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DEGLI STUDI  
DI PADOVA

In co-operation with:



Addis Ababa  
University



Addis Ababa Science  
and Technology  
University



ECUSTA Higher  
Learning Institute



Hope College of Business,  
Science and Technology



Mekelle University

## Winter School

# Sustainable and Agro-Ecologically- Compatible Development Options in Ethiopian and Sub-Saharan Rural Areas

*Addis Ababa (Ethiopia),*

1<sup>st</sup> week:

***Agroecology and Sustainable Use of Local Biodiversity***

*Italian Cultural Institute, September 19<sup>th</sup>-24<sup>th</sup>, 2016*

2<sup>nd</sup> week:

***Renewable Energy Exploitation in the Ethiopian Rural Context***

*ECUSTA Higher Learning Institute, January 30<sup>th</sup>-February 3<sup>rd</sup>, 2017*

With the support of:



Italian Cultural Institute  
in Addis Ababa

With the patronage of:



*Ministero degli Affari Esteri  
e della Cooperazione Internazionale*

Ministry of Foreign Affairs  
and International Cooperation

Patronage requested to:



MINISTERO DELL'ISTRUZIONE DELL'UNIVERSITÀ E DELLA RICERCA

Ministry of Education,  
University and Research



Ministero delle  
politiche agricole  
alimentari e forestali

Ministry of Agricultural,  
Food and Forestry Policies



## Introduction

As internationally established at the Paris climate conference (COP21), the “Paris Agreement” reads:

*“1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:*

- (a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;*
- (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production;*
- (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.*

*2. This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.”*

These statements highlight and strengthen the correlation between the use of primary energy resources and the impact on the ecosystem with potential adverse effect on the agriculture production and on biodiversity. Therefore, a common pathway has to be identified in the field of the exploitation of renewable energy resources and of the eco-system towards the eradication of food scarcity and poverty in general.

The first part of the programme will address the eco-compatibility of the country’s development programme with the need to guarantee development by preserving and enhancing the territory with its peculiar aspects. This is of paramount relevance for a sustainable development of the country aiming to eradicate poverty and to allow an environmental compatible growth.

In particular, the focus of the first week of the School will be on agroecology and the sustainable use of local biodiversity. This will be addressed by providing focal knowledge of scientific issues together with local traditions, to improve strategies for smooth impact of primary production on a stressed rural landscape.

Ethiopia, with its long coevolution history of hominids and landscape, is the ideal place for learning from the past and designing a sustainable system for energy and landscape utilization for the future.

The second aim of the School will be to address the issue of the availability of environment-friendly and affordable primary energy sources for a sustainable and eco-compatible development of Ethiopia and Sub-Saharan countries.

The main scope of the second week of School will be to focus on two renewable energy sources: photovoltaic and hydro-power, with main focus on mini and micro-plant systems oriented to a community of small or relatively small villages not interconnected to the main grid.

Moreover, the School will address the need of continuity in electricity supply, the inclusion of accumulation systems like batteries and small hydro-power basins, and the subsequent need of smart management of mini-grids not connected to the main transmission lines.



All this will be compatible with the Ethiopian and wider Sub-Saharan context, addressing in particular the present background and competences to grant the sustainability of projects for access to the electrical energy from renewable energy sources.

## Contents

1. **1<sup>st</sup> Week: “AGROECOLOGY and SUSTAINABLE USE OF LOCAL BIODIVERSITY”**  
- *Monday to Friday, 5 days*
  - a. Strategies and practices for sustainable farming
  - b. The importance of agrobiodiversity for sustainable agriculture
  - c. Traditional and modern landscape management
  - d. Soil biology and sustainability
  - e. Maintain soil quality and fertility
  - f. One-day activity on the field
2. **Round table** hosted by the Italian Cultural Institute and open not only to the participants, but also to a wider audience (*Saturday, September 24<sup>th</sup>, 2016*).
3. **2<sup>nd</sup> Week: “RENEWABLE ENERGY EXPLOITATION IN THE ETHIOPIAN RURAL CONTEXT”** - *Monday to Friday, 5 days*
  - a. Rural and village electrification needs in the Ethiopian and Sub-Saharan context
  - b. Photovoltaic technology and plant
  - c. Mini and Micro-Hydro plant for electrical energy production and accumulation systems
  - d. Accumulation systems based on batteries and hydraulic basins
  - e. Smart management of mini-grids.
  - f. Financing opportunities on renewable energy exploitation.

## Faculty

### 1<sup>st</sup> Week:

- Dr. Jelleke de Nooy van Tol, AgriProFocus (Ethiopia): 6 hours
- Dr. Carlo Fadda, Biodiversity International (Ethiopia): 6 hours
- Ms. Sarah Assefa (MA), Hope University College (Ethiopia): 6 hours
- Prof. Maurizio Guido Paoletti, University of Padua (Italy): 6 hours
- Prof. Francesco Morari, University of Padua (Italy): 6 hours
- Prof. Ensermu Kelbessa, Addis Ababa University (Ethiopia)
- Prof. Dejene Kassahun Mengistu, Mekelle University (Ethiopia): 6 hours

### 2<sup>nd</sup> Week:

- Prof. Getachew Bekele, Addis Ababa University (Ethiopia): 8 hours
- Prof. Fabrizio Dughiero, University of Padua (Italy): 10 hours
- Prof. Giorgio Pavesi, University of Padua (Italy): 10 hours
- Prof. Piergiorgio Sonato, University of Padua (Italy): 4 hours
- Mr. Luigi Mennella, African Development Bank, Abidjan (Ivory Coast): 4 hours



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The programme will be developed by an appropriate sharing of classroom lectures and case-study activities developed by small groups of participants.

## Participation and General Information

- Faculty from Ethiopian Universities.
- Master students, graduate engineers, graduates in Agriculture, Environmental Studies and Landscape Management to be introduced to the academic career or professional activities.
- Professional staff from private or public national companies.
- A total number of 40 participants.
- The participants will be selected on the basis of their CV.
- Participation to the whole School (2 weeks) will be a preferential pre-requisite for the candidates' selection.
- Participation to only one of the 2 weeks will also be possible, on the basis of free available positions.
- A final certificate of attendance will be provided to those having taken part in all the Winter School sessions and in proposed group activities.

## Logistic and Additional information

- The first week of the School will be hosted at the Italian Cultural Institute in Addis Ababa.
- A half-day round table hosted at the Italian Cultural Institute in Addis Ababa and open to a wider audience.
- The second week of the School will be hosted at ECUSTA Higher Learning Institute, that will provide participants and faculty with logistic support, including coffee breaks and lunches.

## Patronage and Cooperating Institutions

- As for the first edition of the School, held in Addis Ababa in September 2015, a request for patronage has been submitted to MAECI (Italian Ministry of Foreign Affairs and International Cooperation) MIUR (Italian Ministry of Education, University and Research) and MIPAAF (Italian Ministry of Agricultural, Food and Forestry Policies).
- As for its first edition, the School is proposed in co-operation with:
  - AAU - Addis Ababa University, Institute of Technology
  - AASTU – Addis Ababa Science and Technology University
  - ECUSTA Higher Learning Institute, Addis Ababa
  - Hope College of Business, Science and Technology Addis Ababa
  - Mekelle University