

INITIATIVE

« **4 PER 1000** »

SOILS FOR FOOD SECURITY AND CLIMATE

Presentation of the

Scientific and Technical Committee (STC)



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The Scientific and Technical Committee as part of the governance of the initiative

The Initiative operates through four bodies:

- **The Consortium**, where decisions are taken,
- **The Forum**, where multi-stakeholder collaborations are fostered,
- **The Scientific and Technical Committee (STC)**, where scientific and technical expertise are provided,
- **The International Executive Secretariat** provides assistance and supports to the 3 other bodies.

The STC comprises 14 scientists or practitioners, all recognized for their scientific or technical competence on topics relevant to the 4 per 1000 Initiative. STC members are notably experts in the following disciplines: soil sciences, the carbon cycle, agronomics, land tenures, livestock farming, forestry, economics, political sciences and sociology, with the following areas of application: food security, adaptation or mitigation to climate change, and development. The composition of the STC assigns a significant role to expertise in the field. It takes into account the world's various regions and shall ensure a male-female balance.

STC members are appointed for a two-year term renewable once by decision of the members of the Consortium according to the process that will be put in place later on.

Specifically, the STC are able to:

- **propose** to Consortium members a **set of reference criteria for the evaluation of projects and actions** founded on the principles and goals of the Initiative as defined in the Paris Declaration, as well as on the Sustainable Development Goals;
- **formulate advices on projects, actions and programmes** at the request of the Executive Secretariat;
- **formulate proposals for the orientations of the international scientific research and cooperation programme** and for any cross-cutting issue submitted by the Executive Secretariat;
- **define and produce**, in conjunction with the Executive Secretariat, **the documents published in the resource center and**, when asked to do so by the Executive Secretariat, **validate the posting of documents on line.**

The STC carries out its assigned tasks by means of physical and virtual meetings with support from the Executive Secretariat. The members of the STC may appoint from among their members a STC chair and deputy chair. The STC chair and deputy chair may take part in meetings of Consortium members and Forum meetings.

Statements of interest shall be produced by each STC member and updated every year. STC members may provide advice for the development of activities and public policies only if they have demonstrated the absence of any conflict of interest.

The STC may consult as and when necessary any expert or actor considered relevant to its proceedings.

The Committee members serve in a voluntary capacity and are able to claim travel expenses.

International research and scientific collaboration program

The initiative includes an **international research and scientific collaboration program** which has four themes:

- Improve estimates of the baseline and of the potential of soil carbon sequestration (or loss) according to a large range of land management practices;
- Design and co-construction of agronomic strategies and practices for soil carbon sequestration, including an assessment of their performances and of trade-offs and synergies across multiple objectives;
- Metrics and methods for monitoring, reporting and verification (MRV) of soil carbon sequestration (farm, landscape, region, country);
- Institutional arrangements and public policies, including financial mechanisms that aim at promoting and rewarding relevant practices.

This research program will be largely nested in existing international programs (e.g. the Global Research Alliance on agricultural greenhouse gases, the CGIAR programs on Climate Change Agriculture and Food Security and on Land Water and Ecosystems, the Global Soil Partnership, etc...). It aims to find synergies with existing initiatives as well as an added value by providing knowledge and tools from the local to the global scale.

The STC will closely collaborate with the international research program of the initiative and with other relevant international expert panels.

This document aims to present the 14 international experts, members of the Scientific and Technical Committee of the “4 per 1000” Initiative.



FARSHAD AMIRASLANI (IRAN) - President

Farshad Amiraslani has been involved in dryland management and research over the last 16 years. In particular, he has focused on intertwined elements of social, ecological and economic aspects in relation to natural resources management. He received his PhD from the University of Sydney in 2011 and has served as Assistant Professor (University of Tehran) since then. He has been a Cheney Fellow (University of Leeds) and Research Fellow at Chinese Academy of Sciences (UNEP-IEMP). He has also worked in Forest, Rangeland and Watershed Management Organization in Iran for five years. He has also worked in International Desert Research Centre (University of Tehran) for two years.

