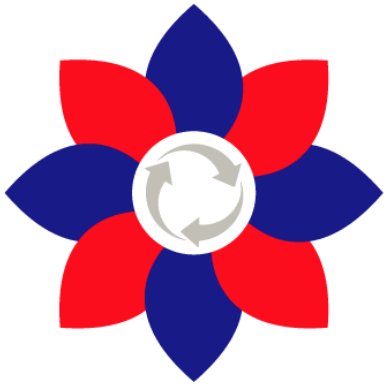
BBChina
Master Program
on Bio-Based Circular Economy

UNIVERSITÀ DEGLI STUDI FIRENZE



BBChina

Master Program
on Bio-Based Circular Economy

Report Staff Mobility SUMMER 2019

WP4 - Outcome 4.3

Project reference number - 586083-EPP-1-2017-1-IT-EPPKA2-CBHE-JP

Co-funded by the Erasmus+ Programme of the European Union

Document information

Project title:	Master Program on Bio-Based Circular Economy: From Fields to Bioenergy, Biofuel and Bioproducts in China
Project Acronym:	BBChina
Programme:	Erasmus + Key Action 2 Capacity Building in the field of Higher Education
Project Number:	586339-EPP-1-2017-1-IT-EPPKA2-CBHE-SP
Start date:	15 October 2017
End date:	14 October 2020
Work Package:	WP4 – Mobility of teaching staff
Related WP(s):	WP3 – WP7
Lead Organisation:	P4 - TJU
Co-Lead Organisation:	P1 - UNIFI
Dissemination level:	Institutional level (Department/Faculty, Institution)
Outcome:	4.3

Co-funded by the Erasmus+ Programme of the European Union

Teachers mobility has been planned to fill knowledge gaps of each participant in specific fields, thanks to knowledge exchanges, study visits to research premises as well as industries working in the field.

It has been organised to obtain an equally scientific and didactic brokering to participants from each Chinese University.

Chinese lecturers, professors and researchers involved in front teaching or the teaching material preparation took part in the mobility.

During this activity, Chinese lecturers and professors participated in seminars, lessons, laboratories, and visits in test fields and power plants.

Furthermore, during the last mobility activity in Florence, CESIE experts trained the participants to the sound use of the e-learning tools developed within the project activity. The e-learning tool will be a pillar supporting the teaching activities.

All the activities have been performed in English.

A total of 38 staff personnel from the Chinese Universities took part in mobility all over the three different sessions. The participants represented all the 12 BBChina Master Program courses.

The first Staff mobility was held at the Rostock University from June 13 to June 21, 2019. It was followed by the staff mobility at Mälardalen University from August 16 to August 21, 2019, and then the last mobility in Florence, taking place from October 4 to October 9, 2019.

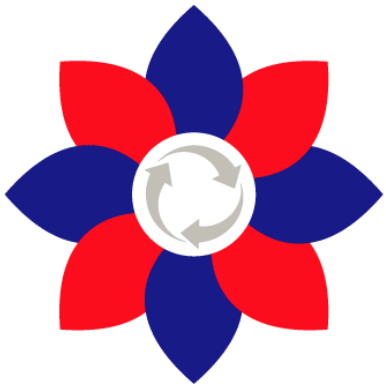
For a more detailed description of each activity, please find the reports of each mobility action as Annex to the present document.

At the end of each staff mobility, a questionnaire collected feedback from the participants. The feedback of the first two nobilities was used to better the following ones, while the last feedback results will be used to better organise the student mobility activities planned for Summer 2020.

Co-funded by the
Erasmus+ Programme
of the European Union

BBChina
Master Program
on Bio-Based Circular Economy

Universität Rostock
Traditio et Innovatio



BBChina

Master Program
on Bio-Based Circular Economy

Report Study Tour at University of Rostock June 2019

Project reference number - 586083-EPP-1-2017-1-IT-EPPKA2-CBHE-JP

Co-funded by the Erasmus+ Programme of the European Union

Participants of the study tour

The Chinese participants in the following list were present for the entire period.

No.	Name	University
1	Xinhai Yu	East China University of Science & Technology
2	Jianye Xia	East China University of Science & Technology
3	Ci Jin	East China University of Science & Technology
4	Zhao Yan	East China University of Science & Technology
5	Chun Fang	East China University of Science & Technology
6	Peijian Yan	East China University of Science & Technology
7	Weiling Luan	East China University of Science & Technology
8	Jun Wu	Sichuan University
9	Kejing Wu	Sichuan University
10	Ying Xu	Sichuan University
11	Houfang Lu	Sichuan University
12	Dan Li	Sichuan University
13	Liangfang Zhu	Sichuan University
14	Pinjing He	Tongji University
15	Hua Zhang	Tongji University
16	Fan Lyu	Tongji University
17	Yuyan Hu	Tongji University
18	Yuheng Feng	Tongji University
19	Jan Sprafke	Universität Rostock
20	Mona-Maria Narra	Universität Rostock
21	Satyanarayana Narra	Universität Rostock
22	Kai Schmedemann	Universität Rostock
23	Quatan Thabit	Universität Rostock
24	Leonardo Nibbi	Centro di Ricerca Energie Rinnovabili (UNIFI)

Co-funded by the Erasmus+ Programme of the European Union

Bioenergieforum

At the 13th Rostock Bioenergy Forum on 13 and 14 June 2019, the Chinese guests, together with various international experts from the Professorship of Waste and Material Flow Management, played a decisive role in the newly introduced International Block of the Conference. In addition to the other sessions of the Bioenergy Forum, they held lectures on topics such as biofuels, phosphorus recovery, sewage sludge treatment and biowaste recycling.

Figure 1: Bioenergieforum

Co-funded by the Erasmus+ Programme of the European Union

Figure 2: Bioenergieforum

Co-funded by the Erasmus+ Programme of the European Union

Introduction and schedule for the next few days

Date: **17.06.2019**

Location: **Internationales Begegnungszentrum Rostock e.V. (IBZ in Rostock)**
Bergstraße 7A
18057 Rostock

Start: **9:30**

Prof. Michael Nelles presented the University of Rostock as well as the Department of Waste and Resource Management. The focus of the presentation was on the projects in China and the future development of biomass research.

Afterwards, Mr Sprafke presented the contents of the Study Tour. In cooperation with Mr Thabit, the concepts of the considered technologies were explained in order to create a certain fundamental knowledge level.

