



ALiSEA general assembly workshop “Towards an Agroecology Transition”



Pedagogical resources in Agroecology & Conservation Agriculture

Florent Tivet (CIRAD), Malyne Neang (RUA/Ecoland), Dok Pheakdey (RUA),
Vitchet Lay (RUA), David Wissocq



Scientific, technical and social ‘complexity’

- Cropping and farming systems design, agricultural engineering, landscape ...
- Biological/ecological assessment: soil health, plant diversity functions and services...
- The knowledge and the learning process: availability, field and observation, pluri-disciplinarity (agronomy – ecology – social sciences)
- Innovation process: higher levels of technical and social complexity



Challenges to teach Agroecology

- Needs accessible training and teaching on agroecology
- Need to enhance the interdisciplinary and interactivity through the connections between Field – Research and Teaching
- Needs for different types of information (theory, testimonials, case study...), providing the opportunity to learn in different, combined and integrated ways
- Needs for partnership between teachers, scientists, development actors, smallholders: technical – academic

A diversity of tools


- E-learning platform
- CMS platform containing e-learning courses, clips, pictures, testimonies (iperca.org)
- Technical leaflets
- Website (casc.cirad.fr), Facebook

E-learning

- 3 main dimensions (12 courses, 30 modules)
 - Agrarian analysis, Agroecological transition and Historical drivers of land use and land cover changes
 - Introduction to Conservation Agriculture, Soil organic matter, Soil aggregates, Cover crops
 - Agricultural machinery: Use of power tiller, Laser land-leveilling, NT planter



E-learning: Agrarian system analysis



Numeric learning contents to teach Agroecology and Conservation Agriculture

PROJECT ▾ ABOUT E-LEARNING ▾ CONTACT US 🔍

WELCOME TO IPERCA.ORG

RUA E-LEARNING NEWS

E-LEARNING PLATFORM

E-LEARNING COURSES ▸

TEACHING MATERIAL ▸

MOBILE LEARNING ▸

SHORT FILMS ▸

LAB ZONE

STAY TUNED

Name

Email *

NEWS

E-LEARNING PLATFORM

NEWS

LEAVE A COMMENT

IPERCAID@GMAIL.COM

AGRARIAN SYSTEM ▸

COURSE PRESENTATION

AGRARIAN TRANSITION ▸

MODULE 1: THE CONCEPT OF AGRARIAN SYSTEM

CA & DMC ▸

MODULE 2 :LANDSCAPE READING

BUILD A HEALTHY SOIL ▸

MODULE 3: HISTORICAL STUDY

SOIL ORGANIC MATTER ▸

MODULE 4: PRODUCTION SYSTEM STUDY AND MODELING

COVER CROP ▸

SOIL AGGREGATES ▸

LASER LAND LEVELLING

POWER TILLER

WordPress database error: [You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '1' at line 1]

1

0 0 2 6 6 8 1

👤 Visit Yesterday : 156



📅 This Month : 3619

👤 Who's Online : 1


PICK UP A TOPIC !

E-learning: Agrarian system analysis

LANDSCAPE READING




- Module description
 - About agricultural landscape
 - Observing a landscape
 - Analysing a landscape
- Guided example of landscape reading
- Case study : farmer's decision making on land-use
 - Make your own landscape observation
 - Landscape observation in North-western Cambodia
 - Quiz: Self-assessment
 - Teacher's proposition
- Make your own landscape








Module description

How to read a landscape ?



Landscape reading is the first step of the Agrarian Diagnosis methodology. It is a step of observation and analysis in order to approach the structure of the agrarian system under study.



In this course you will learn to describe an agricultural landscape and to formulate hypothesis about farmer's decisions, based on your observations of the landscape. You will learn to recognize the main agroecological factors that influence farmer's choices.

