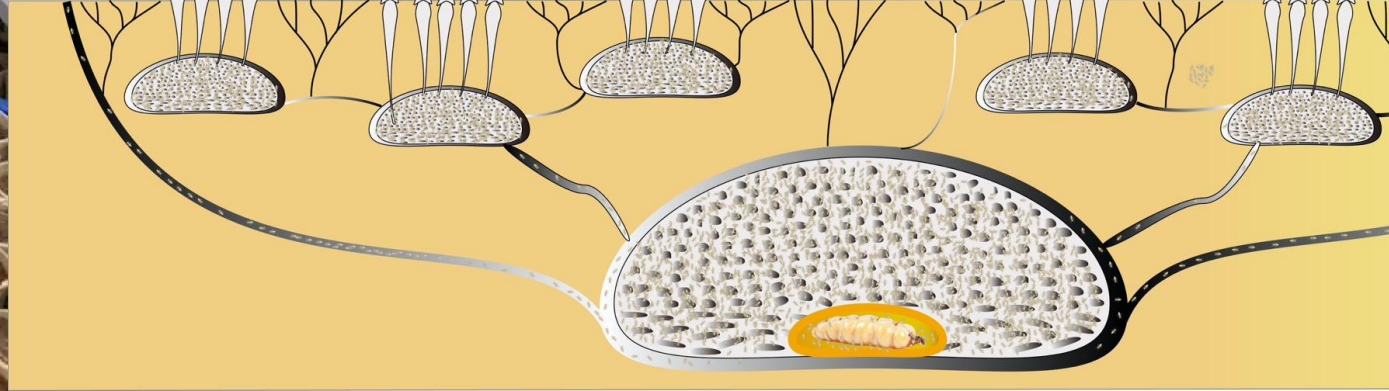




**Smart Mushroom Factory**



# Nature Based Solution: Ants-farmed mushroom



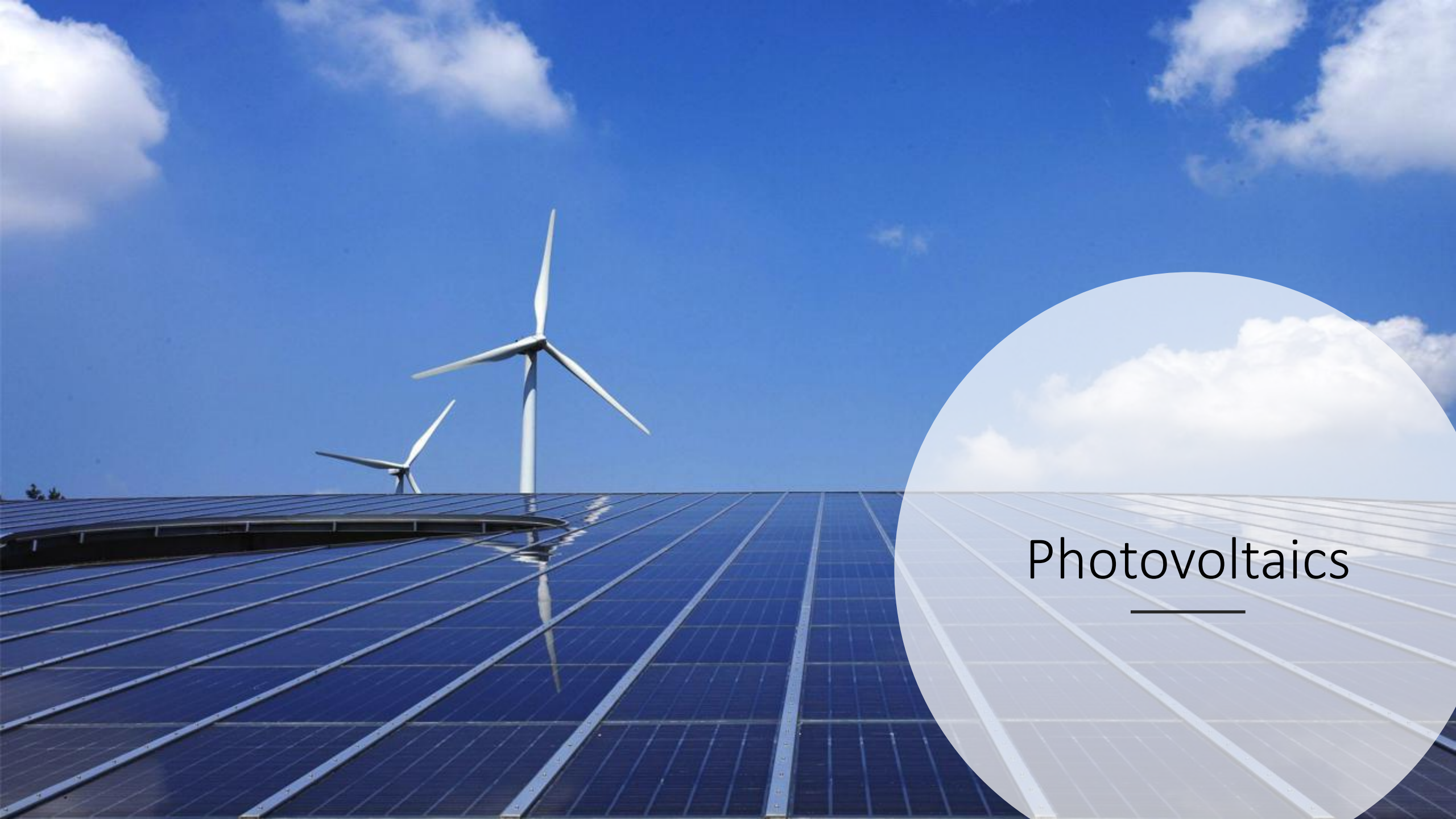




# Circular Agriculture

- Photovoltaic-driven