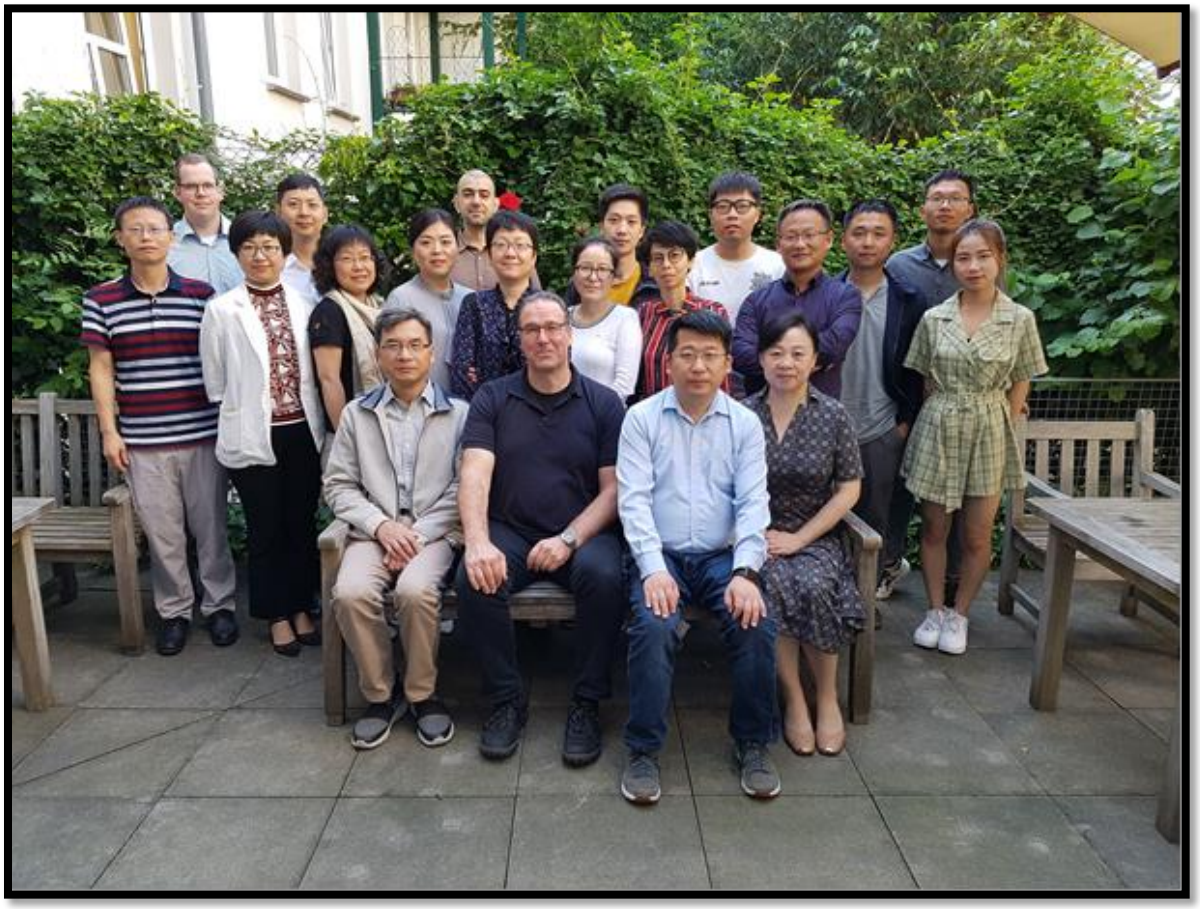


Figure 3: *Group picture of the participants of the study tour*

Co-funded by the Erasmus+ Programme of the European Union

Figure 4: Introduction of the study tour

Co-funded by the
Erasmus+ Programme
of the European Union

MBT and Waste incineration

Date: **18.06.2019**

Location 1: **10:00**
Veolia Umweltservice Nord GmbH, Niederlassung EVG (BS MBA)
Ost-West-Straße 22
18147 Rostock

In the mechanical-biological waste treatment plant in Rostock, Veolia processes household waste and industrial waste similar to household waste and converts them into biogas and substitute fuel. The waste delivered to the facility goes first through mechanical and then through biological treatment steps.
Mr Rath guided through the plant and answered all questions competently and in detail. Participants were especially interested in the partial-flow fermentation process.

Figure 5: *MBT- Mechanical Treatment*

Co-funded by the Erasmus+ Programme of the European Union

Figure 6: MBT- Biological Treatment

Location 2: 12:00
Vattenfall Europe New Energy Ecopower GmbH (EBS-HKW Rostock)
Ost-West-Str. 25
18147 Rostock

The RDF plant in Rostock generates heat and electricity by thermal recycling of waste that cannot be used as material, which mainly is produced in Rostock and the surrounding districts. The plant is an important building block for environmentally friendly waste disposal in Mecklenburg-Western Pomerania.Among other things, the

Co-funded by the Erasmus+ Programme of the European Union

plant burns the high-calorific fraction from the MBT. After an information film about the power plant, volunteer visitor guides held a guided tour.

Figure 7: Power Plant

Figure 8: Bunker hall with substrate supply

Co-funded by the Erasmus+ Programme of the European Union

Biomass and Biogas

Date: **19.06.2019**

Location 1: **9:00**
Forestry industry
19260 Vellahn

To prepare the study tour participants for the visit of the sawmill, a nearby forest was selected to teach them about the principle of sustainable forestry.

Figure 9: Sawed logs

Location 2: **9:45**
HMS Holzindustrie Hagenow GmbH
Werkstr. 3
19230 Hagenow

The awarded sawmill in Hagenow is a good example of the optimized use of waste materials and the production of wood pellets. In the attached incineration plant, wood bark from the production process is burned. The resulting thermal energy is used to dry wood, the electrical energy is used to operate the saws and equipment. Sawdust is pressed into wood pellets which are marketed to end-users.

Co-funded by the Erasmus+ Programme of the European Union

Figure 10: Group picture

Co-funded by the
Erasmus+ Programme
of the European Union

Figure 11: Sawdust

Location 3: 13:00
Schweriner Abfallentsorgungs- und Straßenreinigungsgesellschaft mbH (SAS)
Carl-Tackert-Starße
19063 Schwerin

In the digestion plant Schwerin, the separately collected organic waste from the state capital is treated anaerobically and a marketable compost is produced. The plant is the one and only biowaste fermentation plant in Mecklenburg-Western Pomerania and has been built according to the state of the art. Mr Lange from the SAS showed all the important stages of the anaerobic treatment of biowaste.

Co-funded by the Erasmus+ Programme of the European Union

Figure 12: Aerobic treatment of digestate

Figure 13: Post treatment

Co-funded by the Erasmus+ Programme of the European Union

Composting and Landfilling

Date: **20.06.2019**

Location 1: **8:30**
Stadtentsorgung Rostock GmbH
Deponiestraße 2
18209 Parkentin

As an alternative to the anaerobic treatment of biowaste, the aerobic treatment in a composting plant was visited during the study tour. The Stadtentsorgung Rostock is responsible for the environmentally friendly disposal of all compostable materials and their processing into compost products in its own composting plant in Parkentin. The composting plant also accepts and removes organic waste and green waste and sells Parkentiner compost from green waste as a humus fertilizer with a quality label.