He has been elected or invited for various consultancies and publication assignments for the UN and international organizations over the past. For instance, He has been recently elected as National Consultant for Land Degradation Neutrality (LDN) initiative supported by the UN Convention to Combat Desertification (UNCCD). He was elected in 2012-13 as one of the twelve global members to serve on the Ad Hoc Working Group on Scientific Advice (AGSA) to design from scratch a new mechanism for science-policy communication for the UNCCD. In that regard, a Science-Policy Interface document and an ISI paper in a leading journal have been published.

At national level, he has served as a four-year committee member for formulating a National Action Plan to Combat Desertification and served as Assistant to National Project Director for Carbon Sequestration Project (in cooperation with UNDP and GEF). He also served as an advisor to Internationalization to the Persian Gulf Science and Technology Park (PGSTP) between 2011 and 2013. He also acted as the Chair of Scientific Committee - Food Security Conference in Western Asia and Northern Africa held by PGSTP in 2013.

At University level, he has been elected to serve as a member of International Fund-raising Steering Committee as well as Assistant Dean for Internationalization (Faculty of Geography). He has won several international awards and fellowships and published over 50 publications.

fami8991@uni.sydney.edu.au



DEBORAH BOSSIO (USA)

Deborah Bossio is the Lead Scientist for Food Systems and Soil Science at the Nature Conservancy. The Nature Conservancy is a large, science driven, international environmental NGO, working in 70 countries and territories to conserve the lands and waters on which all life depends. At the Conservancy, Deborah is an integral member of the Global Food and Water Systems team, and an active member of the Cabinet of Lead Scientists. She brings science expertise and partnerships to advance climate, agriculture, and conservation priorities.

Most recently she is leading efforts for the Conservancy to accelerate action on natural based solutions in agriculture, to address climate, food and environment challenges. She is the lead author for the recent report “Foodscapes: Toward Food System Transition” that describes a vision for nature-based solutions in foodscapes globally.

With Soils Revealed Deborah has spearheaded an effort to enhance the availability of globally standardized soil data through an interactive on-line platform that makes soil data and projections for soil carbon sequestration available to all. Her recent publications have focused on advancing understanding of the opportunity for soil carbon sequestration to help mitigate the climate crisis while sustaining food production. Linking science to practice, including market opportunities, characterizes her work. To support these efforts, she maintains active partnerships with leading research institutions around the world.

Deborah came to The Nature Conservancy (TNC) after spending more than 20 years living and working in Africa, Asia and the Americas working as a science leader in the CGIAR. In that capacity she was based in Kenya, Ethiopia and Sri Lanka, and led research teams on sustainable soil management, food security, climate, and landscape approaches to sustaining ecosystems. Deborah’s academic roots are in Soil Biology. She holds a M.Sc. and PhD in Soil Science from the University of California, Davis and is passionate about the pivotal role that soils play in supporting lives and ecosystems.

mdeborah.bossio@tnc.org

REMI CARDINAEL (ZIMBABWE)



Rémi Cardinael is an agronomist and a soil scientist at CIRAD, the French Agricultural Research Centre for International Development. He holds a MSc in agronomy from AgroParisTech (2011), a PhD in soil sciences from University of Paris-Saclay (2015), and the 'HDR' (Habilitation to supervise research) from Montpellier University (2023). Since 2017, he has been seconded at the University of Zimbabwe where he conducts research in partnership on tropical cropping systems.

His early research focused on temperate agroforestry systems and their impacts on soil organic carbon dynamics, with an experience in Canada at the University of Guelph, and later on in France. With this expertise, he contributed to the recent INRAE expertise in France to evaluate the potential for additional carbon storage in soils using various agroecological practices. He is a contributing author of the IPCC 2019 Refinement to the 2006 Guidelines for National Greenhouse Gas Inventories, with the development of Tier 1 emission factors for agroforestry.

