

FONDAZIONE ENI ENRICO MATTEI - ANNUAL REPORT 2016

# ANNUAL REPORT 2016

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## Mission

As a non profit, policy-oriented, international research center and think-tank on sustainable development, FEEM contributes to the quality of decision-making in public and private spheres through analytical studies, policy advice, scientific dissemination and high-level education.

Thanks to its dissemination activities and international network, FEEM integrates its high-quality, innovative and interdisciplinary research with that of the best academic institutions and think-tanks around the world.



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## Introduction

Environment, Energy and Economy – the 3 Es of the logo – and the deep interconnections among these three fundamental spheres of sustainable development, represent the identity of FEEM and are at the core of its research activities. The distinctive features of FEEM research are innovation, quality, scientific rigor, interdisciplinarity and impact, which is achieved by translating research output into policy indications for national and international institutions and for the public and private sector. FEEM research benefits from a large international network of academic and research institutions that keeps FEEM abreast of cutting-edge research.

As a think-tank, FEEM carries out dissemination initiatives to inform institutions, firms and the civil society on the results of its research to contribute to a better understanding and awareness of sustainable development dynamics. FEEM also makes major communication efforts to reach out to the public at large, public opinion being key to eliciting a response from policy makers.

FEEM research activities revolve around 4 Research Programs that tackle interrelated issues in sustainable development (EIA – Climate Change: Economic Impacts and Adaptation, MITP – Mitigation, Innovation Transformation Pathways, ESP – Energy Scenarios and Policy, and SAS – Society and Sustainability), the Initiative on Climate Change policy and Governance (ICCG), a Local Development area focused on research and activities for local stakeholders, and cross-cutting themes focused on the 2030 Agenda, Climate Change and Migration and Sustainability in Africa.

FEEM also has a completely owned and controlled private company, FEEM Servizi S.r.l., whose mission, strictly connected to the activities of the Fondazione Eni Enrico Mattei, is to provide research-based services for FEEM's stakeholders.

The activities of the Fondazione are carried out at the headquarters in Milan, at the offices in Venice – which were opened in 1996 – and at the offices in the Basilicata Region that were opened in 2007, as part of an institutional agreement related to Eni's activities in the area.

## FEEM 2016 @ a Glance

**2016 marks a significant year for FEEM. The Foundation has streamlined its governance to foster the integration of its activities. It has confirmed its role as an international think tank and non academic research institution, and it has consolidated its relationship with the private sector, policy-makers, local stakeholders and the civil society. For this purpose, it has redesigned its communication initiatives to improve its visibility and to reach out to a larger public. It has also pursued economic efficiency and sustainability by reducing its overall structural costs to the benefit of research activities to offset EU research funding constraints.**

In 2016 FEEM has become the hosting institution of SDSN Italia, the Italian hub of the Sustainable Development Solutions Network promoted by the United Nations (UN SDSN). SDSN Italia will work under the auspices of the SDSN Mediterranean regional network to promote UN SDSN initiatives at the national level. It will also support, and cooperate with, firms and institutions to identify concrete solutions to sustainable development issues, promoting the initiatives of the younger generations.

To further strengthen its commitment to sustainable development, FEEM has participated in, and has become a member of, the Italian Alliance for Sustainable Development (ASviS) with the goal of raising awareness of the importance of the 2030 Agenda in Italian firms, organizations and institutions. SDSN Italia and ASviS, with Fondazione Global Compact Network Italia, have signed a Memorandum of Understanding for this purpose.

As for its research activities, in 2016 FEEM has worked on 31 projects with 76 researchers from its different research programs.

Research has focused on the future projections of the Sustainable Development Goals (SDGs) with data on the individual Goals and Countries. These studies have been conducted within the APPS project on the Assessment, Projections and Policy of Sustainable Development Goals.

FEEM has conducted research on climate change with energy efficiency scenarios for the transition toward a low-carbon economy – also with a specific project with the Italian Government – and has provided an economic assessment of the commitments made under the Paris Agreement. This has allowed FEEM to provide evidence-based policy support for the 1.5°C temperature limit promoted by the Intergovernmental Panel on Climate Change (IPCC).

FEEM has also collaborated, with a consortium of European partners, to an initiative promoted by the EU Directorate-General for Climate Action on the impact assessment and development of European policies to combat climate change.

Research in this field has also investigated climate-induced migration, and an international conference on this topic was organized at FEEM in Milan on November 22-23.

FEEM has participated in the 22<sup>nd</sup> Conference of the Parties (COP22) promoted by the United Nations Framework Convention on Climate Change (UNFCCC), which was held in Marrakech in November, and it has organized two side events in cooperation with Bocconi University, the Research Institute of Innovative Technology for the Earth and Resources for the Future.

FEEM has investigated the future of the European energy system, and how it will be shaped by the interaction between decarbonization and digitalization. For this purpose it has started a joint project with Bruegel and the Florence School of Regulation for the organization of a series of three workshops.

FEEM has also analyzed the role of gas and renewables in post-COP21 European decarbonization policies and on the security of gas supplies in the Euro-Mediterranean area.

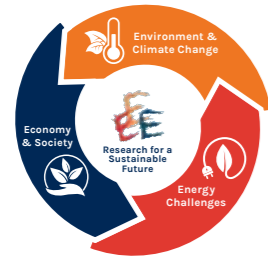
Within the Local Development area, FEEM has continued its institutional activities and collaboration with the Basilicata Region. In particular, it has conducted geological studies on the markers and hydrocarbons in Lake Pertusillo in cooperation with the University of Basilicata, and it has produced a report on the economic impact of Eni activities in the region. FEEM is also investigating how the event "Matera Capitale della Cultura 2019" is affecting tourism in the Basilicata region, and it has organized several initiatives for the promotion and valorization of the Basilicata region brand.

# FEEM

## Research for a Sustainable Future

The core of FEEM activities is research for a sustainable future based on studies related to:

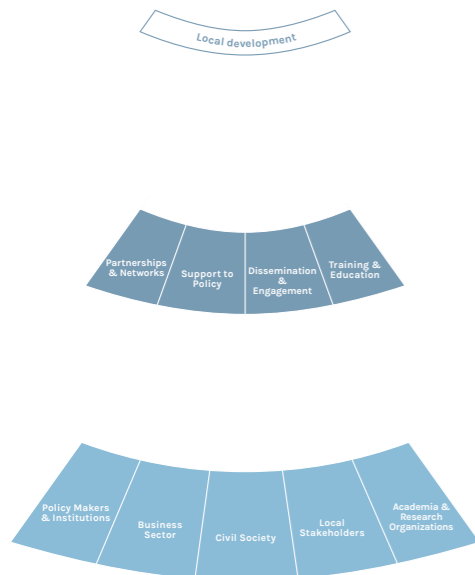
- **Environment & Climate Change**, with special emphasis on the assessment of the economic and social impacts of climate change for mitigation and adaptation policies;
- **Energy Challenges**, with a focus on the transition toward decarbonisation, energy demand and supply, infrastructure needs and their financing aspects, energy market analyses and socio-economic impacts, taking into account the economic, geopolitical and institutional perspectives;
- **Economy & Society**, with particular regard to the contribution of the private sector to sustainable development, smart and resilient cities, and the 2030 Agenda implementation.



The studies carried out by FEEM's research programs converge toward these three topics of global relevance that are also at the core of FEEM research activities at the local level.

Outreach activities are carried out at both global and local levels through partnerships & networks, support to policy, training & education and dissemination & engagement initiatives. The activities are diversified in consideration of the different audiences with a view to reinforcing the commitment toward sustainable development, and to fostering and encouraging a broader understanding of economic, energy and environmental issues.

FEEM research promotes excellence and innovation, and as a think tank FEEM shares its results with the international academic community, institutions and policy makers, and disseminates evidence-based knowledge to a large, non specialized audience to shape the public debate.



## Governance & People

Founded by Eni in 1989, FEEM was recognized by the President of the Italian Republic in the same year. FEEM is entitled to Enrico Mattei, the founder of Eni and an economic leader in the national industrial system and international relations of the post-war period. The value Mattei attached to culture, research and cooperation represents the most precious legacy for the Foundation that carries his name. Here below FEEM's 2016 governance and people.

### STATUTORY BODIES

#### Board of Directors

Emma Marcegaglia - *Chairwoman*  
 Eugenio Barcellona  
 Giovanni Bazoli  
 Maria Elena Cappello  
 Marta Dassù  
 Claudio Granata  
 Cristiano Nicoletti  
 Giulio Sapelli  
 Domenico Siniscalco

#### Audit Committee

Alessandro Bonura - *Chairman*  
 Michele Casò  
 Alberto Giussani

#### Executive Director

Sabina Ratti

#### Scientific Advisory Board

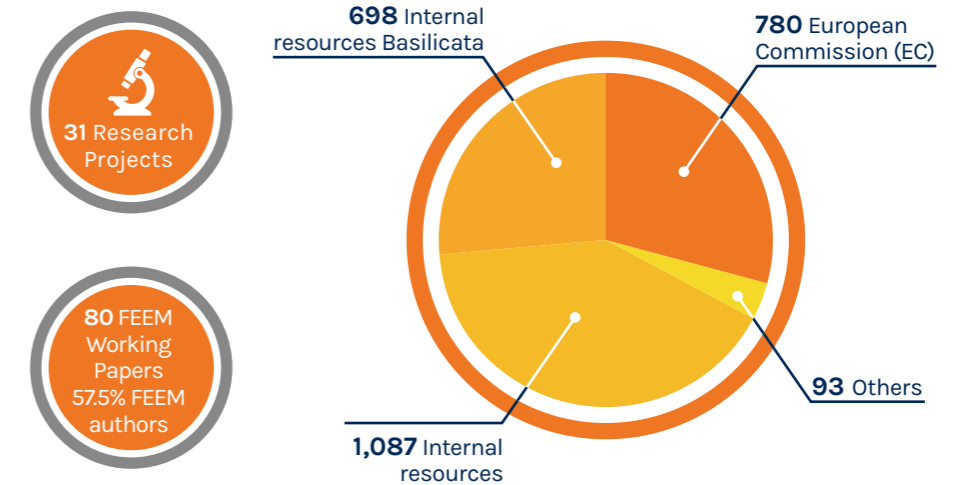
Michel Camdessus - *Chairman*  
 Banque de France  
 Francesco Casetti  
 Yale University  
 Vincenzo De Luca  
 Ministry of Foreign Affairs  
 Lord John Leonard Eatwell  
 Queens' College Cambridge  
 Eliana La Ferrara  
 Bocconi University  
 Ian Ross Macmillan  
 Bocconi University  
 Lord Peter Mandelson  
 Global Counsel  
 Francesca Romanin Jacur  
 University of Milan

## Research

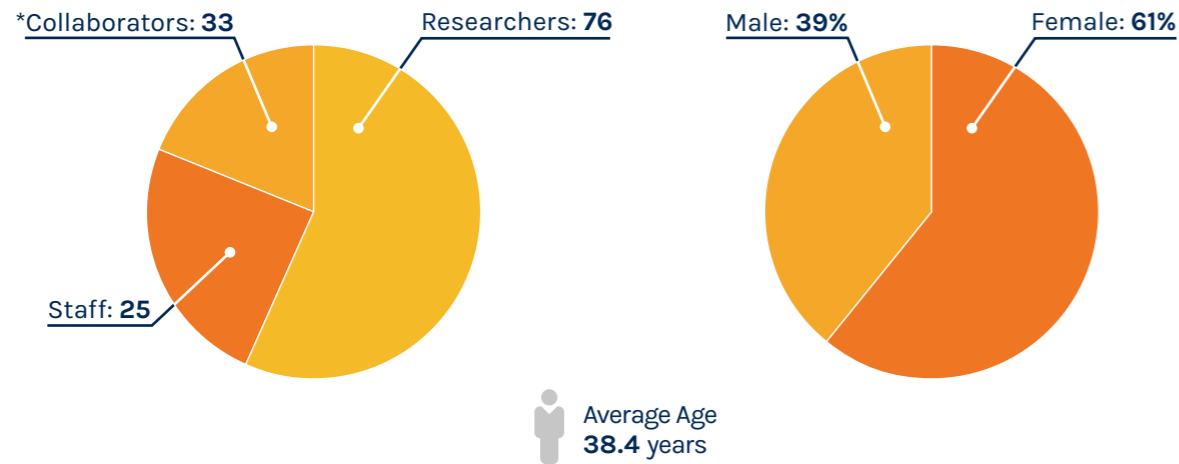
FEEM research is innovative for the academic environment and relevant for the policy and business communities. Several topics and issues addressed by FEEM's research programs are interconnected and require flexibility and interdisciplinarity. For this purpose FEEM has multicultural research teams with different skills and expertise. Moreover at a local level, FEEM conducts research aimed at promoting a sustainable process of endogenous growth.