 2013 - UVED

E-learning: Agrarian system analysis

Search

LANDSCAPE READING



Module description

About agricultural landscape

The concept of landscape

About agricultural landscapes

Observing a landscape

Analysing a landscape

Guided example of landscape reading

Case study : farmer's decision making on land-use

Conclusion

3. Production system modelling and calculation of economic performance

Steps of Agrarian System analysis

This stage will give an insight into the questions linking farmers and their environment. The main goal of landscape reading is to explain how farmers use their environment. It will also help identifying the possible combinations of cropping systems, livestock systems and exploitation of resources within the area, which is the first step for drawing a draft of farm typology and collective land management. Knowing how farmers use their environment is important for the next steps, both historical study and economic analysis of production systems.

Landscape reading

Whatever the landscape is, landscape reading can be achieved through two main steps: observation and analysis.
At this stage it will generate lots of questions and hypothesis, which will be very useful for the next step of study.

10

Methodological steps for landscape reading

Divide the landscape into homogenous units

Carry out detailed observation of each unit

Guided by the question "Why?", formulate hypotheses about:


- the way they are used
- the relations between units
- the difference of land-use between them



OBSERVATION



ANALYSIS

At the end of formulating the first hypotheses, it can be useful to come back to observation.

Method







© 2013 - UVED

E-learning: Agrarian system analysis

LANDSCAPE READING

Home

Module description

About agricultural landscape

Observing a landscape

Dividing a landscape into units

Land-use description of landscape units


Analyzing a landscape

Guided example of landscape reading

Case study: Farmer's decision making on land-use

Conclusion

short-term process and planning process




Example of a cross-section: present land use in middle of rainy season (July-Nov) in the agroecosystem of Tana Zair Plateau


Observation is achieved when landscape units appear on cross-sections/diagram-blocks as zones with:

- homogenous biophysical characteristics
- an associated specific *land use*

Landscape observation in the field




Example




E-learning: Agrarian system analysis

Search


LANDSCAPE READING




Module description




About agricultural landscape




Observing a landscape




Zoning of landscape units




Detailed description of landscape units




Analysing a landscape



Guided example of landscape reading



Case study : farmer's decision making on land-use



Conclusion

Focus on the **shape of the land, the topography, water resources and vegetation, both natural and cultivated**, without paying attention to details.

Along with these first observations will come a **division of landscape in homogenous units**, which raise the first hypotheses about land-use. Further investigation of these hypotheses require a closer observation of each unit.

Example


Let's train to find landscape units !

On the picture below, we can identify three landscape units at first sight. This division is mainly based on the observation of vegetation (cultivated and natural) and topological features.


The three green squares are part of these three different landscape units. In the following exercise, try to match each landscape unit with its right description.

Search


LANDSCAPE READING




Module description




About agricultural landscape




Observing a landscape




Analysing a landscape




Guided example of landscape reading




Case study : farmer's decision making on land-use




Make your own landscape observation




Landscape observation in North-western Cambodia




Quiz : Self-assessment



Teacher's proposition



Make your own landscape analysis



Conclusion

Question

How many landscape units did you identify during your landscape observation ? Click on the button "solution" to check the answer.


Solution

Question

What elements did you see or not see during your observation ? Once you have completed the following activity, click on the button "solution" below.

Yes


?



No

Solution

Once you have achieved your self-assessment, have a look at the teacher's proposition on the next page.



E-learning: Introduction to CA and DMC

Numeric learning contents to teach Agroecology and Conservation Agriculture

PROJECT ▾ ABOUT E-LEARNING ▾ CONTACT US

WELCOME TO IPERCA.ORG

RUA E-LEARNING NEWS

E-LEARNING PLATFORM

E-LEARNING COURSES ▸

TEACHING MATERIAL ▸

MOBILE LEARNING ▸

SHORT FILMS ▸

LAB ZONE


STAY TUNED

Name

Email *

SUBSCRIBE

COPYRIGHT



www.iperca.org/e-learning/CA-DMC

WELCOME TO THE ONLINE LIBRARY

The library promotes numeric learning contents in the field of Conservation Agriculture. These resources are part of a project (Innovative Conservation Agriculture for Cambodia) funded by the Bill & Melinda Gates Foundation.

The project is led by the University of Agriculture, Forestry and Fisheries of Battambang (UAFB), the General Directorate of Agriculture, Forestry and Fisheries (GDAFF), and the Centre de Recherche Agronomique pour le Développement (CIRAD).