With his position in sub Saharan Africa, he has diversified his expertise, with research projects on intercropping and conservation agriculture and their role for climate change mitigation, adaptation, and food security. More specifically, his work focuses on soil organic carbon and nutrient dynamics, greenhouse gases emissions (especially nitrous oxide) and surface albedo dynamics. He also investigates the impact of climate change, such as rainfall extremes, on soil-plant processes under various cropping systems, using long-term on-station experiments, and a network of on-farm trials. He currently works in several countries in sub Saharan Africa, but also in South-East Asia.

He is also an Editor-in-Chief of the international peer-reviewed *SOIL* journal from the European Geosciences Union (EGU), and an Associate Editor for the journals *Agroforestry Systems* and *Plant and Soil* (Springer).

remi.cardinael@cirad.fr



CLAIRE CHENU (FRANCE)

Claire Chenu is a soil scientist with a PhD in Applied Geology (1985). She is currently the Professor of soil science at AgroParisTech, a French technical university in the field of biology, agronomy, food and environmental sciences after being a research scientist at INRA, the national French institute for agronomy research, for 20 years.

Her research deals with soil organic matter, which has a prominent role in ecosystem services provided by soils. She investigated the formation and properties of organo-mineral associations and the roles of organic matter in soil physical properties. She focuses presently on the processes explaining the persistence of organic matter in soils (accessibility and organo-mineral interactions) and on C dynamics and sequestration in agricultural soils as affected by cropping practices.

As a full professor she is in charge of or participates to engineers program and masters programs courses at AgroParisTech on basic soil science, biogeochemistry and functional ecology, soil organic matter. She is also involved in training courses for professionals and executives on soils.

Claire Chenu is involved in the science-policy-practice interface and in awareness raising activities on soils. She chairs the scientific committee of the GESSOL program, a multidisciplinary research program of the French ministry of Ecology devoted to soils. This program aims at providing scientific basis and appropriate tools to decision makers and environmental managers, in order to improve the consideration of multifunctionality of soils and reduce risks of degradation.

She is vice-chair of the CSPNB (Conseil Scientifique du Patrimoine Naturel et de la Biodiversité), an advisory committee on biodiversity and natural heritage to the French Minister of Ecology. She is member of the steering committee of the National Research Program on Soils as a Resource in Switzerland, and of the scientific committee of the German Biodiversity Exploratories.

She participates, as a lead author, to the IPBES (International Panel on Biodiversity and Ecosystem Services) "Europe and Central Asia" on-going evaluation.

She is co-Chief Editor of the journal "Soil Biology and Biochemistry".

She has been nominated Special Ambassador for 2015 the International Year of Soils by the FAO.

chenu@agroparistech.fr



ALEJANDRO FUENTES ESPINOZA (FRANCE)

As a graduated engineer in Agricultural and Forestry Sciences (higher education and research institute AgroParistech) and with a doctorate in economics sciences my professional experiences and my scientific work at international level have focused on the development, implementation and coordination of development and research projects in the agri-food sector, in relation with environmental issues, climate change and food security.

For the past ten years, I have acquired a specialized knowledge on the vitivincultural sector and since June 2018 I assume the position of Head of the Viticulture Unit of the International Organization of Vine and Wine (OIV). Our organization, created in 1924, has always been concerned about the challenges and current issues that have shaped the development of the world wine sector, as evidenced by its participation in the 4 per 1000 Initiative since its creation.

I am convinced that the vitivincultural sector crystallises many challenges of the 21st century agriculture, particularly with regard to adaptation and mitigation to climate change, the increasing evolution of soil degradation, the renewal and orientation of production systems and / or making use of innovations in order to reduce the environmental impacts and maintain the sustainability of the sector. I have seen the importance of these issues, which, even if they do not interact in the same way from one country to another, are still at the forefront of public policy concerns.

I am very interested in multidisciplinary works and in exchanges on the agri-food sector at the international level. I have participated in the elaboration and implementation of transnational European research projects as coordinator of the technical and economic working groups. My professional experience and my training have allowed me to work in particular on production patterns aimed at reducing the use of phytosanitary inputs, improving production techniques in order to limit the environmental impacts, strengthening the "food culture" for the implementation of high quality local food systems and facilitating adaptation and sectoral mitigation to climate change.