### Research Funding by source: 2,658

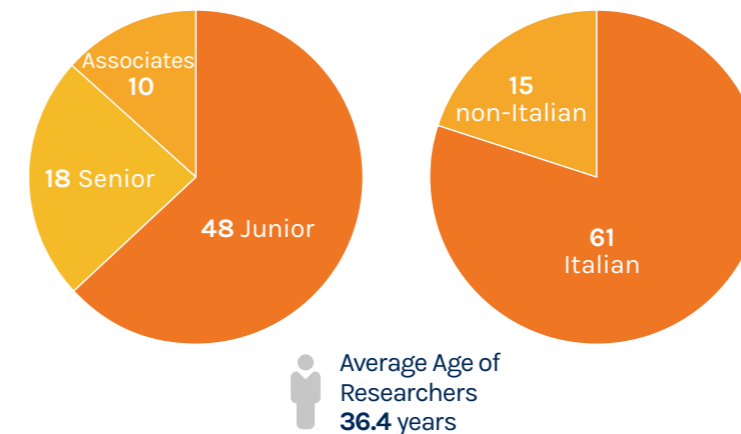
in thousand Euros



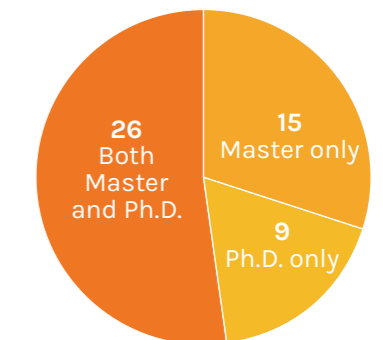
### FEEM People: 134



### Researchers: 76



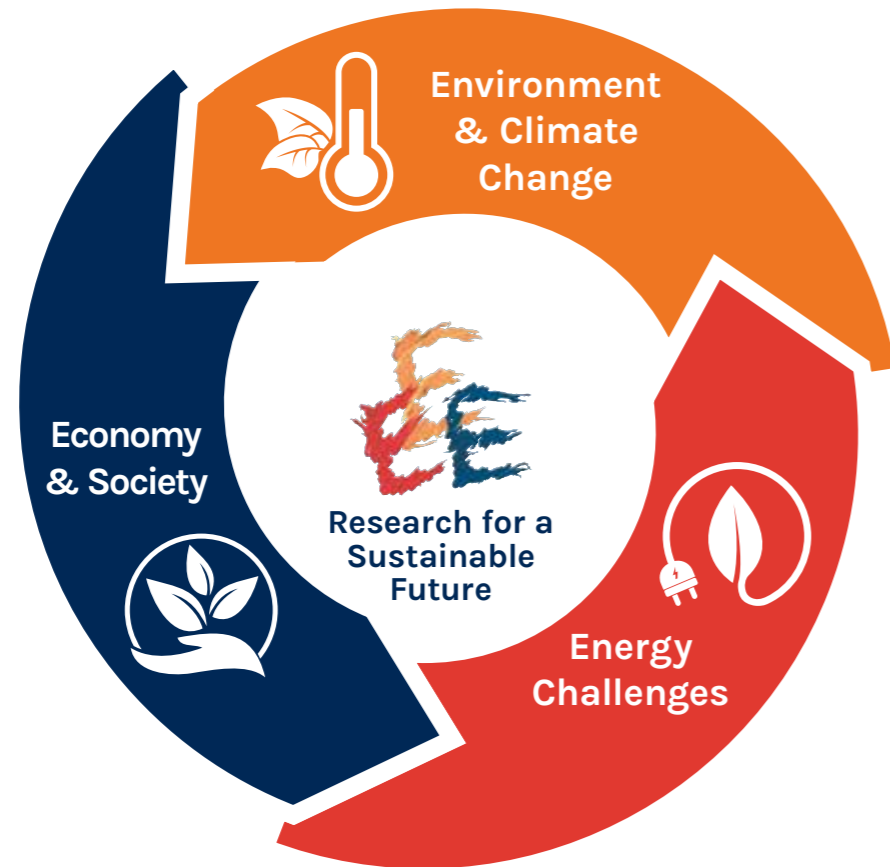
### Postgraduate Degrees



\*Collaborators are mainly involved in FEEM's local development initiatives.

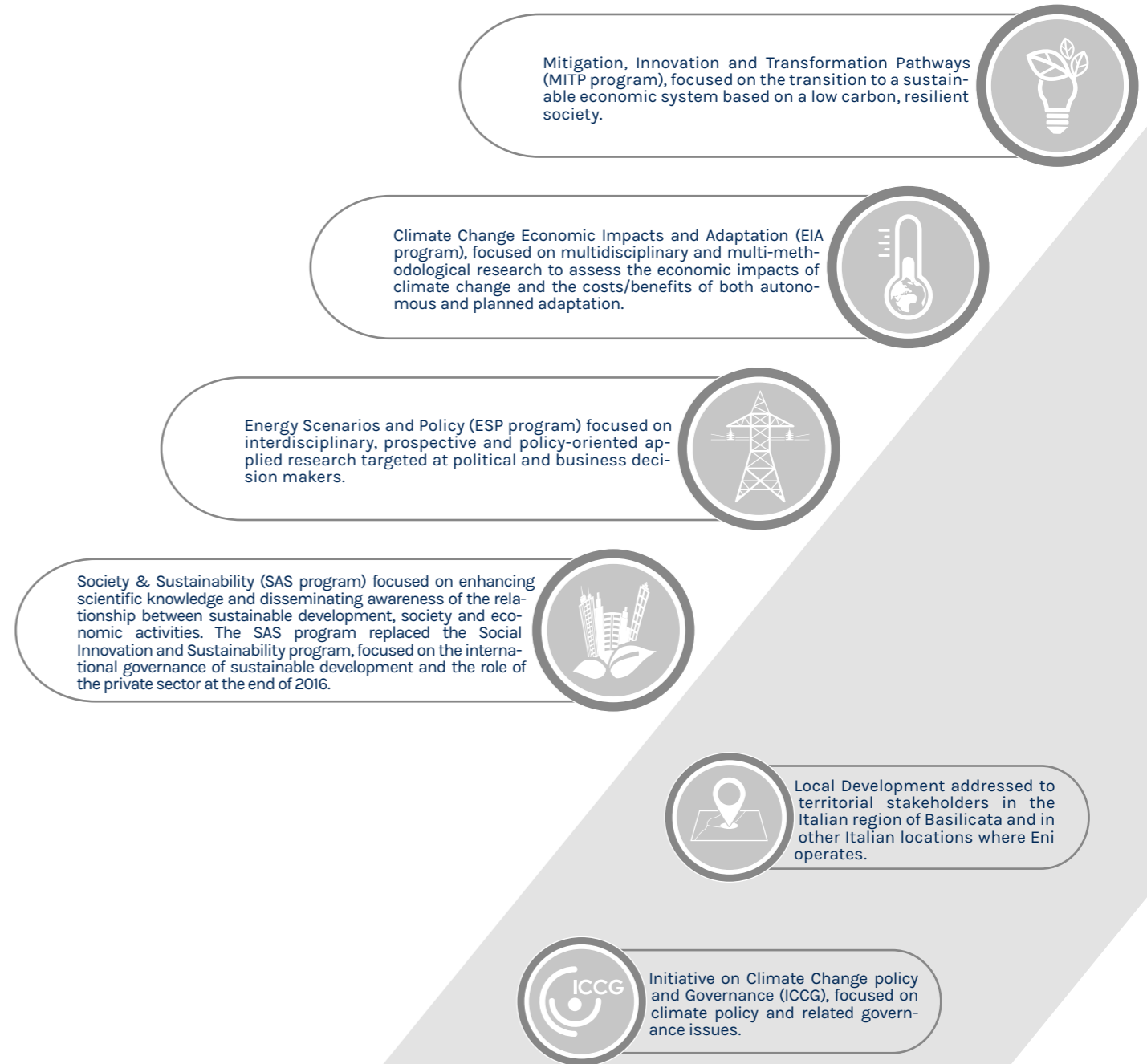
## Hot Topics

FEEM research tackles interconnected issues in sustainable development with a focus on three main hot topics: Environment & Climate Change, Energy Challenges and Economy & Society. The studies carried out by FEEM's four research programs converge toward these three topics of global relevance that are also at the core of FEEM research activities at the local level.



## Research Programs

Research activities revolve around 4 Research Programs, a Local Development area focused on research for local stakeholders, the Initiative on Climate Change policy and Governance (ICCG), and cross-cutting research areas on the 2030 Agenda, Climate Change and Migration and Sustainability in Africa.





# ENVIRONMENT & CLIMATE CHANGE

The accumulation of large amounts of greenhouse gases in the Earth's atmosphere is raising the global temperature and transforming climate patterns, with negative and potentially irreversible implications for ecological, social and economic stability worldwide. Climate change is a global challenge that does not respect national borders. It requires solutions that need to be coordinated at the international level to help countries move toward low-carbon economies and successfully adapt to unavoidable impacts, while pursuing a development which is sustainable and equitable.

FEEM develops and applies innovative modeling tools and instruments to analyze the costs and benefits of solution-oriented approaches to mitigation policies. The aim is to limit or prevent greenhouse gas emissions and enhance activities that remove them from the atmosphere. The main economic sectors are taken into account, both in a near-term and in a long-term perspective. The sectors include energy, transport, industry, agriculture, forestry, waste management. The analysis also covers social factors such as behavioral mechanisms.

FEEM also generates analytical insights and models to assess the vulnerability of socio-economic and natural systems to climate change, negative and positive consequences of climate change, and options for adapting to it. It also takes into consideration the inter-relationship between vulnerability, adaptation and sustainable development. The assessed information is considered by sectors and regions.

In 2016 research has focused on providing robust evaluation of climate and energy policies and impacts. In particular, the international climate policies following the Paris Climate Agreement have been assessed, as well as innovation drivers aimed at promoting green technological change. The relation between climate change and migrations has been studied, extreme events and tipping points have been investigated, and behavioral interventions aimed at promoting energy efficiency have been tested in the field. The results have been published in top journals, in isolation or jointly with other research groups in Europe and elsewhere. FEEM research has provided input to the ongoing assessment reports of the IPCC, and informed EU stakeholders and policymakers involved in climate and energy policy (risk management and experimental economics).

assessment of climate change impacts and adaptation have also been developed. Specifically, studies in this field have investigated how imperfect knowledge about climate change impacts can affect the choice to mitigate and to adapt. The losses in economic activity induced by the adverse effects of climate change on crop yields have been quantified globally and for selected countries, and the effective role of irrigation as an adaptation strategy has been discussed. The potential role of adaptation expenditure has been analyzed not just as an impact smoothing mechanism, but also as a driver of the sustainability of public finance. The role of climate change policies in the wider context of sustainable development have been studied, highlighting the interactions between climate change actions and the other 2030 Agenda sustainable development goals. Research has also investigated the connection between migration and climate change pressures.

Several research streams related to the multidimensional features of the economic

## Main areas and subtopics of Environment & Climate Change research:



- Behavioral change
- Green innovation
- Low carbon pathways
- Climate finance
- Land use change

- Climate governance
- Risk & uncertainty
- Economic development
- Climate-induced migration
- Natural hazards & disaster risk management
- Impacts on ecosystems



# Key Projects

FEEM Researchers: 16  
Publications: 18  
Duration (months): 48



Advanced model development and validation for improved analysis of costs and impacts of mitigation policies

FEEM Researchers: 8  
Publications: 6  
Duration (months): 43



Dynamic policy mixes for absolute decoupling of environmental impact of EU resource use from economic growth

FEEM Researchers: 9  
Publications: 6  
Duration (months): 48



Enhancing risk management partnerships for catastrophic natural disasters in Europe

FEEM Researchers: 4  
Publications: 3  
Duration (months): 48



Climate change mitigation and poverty reduction – trade-offs or win-win situations?

**Funding:** European Commission

**Project duration/status:** 2013-2016

**Goals:**

- To evaluate and to improve the suitability of models for climate policy impact assessments at global and local level. The ADVANCE consortium brought together long-standing expertise in integrated assessment and energy-economy modelling with a strong expertise in material flows, energy system integration, and energy service demand.

**Results:**

- Low carbon pathways consistent with the objectives of keeping temperature below 1.5 and 2°C.
- Decarbonization options in the residential and transportation sectors.
- Assessment of the life cycle of low carbon strategies; risks and innovation to promote the low carbon transition; effectiveness and efficacy of the Paris climate accord.

**Funding:** European Commission

**Project duration/status:** 2012-2016

**Goals:**

- To identify dynamic and robust policy mixes that can help bring the EU onto a trajectory in which the economy continues to thrive while the use of resources and the related environmental impacts decline in absolute terms (absolute decoupling).

**Results:**

- Policy recommendations to support EU and national policy-makers in the implementation of effective resource efficiency policies. DYNAMIX's hope has been to concretely contribute to the efforts to implement the European Resource Efficiency Flagship Initiative and its Roadmap at the EU- and Member State-level, and to support the work of the European Resource Efficiency Platform.
- Publication of results in peer-reviewed journals.

**Funding:** European Commission

**Project duration/status:** 2012-2016

**Goals:**

- To develop and analyze new ways to enhance society's resilience to catastrophic natural hazard impacts, by providing new scenarios and information in selected hazard cases, and by contributing to the development of new multi-sector partnerships to reduce or redistribute risk.

**Results:**

- Harmonized dynamic scenarios of vulnerability, exposure, and hazard at the pan-European scale, using existing information and new probabilistic approaches for multi-hazards, heat-waves, forest fires, floods, droughts, storm surges, and volcanic eruptions.
- Guidelines and key features for enhancing multi-sector partnerships (MSPs) interaction in successful resilience enhancement and risk reduction.
- Methods for linking MSPs to novel scientific risk scenarios and assessments.