The library contains e-learning courses designed by the partners of the project, and other pedagogical resources (i.e., pictures, clips).

WHO IS ONLINE ?

WordPress database error: [You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '1' at line 1]

1

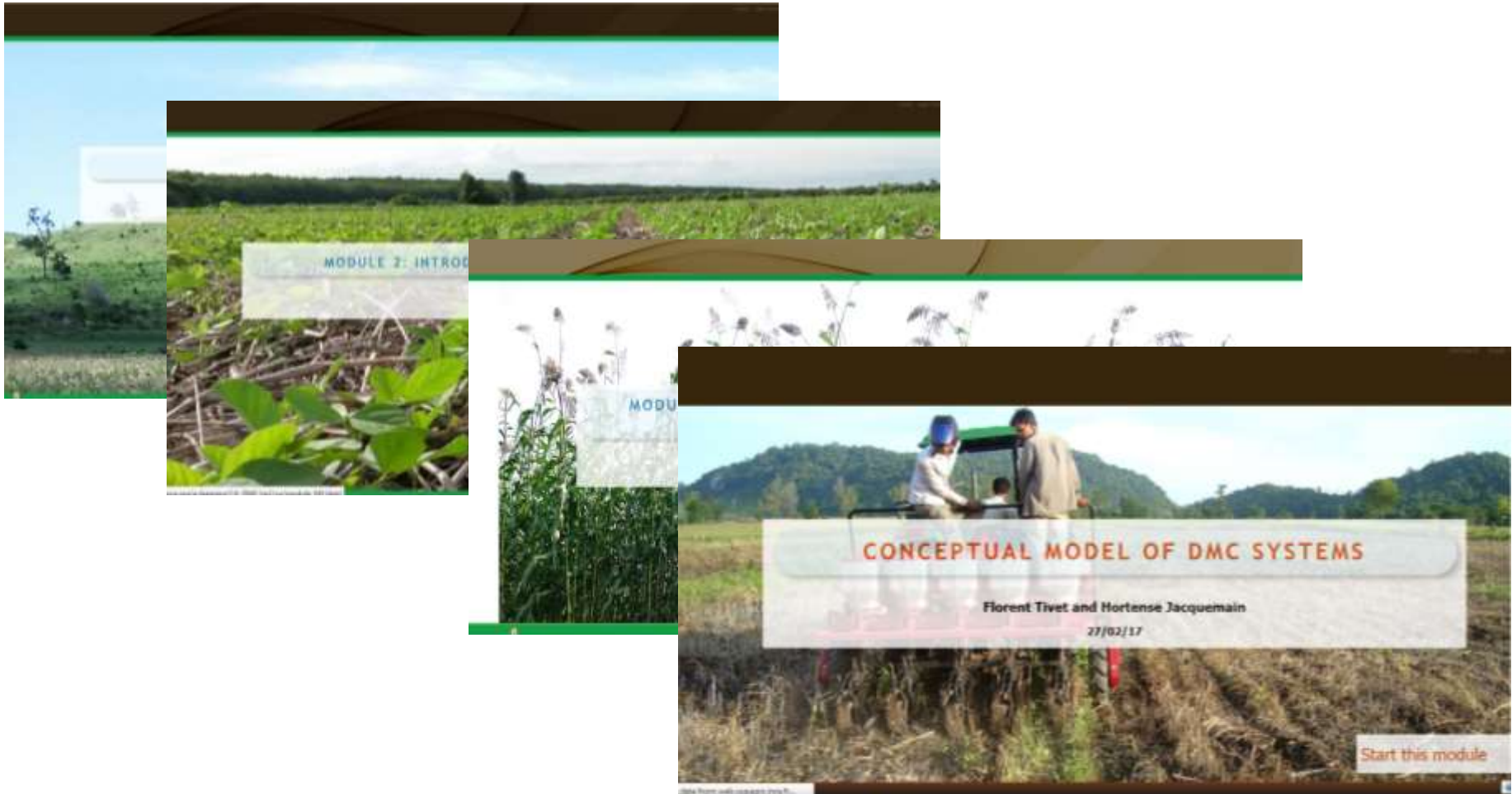
0026684

 Visit Yesterday : 156
 This Month : 3622
 Who's Online : 2

PICK UP A TOPIC !