In an agri-food sector which is constantly evolving, I believe it is essential to always consider a mission of control and inventory of the supply of agri-food products while also anticipating the needs and expectations of importing and/or consuming countries. The evolution of these countries' demand (both quantitatively and qualitatively) also allows to better reposition these climate and environmental challenges, and the "economic" dimension can never, in my view, be dissociated from the agronomic dimension, such as the management of soil, water and natural resources in a broader concept.

viti@oiv.int



BEVERLEY HENRY (AUSTRALIA)

Beverley Henry is a plant physiologist with over 30 years' experience in academic, government and industry roles related to agricultural productivity and environmental management. She has a PhD from University of Queensland, Australia and is currently an Adjunct Associate Professor at Queensland University of Technology, a member of the Australian Government's Emissions Reduction Assurance Committee, and an independent consultant.

Her early research focussed on effects of environmental stress factors on plant function and growth, before shifting to more applied analyses on areas of sustainable agricultural production and natural resource management including quantifying and managing greenhouse gas emissions and sequestration, adaptation to climate variability and climate change, and sustainability reporting. She has a particular interest in the linked science/policy/industry challenges facing management of ruminant livestock in arid and semi-arid environments for food and fibre production while combating the risks of land and soil degradation. As a member of the ERAC she contributes to assessing compliance with integrity requirements of methods for crediting carbon abatement under the Australian Government climate change policy.

She has had opportunities to participate in or lead a number of national and international projects, initiatives and advisory panels on agriculture, climate change mitigation and adaptation, land degradation and food security. Examples relating to soil carbon include the Industry Advisory Group for Australia's National Soil Carbon Program (2012-2015), the FAO Livestock Environmental Assessment and Performance Partnership Technical Advisory Group for 'Soil Carbon Guidelines', and a Global Environment Fund review project on *Sustainable Land Management for Environmental Benefits and Food Security*. In 2009, she was a recipient of The Ecological Society of America Sustainability Science Award.

beverley.henry05@gmail.com



LYDIE-STELLA KOUTIKA (CONGO)

Lydie-Stella Koutika was born at Pointe-Noire, Congo in a family of 8 children. Both her parents are retired teachers. She went to school in Congo and got her first university degree in soil science and agro chemistry at the Timiriazev Institute in Moscow, Russia in 1991. She holds a PhD in soil science from the University of Nancy II, current Université de Lorraine, France in 1996. She has lived and worked in different countries such as Russia, the Netherlands, Nigeria, Cameroon, Belgium and the UK. Currently she is living and working at CRDPI, Pointe-Noire.

For the duration of her career, she has been fascinated with soil organic matter and phosphorus studies in different ecosystems. During her Ph D program, she conducted studies on dynamics of soil organic matter in the pastures established in the state of Para (Brazilian Amazonia) after deforestation. The studies revealed carbon accretion in the pasture ecosystems, with however a further deterioration in structural and physicochemical properties of pasture soil mainly in the topsoil. Within IITA, she conducted research on soils of planted fallow linked to mixed crop productivity in the forest benchmark site (southern Cameroon) to implement results found in other countries of Central Africa (Congo, Gabon, CAR, DR Congo etc...). That research showed that planted leguminous fallows (*Pueraria* and *Mucuna*) improved nutrient status of the soils and crop yields. However, to attain higher productivity, it is necessary to combine leguminous fallow management and use of fertilizers.

She also conducted studies on soil fauna i.e., how earthworms (*lumbricus rubellus*) enhanced the humification process in the grassland located around Wageningen (province of Gelderland, the Netherlands) in soil restoration process. The enchytraeids (*enchytraeus fragmentosus*) which essentially consumed the fine fractions in both bulk and earthworm casts from coarse texture soil, also contributed to the humification process. Under la Conservation de la Faune supervision, she studied soil properties and nutrient status in the cropping systems of the northern part of Congo-Brazzaville. In the inherently nutrient-poor and degraded soils of the area, the introduction of planted leguminous fallow was needed and was strongly advised to the rural communities.