**Funding:** External resources

**Project duration/status:** 2013-2016

**Goals:**

- To analyze the relationship between climate change mitigation and poverty reduction from a multi-disciplinary perspective.
- To explore how fossil fuel subsidy reforms or the introduction of carbon taxes impact welfare and poverty in Indonesia, Mexico, South Africa and Thailand.
- To look at the economic and distributive implications of the current EU mitigation targets.

**Results:**

- Energy price increases could potentially create win-win situations for mitigation efforts and poverty reduction in the case of properly designed compensation schemes, redistributing from the rich to the poor, and in particular addressing energy poverty.



# ICCG – Initiative on Climate Change policy and Governance



The **Initiative on Climate Change policy and Governance** (ICCG) was founded in 2009 in collaboration with Fondazione Cini and is now internationally renowned for its activities focused on the design of climate policy and related governance issues. Located in the offices of FEEM Venice, the ICCG favors the interaction between political scientists, economists, policymakers and business leaders to analyze the interdependencies between the economic, social, cultural, ethical, and political dimensions of climate governance.

The ICCG's objective is to disseminate scientifically-based, socio-economic research in the fields of climate change mitigation and adaptation to policymakers, business leaders, academics and the general public.

ICCG runs **three interdisciplinary, web-based observatories** on specific aspects of climate governance: **Best Climate Practices, Think Tank map, Climate Policy Observer**. ICCG also organizes **education and training activities** and carries out **scientific dissemination** through **e-publications** and **events**.

**Training activities for specialized audiences**  
Video-lectures, scientific and policy seminars and webinars.

**Education activities for schools**  
Lessons on climate change involving over 1000 students.

**Dissemination activities**  
- e-publications on current challenges related to climate and energy policies

- "Ciack4change: cinema, science and climate change" shorts and videos on climate change
- "Climathon Venezia 2016. Cultural Heritage in a Changing Climate", a world marathon on ideas for the climate.
- "Climate change: food and water. Best practices and policy tools to produce food and protect water resources", a format developed by the Best Climate Practices Observatory



An interactive platform collecting and awarding the best practices to control climate change

**Goals:**

- To help disseminate best climate practices, showcasing existing climate change measures and practices, plus new initiatives.



A platform providing an overview and ranking of the best think tanks in the field of climate change economics and policy

**Goals:**

- To provide a complete overview of every active think tank in the field of climate change economics and policy.
- To give evidence to the best "climate think tanks".



An all-in-one tool for keeping up with the latest developments in climate and energy policies

**Goals:**

- To provide researchers, organizations, enterprises, policy makers and citizens with news, country profiles, reports, publications, climate-counter tools and focus on hot topics covering the full range of climate issues.



# Key Events

**"Climate change mitigation and poverty reduction: trade-offs or win-win situations?", Brussels, 14 June 2016**

The aim of the policy workshop was to present and discuss the main findings of the CliMiP project and its policy implications. In the aftermath of the Paris COP, the synergies and challenges linking climate change and development are becoming increasingly relevant. To date, this issue has been the most divisive within the UNFCCC, with struggles along a rift centering on 'historical responsibilities', the 'right to emit' and 'fair global carbon shares'. More recently, however, both developed and developing countries have become aware of the need to jointly work for the implementation of effective strategies to tackle climate change without compromising future economic growth and poverty reduction priorities.

**"Deep decarbonization towards 1.5°C-2°C stabilization", Brussels, 24 October 2016**

The conference brought together stakeholders, climate policy experts and scientists to discuss the results of the Advanced model Development and Validation for improved Analysis of costs and impacts of mitigation policies (ADVANCE) project. The project aimed at improving Integrated Assessment Models (IAM) in order to better quantify the requirements for climate stabilization and the implications of international climate agreements, including the implications of the Paris Climate Agreement.

**"Modelling Climate Engineering", Milan, 3-4 November 2016**

This workshop aimed at discussing technological, economic and environmental issues related to large scale deployment of climate engineering (CE). The main goal was to help improve the representation of climate engineering in the integrated assessment studies of climate, energy and the economy. It will produce a position paper that describes the present and the future of economic modelling of CE to be submitted as a commentary or review article.

**Side events during the UN Climate Change Conference in Marrakech – COP22 , Marrakech, 7-18 November 2016**

The XXII session of the Conference of the Parties (COP 22) and the twelfth session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP 12) were held in Marrakech, Morocco. FEEM researchers attended sessions and FEEM co-organized the following side events:

- **"Urban policies to implement and finance NDCs"** - 14 November 2016, with the participation of Carlo Carraro.
- **"Mitigation Policy Choices and Levels of Effort Side Event"** - 15 November 2016, with the participation of Lara Aleluia Da Silva Reis.

**"Climate-induced Migration", Milan, 22-23 November 2016**

The conference aimed at deepening our understanding of the impacts of climate-induced environmental stress on human systems, with a particular focus on migration. It aimed to shed further light on the actual link between environment and migration, the channels by which environment and migration are related and the indirect effects of climate-induced migration. Moreover, the conference intended to bring together leading experts from various relevant disciplines and domains who carry out research related to migration and climate/disaster.

## Key Publications

### Scientific journals

Aleluia Da Silva Reis L., C. Carraro, M. Tavoni et al., **Economic Tools to Promote Transparency and Comparability in the Paris Agreement**, *Nature Climate Change*

Aleluia Da Silva Reis L., L. Drouet, M. Tavoni et al., **A Multi-Model Assessment of the Co-benefits of Climate Mitigation for Global Air Quality**, *Environmental Research Letters*

Berger L., J. Emmerling, M. Tavoni, **Managing Catastrophic Climate Risks Under Model Uncertainty Aversion**, *Management Science*

Bevione M., L. Drouet et al., **Setting the System Boundaries of "Energy for Water" for Integrated Modeling**, *Environmental Science & Technology*

Carraro C. et al., **Reforming the IPCC's Assessment of Climate Change Economics**, *Climate Change Economics*

Cattaneo C. et al., **The Migration Response to Increasing Temperatures**, *Journal of Development Economics*

De Cian E., G. Marangoni, M. Tavoni et al., **Alleviating Inequality in Climate Policy Costs: an Integrated Perspective on Mitigation, Damage and Adaptation**, *Environmental Research Letters*

Drouet L., **Energy Economics: Cheap Oil Slows Climate Mitigation**, *Nature Climate Change*

Emmerling J., L. Aleluia Da Silva Reis, V. Bosetti, L. Drouet, G. Marangoni, M. Tavoni et al., **The Shared Socioeconomic Pathways and their Energy, Land Use, and Greenhouse Gas Emissions Implications: An Overview**, *Global Environmental Change*

Mysiak J., C. D. Pérez-Blanco, **Partnerships for Disaster Risk Insurance in the EU**, *Natural Hazards Earth System Sciences*

Otrachshenko V., F. Bosello, **Fishing for Answers? Impacts of Marine Ecosystem Quality on Coastal Tourism Demand**, *Tourism Economics*

Santato S., J. Mysiak, C.D. Pérez-Blanco, **The Water Abstraction License Regime in Italy: A Case for Reform?** *Water*





# ENERGY CHALLENGES

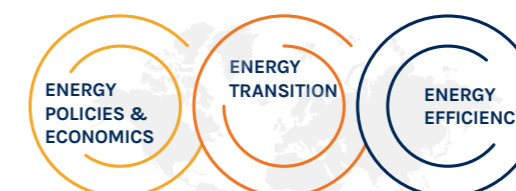
The energy world is experiencing a period of profound change as technological, geopolitical and economic pressures are rapidly converging to reshape conventional paradigms to which we have been accustomed for decades. The unconventional revolution in North America has completely reshaped the global oil and gas markets. At the same time, rapid technological innovations and innovative public policy choices have allowed an unprecedented development of renewable energy. Europe has strongly committed itself to decarbonization. Furthermore, with the COP21 process, the world embarked into a new phase for decarbonization, with an unparalleled level of ambition not only involving developed countries but also emerging economies. Energy is indeed crucial to the quality of our lives and is a key ingredient in all sectors of modern economies and for achieving almost all of the Sustainable Development Goals.

*FEEM research addresses this domain through an innovative and interdisciplinary approach which puts together the major factors driving the change in global energy dynamics. This methodology is applied to a wide range of issues: the role of gas in important areas such as the EU Energy Union and the post-COP21 EU decarbonization path; the complementarity between gas and renewable energy; the Euro-Mediterranean energy relations between regional cooperation on hydrocarbons and on sustainable energy solutions; and the future of the European energy industry between decarbonization and digitalization.*

In **2016**, FEEM continued its established research on European gas markets, also publishing the book 'The European Gas Markets. A Balancing Act Between Decarbonisation and Security of Supply'. It also continued its research on the Euro-Mediterranean energy relations, publishing the book 'Energy Relations in the Euro-Mediterranean. A Political Economy Perspective', and organizing in partnership with Bruegel the high-level 'FEEM-Bruegel Euro-Mediterranean Energy Talks' that took place in Brussels. In 2016, FEEM also started to

look into the future of the energy industry in Europe, setting-up a joint research project on the issue with Bruegel and the Florence School of Regulation. In this framework, FEEM co-organized a high-level workshop in Brussels, exploring the future scenarios for decarbonization and energy digitalization in Europe. In 2016, FEEM also expanded its research on sub-Saharan Africa energy, notably setting up a partnership with SciencesPo Paris to develop a book on the issue and to organize a related public conference in Paris.

### Main areas and subtopics of Energy Challenges research:



- Euro-Mediterranean Energy Relations
- European Energy Scenarios
- Energy Sources & Decarbonization



# Key Projects



**Funding:** Internal resources

**Project duration/status:** Ongoing

**Goals:**

- To explore the potential for a new Euro-Mediterranean energy roadmap enhancing regional cooperation on hydrocarbons; supporting renewable energy cooperation/energy efficiency in the region; financing Mediterranean energy infrastructure projects.

**Results:**

- Organization of a series of high-level "FEEM-Bruegel Euro-Mediterranean Energy Talks" to discuss a wide range of cooperation issues.
- Dissemination of preliminary results of the research to high-level stakeholders.

**Funding:** Internal resources

**Project duration/status:** Ongoing

**Goals:**

- To understand the role of gas in important areas such as the EU Energy Union and the post-COP21 EU decarbonization path.
- To study the complementarity between gas and renewable energy.
- To focus on energy and gas security of supply in Europe through the analysis of the new geopolitical and market dynamics of the EU gas supply architecture.
- To explore new avenues for European energy infrastructure financing and the potential role of institutional investors in this sector in view of the development of energy markets.

**Results:**

- An in-depth comprehensive and integrated analysis of European gas markets on the basis of an approach combining three mutually-supportive analyses: European gas demand, European gas supply and European gas infrastructure financing.

**Funding:** External resources

**Project duration/status:** 2015-2016

**Goals:**

- To advance the understanding of how environmental policy, institutions, political orientation, and lobbying can influence clean energy innovation.

**Results:**

- An edited book chapter showing that more stringent environmental regulations stimulate energy-saving and pollution-reducing technologies, and that good governance is an important driver of innovation in the energy sector.
- Combining stringent environmental regulations with a general improvement of governance to foster the transition towards a greener economy, i.e. strengthening countries' capacity not only to formulate, but also to implement and monitor policies effectively.

**Funding:** Internal resources

**Project duration/status:** 2016

**Goals:**

- To facilitate the coordination and consultation process between the Italian government and the European Commission in the design of future decarbonized and energy sustainable scenarios.

**Results:**

- Construction of a reference scenario designed, assessed and coordinated by the Italian government with the collaboration of several national public and private research institutions.
- Contribution to the design and construction of the macroeconomic reference scenario with the ICES model and with its expertise in mitigation and decarbonization analysis.
- Publication of the methodology used and the main results obtained with the different models.

## Key Events

### "Euro-Mediterranean Energy Talks", Brussels, 31 May - 1 June 2016

This event, co-organized by Bruegel and FEEM, sought to investigate how the EU could formulate a new cooperation with Southern and Eastern Mediterranean countries to enhance the sustainability of the regional energy systems. In particular, this exercise was carried out with the specific aim to provide a set of policy recommendations to EU policy makers currently involved in this area, both within the new Energy Union framework and the new European Neighbourhood Policy. The Euro-Mediterranean energy talks were followed by a public event where the policy recommendations elaborated in the closed door sessions of the energy talks were discussed with participants from the Institutions and from the Industry.

### "International Energy Workshop (IEW)", Cork, 1-3 June 2016

The 2016 IEW provides a venue for scholars and researchers to compare quantitative energy projections, to understand the reasons for diverging views of future energy developments, and to observe new trends in global energy production and consumption. FEEM is part of the Steering Committee and manages the Permanent IEW Secretariat. IEW 2016 was focused on climate change - mitigation and adaptation, economics and integration of renewable energy sources, modelling sustainable development goals, energy demand response and energy efficiency, smart cities, grid and metering, the role of human behavior in the energy transition, addressing uncertainties in the transformation of the energy system and, finally, on Intended Nationally Determined Contributions (INDCs) and post Paris climate policy.