biomass cambodia cassava
Chisel Conservation Agriculture
corn cover crop
degradation diversification
e-learning ecological intensification
erosion farmer fertility fodder

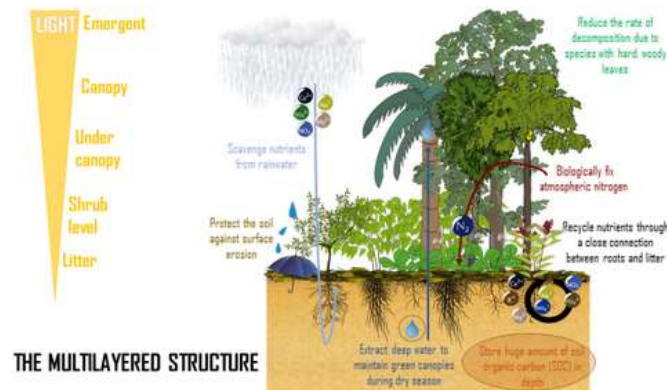
E-learning: Introduction to CA and DMC



A multilayered structure

A primary forest ecosystem is characterized by a wide diversity of plant species. The expression of this diversity in space and time results in the formation of multiple layers of vegetation, including the floor layer, the shrub layer, the small trees and the bigger trees, and the emergent trees.

This organization of the vegetation is called the **multilayered structure**. It acts as a filtering system that is able to perform a large variety of ecosystem functions. Some of them are illustrated in the following chart.



Forest ecosystems fulfill a wide variety of functions

There are a lot of other functions that can be fulfilled by forest ecosystems. For instance, they depress the populations of *denitrifying bacteria* through the production of secondary compounds (i.e., high tannin) by the roots of humus layer.

These functions achieve ecosystem services that are still undervalued or simply ignored, thus legitimating the conversion of precious forestland into degraded and unstable agricultural systems.

- ☀ Module description
- 📄 Introduction
- ✂ The importance of vegetation diversity
 - 📄 A multilayered structure
 - 📄 The litter, a soil domain typical of forest ecosystems
 - 📄 The buffering effect of the multilayered structure
- Nutrient cycling and nutrient conservation
- Biological regulation of ecological processes
- Impact of forestland conversion into agricultural land
- 📄 Conclusion
- 📄 Assessment of the module 2

E-learning

MODULE 2: INTRODUCTION TO CONSERVATION AGRICULTURE

- Module description
- Introduction
- > The importance of vegetation diversity
- > Nutrient cycling and nutrient conservation
- > Biological regulation of ecological processes
- > Impact of forestland conversion into agricultural land
- Conclusion
- Assessment of the module 2