Figure 14: *Composting plant*

Co-funded by the Erasmus+ Programme of the European Union

Figure 15: Biowaste after biological treatment

Location2: 11:00
IAG mbH (Ihlenberger Abfallentsorgungsgesellschaft mbH)
Ihlenberg 1
23923 Selmsdorf

IAG's job and mission is the disposal and treatment of waste. The focus is on landfilling. The task is to ensure safe disposal, to operate the landfill to the highest possible standard and to meet the recultivation and after-care obligations resulting from this field of operation in a responsible manner. After an introductory presentation, Mrs Kogel hosted the group about the landfill and explained the individual safety systems of the landfill.

Co-funded by the Erasmus+ Programme of the European Union

Figure 16: Presentation

Co-funded by the
Erasmus+ Programme
of the European Union

Figure 17: Landfill

Co-funded by the Erasmus+ Programme of the European Union

Final Discussion

Date: **21.06.2019**
Start: **9:30**
Location: **Seminarraum 2**
Justus-von-Liebig-Weg 6
18059 Rostock

Eng. Leonardo Nibbi (representing UNIFI, Coordinator of the BBChina Project) took part in the last day of the study tour. The last day served to reflect on the study tour and to clarify open questions. At the end, a questionnaire was distributed and the participants were discharged. Afterwards, the further steps of the BBChina project were discussed in a smaller context.

Figure 18: Participants of the study tour and Eng. Leonardo Nibbi

Co-funded by the Erasmus+ Programme of the European Union

BBChina – Master Program on Bio-based Circular Economy

Report on Staff mobility at Mälardalen University

Project reference number - 586083-EPP-1-2017-1-IT-EPPKA2-CBHE-JP

Aug 16-21, 2019

Västerås, Sweden

Participant list

Institution	Country Code	Name and Surname
Mälardalen University	SE	Jinyue Yan
Mälardalen University	SE	Hailong Li
Tongji University	CN	Pinjing He
Tongji University	CN	Zhang Hua
Tongji University	CN	Fan Lv
Tongji University	CN	Dezhen Chen
Tongji University	CN	Lijie Yin
Tongji University	CN	Lin Wang
East China University of Science and Technology	CN	Xinhai Yu
East China University of Science and Technology	CN	Guoyan Zhou
East China University of Science and Technology	CN	Xueyao Xiong
East China University of Science and Technology	CN	Chen Zhao
East China University of Science and Technology	CN	Peijian Yan
East China University of Science and Technology	CN	Shan-Tung Tu
Sichuan University	CN	Ying Xu
Sichuan University	CN	Houfang Lu
Sichuan University	CN	Zhishan Su
Sichuan University	CN	Siyang Tang
Sichuan University	CN	Tingting Peng

Schedule:

- Aug 16: 9.30-11.00 Preparation Meeting at Mälardalen University
- Aug 16: 11.00-12.00 Lab tour at Mälardalen University
- Aug 19: 10.00-11.45 Visiting Mälarenergi and Västerås
- Aug 19: 12.45-15.45 Visiting Vafab
- Aug 20: 8.15-11.00 Visiting Eskilstuna Energy and Environment
- Aug 20: 11.00-16.00 Visiting Hammarby Sjöstad, Stockholm
- Aug 21: 14.00-16.00 Visiting Royal Institute of Technology (KTH)

Aug 16:

Agenda:

- 9.30-9.45 Coffee/tea and Self-introduction
- 9.45-10.00 Welcome and about MDH – Hailong Li
- 10.00-10.45 Activity introduction and Schedule – Hailong Li
    - Aug 19: Mälarenergi
    - Aug 19: Vafab
    - Aug 20: Eskilstuna energy and environment
    - Aug 20: Hammarby Sjöstad
    - Aug 21: Royal Institute of Technology
- 10.45-11.00 Break
- 11.00-12.00 Lab tour

Fig 1 welcome to Mälardalen University

Fig 2 Meeting at MDH

Fig 3 Lab tour at MDH

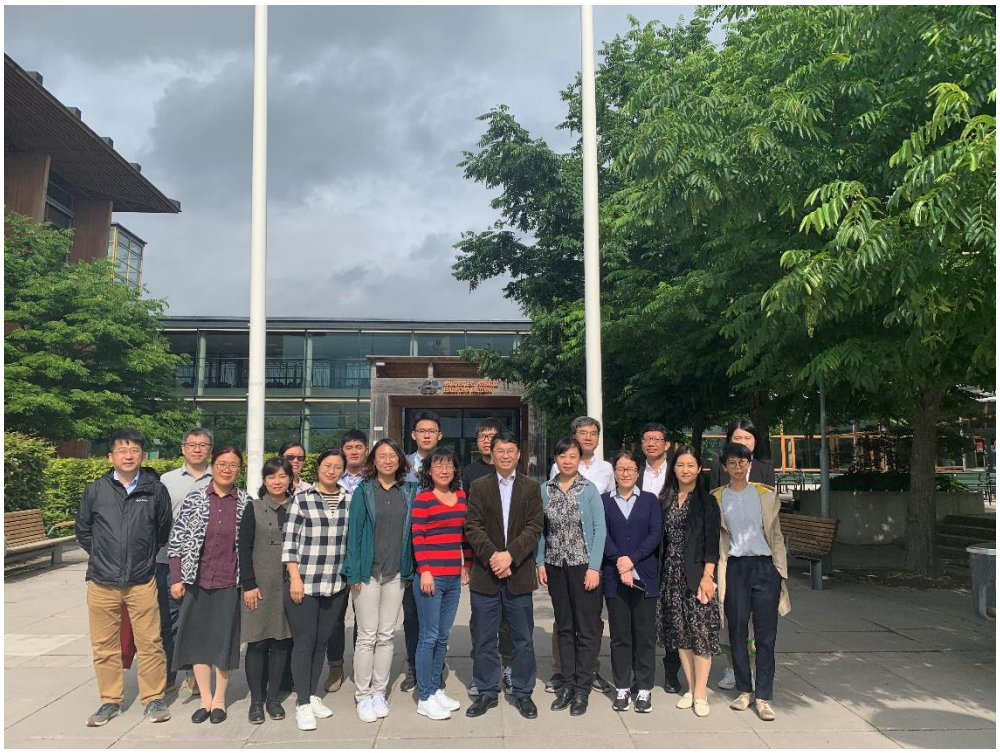


Fig 4 Group photo at MDH

Aug 19:

- Mälarenergi and Västerås city (by Erik Dahlquist)

The CHP plant of Mälarenergi is the largest in Sweden and one of the cleanest in Europe. Boiler 6, based on circulating fluidized bed technology, is the world's largest waste fired boiler. The boiler handles 480 000 tons of household waste, industrial waste and recycled wood per year and the fossil CO2 has decreased by 300 000 tons per year. The CFB boiler serves as a base unit to meet the district heating power needs of Västerås and Hallstahammar municipalities. By 2020, the municipally-owned energy company Mälarenergi aims to be completely free from fossil fuels like coal and oil. As part of this effort, Mälarenergi will be building a seventh CHP unit in Västerås. The CHP facility is the biggest in Sweden and will produce energy for the electricity grid and the district heating network.

