



Towards the establishment of a Regional Training Center on Agroecological and CA systems

Presented by Florent Tivet

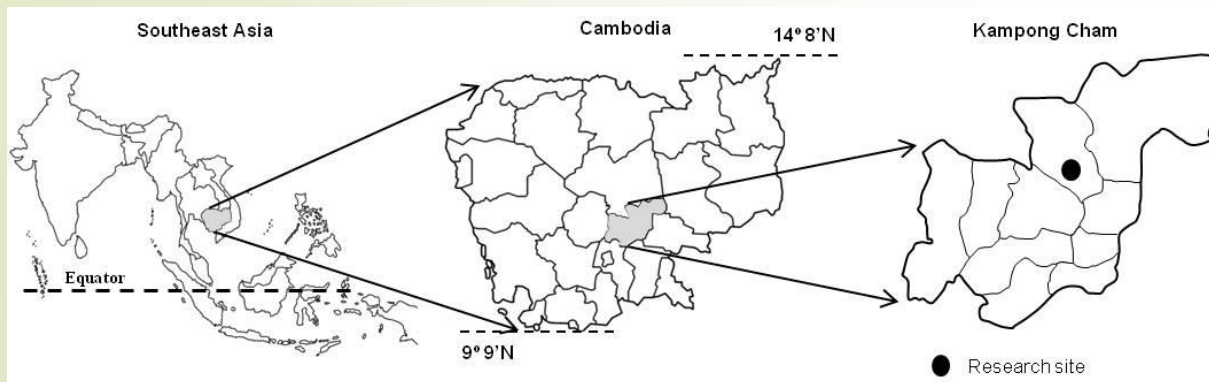
Regional Forum Agroecology Futures, 6-8 November 2018, Siem Reap, Cambodia



Background

An ideal location

- Bos Khnor, Kampong Cham province, Cambodia
- At the crossroad of several regional countries
- 15ha land dedicated to experiments, seed preservation and training
- Facilities: office, seed store, training rooms, dormitory (men and women) and fields



Different components aggregated

Large expertise and longest experiments under CA in South-East Asia (since 2004)

- Design and assess the transition towards agro-ecological systems (technical requirements including mechanization, performances and ecological balance shifts)
- Preservation of a large genetic bank, seed production and sharing
- Capacity building (farmers, development practitioners and academia/research)
- Building a scientific recognition through analytical studies (Soil organic C dynamics and others soil functions)

A long-term and collective effort

- General Directorate of Agriculture: DALRM, DAEng
- RUA, Center of Excellence of Sustainable Agricultural Intensification and Nutrition (CE SAIN), CIRAD
- AFD, USAID – The Feed the Future, CCCA/UNCCD