Assessment of the module 2

Objectives

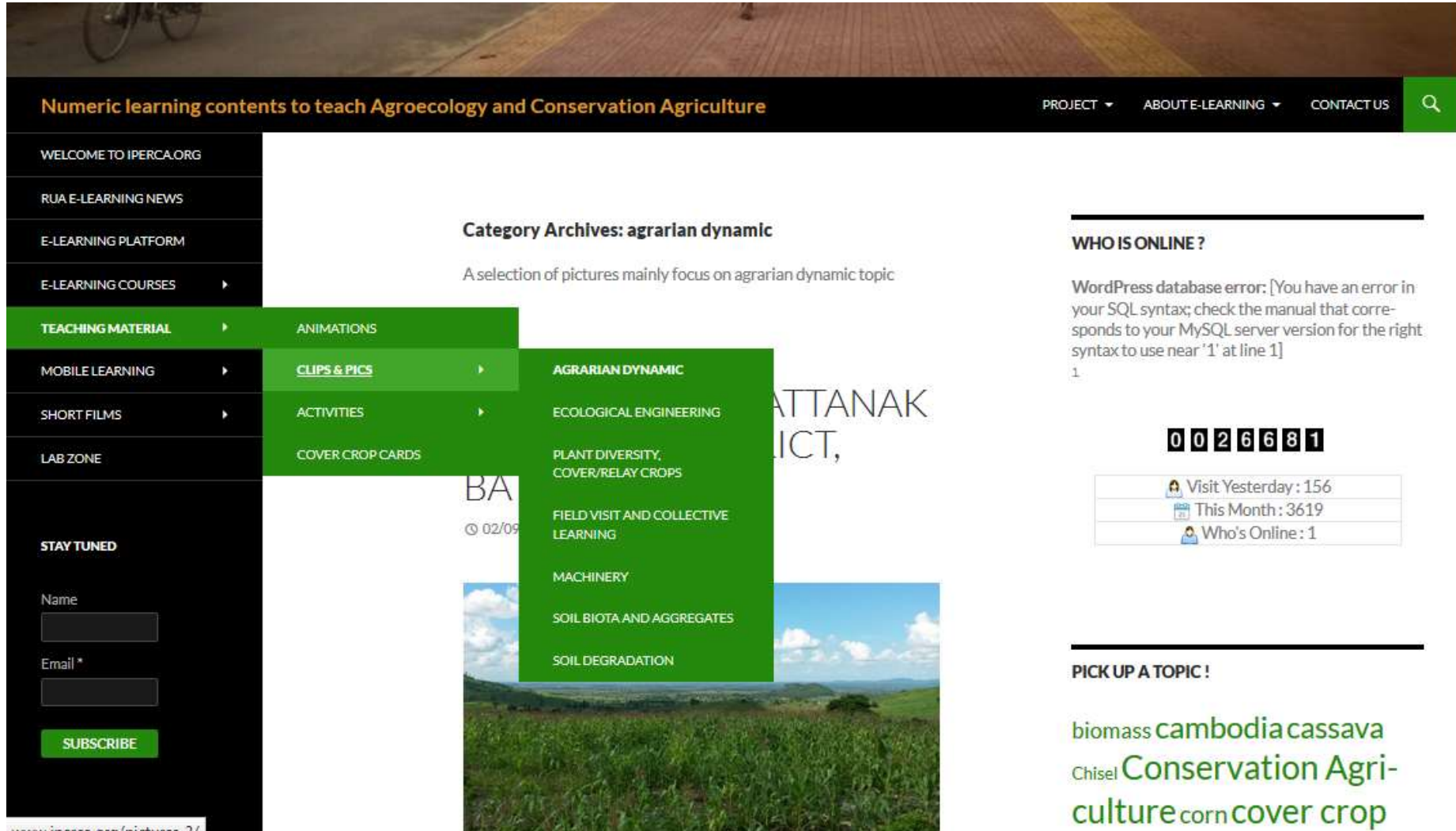
Check your knowledge out!

You are going to enter a series of short questions. Read the instructions carefully for each exercise before choosing the answer(s). At the end of the assessment, you will be able to read the correction and explanations.

 [Enter the test...](#)



Teaching materials – clips and pictures



The screenshot displays the IPERCA website interface. The top navigation bar includes the site title "Numeric learning contents to teach Agroecology and Conservation Agriculture" and links for "PROJECT", "ABOUT E-LEARNING", and "CONTACT US". A search icon is located on the right. The left sidebar contains a menu with options: "WELCOME TO IPERCA.ORG", "RUA E-LEARNING NEWS", "E-LEARNING PLATFORM", "E-LEARNING COURSES", "TEACHING MATERIAL", "MOBILE LEARNING", "SHORT FILMS", "LAB ZONE", and "STAY TUNED". The "TEACHING MATERIAL" menu is expanded, showing sub-categories: "ANIMATIONS", "CLIPS & PICS", "ACTIVITIES", and "COVER CROP CARDS". The "CLIPS & PICS" sub-menu is further expanded, listing topics: "AGRARIAN DYNAMIC", "ECOLOGICAL ENGINEERING", "PLANT DIVERSITY, COVER/RELAY CROPS", "FIELD VISIT AND COLLECTIVE LEARNING", "MACHINERY", "SOIL BIOTA AND AGGREGATES", and "SOIL DEGRADATION". The main content area shows the "Category Archives: agrarian dynamic" page, which includes a description: "A selection of pictures mainly focus on agrarian dynamic topic". Below this, there is a large image of a green field under a blue sky. The right sidebar features a "WHO IS ONLINE?" section with a WordPress database error message: "WordPress database error: [You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '1' at line 1]". Below the error message, there is a table showing visitor statistics: "Visit Yesterday : 156", "This Month : 3619", and "Who's Online : 1". At the bottom of the right sidebar, there is a "PICK UP A TOPIC !" section with a list of topics: "biomass", "cambodia", "cassava", "Chisel Conservation Agriculture", "corn", and "cover crop".