Fig 5 Västerås city – hydropower turbine house

Fig 6 Västerås city – old town

- Vafab

VafabMiljö works with sustainable and environmentally sound handling of waste, and is owned by the municipalities in Västmanland County together with the municipalities Heby and Enköping. The population of the region is about 330000, and there are more than 10 000 businesses that generate waste. The task consists of dealing with all the waste in an environmentally correct manner. The primary aim is to reduce the total amounts of waste. The remaining waste should be regarded as a resource, and recycled to the extent that is technically and economically possible. There are 18 recycling centers around the region, of which six are located in Västerås. Here the inhabitants can leave bulky waste (such as scrap metal, garden waste, combustible, well, etc.) and their hazardous waste and electronic waste. They work with waste advice, information, collection, transportation, sorting, recycling, energy recovery, biological treatment, composting, anaerobic digestion and landfill. They are also responsible for collection of household waste, sludge and sewage, billing, customer service and more.

Fig 7: Vafab – introduction

Fig 8: Vafab – biogas plant

Aug 20:

- Eskilstuna energy and environment

Eskilstuna energy and environment is handling everything related to heat and power, tap water and waste water treatment as well as waste collection, sorting and recycling for the cities Eskilstuna and Strangnas, and for household waste also for Orebro. This tour will focus on waste sorting, where the inhabitants sort glass, plastic, metal, paper, packages, cloths and food waste in bags with different colors. The bags are then collected, transported to the plant at Lilla Nyby, where it is sorted automatically. The food waste is diluted to 16-18% ds whereafter it is screened and the filtrate mixed with fly larvae. After 2-3 weeks much of the waste (30-35% of ds) is converted into protein and fat rich larvae, which can be used as fodder for fish and animals. Today approximately 5% is used for larvae production while the rest goes for biogas production. The methane produced is refined and used as fuel for buses, garbage collection trucks and personal vehicles.

Fig 9: Eskilstuna – Waste sorting

Fig 10: Eskilstuna – Group photo

- Hammarby Sjöstad

Hammarby sjöstad (Hammarby Lake City) is an urban development project directly south of Stockholm's South Island. This is no doubt the most referenced and visited spot among Scandinavian examples of implemented eco-friendly urban developments. In the early 1990s, Hammarby Sjöstad had a reputation for being a run-down, polluted and unsafe industrial and residential area. Now, Hammarby Sjöstad is one of Stockholm's most pleasant residential districts. One new feature of the Ecodistrict, which has won international recognition, was to integrate several infrasystems in the planning from the very beginning: technical infrastructure, mobility and communication infrastructure, building infrastructure and to some extent green-blue infrastructure. Another strong feature is the system of interdisciplinary planning of physical flows of energy, water and waste.

Fig 11: Hammarby Sjöstad

Aug 21

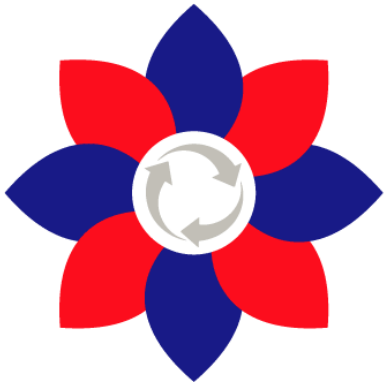
- Royal Insitute of Technology

Since its founding in 1827, KTH Royal Institute of Technology in Stockholm has grown to become one of Europe's leading technical and engineering universities, as well as a key centre of intellectual talent and innovation. KTH is working with industry and society in the pursuit of sustainable solutions to some of humanity's greatest challenges: climate change, future energy supply, urbanisation and quality of life for the rapidly-growing elderly population.

Fig 12: Royal Insitute of Technology

BBChina
Master Program
on Bio-Based Circular Economy

UNIVERSITÀ DEGLI STUDI FIRENZE



BBChina

Master Program
on Bio-Based Circular Economy

Report Staff Mobility/Study Tour at University of Florence October 2019

Project reference number - 586083-EPP-1-2017-1-IT-EPPKA2-CBHE-JP

Co-funded by the Erasmus+ Programme of the European Union

Participants of the Mobility

The following participants were involved in the mobility. The Participants of the three involved Chinese Universities in the following list were the hosts of the mobility and were present all along the entire period and for all the activities.

No.	Name	University
1	Ping Peng	East China University of Science & Technology
2	Haixia Wang	East China University of Science & Technology
3	Pengyang Duan	East China University of Science & Technology
4	Peijian Yan	East China University of Science & Technology
5	Zhongqiu Fang	East China University of Science & Technology
6	Jilai Cao	East China University of Science & Technology
7	Xu Ying	Sichuan University
8	Lu Houfang	Sichuan University
9	Peng Tingting	Sichuan University
10	Wu Kejing	Sichuan University
11	Hu Changwei	Sichuan University
12	Li Guiying	Sichuan University
13	Li Jing	Sichuan University
14	Pinjing He	Tongji University
15	Dezhen Chen	Tongji University
16	Fan Lyu	Tongji University
17	Kezhen Qian	Tongji University
18	Yuyan Hu	Tongji University
19	Junjie Qiu	Tongji University
20	Xiaoli Zhou	Tongji University
21	Leonardo Nibbi	University of Florence
22	Enrico Palchetti	University of Florence
23	Lorenzo Marini	University of Florence
24	Salvatore Carvelli	University of Florence
25	Tommaso Barsali	University of Florence
26	David Chiaramonti	University of Florence
27	Roberto De Philippis	University of Florence
28	David Casini	University of Florence

Co-funded by the
Erasmus+ Programme
of the European Union

29	Roberto Ferrise	University of Florence
30	Alberto Provenzano	CESIE
31	Jelena Mazaj	CESIE

The detailed agenda of the mobility, including also side activities like the Project Meetings, is Annexed.
During the Staff mobility, the 4th PMU Meeting was also held. It took place on Saturday, October 5, in the morning and Sunday, October 6, in the morning. This activity is not presented within the present report.