- Innovation & incubation
- Circular economy & Society

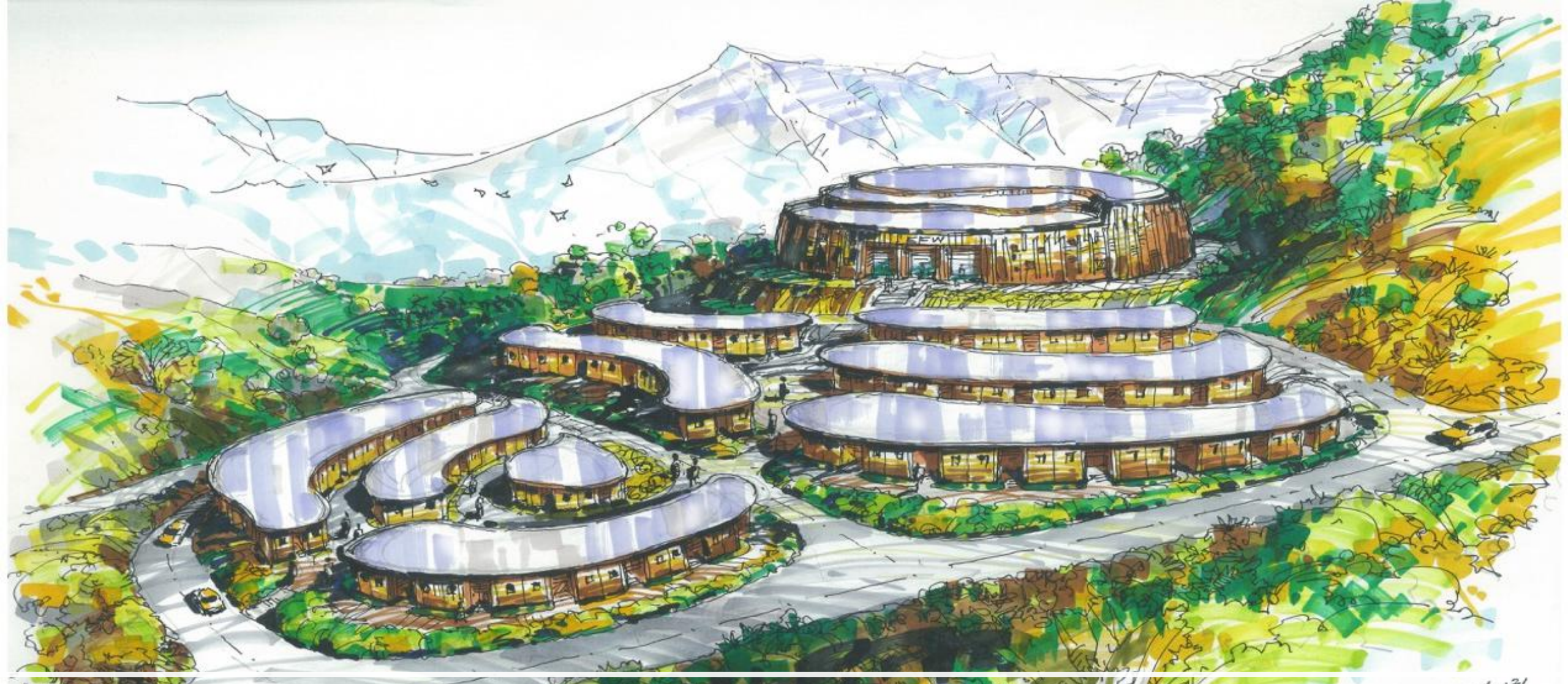




Photovoltaics

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# Photovoltaic-driven Innovation & Incubation Hubs