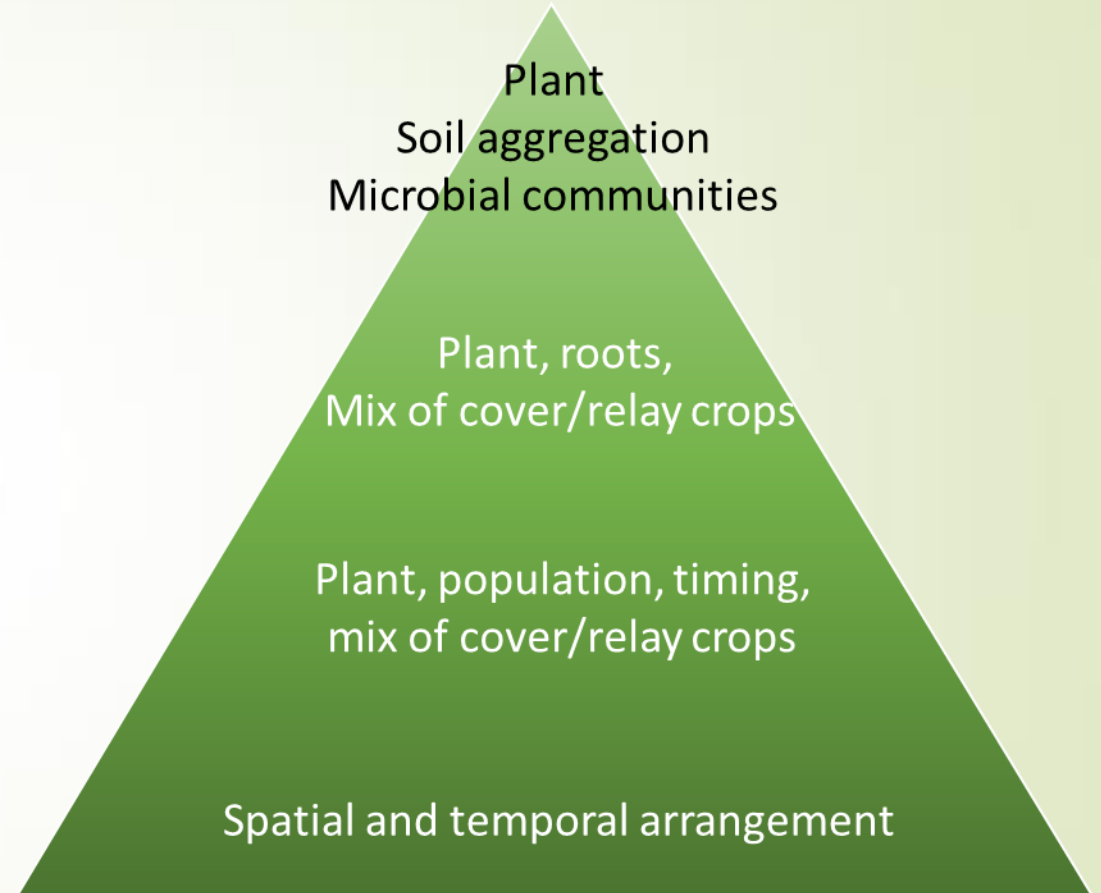
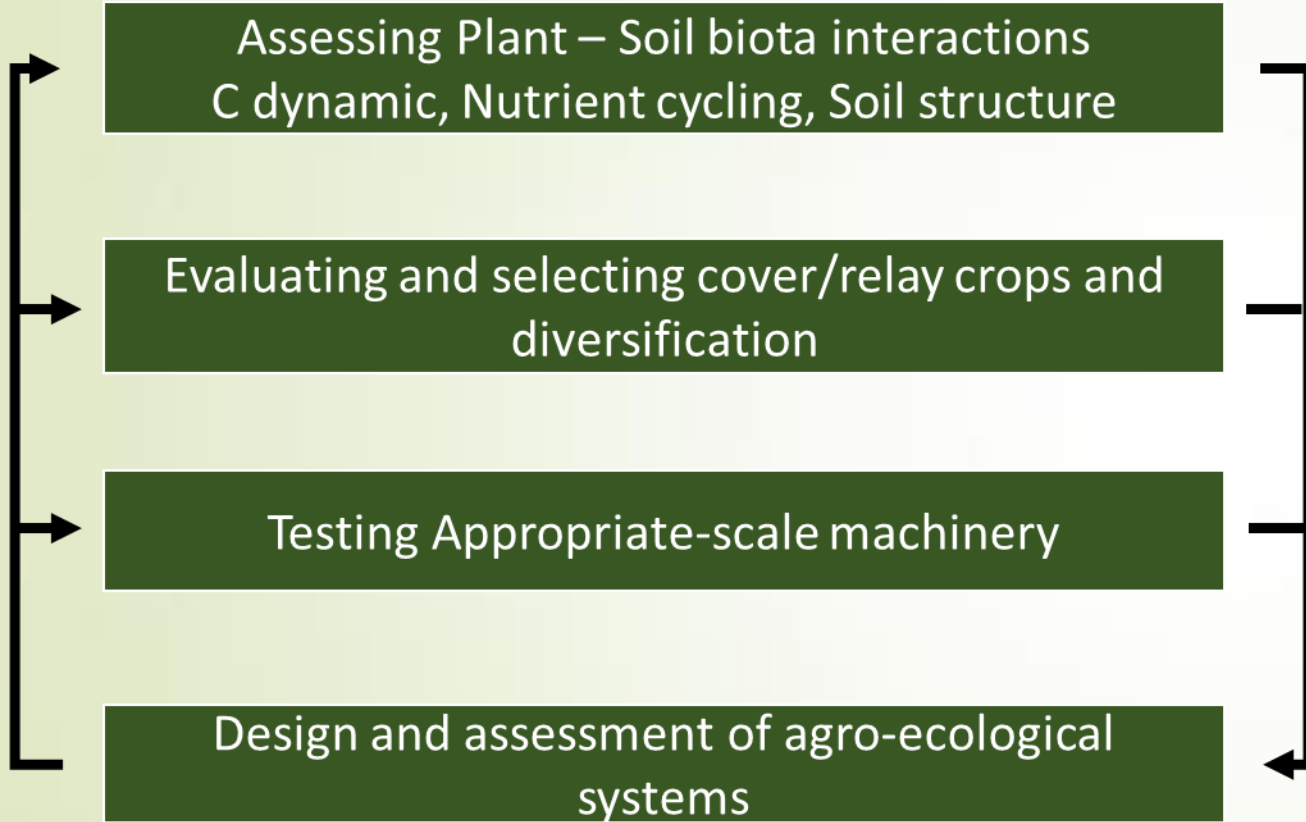
A range of cropping systems including appropriate-scale machinery