### "The European Energy Transition: a Vision between Decarbonization and Digitalization", Brussels, 16 June 2016

The closed-door brainstorming workshop was the first of a workshop series developed by Bruegel, the Fondazione Eni Enrico Mattei and the Florence School of Regulation to explore the future of Europe's energy transition. It aimed at exploring the future scenarios for decarbonization and digitalization in Europe, and the effect of these two trends on the energy sector, but also on other sectors such as transport and telecommunication.

## Key Publications



### Scientific journals

Marangoni G., M. Tavoni et al., **Comparison and Interactions between the Long-term Pursuit of Energy Independence and Climate Policies**, *Nature Energy*

Tavoni M. et al., **Carbon Budgets and Energy Transition Pathways**, *Environmental Research Letters*

Tavoni M. et al., **Clean or Dirty Energy: Evidence of Corruption in the Renewable Energy Sector**, *Public Choice*

Verdolini E. et al., **Quantifying the Effects of Expert Selection and Elicitation Design on Experts' Confidence in Their Judgments About Future Energy Technologies**, *Risk Analysis*

### Books

Brzuskiewicz S., **The Evolving Geopolitics of North Africa and its Impact on Energy Markets**, *FEEM Press*

Hafner M., S. Tagliapietra, **The Future of European Gas Markets. Balancing Act between Decarbonisation and Security of Supply**, *Claeys & Casteels*

Tagliapietra S., **Energy Relations in the Euro-Mediterranean. A Political Economy Perspective**, *Palgrave Macmillan*

### Miscellaneous

Bigano A., M. Davide, **Annex III and the key messages in Chapter 2 of Implementation of the Energy Efficiency Directive (2012/27/EU): Energy Efficiency Obligation Schemes**

**Mediterraneo. Un mare di energie**, *Equilibri*, 2/2016, *il Mulino*



# ECONOMY & SOCIETY

The achievement of the 2030 Agenda requires a strong commitment from the different spheres of society, from the private to the public sector, from the academia and institutions to civil society and local stakeholders. Developed regions need to focus on decoupling their economic growth from environmental degradation, and on making both their productive capability and their consumption habits more sustainable. Research in this field is therefore required to develop integrated approaches that address the interconnected economic, social, and environmental challenges confronting the world. Cities and firms, in particular, are the places where these interactions are most significant and complex.

Another stream of FEEM research focuses on two main pillars: sustainability related to firms and markets, and sustainability related to resilient cities. The first one investigates the climate risks/opportunities for companies, how these can drive innovative business models and approaches to investment choices in the financial markets. The second pillar refers to the relationship between urbanization processes - driven by the changing trends in demography and economy - and impacts on the urban environment.

In **2016** one research project focused on producing a worldwide ranking of current sustainability and an assessment of the future trends of sustainability in the world by 2030. The final purpose is to highlight future challenges left unsolved in the next 15 years of socio-economic development and to analyze costs and benefits of specific policies to support the achievement of the proposed targets.

Other research focused on the practices adopted by Italian firms to individuate, evaluate, manage and disclose the climate-related risks, in collaboration with major companies in the agri-food, insurance, energy and utilities sectors. The analysis highlights also how strategies are changing to include sustainability into the core business.

## Main areas and subtopics of research on Economy & Society:



- Modelling of SDGs
- Community welfare
- Climate risk management in companies
- Business model innovation
- Urban mitigation and adaptation
- Ecosystem services



# Key Projects

FEEM  
Researchers  
6

Publications  
5



Assessment, projections and policy of sustainable development goals

**Funding:** Internal resources

**Project duration/status:** Ongoing

**Goals:**

- To assess current well-being worldwide by collecting, organizing and computing SDG Indicators as well as Composite Indices.
- To project SDG Indicators over time up to 2030.
- To assess if and where SDG targets will be met.
- To evaluate costs and benefits of policies fostering sustainability.

**Results:**

- Development of the APPS Index which offers a comprehensive assessment of current well-being and future sustainability based upon 27 indicators related to the 17 Sustainable Development Goals (SDGs).

FEEM  
Researchers  
5

Publications  
2



Disclosure, measurement, management and mitigation of climate-related risks for companies

**Funding:** Internal resources

**Project duration/status:** Ongoing

**Goals:**

- To stimulate a scientifically founded public debate on the risks to Italian businesses associated with climate change.

**Results:**

- Inquiry on the practices adopted by a sample of representative Italian firms to individuate, evaluate, manage and disclose the climate-related risks.
- Focus on the instruments and the strategies Italian firms are developing to mitigate the impact of climate change on their activities, highlighting also the opportunities related to the evolution of traditional business models.

FEEM  
Researchers  
5

Publications  
3

Duration  
(months)  
36



Post-carbon cities of tomorrow-foresight for sustainable pathways towards livable, affordable and prospering cities in a world context

**Funding:** European Commission

**Project duration/status:** 2014-2016

**Goals:**

- To produce a long-term outlook into the future of EU sustainable post-carbon cities in a global context.
- To assess the long-term trends and tensions in EU cities with relevant impacts on urban development.
- To explore innovative approaches for sustainable EU post-carbon cities.
- To develop a roadmap for EU cities to transition to post-carbon systems by 2050.

**Results:**

- POCACITO Roadmap to inform policymakers at the EU and national level on the aspects that cities cannot resolve themselves and which need tools of regulatory nature. Other publications for policy-makers, scientists and citizens.

FEEM  
Researchers  
9

Publications  
11

Duration  
(months)  
36



Exploring transition pathways to sustainable, low carbon societies

**Funding:** European Commission

**Project duration/status:** 2013-2016

**Goals:**

- To provide an integrated story about the changes necessary to meet the key targets of EU sustainability policy using methods and tools from different approaches.
- To analyze a selected set of transition domains - electricity, heat & building, mobility, agro-food-systems, and multifunctional land use & biodiversity.

**Results:**

- Key messages for policy makers in each of the domains analyzed in the project (<http://www.pathways-project.eu/home>).
- Articles exploring in depth selected topics related to the transition.

## 2030 AGENDA

Since its establishment in 1989, FEEM has devoted its research to sustainability issues becoming a leading institution on a wide range of environmental, energy and global economic issues.

As such, FEEM has contributed to the scientific debate on sustainable development ever since it became a hot topic worldwide. Today, FEEM continues its commitment to sustainability by directing its research activities toward the UN 2030 Agenda and its 17 Sustainable Development Goals (SDGs). FEEM contributes to the implementation of the 2030 Agenda both in terms of tools and policy support. The Index developed by FEEM's APPS project (Assessment, Projections and Policy of Sustainable Development Goals) offers a comprehensive assessment of current well-being and future sustainability. A powerful tool which aims at including the 2030 Agenda issues in the national strategic plans and also to identify the mitigation processes required by the Paris Climate Agreement (more details in the section "Economy & Society Key Projects").

As part of the UN SDSN (Sustainable Development Solutions Network) directed by Prof. Jeffrey D. Sachs, in 2016 FEEM became the hosting institution of SDSN Italia and a founding member of ASviS, the Italian Alliance for Sustainable Development.

**SDSN Italia, ASviS and the Global Compact Network Italia**, of which FEEM is a founding member, signed a Memorandum of Understanding to promote the 2030 Agenda through the involvement of civil society, institutions, and academic and business sectors at the national level.

FEEM also supports **SDSN Youth**. Young people today are more informed, more tech-savvy and more connected than any generation before, and they can be active drivers of change. In October 2016 SDSN Italia participated in the Vatican Youth Symposium, organized by the Pontifical Academy of Sciences, SDSN and SDSN Youth. The event assembled fifty young people from over thirty countries to present their projects to achieve the SDGs.



[www.sdsnitalia.it](http://www.sdsnitalia.it)

### Goals:

- To contribute scientific research for the implementation and monitoring of the 2030 Agenda process;
- To promote knowledge on and awareness of the Agenda in Italy through dissemination, education and training activities;
- To encourage innovation through the understanding of the opportunities connected with the 2030 Agenda and by proposing and developing solutions for a sustainable development.



<http://sdsnyouth.org>

### Goals:

- To educate and empower young people globally about the challenges of sustainable development;
- To create opportunities for young people to use their creativity and knowledge to pioneer innovative solutions for the SDGs;
- To create platforms for young people to connect, collaborate and integrate their ideas and perspectives into national and regional pathways for implementation of the SDGs.



[www.asvis.it](http://www.asvis.it)

### Goals:

- To raise awareness among public and private actors, public opinion and citizens of the sustainable development Agenda [...];
- To analyze the implications and opportunities for Italy from the adoption of the sustainable development Agenda, [...];
- To foster research and innovation for sustainable development, promoting the diffusion of good practices developed in Italy and abroad, and the development of analytical tools to evaluate the impact of economic, social and environmental policies.



[www.unglobalcompact.org](http://www.unglobalcompact.org)

### Goals:

- To mobilize a global movement of sustainable companies and stakeholders to create a sustainable world;
- To support companies in doing business responsibly by aligning their strategies and operations with Ten Principles on human rights, labor, environment and anti-corruption;
- To take strategic actions to advance broader societal goals, such as the UN Sustainable Development Goals, with an emphasis on collaboration and innovation.



“The new agenda is a promise by leaders to all people everywhere. It is an agenda for people, to end poverty in all its forms – an agenda for the planet, our common home”

Ban Ki-Moon, UN Secretary-General, 2015

“...I think the Sustainable Development Goals are essential for the obvious reason that we do have to change the path, the trajectory of the world economy. I think they are essential for one other reason, and that is we need to figure out globally how to cooperate...”

“...and I view the 2030 Agenda not only as essential in itself [...] if Italy is working with North African countries on practical problem-solving, on energy needs, on water availability, on job creation and so forth, what now is called the inevitable conflict of civilizations just won't seem so inevitable...”

“...innovation has to come from some combination of business, civil society and the university sector. And that's what I believe is crucial...”

“...innovation is the way to be the leader of the next wave, and I think that the SDGs invite a tremendous amount of innovation...”

“Businesses are vital, businesses play multiple roles, but I believe the successful businesses are the innovators that look at where the future's going to be in ten to twenty years and prepare to be leaders in such a world...”

Jeffrey D.Sachs, UN SDSN Director\*

\*Excerpts from the keynote speech delivered by Prof. J. D. Sachs at the launch event of SDSN Italia, FEEM Milan, 14 March 2016





## Key Events

### "Benefit Corporations. Integration and Shared Value", Milan, 26 February 2016

The workshop aimed to provide an overview of the progress that Benefit Corporations have achieved in the analysis and investigation of the dual goal of profit and not for profit entrepreneurship, and to promote a debate on the views of the different subjects that consider the first Italian law on Benefit Corporations as an additional motivating force toward a more inclusive and sustainable economic paradigm.

### "Research and Innovation for the SDGs: toward an Inclusive Green Growth" - with a Keynote speech by UN SDSN Director, Prof. Jeffrey D. Sachs, Milan, 14 March 2016

This was the Launch Event of SDSN Italia, the UN SDSN (Sustainable Development Solutions Network) hub for Italy, of which Fondazione Eni Enrico Mattei is the founder and hosting institution. The event hosted a keynote speech on "Achieving the sustainable development goals: the key roles of Italy" by UN SDSN Director, Prof. Jeffrey D. Sachs, and presentations by key representatives of the academia, business and civil society on the involvement of all the social actors to take action on and implement the 2030 Agenda.

### "Analytical tools and methods to evaluate impacts of public policies on Sustainable Development Goals", Milan, 27 September 2016

The workshop aimed to provide an up-to-date overview of the most recent methodological tools and approaches to evaluate the effectiveness of policies toward the achievement of the SDGs. Another objective was to blend methodological aspects with policy relevant messages by identifying tools that will help assess the role and impacts of different policy measures towards sustainability. The workshop was organized by FEEM/SDSN Italia in collaboration with ASviS.

## Key Publications



### Scientific journals

Carraro C. et al., (eds) **Special Issue on Fiscal Policy and Green Growth**, *The International Journal on Green Growth and Development*

Guastella G., S. Pareglio, **Spatial Analysis of Urbanization Patterns: the Case of Land Use and Population Density in the Milan Metropolitan Area**, *Review of Urban and Regional Development Studies*

Johnson K., M. Breil et al., **Multi-hazard Risk Assessment of Two Hong Kong districts**, *Journal of Disaster Risk Reduction*

### Miscellaneous

**Agenda 2030 per lo sviluppo sostenibile**, *Equilibri 1/2016, il Mulino*

Breil M., **Visions for Post-Carbon Urban Futures: Why they are Useful and how to Create Them**, *POCACITO Policy Brief No. 2*



## LOCAL DEVELOPMENT

The territorial dimension of the Sustainable Development Goals (SDGs) raises specific challenges. Regional and sub-regional frameworks play an important role in the effective translation of the SDGs in concrete action at the national and local level. Local authorities have direct contact with communities, and are uniquely positioned to push forward ideas, mobilize citizens, and promote the exchange of good practices between the public and private sector and civil society to create immediate social impact.