At Rothamsted in the UK, she conducted research on how to increase P microbial biomass in the high P fixing Kenyan soils by combining inorganic and organic fertilizers in order to allow the release of P along the plant growing period. At CRDPI in Pointe-Noire, she is currently working on forest plantations, especially on soil properties (soil organic matter and phosphorus) in the pure eucalyptus or mixed with a nitrogen fixing species plantations established in the coastal plains near Pointe-Noire in the south western part of Congo. In the sandy, nutrient-poor soils of area, the nitrogen fixing species such as *Acacia mangium* improved nitrogen status to avoid the drastic degradation of the inherently poor soils and induced carbon accretion.

She is single and also a novel writer. She is strongly dedicated to her catholic faith and to the development of Africa. In December 2014, she became a laureate of African Union Awards.

seccrdpi2013@gmail.com

ANNA KRZYWOSZYNSKA (FINLAND)



Anna Krzywoszynska is an Associate Professor in Transdisciplinary Human-Environment Relations at the University of Oulu, Finland. She is an environmental social scientist with expertise in agricultural and environmental knowledges and practices in farming, policy, and natural science communities, and at their interfaces.

Her current research interests include human-soil relations and knowledge systems, the co-production of knowledge between science and society, and the role of local and regenerative food systems in achieving socio-environmental justice.

Anna is a member of the Advisory Board to the Horizon Europe Mission 'Soil Deal for Europe', and a Co-Chair of the International Union of Soil Science's Commission 4.5: Soil Humanities and Social Sciences, and an Artic Five Chair.

Anna.Krzywoszynska@oulu.fi



JAGDISH LADHA (INDIA)

Dr. J. K. Ladha has devoted more than 32 years to aspects of sustainable management of agriculture and natural resources for increasing food security and environmental quality in developing countries. He is an expert of soil fertility and plant nutrition; serving at different positions since 1980. Currently, he is a Principal Scientist, and an adjunct senior scientist at the Columbia University; associate in the Agricultural Experiment Station at the University of California-Davis. Dr Ladha provided leadership to the Cereal System Initiative System for South Asia and the Rice-Wheat Consortium Project that aims to sustainably enhance the crop productivity. He was a “Frosty” Hill Fellow at Cornell University (July 07–June 08) and an adjunct professor of Soil Science at the University of the Philippines (1990-2004). He was born and grew up in Gwalior, India, and earned his PhD from Banaras University in 1976.

Dr. Ladha is recognized internationally as an authority on sustainable resource management for increasing food security and environmental quality. He has made immense contributions to international agriculture through his research, training, and extension activities in several Asian countries (Bangladesh, India, Nepal, Pakistan, Philippines, and Thailand) on problems across national and regional boundaries. Dr. Ladha is one of those unique scientists who have demonstrated success in conducting both basic and applied research. He has had an opportunity to pursue the full spectrum of basic, strategic, and applied research to find insights and develop technologies to solve farmers’ problems.

Dr Ladha has published widely on issues related to sustainable and conservation agriculture. The impact of Dr. Ladha’s work is evident from his exceptionally high h-index for citations (Google Scholar, 69; Web of Science, 51; Scopus, 50). He served on the editorial boards of several international journals including the Regional Editor of *Biology and Fertility of Soils*. He has been involved with several international advisory/scientific review panels. He supervised 35 masters and doctoral students from a dozen countries.