Co-funded by the Erasmus+ Programme of the European Union

Welcome Day

Date: **4.10.2019**

Start: **8:30**
Location: **Centro Didattico Morgagni, room 209**
Viale Giovanni Battista Morgagni, 40,
50134 Firenze FI

Leonardo Nibbi introduces the schedule for the visits tour, PMU meeting and e-learning course. Following the welcome, experts from University of Florence presented activities and projects in progress relatives to bioenergy, biotechnology and climate change.

Figure 1: Group picture of the participants of the study tour at the University of Florence learning centre

Dr. David Chiaramonti gave an overview of the projects in progress at the RE-CORD (Renewable Energy Consortium for Research and Demonstration), with a special focus on thermal energy conversion, biofuel and algae.

Dr. Tommaso Barsali presented partial results obtained by agronomic test of second generation biofuel crops under Bio4A project (Biofuel for Aviation).

Co-funded by the
Erasmus+ Programme
of the European Union

Prof. Roberto De Philippis presented Master Course in Biotechnology for Environmental Management and Sustainable Agriculture, where was explained in particular microbial photosynthesis for eco-sustainable hydrogen production.

Dr. David Casini presented the activity of RE-CORD and University of Florence in the field of GMO Algae for the biofuel production.

Prof. Roberto Ferrise presented projects presently in progress about Agro-metheorology and Modelling Research Group at the Departement of Agriculture, in particular to prevent effects of climate change in agroecosystem.

Dr. Enrico Palchetti closes the day presenting the new project REM-JET (Military Energy Resilience and Jetfuel from oilseeds) and the status of genetic improvement focused to increase and stabilising the production of *Jatropha curcas*, a tropical tree crop adapted for biodiesel production.

Figure 2: Opening / Welcome day

Co-funded by the Erasmus+ Programme of the European Union

Training on e-learning and teaching methodologies

Date: **5.10.2019**

Location: **Centro Didattico Morgagni, Computer Classroom 110**
Viale Giovanni Battista Morgagni, 40,
50134 Firenze

The training, held by Mr Provenzano from CESIE, gives a full overview of the e-learning concept, with furthermore a special hands-on focus directly using the specifically developed BBChina e-learning platform, whose implementation involves Work Package 7 of the BBChina Project.

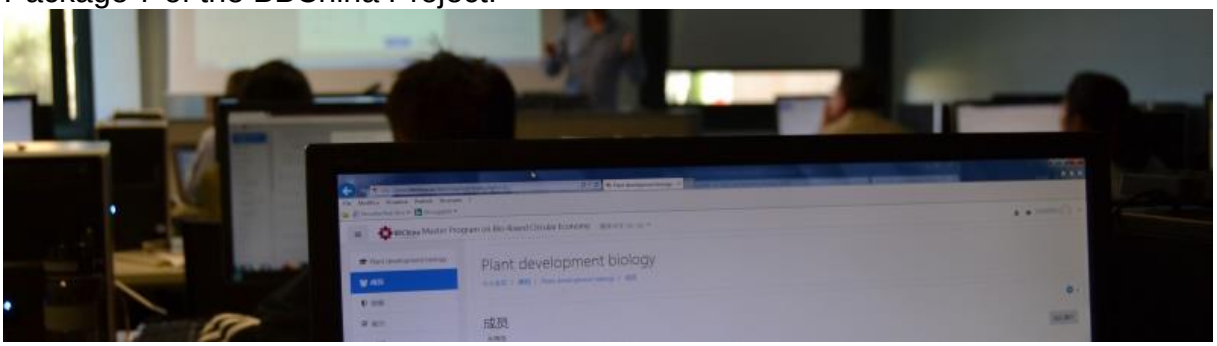


Figure 3: e-learning training

The BBChina e-learning platform, already implemented using the open-access environment Moodle, will be "fine-tuned" also following the inputs received during the activity.

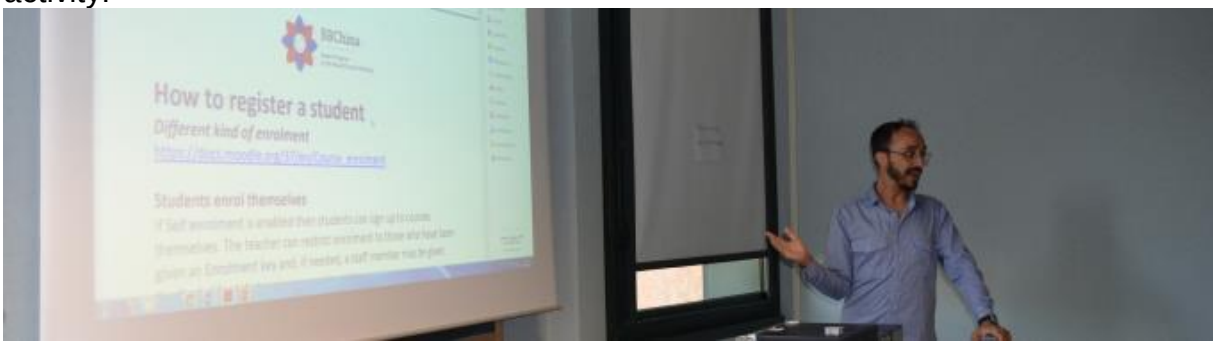


Figure 4: Mr Provenzano presents the e-learning methodologies

After a general introduction to the methodologies to be adopted for the e-learning, the focus was extended to the concept of mediated learning, showing and discussing also their threats and opportunities. A particular focus was devoted to the different roles of student and professor within the distance learning through an e-learning environment.

Co-funded by the
Erasmus+ Programme
of the European Union

Apart from the general concepts, also the practical activities (from registering a student to set up a course) were presented.

Figure 5: Staff taking part to the activity.

After a Question and Answer session, where the presented concepts were discussed, a whole hands-on session has been held to close the training activity with practical use of the tool.

Co-funded by the Erasmus+ Programme of the European Union

Research Centre NOVAMONT

Date: **07.10.2019**
Start: **7:30 - Florence**
Location: **12:00**
Novamont S.p.A.
Via G. Fauser 8
28100 Novara

Novamont premises were reached in the leate morning, in Novara. After a welcome from the Novamont staff, a workshop was held in order to present the activities both of the enterprise to the staff mobility participants and of the Chinese Universities to the enterprise. The workshop is the opportunity to establish new collaborations in between Europe and China in the field.
Workshop started with Prof. Fan Lyu introducing Tongji Unievrsity and the Department of Energy Waste management. Then, Prof. Cheng-Wei Hu introduced Chemistry College in University of Sichuan, focused of purification of biofuel and increasing biodiesel production from micro-algae and *Jatropha curcas*. Peijian Yan introduced East China University of Science & Technology and their current research programs.
After these short introductions, Dr. Sara Guerrini gave a fully comprehensive presentation about the company, international leader in the bioplastics sector and in the development of biochemicals. The presentation gave both an overview of the Enterprise activity in the field, as well as a deep excursus in the new state-of-the-art processes for the development of bio-materials.