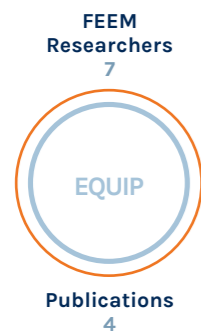
*Environment, Energy and the Economy - and the deep interconnections among these three spheres of sustainable development - are also at the core of FEEM local development research activities, which are carried out mainly in the Basilicata region where Eni operates. Local research is conducted in agreement and in collaboration with local public and private institutions, and it is aimed at providing evidence-based support for the definition of policies for a sustainable economic and social development of the area. There is a constant dialogue between FEEM and the key local actors to achieve this common goal. FEEM's research efforts in the region focus on the analysis of energy-related impacts and issues, and on the study of different types of sustainable tourism as an opportunity for local development. FEEM also organizes summer schools on energy and sustainability topics, training activities on energy and the environment, and seminars, labs, scientific theatre shows and e-learning courses. In 2017, FEEM will collaborate with the Italian region of Basilicata to promote a local 2030 Agenda initiative.*

In **2016** FEEM has continued its institutional activities and collaboration with the Basilicata Region to support local development projects. FEEM has also conducted a multidisciplinary geological study for the assessment of the environmental quality of Lake Pertusillo in cooperation with the University of Basilicata, and it has reported on the monetary and

occupational impact of Eni activities in the region. FEEM has also conducted several studies on sustainable tourism as a development opportunity in a variety of tourism-related fields, and it has both supported and realized several initiatives for the promotion of the Basilicata region brand to valorize the region's culture and food products.

## Key Projects

### Assessment of the environmental quality of Lake Pertusillo



**Funding:** Internal resources  
**Project duration/status:** 2013-2016  
**Goals:** To understand the sedimentation and mineral-chemical processes that occur in Lake Pertusillo and to assess the environmental quality of its sediments through the chemical analysis of the heavy metals.  
**Results:**  

- The mineralogical composition of the lake's sediments reflects the mineralogical composition of the original rocks. Traces of elements of environmental interest are primarily derived from the erosion and weathering processes of the surrounding rocks and the Enrichment Factor values confirm the metals' geogenic origin.
- The concentrations are below the threshold values established by national and international guidelines, with the exception of the core sample that has been shown to have a geogenic origin.

**Presentations at:**

- European Geosciences Union General Assembly, Vienna, 17-22 April
- International Conference of Ecosystems, Tirana, 3-6 June
- 13<sup>th</sup> International Conference on Protection and Restoration of the Environment, Mykonos, 3-8 July.

**In collaboration with the University of Basilicata**

### Energy & occupation: monitoring the impact of the Oil&Gas industry



**Funding:** Internal resources  
**Project duration/status:** Ongoing  
**Goals:** To monitor the occupational and monetary impact of Eni oil&gas activities in Val d'Agri.  
**Results:**  

- Eni CO.VA (Viggiano's Val d'Agri Oil Center) activities account for an overall 4.2% of regional GDP
- CO.VA activities directly employ 3,192 workers, 57% of whom are local residents. The total number of workers employed in this sector, both directly and indirectly, is equal to 5800 AWU (Annual Work Units), accounting for 25% of the total number of people employed in Val d'Agri
- Business tourism related to Eni CO.VA. activities generates an economic impact of €7 million per year and 110 AWU (Annual Work Units).
- The value generated by local investments in the oil&gas sector is 1.52 times the value invested.

**In collaboration with Unioncamere Basilicata**

### Tourism in Basilicata: an opportunity for sustainable local development



**Funding:** Internal resources  
**Project duration/status:** Ongoing  
**Goals:** To investigate the role of sustainable tourism related to fields such as films, food and wine products, business, schools, nature and slow tourism, as an opportunity for local development.  
**Results:**  

- The determination of the value of promoting the local landscape and scenery for film and business-related tourism and for tourism in general. The studies have confirmed that in many cases the popularity Basilicata enjoys today depends on the substantial film production (and on the cultural production in general) that has recently allowed a large public to discover and become familiar with the region's culture, food&wine products, and natural resources.
- Publication of "Matera Capitale Europea della Cultura 2019. Le aspettative della comunità locale" and "Il turismo enogastronomico in Basilicata" in "XX Rapporto sul Turismo Italiano" edited by E.Becheri and G.Maggiore, Rogiosi Editore and publication of "La formazione dell'immagine turistica della Basilicata e il ruolo del cinema", in "Le politiche pubbliche per il turismo" edited by E. Gasca, S. L. Sacerdotti, Carocci Editore.
- Development of a webGIS for Parco Nazionale Appennino Lucano Val d'Agri Lagonegrese, a useful information tool for tourists, the local population and decision-makers.

**Events:**

- Realization of the event "NUTRIRSI DI BASILICATA: tra sapori, cultura e tradizioni di un territorio tutto da scoprire", held in Madrid on November 25 at the Italian Embassy, in collaboration with Società Dante Alighieri and with the Italian Chamber of Commerce and Industry for Spain. The event is included in the initiatives promoted by the "Prima Settimana della Cucina Italiana nel Mondo" promoted by the Italian government, and aimed at valorizing the large variety of Italian food and wine traditions and culture
- Realization of "Sorprenendente Basilicata", Bari 5 July, in collaboration with Eataly and Federparchi
- Support to the Maratea Film Festival, 25-29 July, organized by the Lucana Film Commission

**In collaboration with the APT Basilicata, Parco Nazionale Appennino Lucano Lagonegrese, Fondazione Matera 2019.**

## Key Publications

### Scientific journal

Bencivenga A., P. Dalterio Vollaro, F. Forte, A. M. Giampietro, A. Percoco, **Food and Wine Tourism in Basilicata, Agriculture and Agricultural Science Procedia**

### Books

Chiarullo L., D. Colangelo, M. De Filippo, **Il turismo nei parchi. Analisi del potenziale competitivo delle aree protette: il caso Basilicata**, FEEM Press

Preite A. (ed.), **Energia e patrimonio culturale in Basilicata e Puglia**, FEEM Press

### Miscellaneous

Bencivenga A., L. Chiarullo, D. Colangelo, A. Percoco, **La formazione dell'immagine turistica della Basilicata e il ruolo del cinema in "Le politiche pubbliche per il turismo"**, Emanuela Gasca, Sara Levi Sacerdotti, (eds), Carocci Editore

Buccino, L. Chiarullo, A. Pepe, CNR - Istituto di Ricerca su Innovazioni e Servizi per lo Sviluppo, **"Matera Capitale Europea della Cultura 2019. Le aspettative della comunità locale"** in XX Rapporto sul Turismo Italiano E. Becheri, G. Maggiore (eds) Rogiosi Editore

Chiarullo L., D. Colangelo, M. De Filippo, **Analysis of the Destination Image and the Web and ICT competitiveness of Tourist Destinations: the Case of the Protected Areas of Basilicata**, *Proceedings of XI Congreso internacional de Turismo y Tecnologías de la Información y la Comunicación*

## Key Events



Launch of the **"Basilicata Cineturismo Experience"** and **"Welcome Matera"**, Matera, 9-11 September 2016, and organization of the event **"Films for the Promotion of Local Tourism"**, Policoro, 10 September 2016. The event was organized in collaboration with Basilicata Region and GAL Bradanica.

The goal of the events was to promote and support the production of Italian and international films and of television, audiovisual and advertising works in Basilicata.

**"Local Territory Protection: Past Experiences and Future Prospects"**, Grumento Nova, 15 October 2016. The event was organized in collaboration with the Basilicata Association of Geologists and with the Italian Council of Geologists.

The meeting was organized to propose innovative ideas to preserve the environment and to promote sustainable development in the region.

**"Siamo quello che mangiamo"**, Val d'Agri-Lagonegrese National Park, Milan, 14 December 2016. The event was organized in collaboration with the Appennino Lucano.

This event was focused on the link between health and food, and was based on the research led by the University of Basilicata on the excellent nutritious and organoleptic properties of the food products grown in the Appennino Lucano - Val d'Agri - Lagonegrese National Park area.

# OUTREACH

FEEM targets its audiences - Academia & Research, Policymakers & Institutions, Firms & Businesses, and Civil Society - through Partnerships & Networks, Support to Policy, Training & Education and Dissemination & Engagement initiatives. FEEM diversifies its activities according to the audiences to achieve the greatest impact.

At a local level, FEEM addresses a representative cross-section of stakeholders (i.e. local authorities and institutions, young people, and the public at large) mainly in the Italian region of Basilicata and in the towns of Ravenna (Emilia Romagna Region) and Gela (Sicily), where Eni has its activities.



## Partnerships & Networks

Partnerships and networks represent one of FEEM's most valuable intangible assets

- **Association of Environmental and Resource Economists**, where FEEM is both an institutional member and manages the Permanent Secretariat of the European and Italian Associations;
- **Biodiversity and Economics for Conservation Economists Network**, where FEEM is a founding partner;
- **Coalition Theory Network**, where FEEM is a partner and manages the Secretariat;
- **Economic Research in Energy Efficiency**, where FEEM is a founding partner;
- **Energy Modeling Forum**, coordinated by Stanford University, where a FEEM researcher is a team leader within the network;
- **European Environmental Agency**, where FEEM is a partner in a consortium of 18 European Research Institutes that support EEA;
- **Fondazione Cini**, in cooperation for ICCG
- **Green Growth Knowledge Platform**, where FEEM chairs the Advisory Board;
- **Institute of the Economics of Energy Sources, Bocconi University**, with which FEEM collaborates for the co-organization of seminars;
- **Integrated Assessment Modeling Consortium**, where FEEM is part of the Steering Committee;
- **International Energy Workshop**, where FEEM is part of the Steering Committee and manages the Permanent Secretariat;
- **International Institute for Applied Systems Analysis**, where the Deputy CEO is a member of FEEM's Scientific Advisory Board;
- **UN SDSN and SDSN Mediterranean**, where FEEM is part of the leadership council.

### Partnerships established in 2016

- **ASviS, GCNI** (more details in the section devoted to the 2030 Agenda).
- **Bruegel**: FEEM has partnered with Bruegel, the Brussels-based economic think tank, and the **Florence School of Regulation** on a project that studies the future of the European energy.
- **CMCC**: FEEM has negotiated a three-year agreement with CMCC (Euro Mediterranean Centre for Climate Change) for scientific cooperation aimed at the development of interdisciplinary studies focused on the implementation of econometric models to assess climate change effects.
- **UNEP and MATTM**: FEEM cooperates with UNEP (United Nations Environment Programme) and MATTM (Italy's Ministry of Environment, Land and Sea) in the initiative "Inquiry Italy: National Dialogue on Sustainable Finance" involving sustainable finance players in the debate on greening Italy's financial system.

#### ENI AWARD:

- FEEM runs the scientific secretariat of the **Eni Award** (New Frontiers of Hydrocarbons prize, Environmental Protection Prize and Research Debut Prize) that recognizes the best results from around the world in the field of hydrocarbon sciences, the environment and renewable energy.
- Duration: 2007 - ongoing
- Awarded researchers: 56

#### Aims:

- To foster basic and applied national and international scientific research
- To provide incentives for technological development and innovation
- To promote a better use of energy sources
- To help new generations of young researchers

## Support to Policy

FEEM contributes to the quality of decision-making in public and private spheres at the national and international levels. In 2016 FEEM has continued its collaboration with international institutions and has further fostered its dialogue with the most relevant organizations at the national level. Some of the most significant contributions made in 2016 are listed below:

### International level

- FEEM researchers are among the lead and review authors of the reports of the Intergovernmental Panel on Climate Change (IPCC), the international body for assessing the science related to climate change. FEEM contributes to the IPCC reports with peer-reviewed studies on the feasibility and impacts of attaining the 1.5°C global warming target agreed at the COP21 Paris Meeting. Prof. C. Carraro is Vice Chair of IPCC Working Group III.
- FEEM participates in the European project FC CLIMA, a multiple framework contract aimed at providing timely and high quality services in the area of evaluation, analysis, support to impact assessments and implementation of climate change.

### National level

- FEEM participates in subgroups 3 and 4 (scenarios, synthesis and policies) of the working group designated by the Prime Minister's office to develop decarbonization strategies for Italy.
- FEEM participates in the Natural Capital Committee in cooperation with MATTM (Italy's Ministry of Environment, Land and Sea) to promote the adoption of environmental accounting by local authorities.
- FEEM cooperates with MATTM for the first draft of the "National Adaptation Plan to Climate Change", (PNACC, Piano Nazionale dell'Adattamento ai Cambiamenti Climatici).