Cassava



Different components aggregated



Genetic banks: preserving, producing seeds and sharing



> 50 species and > 300 cultivars of staple, cash crops and under-utilized species

Analytical studies and building a scientific recognition

CASE STORY 4

Conservation Agriculture for Climate-Resilient Rain-Fed Uplands in the Western Regions of Cambodia

Challenges, Opportunities, and Lessons from a 10-Year R&D Program

Rada Kong, Veng Sar, Vira Leng, Sopheak Trang, Stephane Boulakia, Florent Tivet, and Lucien Seguy



Article Evaluation of Long-Term SOC and Crop Productivity within Conservation Systems Using GFDL CM2.1 and EPIC

Kieu N. Le ^{1,2,*}, Manoj K. Jha ³, Jaehak Jeong ⁴, Philip W. Gassman ⁵, Manuel R. Reyes ⁶, Luca Doro ⁴, Dat Q. Tran ⁷ and Lyda Hok ⁸

Agricultural Systems 166 (2018) 90-100



Contents lists available at ScienceDirect

Agricultural Systems

journal homepage: www.elsevier.com/locate/agsy



Evaluation of the performance of the EPIC model for yield and biomass simulation under conservation systems in Cambodia

Kieu N. Le ^{1,2,*}, Jaehak Jeong ⁴, Manuel R. Reyes ⁶, Manoj K. Jha ³, Philip W. Gassman ⁵, Luca Doro ⁴, Lyda Hok ⁸, Stéphane Boulakia ⁸



Agriculture, Ecosystems and Environment 214 (2015) 54-67



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Short-term conservation agriculture and biomass-C input impacts on soil C dynamics in a savanna ecosystem in Cambodia



Lyda Hok ^{a,b}, João Carlos de Moraes Sá ^{c,*}, Stéphane Boulakia ^d, Manuel Reyes ^a, Vira Leng ^e, Rada Kong ^e, Florent Elie Tivet ^d, Clever Briedis ^d, Daiani Hartman ^f, Lucimara Aparecida Ferreira ^f, Tomas Magno ^f, Sovuthy Phear ^g

Soil & Tillage Research 177 (2018) 125-133



Contents lists available at ScienceDirect

Soil & Tillage Research

journal homepage: www.elsevier.com/locate/still



Enzymes and C pools as indicators of C build up in short-term conservation agriculture in a savanna ecosystem in Cambodia



Lyda Hok ^{a,b}, João Carlos de Moraes Sá ^{c,*}, Manuel Reyes ^c, Stéphane Boulakia ^f, Florent Tivet ^f, Vira Leng ^g, Rada Kong ^g, Clever Briedis ^g, Daiani da Cruz Hartman ^g, Lucimara Aparecida Ferreira ^g, Thiago Massao Inagaki ^h, Daniel Ruiz Potma Gonçalves ^h, Pamela Thaísa Bressan ^h

Agriculture, Ecosystems and Environment 251 (2018) 37-47



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Evaluating carbon sequestration for conservation agriculture and tillage systems in Cambodia using the EPIC model



Kieu Ngoc Le ^{a,*}, Manoj K. Jha ^b, Manuel R. Reyes ^c, Jaehak Jeong ^d, Luca Doro ^d, Philip W. Gassman ^e, Lyda Hok ^f, João Carlos de Moraes Sá ^g, Stéphane Boulakia ^h

- Peer-review articles (SOC dynamics and functions)
- Pooling together different teams on different topics (national and international: RUA/CE SAIN, ITC, IRD, CIRAD, TUAT, CIAT)