Afterwards, participants were divided in more groups to visit the research centre, where in particular the visit focused on the processes to obtain Mater-Bi, the bio-plastic patented by Novamont, from starch and vegetable oil and then the final transformation into biodegradable plastic products.

Co-funded by the
Erasmus+ Programme
of the European Union

Figure 6: Arriving at Novamont

Figure 7: Prof. Fang Lyu presentation

Co-funded by the
Erasmus+ Programme
of the European Union

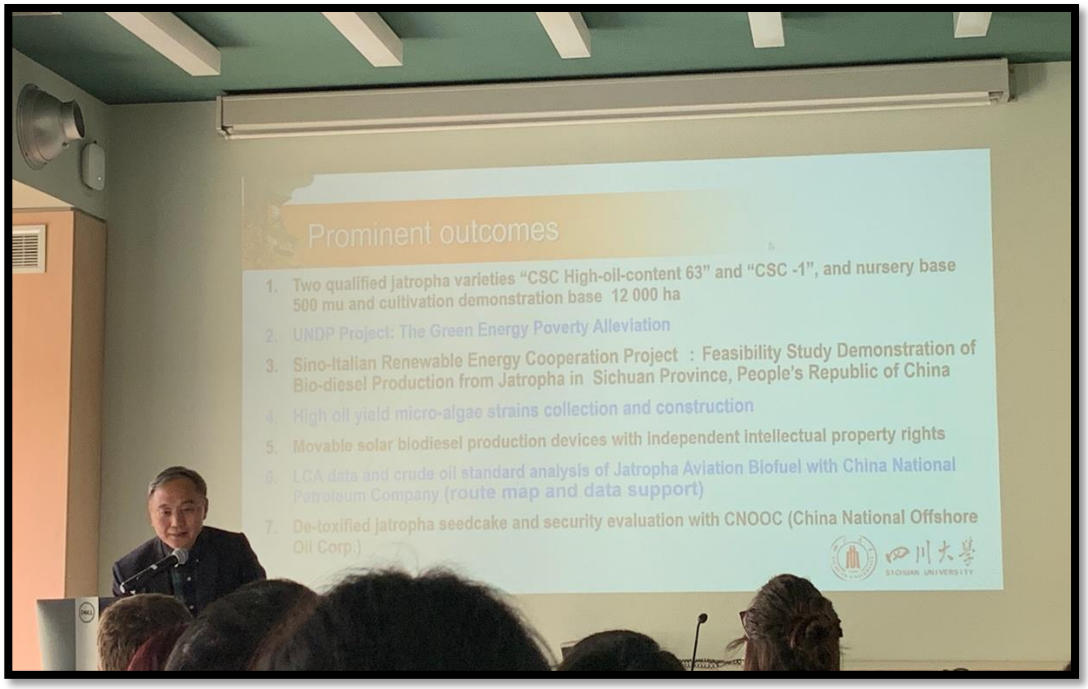


Figure 8: Prof. Cheng-Wei Hu presentation

Figure 9: Steps for the Mater-Bi production

Co-funded by the Erasmus+ Programme of the European Union

TozziGreen, solarplant with grassland and research centre

Date: **07.10.2019**

Location 1: **09:00**
SOLAR FARM Società Agricola S.R.L.
via Forello 14/A Sant'Alberto di Ravenna
48123 Ravenna

The "Caseificio Il Buon Pastore" is a farm owned by Tozzi Green. A particular characteristics is that the sheep stock farm works in strong synergy with the solar photovoltaic plant. This spreads over 71 hectares, and has a 35 MW of peak power, thus avoiding every year the emission of nearly 25,000 tons of CO_2. Sheep graze under the solar panels, contributing to the maintenance of agricultural areas and grassland. The structures of the photovoltaic panels have been designed and installed in such a way as not to hinder the passage and grazing of animals.
Farmer have guided BBChina Staff among solar panels on grassland, and locals of dairy and sheep shed.

Figure 10: *Visiting solar plant on grassland*

Co-funded by the
Erasmus+ Programme
of the European Union

Figure 11: A moment of the visit

Figure 12: Sheep-shed

Co-funded by the Erasmus+ Programme of the European Union

Location 2: 14:30
Tozzi Green S.p.A. – Reasearch Centre
Via Brigata Ebraica, 50, Mezzano
48123 Ravenna

A pioneering company in the production of renewable energy, Tozzi Green is a company active in Italy and abroad. It integrates the entire "development - engineering, procurement, and construction – operations and maintenance" (D-EPC-O&M) process in full and horizontally for all renewable energy production plants: hydroelectric, wind, photovoltaic, biomass and biogas.

As one of the world's leading players in the field of rural electrification and sustainable rural development, Tozzi Green is meeting the needs for delivering electrical power in Developing Countries.

The Tozzi Green staff guided BBChina visitors all through the research centre and the lab, where innovative solutions are experimented and developed.

Participants were especially interested about the "hydrogen cyclobike" and the sector involved in the battery improvement.