### Local level

#### Basilicata Brand Valorization in terms of tourism, culture and food:

- Development of a web-based tool to disseminate knowledge on nutrition and nutraceuticals, food and wellness best practices, and to promote the Mediterranean diet and the products of the Basilicata region in particular.
- Organization of the events:
  - Road trip Nemoli, Matera, Naples, "Cibo e agricoltura: aspetti nutrizionali, etici e sociali", 19 and 26 May, 23 June
  - "Siamo quello che mangiamo", Milan, 14 December
  - Road trip Barcelona, Madrid, Innsbruck, "Nutrirsi di Basilicata", 21 October, 24 November, 13-14 December

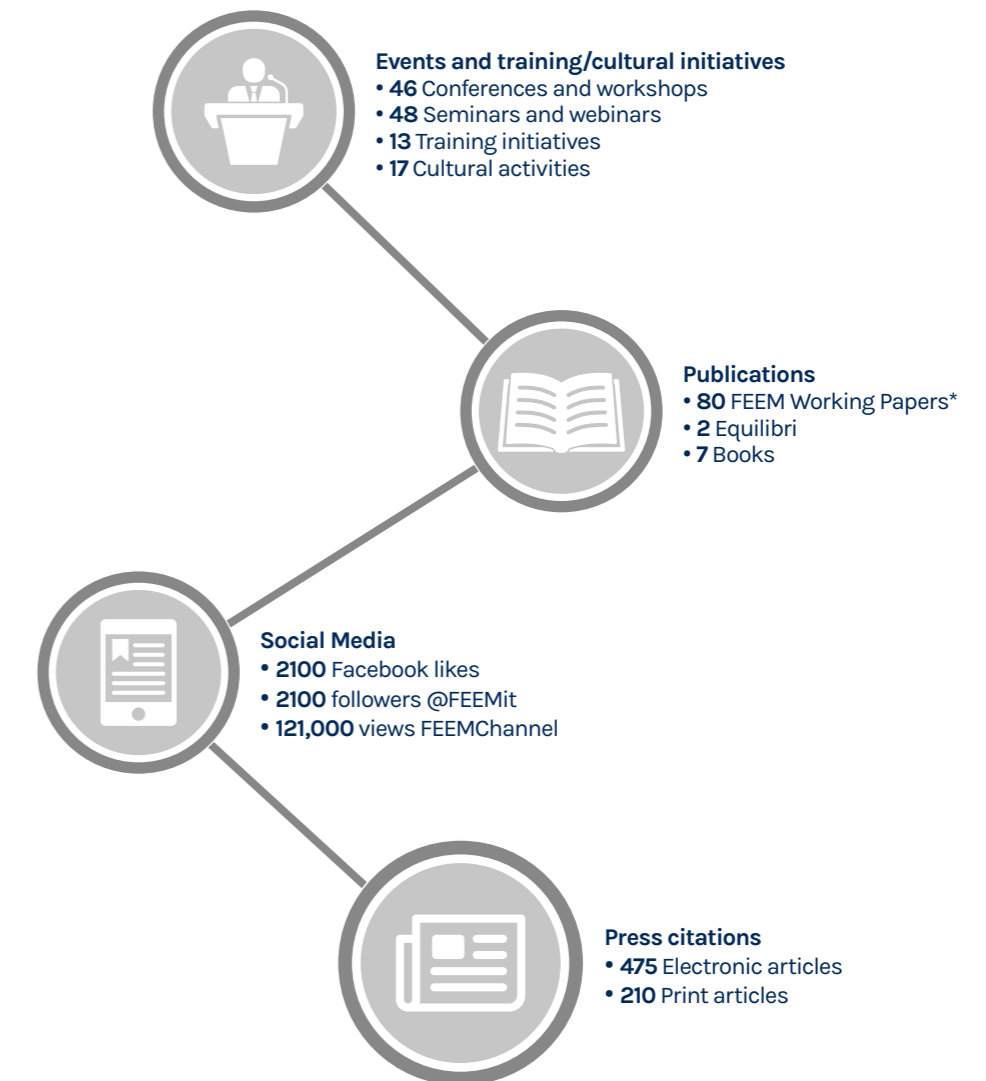
#### Milano Sei L'altro

- FEEM participates in this project, which is aimed at building new community welfare services in the city of Milan. The project addresses work-life balance issues with the involvement of local actors according to the logic of shared value creation.

## Dissemination & Engagement



Publications are one of the most important outlets for the dissemination and certification of the scientific quality of FEEM's research output, while the organization of events is a fundamental activity to create and maintain relationships with all of FEEM's audiences. The web, social media and press citations are also essential tools for FEEM to showcase its activities.



\*FEEM Working Paper Downloads: **128,431**

from the following websites: Economics Research Institutes Paper Series of Social Science Research Network (SSRN), Research in Agricultural and Applied Economics (AgEcon), Research Papers in Economics (RePEc), Berkeley University Press, German National Library of Economics (ZBW).

## Training & Education

Among FEEM's key activities are training and education initiatives such as hosting of visiting scholars, fellowships, internships and summer schools. In 2016 FEEM has continued its tradition of hosting Marie-Curie individual fellowships, while at the local level, FEEM has promoted Master courses and projects to develop entrepreneurship and competitiveness skills, and initiatives aimed at social inclusion.

### Main training initiatives

**European Summer School on Field Experiments in Environmental and Resource Economics, Venice, 26 June - 2 July, 2016**

**Aims:** discussion of the most relevant research about field experimentation, with direct relevance to environmental economics. Key topics were explored in depth, including resources and valuation, cooperation, energy and water conservation, development and growth, as well as climate change.

**1<sup>st</sup> IAERE School on Computable General Equilibrium (CGE) Models for Environmental Assessment, Milan, 26 - 29 September, 2016** in cooperation with Center for Research on Energy and Environmental Economics and Policy (IEFE), Bocconi University

**Aims:** a general introduction and overview of the CGE models to illustrate the main issues associated with interfacing economic and environmental models in the quantitative assessment of environmental policies and impacts.

### Main local training initiatives

- Master in "Hydrocarbons and Oilfields Management" in cooperation with Università degli Studi della Basilicata, Basilicata Region and Assomineraria.
- Participation in the initiative promoted by Accademia Nazionale dei Lincei, a leading Italian cultural institution, organizing training activities for teachers on sustainable development topics.



**Aims:** establishment of a social farm and vegetable garden in the municipality of Nemoli (in the province of Potenza) to support the social inclusion and integration into the labor market of individuals with physical, psychic and social disabilities.

**Results:** involvement of 15 disabled individuals, establishment of the social cooperative "Masseria Melodoro", integration with the Milanese cooperative "Fraternità e Amicizia", use of under-utilized areas.



**Aims:** within the local development activities in Ravenna, support to local institutions through initiatives aimed at social innovation and development of entrepreneurship and competitiveness skills.

**Results:** creation of a startup incubator and co-working area / space, design and implementation of the project's web site and communication strategy, planning and realization of the incubator's opening event, development and implementation of a Startup School aimed at training and selecting the business ideas to be included in the incubation program.



**Aims:** development of an innovative, inclusive, digital, peer educational model focused on energy issues within the EU funded Erasmus Plus Programme, with Eni and Civicamente. The project involved 133 high school students from 4 European countries, Croatia, Italy, Norway, The Netherlands.

**Results:** development of the cross-media platform "Connecting Energy" and the digital contents produced within the project to provide accurate and accessible scientific information aimed at increasing the knowledge of the students involved in the project. Stimulation of a debate among the students to foster their critical awareness of energy production activities.



**Aims:** promotion and communication of the Basilicata brand worldwide and valorization of local human capital and skills.

**Results:** establishment of 30 one-year scholarships for university graduates and tourism professionals based in Basilicata. Classroom training followed by a 3-month period abroad and a 6-month working experience in Italy. Several partnerships were made for both the training abroad and come back period of the project, among which: Italian Cultural Institutes (Edinburgh and Barcelona), CESP-Azienda Speciale Camera di Commercio, Matera, Eatly, WWF Val d'Agri Onlus, Fondazione Matera 2019, and others.



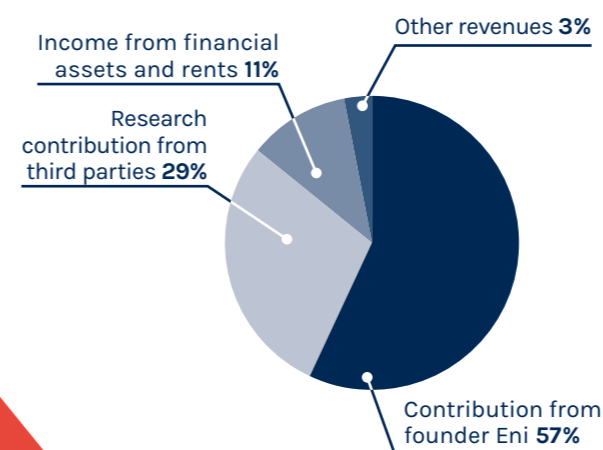
# FINANCIALS

## Revenues

Total revenues for 2016 amounted to around 7,480,000 Euros. Contributions from the founder Eni represent the main source of funding for the annual budget, accounting for 57% of total revenues in 2016.

External funding raised from third parties - mainly from the European Commission through the research framework programmes contributions, along with several domestic and international institutions - covers approximately 29% of FEEM's total revenues. In 2016 third party funding totalled 2.2 million Euros. Returns from the investment portfolio and rents represent 11% of total revenues. Financial assets, managed by professional asset managers, provided an annual income of approximately 0.7 million Euros in 2016. The remaining 3% comes from other extraordinary items.

Breakdown of revenues 2016



## Assets

Over the past twenty eight years, the assets of FEEM have grown from the initial endowment of 13.3 million Euros in 1989 to approximately 32.3 million Euros at year-end 2016. Assets ensure the financial sustainability and the continuity of FEEM institutional activities over time.

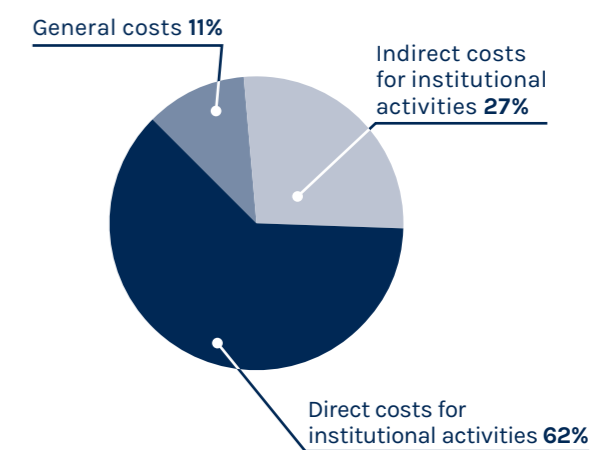
## Expenditures

In 2016, total expenditure amounted to around 7,380,000 Euros, which was 6% higher than 2015.

Although FEEM's institutional activities have significantly increased in recent years, the minimization of the fixed cost component and the flexibility of the organizational structure have allowed the allocation of the largest part of the annual spending to research and related activities, such as publications, communication, and dissemination initiatives. In 2016, streamlining measures have contributed to the significant decrease of general costs.

The classification of the balance sheet by activity, with a distinction between general costs and costs for institutional activities, highlights 62% of direct costs related to institutional activities (research, communication, publications and events, local development). The reclassification of the general costs component, computed in terms of its aim/destination, allows the indirect attribution to activities of a 27% share of the general costs and the isolation of structure costs corresponding to only 11% of total expenditures.

Breakdown of expenditures 2016



## Balance Sheet

|                                       | 31/12/2015        | 31/12/2016        |
|---------------------------------------|-------------------|-------------------|
| <b>FIXED ASSETS</b>                   |                   |                   |
| Tangible fixed assets                 | 2,070,900         | 2,058,829         |
| Intangible fixed assets               | 7,540,930         | 7,326,119         |
| Financial assets                      | 9,995,991         | 20,105,418        |
| <b>TOTAL FIXED ASSETS</b>             | <b>19,607,821</b> | <b>29,490,366</b> |
| <b>CURRENT ASSETS</b>                 |                   |                   |
| Receivables                           | 441,517           | 480,008           |
| Cash at bank and in hand              | 10,903,648        | 820,478           |
| <b>TOTAL CURRENT ASSETS</b>           | <b>11,345,165</b> | <b>1,300,486</b>  |
| <b>DEFERRED CHARGES</b>               | <b>889,064</b>    | <b>1,538,548</b>  |
| <b>TOTAL ASSETS</b>                   | <b>31,842,050</b> | <b>32,329,400</b> |
|                                       | 31/12/2015        | 31/12/2016        |
| <b>LIABILITIES</b>                    |                   |                   |
| Initial endowment                     | 13,316,553        | 13,316,553        |
| Grants from Founders                  | 9,872,421         | 9,872,421         |
| Studies and research fund             | 3,276,913         | 5,047,955         |
| Surplus                               | 899,491           | 97,337            |
| <b>TOTAL NET LIABILITIES</b>          | <b>27,365,378</b> | <b>28,334,266</b> |
| <b>RESERVE FUNDS</b>                  |                   |                   |
| Investment portfolio fluctuation fund | 675,453           | 0                 |
| Library fund                          | 66,324            | 66,981            |
| Reserve funds for future expenses     | 1,102,104         | 1,207,678         |
| <b>TOTAL RESERVE FUNDS</b>            | <b>1,843,881</b>  | <b>1,274,659</b>  |
| severance indemnity for personnel     | 359,366           | 386,541           |
| <b>DEBTS</b>                          |                   |                   |
| Suppliers                             | 833,722           | 750,356           |
| Other debts                           | 196,97            | 295,847           |
| <b>TOTAL DEBTS</b>                    | <b>1,030,692</b>  | <b>1,046,203</b>  |
| <b>DEFERRED INCOME</b>                | <b>1,242,733</b>  | <b>1,287,731</b>  |
| <b>TOTAL LIABILITIES</b>              | <b>31,842,050</b> | <b>32,329,400</b> |

|   | 31/12/2015       | 31/12/2016       |
|---|------------------|------------------|
| <b>REVENUES</b>                               |                  |                  |
| Income from financial assets                  | 1,362,066        | 712,957          |
| Rents   | 65,000           | 65,000           |
| Contributions from Founders and Eni companies | 4,645,000        | 4,290,060        |
| Research contributions from third parties     | 1,602,841        | 2,157,023        |
| Other revenues                                | 217,119          | 257,572          |
| Reserves                                      | 0                | 0                |
| <b>TOTAL REVENUES</b>                         | <b>7,892,026</b> | <b>7,482,612</b> |
| <b>EXPENDITURES</b>                           |                  |                  |
| Personnel                                     | 3,853,597        | 4,040,333        |
| Statutory bodies                              | 265,387          | 189,112          |
| Travel expenses                               | 531,955          | 507,313          |
| Consumables                                   | 99,551           | 91,848           |
| Services                                      | 1,077,464        | 1,308,531        |
| Insurances                                    | 22,033           | 26,662           |
| Rent and shared ownership expenses            | 133,602          | 175,308          |
| Taxes   | 264,307          | 339,920          |
| Reserves and devaluations                     | 222,305          | 182,553          |
| Depreciation                                  | 368,158          | 376,123          |
| Other charges                                 | 154,176          | 147,572          |
| <b>TOTAL EXPENDITURES</b>                     | <b>6,992,535</b> | <b>7,385,275</b> |
| <b>Surplus</b>                                | <b>899,491</b>   | <b>97,337</b>    |