He is a fellow of the American Association for the Advancement of Science (AAAS), American Society of Agronomy (ASA), the Soil Science Society of America (SSA), the Crop Science Society of America (CSSA), the Indian Academy of Agricultural Sciences (NAAS), and an associate member of the Philippine Council of Agricultural Research (PARC). He is a recipient of several awards and honors notably, the Third World Academy of Sciences Agriculture Prize 2015, the International Crop Science Award 2015, the International Service in Agronomy Award 2011, International Soil Science Award 2010, International Plant Nutrition Institute Science Award 2009. In 2000 and 2004, the CGIAR awarded the Chairman’s Excellence Science Award for Outstanding Scientific Partnership and the prestigious King Baudoin Award for Outstanding Research to the Rice-Wheat Consortium in which J. K. Ladha was the key scientist and IRRRI’s coordinator.

jkladha@ucdavis.edu



BEATA EMOKE MADARI (BRAZIL)

Beata Madari is agronomist (1994) with PhD (1999) in Soil Science from the Szent István University, Gödöllő, Hungary. She worked as researcher at the National Soil Research Center of the Brazilian Agricultural Research Corporation (Embrapa) between 2002 and 2005.

Since 2005 she is a scientist at the Embrapa National Research Center for Rice and Beans and is Professor in post-graduate training at the School of Agronomy of Federal University of Goiás, Brazil. She was leader of the Embrapa Research Network on Greenhouse Gas Emissions from Grain Crop Production Systems (Embrapa Fluxus Network) and is presently member of the Executive Committee of the Climate Change Portfolio of Projects of Embrapa. Accordingly, she has experience in carbon and nitrogen cycling in terrestrial ecosystems, particularly regarding tropical acid soils under annual crops, but also in integrated crop-livestock-forestry systems. She has knowledge on soil carbon dynamics and physical and chemical fractionation of soil organic matter, including for modelling. She has worked with methods of soil carbon determination using wet and dry combustion and infrared spectroscopy.

She is Fellow Scientist of the Brazilian Council on Science and Technology Development (CNPq) and reviewer of several international journals.

She has also contributed to the IPCC on HWP, Wetlands and Soil N₂O and to the UN Global Compact Initiative (unglobalcompact.org).

She was member of FAO's Livestock Environmental Assessment Partnership's technical advisory group on soil organic carbon stock change.

She is currently visiting scientist at the French Joint Research Unit (UMR) Eco&Sols in Montpellier, France.

beata.madari@embrapa.br



BUDIMAN MINASNY (AUSTRALIA)

Budiman Minasny is a Professor in soil-landscape modelling at the University of Sydney. He is a soil scientist, previously awarded the QEII and the Future Fellowships from the Australian Research Council.

He is recognized as a Highly Cited Researcher in 2019 by the Web of Science. He has an undergraduate degree from Universitas Sumatera Utara in Indonesia and a MAgr and PhD degrees in soil science from the University of Sydney.

He is passionate about the role of soil in managing climate change, food, water, energy security and maintaining biodiversity. His research contribution has been on discovering the causes and controls of soil distribution over space and time. The digital soil mapping research has created a new standard on the cost-effective delivery of accurate and precise information on soil assets from the globe down to the paddock. He believes that soil carbon sequestration as ways of improving the resilience of the soil to future climate change.

budiman.minasny@sydney.edu.au



OLA OLALEYE (ESWATINI)

I am a Professor/Research Administrator and Research Impact Assessment Specialist. I have a B.Sc. (Hons) background in Agriculture/Agronomy, M.Sc. Soil-Agronomy and Ph.D. Soil Science (Pedology, Soil Classification & Land Evaluation). I have over 18 years of experience in African Agricultural Research and Development, field experimentation, bio-physical data collection/panel data collection, and data analysis (using SAS, STATA, SPSS etc). In addition, I have relevant work experience, including managing research programmes in academia and research with excellent statistical reasoning and analytical skills.

I have collaborated with scientists globally on set project, goals and objectives. I have published over 80 peer-reviewed research articles, am a reviewer of some top Soil Science Journals, and am a receiver of around USD 1M in research grant funding. Ola currently serves on multiple editorial boards of distinguished scientific journals. He is also an advisor to numerous scientific and academic advisory boards, government entities, and community organizations.