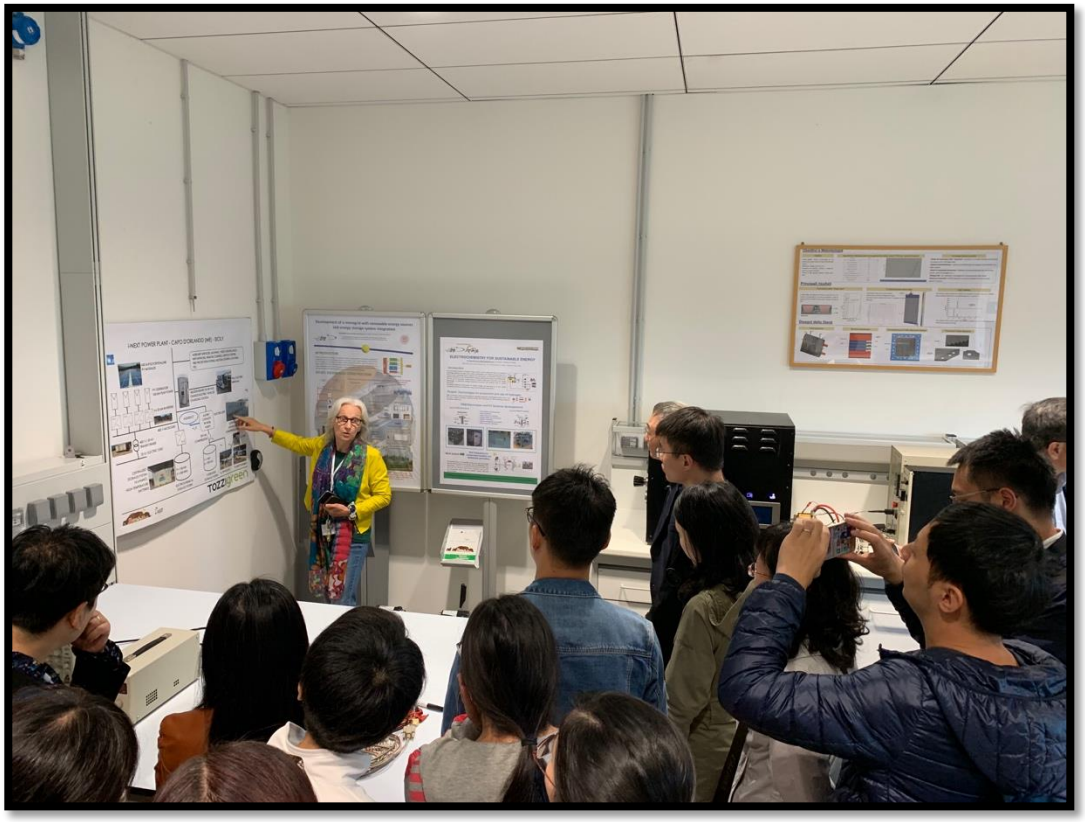


Figure 13: Energy stock lab

Co-funded by the Erasmus+ Programme of the European Union

Figure 14: Hydrogen cyclobikes

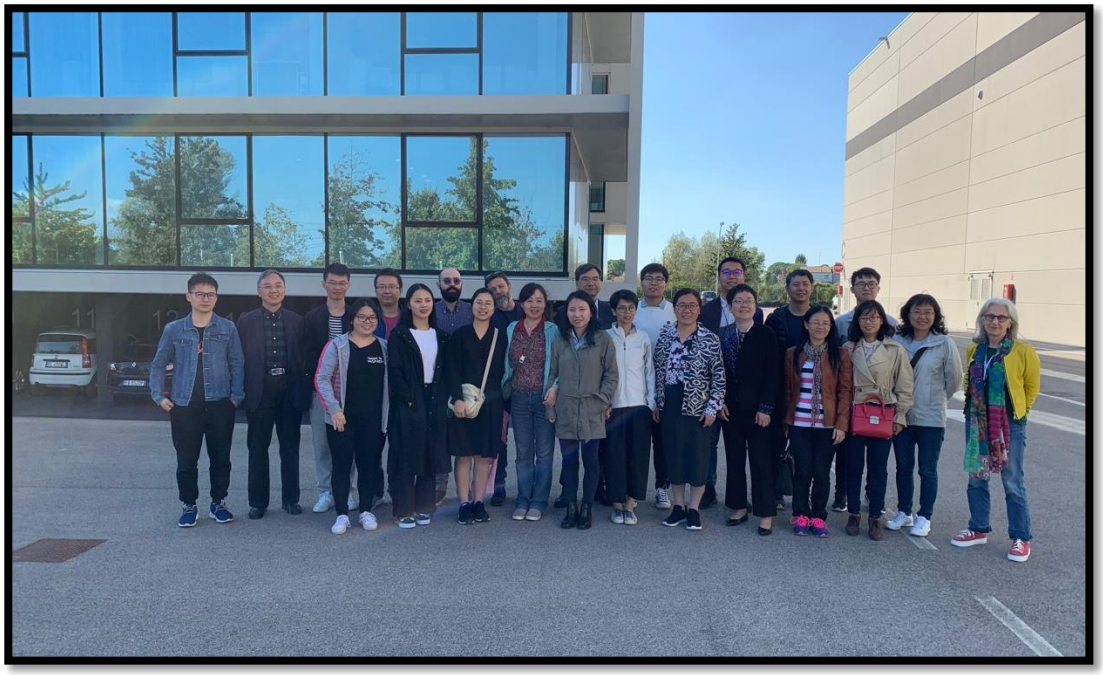


Figure 15: Group photo

Co-funded by the Erasmus+ Programme of the European Union

Agro-Industry Farms, energy and by-products save

Date: **09.10.2019**

Location 1: **10:00**
Marchesi Mazzei Cellar
Via Ottone III di Sassonia n. 5 Loc. Fonterutoli,
Castellina in Chianti
53011 Siena

Marchesi Mazzei is an innovation cellar dug in to the hill. The innovative concept aims to the energy efficiency, savings and sustainability. The cellar doesn't use energy to move wine through the production chain, but gravity, because each process step moves from the upper to the direct lower floor under the hill. Thanks to the innovative system adopted, the cellar has a positive environmental and sustainability evaluation balance: agroecosystem absorbs more than 5 times as much CO_2 as it produces with a negative balance of over 3,000 tons (731 t. produced -3741 t. absorbed = -3010 t. balance).