The table below shows the 2016 total revenues and costs of both FEEM and FEEM Servizi S.r.l., excluding intragroup elisions.  
Consolidated financial report (in thousand Euros)

|                       | FEEM           | FEEM Servizi Srl | Elisions     | Consolidated   |
|-----------------------|----------------|------------------|--------------|----------------|
| Revenues              | 7,482,6        | -                | 315,8        | 7,166,8        |
|                       | -              | 2,568,8          | -            | 2,568,8        |
| <b>Total revenues</b> | <b>7,482,6</b> | <b>2,568,8</b>   | <b>315,8</b> | <b>9,735,6</b> |
| Costs                 | 7,385,3        | -                | -            | 7,385,3        |
|                       | -              | 2,404,4          | 315,8        | 2,088,6        |
| <b>Total costs</b>    | <b>7,385,3</b> | <b>2,404,4</b>   | <b>315,8</b> | <b>9,473,9</b> |
| Surplus / Profit      | 97,3           | 164,4            | -            | 261,7          |



# Appendices

## 2016 FEEM Publications

### FEEM Working Papers

#### Mitigation, Innovation and Transformation Pathways

- 2.2016 *Santiago J. Rubio*: **Sharing R&D Investments in Breakthrough Technologies to Control Climate Change**
- 3.2016 *W. Brock, A. Xepapadeas*: **Spatial Heat Transport, Polar Amplification and Climate Change Policy**
- 4.2016 *Filippo Belloc*: **Employee Representation Legislations and Innovation**
- 9.2016 *Alice Favero, Robert Mendelsohn, Brent Sohngen*: **Carbon Storage and Bioenergy: Using Forests for Climate Mitigation**
- 10.2016 *David García-León*: **Adapting to Climate Change: an Analysis under Uncertainty**
- 12.2016 *Gabriel Chan, Carlo Carraro, Ottmar Edenhofer, Charles Kolstad, Robert Stavins*: **Reforming the IPCC's Assessment of Climate Change Economics**
- 13.2016 *Kenneth Gillingham, William Nordhaus, David Anthoff, Valentina Bosetti, Haewon McJeon, Geoffrey Blanford, Peter Christenn, John Reilly, Paul Sztorc*: **Modelling Uncertainty in Climate Change: A Multi-Model Comparison**
- 16.2016 *Enrica De Cian, Ian Sue Wing*: **Global Energy Demand in a Warming Climate**
- 18.2016 *Marinella Davide, Paola Vesco*: **Alternative Approaches for Rating INDCs: a Comparative Analysis**
- 19.2016 *W. Brock, A. Xepapadeas*: **Climate Change Policy under Polar Amplification**
- 22.2016 *Laura Diaz Anadon, Erin Baker, Valentina Bosetti, Lara Aleluia Reis*: **Too Early to Pick Winners: Disagreement across Experts Implies the Need to Diversify R&D Investment**
- 30.2016 *Carolyn Fischer*: **Strategic Subsidies for Green Goods**
- 31.2016 *Carolyn Fischer*: **Environmental Protection for Sale: Strategic Green Industrial Policy and Climate Finance**
- 33.2016 *Aurora D'Aprile*: **Advances and Slowdowns in Carbon Capture and Storage Technology Development**
- 35.2016 *Shouro Dasgupta, Enrica De Cian, and Elena Verdolini*: **The Political Economy of Energy Innovation**
- 36.2016 *Roberta Distante, Elena Verdolini, Massimo Tavoni*: **Distributional and Welfare Impacts of Renewable Subsidies in Italy**
- 37.2016 *Loic Berger, Valentina Bosetti*: **Ellsberg Re-revisited: An Experiment Disentangling Model Uncertainty and Risk Aversion**
- 41.2016 *Enrica De Cian, Shouro Dasgupta*: **Institutions and the Environment: Existing Evidence and Future Directions**
- 42.2016 *Johannes Emmerling, Laurent Drouet, Lara Aleluia Reis, Michela Bevione, Loic Berger, Valentina Bosetti, Samuel Carrara, Enrica De Cian, Gauthier De Maere D'Aertrycke, Tom Longden, Maurizio Malpede, Giacomo Marangoni, Fabio Sfera, Massimo Tavoni, Jan Witajewski-Baltvilks, Petr Havlik*: **The WITCH 2016 Model - Documentation and Implementation of the Shared Socioeconomic Pathways**
- 43.2016 *Stefano Carattini, Alessandro Tavoni*: **How Green are Economists?**
- 46.2016 *Erin Baker, Valentina Bosetti, Ahti Salo*: **Finding Common Ground when Experts Disagree: Belief Dominance over Portfolios of Alternatives**
- 47.2016 *Elena Verdolini, Laura Diaz Anadón, Erin Baker, Valentina Bosetti, Lara Aleluia Reis*: **The Future Prospects of Energy Technologies: Insights from Expert Elicitations**
- 48.2016 *Francesco Vona, Giovanni Marin, Davide Consoli*: **Measures, Drivers and Effects of Green Employment: Evidence from US Local Labor Markets, 2006-2014**
- 50.2016 *Dipak Dasgupta, Etienne Espagne, Jean-Charles Hourcade, Irving Minzer, Seyni Nafa, Baptiste Perissin-Fabert, Nick Robins, Alfredo Sirkis*: **Did the Paris Agreement Plant the Seeds of a Climate Consistent International Financial Regime?**
- 51.2016 *Elena Verdolini, Francesco Vona, David Popp*: **Bridging the Gap: Do Fast Reacting Fossil Technologies Facilitate Renewable Energy Diffusion?**
- 52.2016 *Johannes Emmerling, Vassiliki Manoussi, Anastasios Xepapadeas*: **Climate Engineering under Deep Uncertainty and Heterogeneity**
- 53.2016 *Matthew R. Sisco, Valentina Bosetti, Elke U. Weber*: **Do Extreme Weather Events Generate Attention to Climate Change?**
- 54.2016 *David Anthoff, Johannes Emmerling*: **Inequality and the Social Cost of Carbon**
- 55.2016 *Matthew Adler, David Anthoff, Valentina Bosetti, Greg Garner, Klaus Keller, Nicolas Treich*: **Priority for the Worse Off and the Social Cost of Carbon**
- 60.2016 *Marina Bertolini, Chiara D'Alpaos, Michele Moretto*: **Investing in Photovoltaics: Timing, Plant Sizing and Smart Grids Flexibility**
- 61.2016 *Gregory F. Nemet, Laura Diaz Anadon, Elena Verdolini*: **Quantifying the Effects of Expert Selection and Elicitation Design on Experts' Confidence in their Judgments about Future Energy Technologies**
- 62.2016 *Zengkai Zhang, ZhongXiang Zhang*: **Intermediate Input Linkage and Carbon Leakage**
- 63.2016 *Cristina Cattaneo, Valentina Bosetti*: **Climate-induced International Migration and Conflicts**
- 64.2016 *Anna Alberini, Andrea Bigano, Milan Ščasný, Iva Zverinová*: **Preferences for Energy Efficiency vs. Renewables: How Much Does a Ton of CO2 Emissions Cost?**
- 66.2016 *Enrica De Cian, Johannes Buhl, Samuel Carrara, Michela Bevione, Silvia Monetti, Holger Berg*: **Knowledge Creation between Integrated Assessment Models and Initiative-Based Learning - An Interdisciplinary Approach**
- 67.2016 *ZhongXiang Zhang*: **Are China's Climate Commitments in a Post-Paris Agreement Sufficiently Ambitious?**
- 68.2016 *Jacopo Bonan, Stefano Pareglio, Massimo Tavoni*: **Access to Modern Energy: a Review of Barriers, Drivers and Impacts**
- 69.2016 *Jacopo Bonan, Philippe LeMay-Boucher, Michel Tenikue*: **Increasing Anti-Malaria Bednet Uptake Using Information and Distribution Strategies: Evidence from a Randomized Experiment in Senegal**

- 71.2016 *C. C. Conti, M. L. Mancusi, F. Sanna-Randaccio, R. Sestini, E. Verdolini*: **Transition Towards a Green Economy in Europe: Innovation and Knowledge Integration in the Renewable Energy Sector**
- 72.2016 *Jacopo Bonan, Laura Pagani*: **Junior Farmer Field Schools, Agricultural Knowledge and Spillover Effects: Quasi-experimental Evidence from Northern Uganda**
- 74.2016 *Jacopo Bonan, Philippe LeMay-Boucher, Douglas Scott*: **Can Hypothetical Time Discounting Rates Predict Actual Behaviour: Evidence from a Randomized Experiment**
- 75.2016 *Francesco Bosello, Carlo Orecchia, David A. Raitzer*: **Decarbonization Pathways in Southeast Asia: New Results for Indonesia, Malaysia, Philippines, Thailand and Viet Nam**
- 76.2016 *Francesco Bosello, Giacomo Marangoni, Carlo Orecchia, David A. Raitzer, Massimo Tavoni*: **The Cost of Climate Stabilization in Southeast Asia, a Joint Assessment with Dynamic Optimization and CGE Models**
- 77.2016 *Lu Wang, Alice Favero, Marilyn Brow*: **An Economic Assessment of Low-Carbon Investment Flows in the U.S. Power Sector**
- 80.2016 *P. Anna Alberini, Milan Ščasný, Andrea Bigano*: **Policy- v. Individual Heterogeneity in the Benefits of Climate Change Mitigation: Evidence from a Stated-Preference Survey**

#### **Climate Change Economic Impacts and Adaptation**

- 6.2016 *Beatriz Martínez, Hipòlit Torró*: **Anatomy of Risk Premium in UK Natural Gas Futures**
- 14.2016 *Paolo M. Panteghini, Sergio Vergalli*: **Accelerated Depreciation, Default Risk and Investment Decisions**
- 21.2016 *Anil Markandya, Enrica De Cian, Laurent Drouet, Josué M. Polanco-Martínez, Francesco Bosello*: **Building Uncertainty into the Adaptation Cost Estimation in Integrated Assessment Models**
- 24.2016 *Wei Jin, ZhongXiang Zhang*: **China's Pursuit of Environmentally Sustainable Development: Harnessing the New Engine of Technological Innovation**
- 25.2016 *Doruk İriş, Alessandro Tavoni*: **Tipping Points and Loss Aversion in International Environmental Agreements**
- 27.2016 *Stefan P. Schleicher, Angela Köppl, Alexander Zeitlberger*: **Extending the EU Commission's Proposal for a Reform of the EU Emissions Trading System**
- 28.2016 *Tomas Ekvall, Martin Hirschnitz-Garbers, Fabio Eboli, Aleksander Sniegocki*: **A Systemic Approach to the Development of a Policy Mix for Material Resource Efficiency**
- 29.2016 *Silvia Santato, Jaroslav Mysiak, C.D. Pérez-Blanco*: **The Water Abstraction License Regime in Italy: A Case for Reform?**
- 34.2016 *Francesco Bosello, Marinella Davide, Isabella Alloisio*: **Economic Implications of EU Mitigation Policies: Domestic and International Effects**
- 38.2016 *Valentina Giannini, Alessio Bellucci, Silvia Torresan*: **Sharing Skills and Needs**

#### **between Providers and Users of Climate Information to Create Climate Services: Lessons from the Northern Adriatic Case Study**

- 39.2016 *Andrea Bigano, Aleksander Sniegocki, Jacopo Zotti*: **Policies for a more Dematerialized EU Economy. Theoretical Underpinnings, Political Context and Expected Feasibility**
- 56.2016 *Luca Di Corato, Michele Moretto, Sergio Vergalli*: **Deforestation Rate in the Long-run: the Case of Brazil**
- 73.2016 *Andrea Bastianin, Alessandro Lanza, Matteo Manera*: **Economic Impacts of El Niño Southern Oscillation: Evidence from the Colombian Coffee Market**
- 79.2016 *Roberto Ponce, Ramiro Parrado, Alejandra Stehr, Francesco Bosello*: **Climate Change, Water Scarcity in Agriculture and the Economy-Wide Impacts in a CGE Framework**