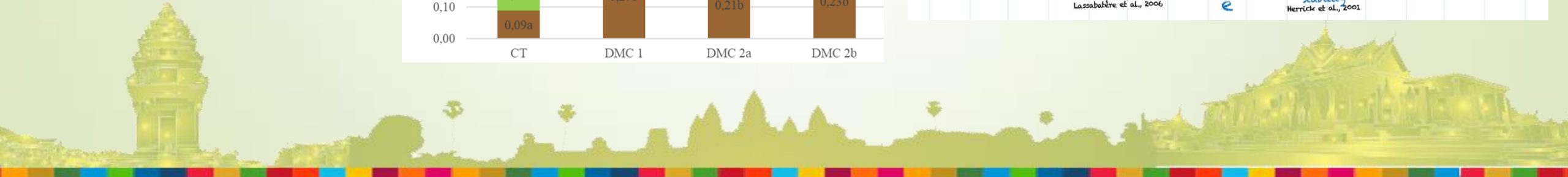
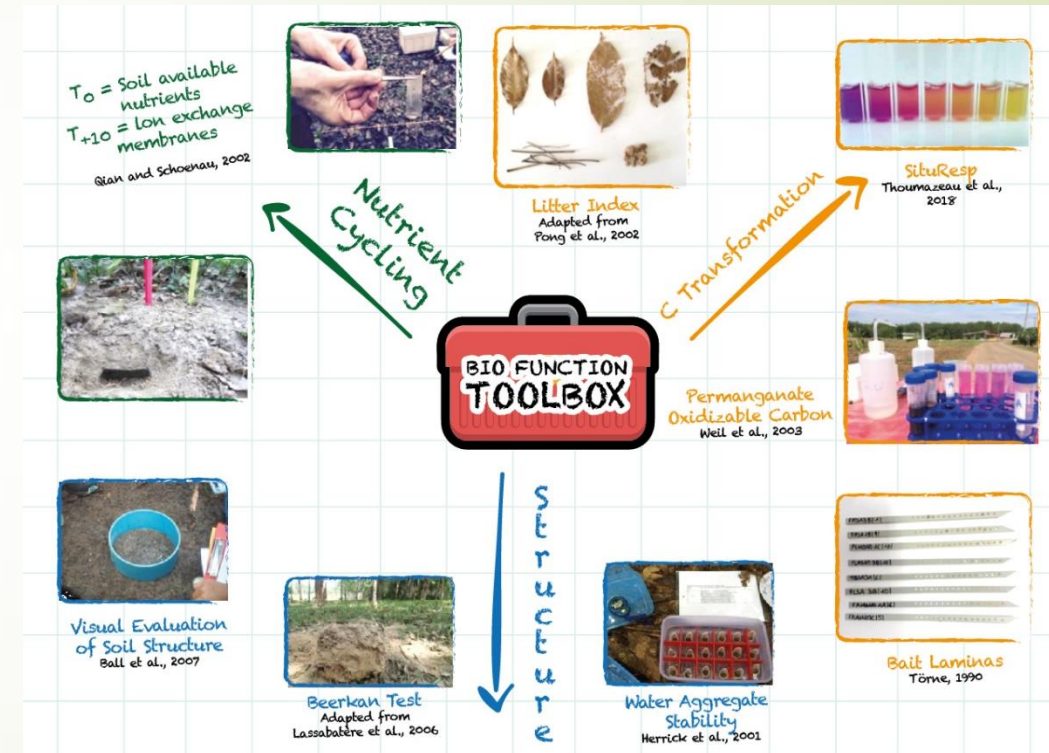
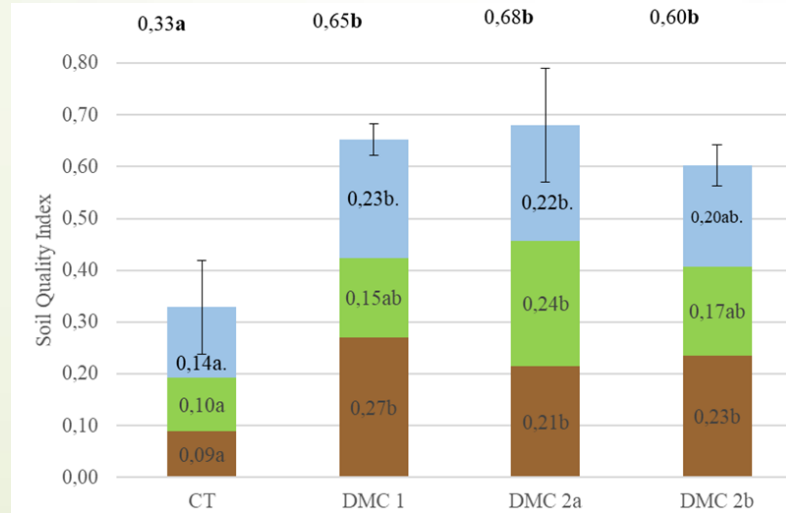
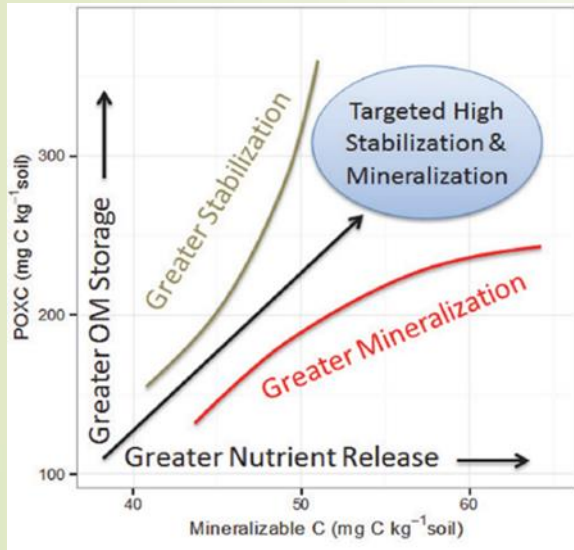
Pheap et al., forthcoming