Numeric learning contents to teach Agroecology and Conservation Agriculture

PROJECT ▾ ABOUT E-LEARNING ▾ CONTACT US

WELCOME TO IPERCA.ORG

RUA E-LEARNING NEWS

E-LEARNING PLATFORM

E-LEARNING COURSES ▶

TEACHING MATERIAL ▶

MOBILE LEARNING ▶

SHORT FILMS ▶

LAB ZONE

STAY TUNED

Name

Email *

SUBSCRIBE

Category Archives: agrarian dynamic




A selection of pictures mainly focus on agrarian dynamic topic

WHO IS ONLINE ?

WordPress database error: [You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '1' at line 1]

1

0026681

	Visit Yesterday : 156
	This Month : 3619
	Who's Online : 1

PICK UP A TOPIC !

biomass cambodia cassava
Chisel Conservation Agriculture
corn cover crop

Teaching materials - Activities

Numeric learning contents to teach Agroecology and Conservation Agriculture


[TEACHING MATERIAL](#) ▶
[MOBILE LEARNING](#) ▶
[SHORT FILMS](#) ▶
[LAB ZONE](#)

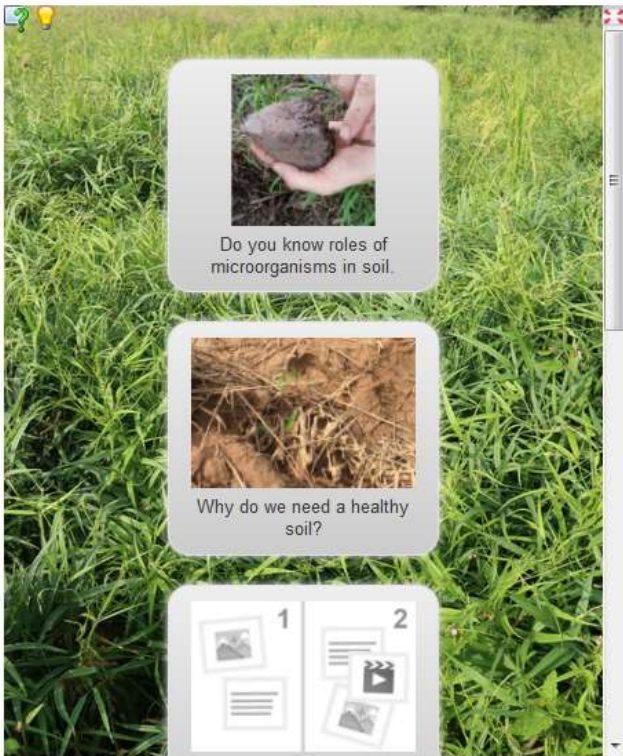
STAY TUNED

Name

Email *

[SUBSCRIBE](#)

COPYRIGHT




Do you know roles of microorganisms in soil.




Why do we need a healthy soil?