2017.10.13





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## Innovation and Incubation Hubs

Global Team for  
Interdisciplinary  
learning and  
innovations



Innovation flows :

- Energy
- Nutrition
- Knowledge
- Data
- Biomass
- Capitals





## Innovation and Incubation Hubs

(土壤、种子、饲料、植保、药食、动物、食用菌、昆虫、加工、人工智能等等)







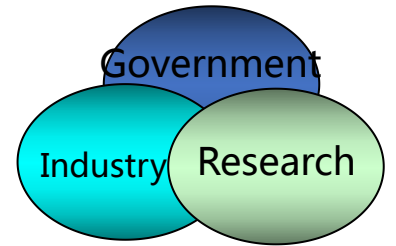
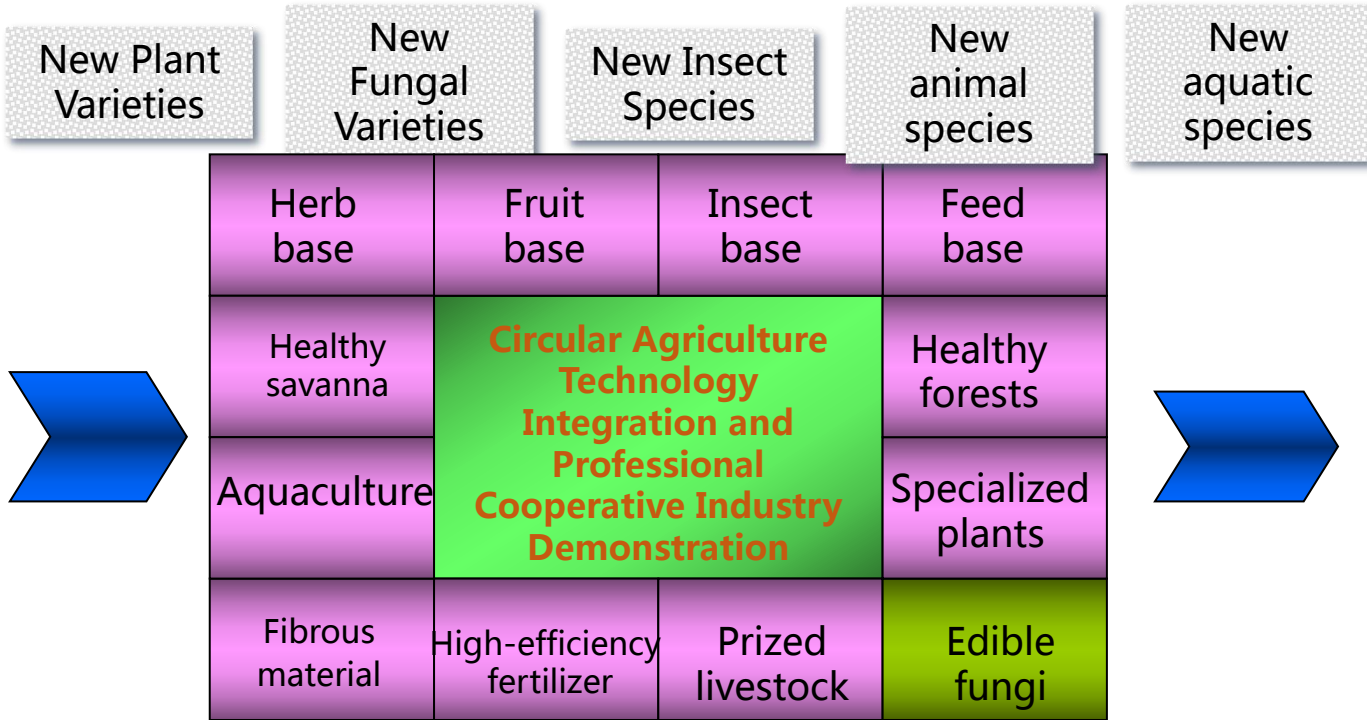
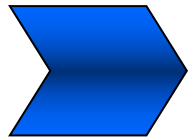
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# Technology Integration and Demonstration for Circular Agriculture