In situ and decision making tool

Developing in situ tool that will be used on-farm to assess early changes in soil fertility under contrasted soil & crop management practices



Capacity building, sharing know-how, knowledge and tools

Training on vermiculture (HORT IL)



Training on ASM



Seed swap organized with ECHO Asia, Penn State University, RUA (Aug. 6th, 2018)

Example of the last training

- Over 80 participants: 50 farmers, 30 development practitioners and academia, 6 provinces
- 2 days training
- Seed saving, seed production, Soil health, IPM
- Several teams as trainers: ECHO Asia, Penn State (WAgN), RUA, Horticulture Innovation Lab, GDA/DAEng/DALRM

Training on Seed saving and production, Soil health and Integrated pest management



- 5th and 6th August 2018
- Training on seed saving, seed production of under-utilized species, soil health and integrated pest management.
- Organized by the Department of Agricultural Land Resources Management (GDA/DALRM), CIRAD, Royal University of Agriculture (RUA), ECHO Asia, Sustainable Intensification Innovation Lab (CE SAIN, WAgN, ASMC) and Horticulture Innovation Lab.

Bos Khnor Station, Conservation Agriculture Service Center, Technology Park CE SAIN, Chamcarleu district, Kampong Cham, Aug. 5 and 6

A deep connection with on-farm networks

- Alternatives cropping systems for rice, maize, cassava, use of under-utilized species and cover/relay crops
- Empowering farmers into seed production and building connections with private sector (Battambang)
- Diversifying rice-based cropping systems around the Tonle Sap Lake (expectations of over 200 ha: Battambang, Kampong Thom provinces)
- On-farm testing and adjusting of appropriate-scale machinery and building connections with service providers (demand-creation process, Battambang)



Perspectives

- To develop a regular curricula over the years for smallholder farmers, development practitioners and academia/research.
- To design an economic model for the training center that is viable.
- To increase the diversity of practices and production systems within the Center and to integrate trees in the landscape.
- Attract additional partners, academia and donors to sustain the activities (field operations and training).



Thanks to all teams and donors involved



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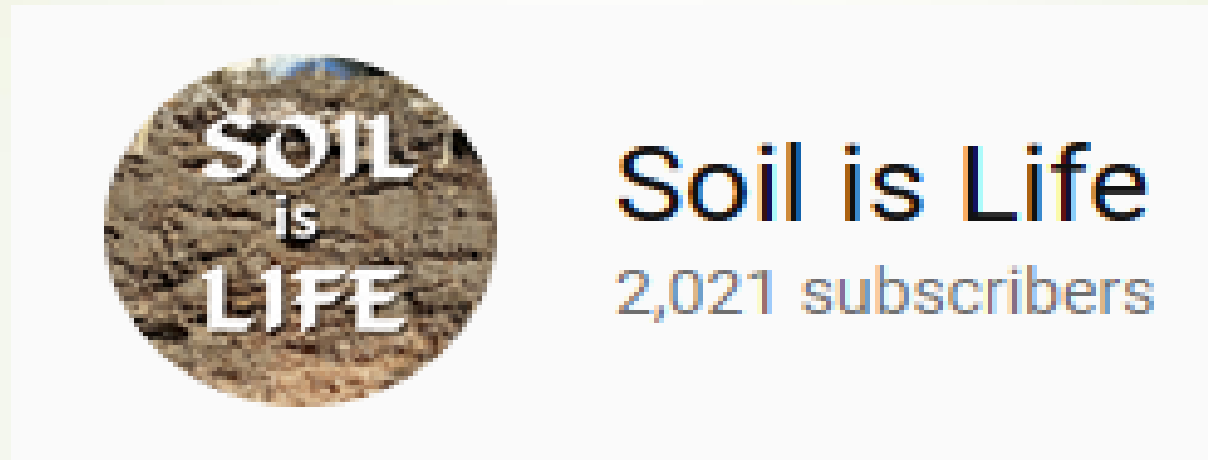
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