Figure 16: *Visit cellar, first underground floor*

Co-funded by the
Erasmus+ Programme
of the European Union

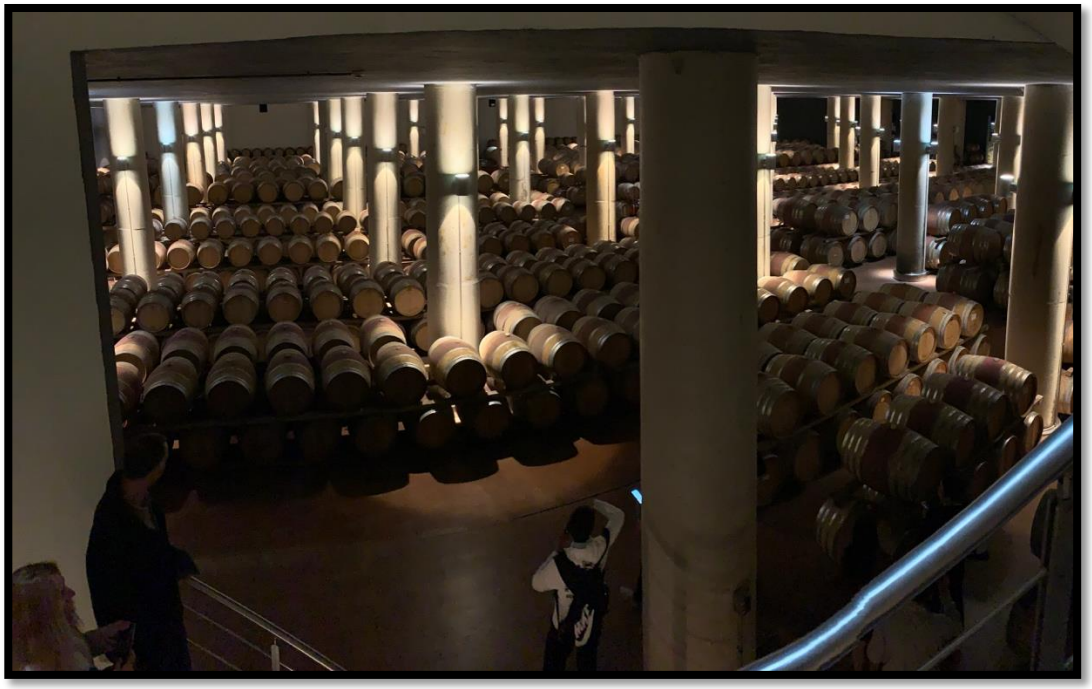


Figure 17: Wood cellar, second underground floor

Co-funded by the Erasmus+ Programme of the European Union

Location 2: 12:00
Castello di Verrazzano
Via Castello di Verrazzano 1,
Greve in Chianti FI
50022 Florence

Castello di Verrazzano is an agro-industry farm totally powered using energy from certificated renewable sources and heated with wood coming from the woods of the farm. All the rooms in the cellar are insulated to maintain the right temperature for wine aging, and achieve an efficient use of the heat produced in winter. By-products obtained from wine process, before being transformed into compost to be used in the vineyards as fertilizers, are reused to produce traditional Italian distillates, to both enhance efficiency and economics of the process.

Figure 18: A moment of visit

At the conclusion of the mobility, a questionnaire was distributed to the participants to have a feedback on the activity. Participants were then set free.

Co-funded by the
Erasmus+ Programme
of the European Union

UNIVERSITÀ DEGLI STUDI FIRENZE

BBChina
Master Program on Bio-Based Circular Economy

UNIVERSITÀ DEGLI STUDI FIRENZE
DIEF DIPARTIMENTO DI INGEGNERIA INDUSTRIALE

Agenda of Staff Mobility (DRAFT)

Friday, 04/10/2019 **University of Florence – Centro Didattico Morgagni** **Viale Giovanni Battista Morgagni, 40, 50134 Firenze, Italia**	
9:00	**Meeting point in Viale Morgagni 40 – Room 209** - Registration of participants
9:15– 9:30	**Opening of Welcome Day** - Presentation of BBChina, Staff Mobility timetable and Welcome day
9:30 – 10:30	**RE-CORD - Renewable Energy Consortium for Research and Demonstration** - Activities presentation - Thermochemical processes for the bio-economy ***Dr. David Chiaramonti***
10:30 – 11:15	**RE-CORD - Renewable Energy Consortium for Research and Demonstration** - Presentation of BIO4A Project ***Dr. Tommaso Barsali***
11:15 – 11:30	***Coffee break***
11:30 – 12:00	**DAGRI – Department of Agriculture, Food, Environment and Forestry** - Presentation of the Master Course in Biotechnology for environmental management and sustainable agriculture ***Prof. Roberto De Philippis***
12:00 – 12:30	**DAGRI – Department of Agriculture, Food, Environment and Forestry** - Exploitation of microbial photosynthesis for eco-sustainable hydrogen production ***Prof. Roberto De Philippis***
12:30 – 13:00	**RE-CORD - Renewable Energy Consortium for Research and Demonstration** - Algae GMO for biofuel ***Dr. David Casini***
13:00 – 14:30	***Lunch Break***
14:30 – 14:30	**DAGRI – Department of Agriculture, Food, Environment and Forestry** - The activities of Agro-meteorology and modelling research group ***Prof. Roberto Ferrise***
14:30 – 15:30	**DAGRI – Department of Agriculture, Food, Environment and Forestry** - Presentation of REM-JET Project - Genetic improvement of *Jatropha curcas* ***Dr. Enrico Palchetti***

Co-funded by the Erasmus+ Programme of the European Union

Saturday, 05/10/2019 University of Florence – Centro Didattico Morgagni Viale Giovanni Battista Morgagni, 40, 50134 Firenze, Italia	
ROOM 207	
9:00 – 12:00	**Project Meeting - Room 207** - Financial issues - Meeting with Salvatore Carvelli
12:00 – 13:00	***Lunch break***
Computer CLASSROOM 110 Training on e-learning and teaching methodologies Alberto Provenzano - CESIE	
13:00 – 13:15	**Introduction to e-learning based teaching methodology** - E-learning and mediated learning: threats and opportunities
13:15 – 13:45	**Show up of platform features** - Roles of the professor and role of student - Providing an e-learning course - as a professor - Attending an e-learning course - as a student
13:45– 14:45	**In detail** - How to register a student - How to create a course - How to create a module - How to create a lesson - How to create an assessment
14:45 – 15:00	***Break***
15:00 – 15:30	**Q&A and receiving feedback** - E-learning and mediated learning: threats and opportunities
15:30 – 17:00	**Hands on – Training and Exercises** - Register a student - Create a course - Create a module - Create a lesson - Create an assessment

Co-funded by the Erasmus+ Programme of the European Union

Sunday, 06/10/2019 University of Florence – DAGRI – Scuola di Agraria Piazzale delle Cascine, 18 - 50144 Firenze	
AULA MAGNA	
9:00 – 14:00	**Project Meeting** - Agenda t.b.d.
FREE AFTERNOON/EVENING	

Monday, 07/10/2019 Novamont S.p.A. Research Centre Via G. Fauser 8, 28100 Novara – Italia	
7:30	Departure from Hotel
12:00	Arrival at Novamont
12:15 – 13:00	Light lunch and Introduction to bioeconomy and Novamont
13:00 – 13:45	Chinese Universities present their activities
13:45 – 17:00	**Workshops and Site visit** - Workshop on agro-forestry industry chains - Visit to Pilot plants - Show path of the development of Mater-Bi
17:30	**Departure**
21:30	**Arrival in Ravenna**

Tuesday, 08/10/2019 Tozzi Green Via Zuccherificio, 10 - 48123 Ravenna	
8:30	Departure from Hotel
9:00	Arrival at Tozzi Green
9:00 – 17:00	**Workshops and Site visit** -
17:30	**Departure**
21:30	**Arrival in Firenze**

Co-funded by the Erasmus+ Programme of the European Union

Wednesday, 09/10/2019 Antinori Farm	
8:30	Departure from Hotel
9:30 – 16:00	**Workshops and Site visits** - 2 agro-forestry Enterprises in the Chianti Area
17:30	**Departure**
18:30	**Back to Hotel**

Co-funded by the Erasmus+ Programme of the European Union