#### **Energy Scenarios and Policy**

- 8.2016 *Simone Borghesi, Andrea Flori*: **EU ETS Facets in the Net: How Account Types Influence the Structure of the System**
- 11.2016 *Simone Tagliapietra*: **Exploring the Potential for Energy Efficiency in Turkey**
- 15.2016 *Jean J. Gabszewicz, Marco A. Marini, Ornella Tarola*: **Vertical Differentiation and Collusion: Cannibalization or Proliferation?**
- 17.2016 *Niaz Bashiri Behmiri, Matteo Manera, Marcella Nicolini*: **Understanding Dynamic Conditional Correlations between Commodities Futures Markets**
- 23.2016 *Claudio Morana*: **Macroeconomic and Financial Effects of Oil Price Shocks: Evidence for the Euro Area**
- 45.2016 *Nicola Cantore, Patrick Nussbaumer, Max Wei, Daniel Kammen*: **Energy Efficiency in Africa: A Framework to Evaluate Employment Generation and Cost-effectiveness**
- 70.2016 *Olivier Rousse, Benoît Sévi*: **Informed Trading in Oil-Futures Market**
- 78.2016 *Simone Tagliapietra*: **The Changing Dynamics of Energy in Turkey**

#### **Economic Theory**

- 1.2016 *Maria Berritella, Carmelo Provenzano*: **An Empirical Analysis of the Public Spending Decomposition on Organized Crime**
- 5.2016 *Leonid V. Sorokin, Gérard Mondello*: **Sea Level Rise, Radical Uncertainties and Decision-Maker's Liability: the European Coastal Airports Case**
- 7.2016 *Mary Zak*: **Access to Short-term Credit and Consumption Smoothing within the Paycycle**
- 20.2016 *Alberto Pench*: **A Note on Pollution Regulation With Asymmetric Information**
- 26.2016 *Doruk İriş, Jungmin Lee, Alessandro Tavoni*: **Delegation and Public Pressure in a Threshold Public Goods Game: Theory and Experimental Evidence**
- 32.2016 *Fabio Sabatini, Francesco Sarracino*: **Keeping up with the e-Joneses: Do Online Social Networks Raise Social Comparisons?**

- 40.2016 *Henry Tulkens: COP21 and Economic Theory: Taking Stock*
- 44.2016 *Marco Di Cintio, Sucharita Ghosh, Emanuele Grassi: Firm Employment Growth, R&D Expenditures and Exports*
- 49.2016 *Thomas Longden: The Regularity and Irregularity of Travel: an Analysis of the Consistency of Travel Times Associated with Subsistence, Maintenance and Discretionary Activities*
- 57.2016 *Carlo Drago: Exploring the Community Structure of Complex Networks*
- 58.2016 *Guiomar Martín-Herrán, Santiago J. Rubio: The Strategic Use of Abatement by a Polluting Monopoly*
- 59.2016 *Philip Ushchev, Yves Zenou: Price Competition in Product Variety Networks*
- 65.2016 *Banchongsan Charoensook: Nodewise Decay in Two-way Flow Nash Network: a Study of Network Congestion*

#### Equilibri, Rivista per lo sviluppo sostenibile, il Mulino

1.2016 – *Agenda 2030 per lo sviluppo sostenibile*

2.2016 – *Mediterraneo. Un mare di energie*

#### Books

- *The evolving geopolitics of North Africa and its impact on energy markets* by Sara Brzuszkiewicz, *Energy Scenarios and Policy series also available in Italian*
- *Il turismo nei parchi. Analisi del potenziale competitivo delle aree protette: il caso Basilicata* di L. Chiarullo, D. Colangelo, M. De Filippo
- *Bruegel-FEEM Euro-Mediterranean Energy Talks* by Domenico Favoino, Simone Tagliapietra
- *Greening the World Trade Organization* by Raymond Saner
- *Los Otros welfare* by Veronica Ronchi
- *Turkey's regional gas hub ambitions: a critical assessment* by Simone Tagliapietra
- *The Future of European Gas Markets* by Manfred Hafner, Simone Tagliapietra (Claeys & Casteels)

## 2016 FEEM Events

### Conferences and Workshops

- 4<sup>th</sup> Annual Conference of the Italian Association of Environmental and Resource Economists (IAERE) – *Bologna, 11-12 February 2016*
- DYNAMIX – POLFREE Joint Final Conference: "Policy mixes promoting resource efficiency for a circular economy" – *Brussels, Belgium, 15-16 February 2016*
- Società Benefit: Integrazione e Valore Condiviso – *Milan, 26 February 2016*
- Green Week panel: "Economia collaborativa nelle città (e non solo)" – *Trento, 5 March 2016*
- Ricerca e Innovazione per gli Obiettivi di Sviluppo Sostenibile: verso una crescita verde e inclusiva – *Evento di lancio di SDSN Italia – Milan, 14 March 2016*
- ADVANCE (Advanced model development and validation for improved analysis of costs and impacts of mitigation policies) project meeting – *Seville, Spain, 18-20 April 2016*
- Energy Modelling Forum – *Stanford, USA, 25-27 April 2016*
- PATHWAYS (Exploring Transition Pathways to Sustainable, Low Carbon Societies) project meeting – *Venice, 9-11 May 2016*
- Youth Speak Forum 2016 – *Milan, 12 May 2016*
- Climate Change, Food and Water linkages: Best Practices and Policy Tools to grow Food and save Water Sources – *Milan, 12 May 2016*
- 21<sup>st</sup> Coalition Theory Network Workshop – *Moscow, Russia, 19-20 May 2016*
- WCCB 2016 Side Event on "Climate Change Mitigation and Poverty Reduction: Trade-Offs or Win-Win Situations" – *Bonn, Germany, 20 May 2016*
- Euro-Mediterranean Energy Talks – *Brussels, Belgium, 31 May-01 June 2016*
- POCACITO (POst-CARbon Cities of Tomorrow) project meeting – *Milan, 1 June 2016*
- The 2016 International Energy Workshop – IEW – *Cork, Ireland, 1-3 June 2016*
- Welfare Systems: A Comparison of Historical Experiences – *Milan, 8 June 2016*
- Climate Change Mitigation and Poverty Reduction: Trade-Offs or Win-Win Situations? – *Brussels, Belgium, 14 June 2016*
- The European Energy Transition: A Vision between Decarbonisation and Digitalization – *Brussels, Belgium, 16 June 2016*
- 22<sup>nd</sup> Annual Conference, EAERE – European Association of Environmental and Resource Economists – *Zürich, Switzerland, 22-25 June 2016*
- FEEM-ICCG Policy Session: "The Role of Institutional Investors in Green Energy Financing", EAERE Conference 2016 – *Zürich, Switzerland, 23 June 2016*
- Field Experiments: Research Advancement and Policy Applications – *Venice, 29 June 2016*
- Energy Modeling Forum (EMF) workshop on "Climate Change Impacts and Integrated Assessment (CCI/IA)" – *Snowmass, USA, 20-29 July 2016*
- "Basilicata Cineturismo Experience" and "Welcome Matera" – *Matera, 9-11 September 2016*

- "Films for the Promotion of Local Tourism" - Policoro, 10 September 2016
- 18<sup>th</sup> Annual BIOECON Conference "Instruments and Incentive Mechanisms for Biodiversity Conservation and Ecosystem Service Provision" - Cambridge, United Kingdom, 14-16 September 2016
- International Workshop on "Analytical Tools and Methods to Evaluate Impacts of Public Policies on Sustainable Development Goals" - Milan, 27 September 2016
- FEEM 2016 Convention - Milan, 10-12 October 2016
- Kick-off PENNY project meeting (Psychological, social and financial barriers to energy efficiency) - Zürich, Switzerland, 13-14 October 2016
- La tutela del territorio fra esperienze passate e prospettive future - Grumento Nova, 15 October 2016
- Deep decarbonisation towards 1.5°C - 2°C stabilisation - Final Conference of the ADVANCE Project - Brussels, Belgium, 24 October 2016
- Final ADVANCE project meeting (Advanced Model Development and Validation for Improved Analysis of Costs and Impacts of Mitigation Policies) - Brussels, Belgium, 24-25 October 2016
- Venice Climathon 2016: Cultural heritage in a changing climate - Venice, 27-28 October 2016
- 18<sup>th</sup> Annual Conference on Environmental Economics, Policy and International Environmental Relations - "Energy and Climate Economic Modelling" - Prague, Czech Republic, 3-4 November 2016
- Modeling Climate Engineering - Milan, 3-4 November 2016
- ICG Best Climate Practices observatory promotes innovative solutions for water management at Ecomondo - Rimini, 8 November 2016
- COP22 side event: "Low Carbon Renewable Energy: Lessons from MENA and Latin America Regions" - Marrakech, Morocco, 10 November 2016
- COP22 side event: "Urban Policies to Implement and Finance NDCs" - Marrakech, Morocco, 14 November 2016
- COP22 side event: "International Network on Climate Change Centers of Excellence and Think Tanks (INCCETT)" - Marrakech, Morocco, 14 November 2016
- COP22 side event: "The new challenge of the climate and energy policies integration: the Italian perspective" - Marrakech, Morocco, 15 November 2016
- COP22 side event: "Mitigation Policy Choices and Levels of Effort Side Event" - Marrakech, Morocco, 15 November 2016
- Climate-Induced Migration - Milan, 22-23 November 2016
- Governo Responsabile dell'Acqua - Venice, 25 November 2016
- Climate Finance: innovation and Best Practices. ICG Best Practices 2016 Awards Ceremony - Milan, 28 November 2016
- The Path - International meeting for environmental migration - Rome, 1-2 December 2016
- World Cafè - Milano Sei L'altro - Milan, 12 December 2016
- Siamo quello che mangiamo - Milan, 14 December 2016

### Seminars & Webinars

- FEEM Policy Seminar on "Unpacking the Paris Agreement" - Venice, 14 January 2016
- FEEM-CPI Joint Seminar on "Driving Private Investment in Climate Resilience" - Venice, 21 January 2016
- FEEM-IEFE Joint Seminar on "What is Behind Ambiguity Aversion? An Experiment Disentangling Model Uncertainty and Risk Aversion" - Milan, 28 January 2016
- FEEM-CMCC Joint Seminar on "From Vulnerability and Impacts Assessment to the Identification of Adaptation Measures for the Lagoon of Carmen-Pajonal-Machona (Tabasco)" - Venice, 4 February 2016
- FEEM Research Seminar on "Evolution, Measures and Drivers of Green Employment: Evidence from US Metro and Non-Metro Areas 2006-2014" - Milan, 19 February 2016
- ICG Webinar on "Tools and Strategies to Finance the NDCs" - 2 March 2016
- FEEM-IEFE Joint Seminar on "Energy Scenarios: The Value and Limits of Scenario Analysis" - Milan, 3 March 2016
- FEEM Research Seminar on "The Internationalization in the Emerging Countries: the Model of 5C in Support of Corporate Decision Making" - Milan, 10 March 2016
- FEEM Research Seminar on "Market Structure and the Environmental Implications of Trade Liberalization: Russia's Accession to the World Trade Organization" - Venice, 17 March 2016
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- FEEM Research Seminar on “The Economic Consequences of Outdoor Air Pollution” – Venice, 1 September 2016
- FEEM-CMCC Joint Seminar on “Essays on the Impact of Climate Change and Determinants of Climatological Damages” – Venice, 8 September 2016
- Il cinema per la promozione del territorio – Matera, 10 September 2016
- FEEM Research Seminar on “Climate Models, Predictions and Interpretations” – Venice, 12 September 2016
- FEEM Research Seminar on “The Evolving Geopolitics of North Africa and its Impact on Energy” – Milan, 15 September 2016
- FEEM Research Seminar on “Faraway, So Close: an Agent-Based Model for Climate, Energy and Macroeconomic Policy” – Milan, 20 September 2016
- FEEM-CMCC Joint Seminar on “Robust Statistical Emulation of Process Based Model Crop Yield Responses to Climate Change” – Venice, 22 September 2016
- FEEM-IEFE Joint Seminar on: “Effects of the London Congestion Charge on Air Quality: a Regression Discontinuity Approach” – Milan, 29 September 2016
- ICGG Webinar on “The Role of MDBs in supporting Mitigation Initiatives in Developing Countries” – 5 October 2016
- FEEM Research Seminar on “Electricity Sector Transition and the Changing Risks to Human Health, Safety, Natural and Built Environment” – Milan, 6 October 2016

- FEEM Research Seminar on “Interconnection, demand response and renewable penetration: an overview of my research interests” – Milan, 20 October 2016
- FEEM-IEFE Joint Seminar on “Quantitative and qualitative assessment of policies for decoupling growth from resource use and its environmental impacts – results from the Dynamix project” – Milan, 27 October 2016
- FEEM Research Seminar on “Parochialism and the efficiency of multi-level public goods provision” – Milan, 2 November 2016
- FEEM-CMCC Joint Seminar on “Assessing economically coastal zone protection in a general equilibrium framework” – Venice, 17 November 2016
- FEEM-IEFE Joint Seminar on “Pricing and Capacity Provision in Electricity Markets: An Experimental Study” – Milan, 24 November 2016
- FEEM Policy Seminar on Was COP22 a real “COP of action”? – Milan, 29 November 2016
- FEEM-IEFE Joint Seminar on “Can Paris deal boost SDG achievement? An assessment of climate-sustainability co-benefits or side-effects” – Venice, 15 December 2016



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