1 2

[PROJECT](#) ▼[ABOUT E-LEARNING](#) ▼[CONTACT US](#)

your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '1' at line 1]
1

0026684

	Visit Yesterday : 156
	This Month : 3622
	Who's Online : 2

PICK UP A TOPIC !

biomass cambodia cassava
Chisel Conservation Agri-
culture corn cover crop
degradation diversification
e-learning ecological intensifi-
cation erosion farmer fertility fodder

Videos

Numeric learning contents to teach Agroecology and Conservation Agriculture

[PROJECT](#) [ABOUT E-LEARNING](#) [CONTACT US](#)

WELCOME TO IPERCA.ORG

RUA E-LEARNING NEWS

E-LEARNING PLATFORM

E-LEARNING COURSES ▶

TEACHING MATERIAL ▶

MOBILE LEARNING ▶

SHORT FILMS ▶

LAB ZONE


STAY TUNED

Name

Email *

SUBSCRIBE

COPYRIGHT



HAVE BEEN SAID

NEWS

E-LEARNING PLATFORM

03/17/2017 [LEAVE A COMMENT](#) IPERCA.ID@GMAIL.COM

A Learning Content Management System (LCMS or CMS) is currently setting up at RUA Computer Center.

Most the e-learning courses (around 12 courses and thirty module). The platform features a range of services such as an Agrological online library, forum, comment, e-learning news, and content about experience leading on the campus (digital campus). More than connection between Royal University of Agriculture from Penh and University of Battambang will be set up platform in order to promote the soil digital museum Battambang, and on the other hand to promote online courses for University of Battambang students. We hope numerical initiative will strengthen knowledge in agroecology, agriculture in general, for both universities.


LET'S TALK ABOUT SOIL WITH KHMER SUBTITLE

RURAL MIGRATION IN NORTHWESTERN CAMBODIAN UPLANDS

LAND DEGRADATION IN CAMBODIAN UPLANDS

CONSERVATION AGRICULTURE FOR CAMBODIAN UPLAND FARMERS

LASER LEVELLING: INTERVIEWS





WHO IS ONLINE ?


WordPress database error: [You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '1' at line 1]

1

0026681

 Visit Yesterday : 156

 This Month : 3619

 Who's Online : 1

PICK UP A TOPIC !

biomass cambodia cassava
Chisel Conservation Agri-
culture corn cover crop
degradation diversification
e-learning ecological intensifi-
cation erosion farmer fertility fodder
forest grain herbicide infertile landscape
legume lowland rice market migration mollusks

Technical leaflets, QRC → Facebook

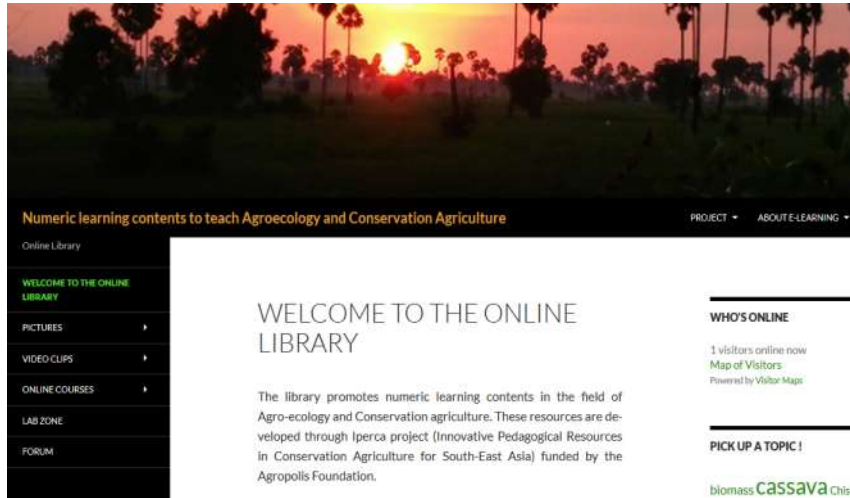
[illegible]

Fostering the development of e-learning resources



- ITC leader for the development of e-learning resources
- MoU between ITC and RUA, technical support (developing resources, LMS platform ...)
- Regional project with Cambodia, Laos and Vietnam (KOICA)





<http://www.iperca.org/>

<http://casc.cirad.fr/>

Thank you for your
attention!

nmalyne@gmail.com; florent.tivet@cirad.fr