**Circular  
Chain  
Development**

- New Agro Tech
- Biofertilizer
- Organic feed
- Healthy products



**Innovation Programs**

**Innovation Centre**

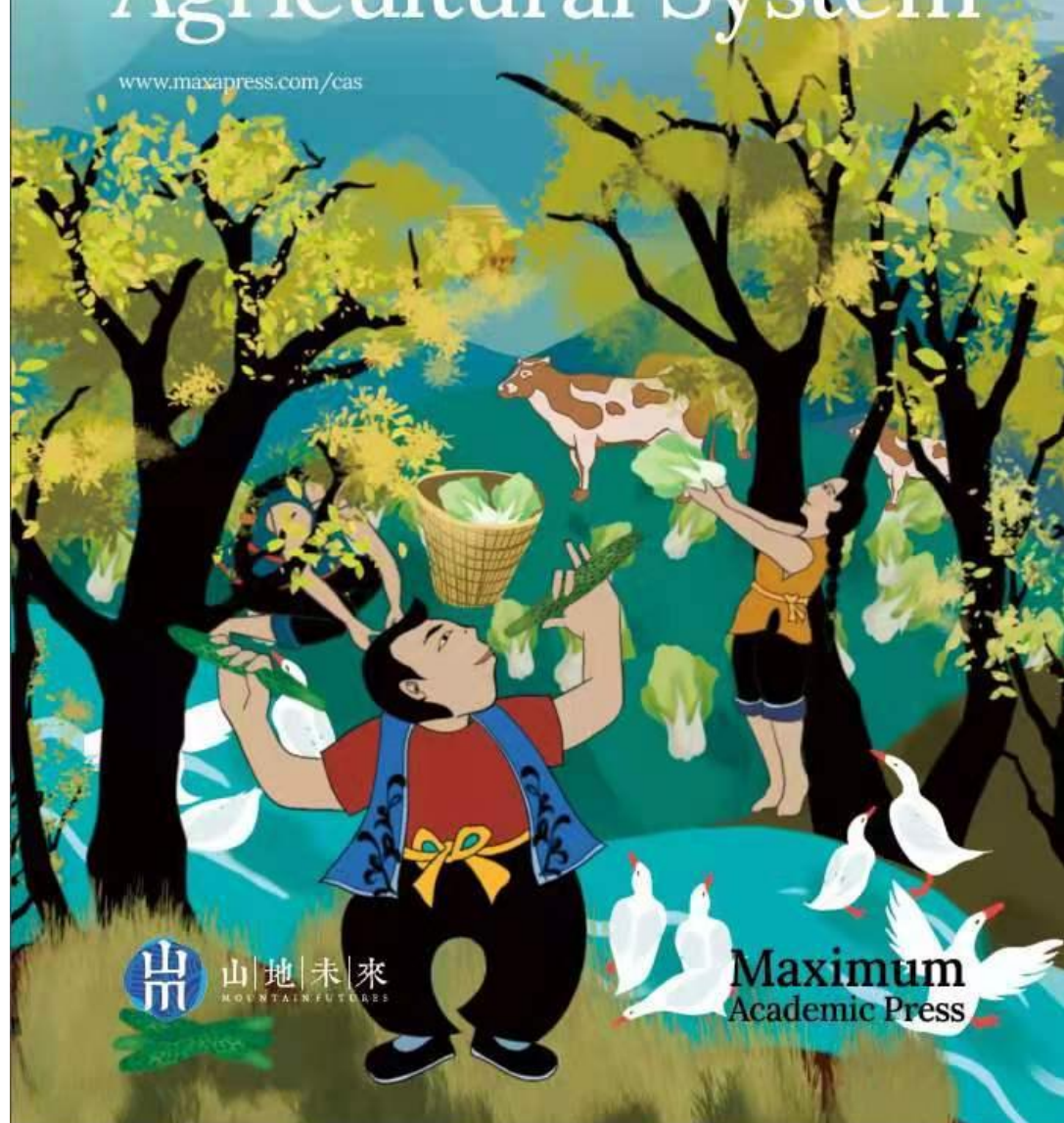
**Technological Indicator Systems**

**The transformation of agricultural production**



# Circular Agricultural System

[www.maxapress.com/cas](http://www.maxapress.com/cas)



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# Studies in Fungi

[www.maxapress.com/sif](http://www.maxapress.com/sif)




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- 
- Mountain Futures represents a new chapter in biodiversity conservation and ecological civilization construction.
  - Tree-Crop-Livestock Systems and Circular Economies are the future.
  - Circular agriculture and ethnoecology offers new pathways for developing a green cultural economy and montane ecological management systems.