I have worked within three Consultative Group on International Agricultural Research (CGIAR) centres- International Institute of Tropical Agriculture (IITA), AfricaRice and International Water Management Institute as a research fellow and a Senior Researcher. As a consultant Wetland Soil Scientist, I have also worked within the Food and Agriculture Organisation (FAO) of the United Nations. In addition, I have worked as a Professor of Soil Science/Natural Resources and Environmental Management for over 16 years within the universities. My research and academic work emphasize agricultural development in Africa, focusing on wetlands management, soil organic carbon management in upland soils, soil fertility, fertilizer systems, climate and resilience. I have also consulted for the Forum for Agricultural Research in Africa (FARA-Africa), the International Atomic & Energy Agency (IAEA), The Council for the Development of Social Science Research in Africa (CODESRIA), and African Technology Policy Studies (ATPS), to mention but a few. These consultancies focused on understanding various aspects of climate change adaptation and mitigation. I recently conducted a study on Factors Affecting Fertilizer Supply Chains in East, South and West African countries sponsored by FARA-Africa. As a University Professor of Soil Science with over 15 years of experience, I have a demonstrable ability to understand complex scientific issues and to communicate and apply them at the project and program levels. I have made scientific presentations (oral, written and posters) at the local, regional and international scientific and non-scientific meetings.

ao.olaleye@gmail.com



JEAN-FRANCOIS SOUSSANA (FRANCE)

Since 2010, Jean-Francois Soussana is Scientific Director for environment at Paris, France. He obtained his PhD in plant physiology at USTL Montpellier in 1987 after an engineer degree in agronomy. After becoming a senior scientist he worked during 8 years an INRA research unit on grassland ecosystems and global change.

Since 1998, he is member of the Working Group II of IPCC and was Lead Author for the 3rd., 4th. and 5th. Assessment Reports and shared with all IPCC authors the Nobel Prize for Peace in 2007. He also contributes to scientific expertise for FAO (e.g. State of Food and Agriculture, 2016). He has coordinated national and European (EC FP5 and FP7) research projects on climate change and agriculture. He co-chairs the Integrative Research Group of the Global Research Alliance on agricultural greenhouse gases (46 countries) and the Steering Council of AgMIP, an international modeling program on climate change impacts on agriculture. He is a member of the governing board of the Climate KIC of the European Institute of Technology.

He has led the sectorial committee on ecosystems and sustainable development of the French research agency (ANR) and the scientific advisory board of the joint programming of research by 21 European countries on agriculture, food security and climate change (FACCE JPI). In preparation of COP21, he organized the 3rd. Climate Smart Agriculture Conference (Montpellier, 750 participants) and a major open science conference 'Our common future under climate change' (Paris, 2,200 participants). He is also a member of the Scientific and Technical Committee of the Lima-Paris initiative "4 per 1000. Soils for Food Security and Climate" which has been signed during the climate negotiations of COP21.

He has published close to 150 refereed research papers in international journals as well as two books and a dozen of book chapters. He has developed novel experimental and mathematical modelling approaches to the impacts of climate change on agro-ecosystems and food supply and to the role of agricultural management and biodiversity for the carbon and nitrogen cycles and for greenhouse gas emissions.

jean-francois.soussana@inra.fr



CONSUELO VARELA-ORTEGA (SPAIN)

Consuelo Varela-Ortega, is Professor Emeritus of Agricultural Economics at the Universidad Politécnica de Madrid (UPM), Spain, and senior researcher in the Research Centre for the Management of Agricultural and Environmental Risks (CEIGRAM).

Professor Varela-Ortega has been largely involved in research in Spanish, European Union and International networks in the fields of agricultural and water economics and policy, food and water security, interactions of environmental and social systems in rural areas, climate change adaptation and vulnerability, scenario development and participatory modeling. Also collaborating with international organizations (FAO, IDB, WB, CIHEAM, EU) she has been directly implicated in the analysis and workshops of irrigation water policies in a number of non-EU countries (Syria, Jamaica, Mexico, Georgia, Lebanon, Bolivia and China), during the last three decades. Actively involved in national and international associations, scientific meetings, scholar programs and congresses in Agricultural Economics and Environmental and Resource Economics professor Varela-Ortega has published extensively in scientific journals and books. She has also been a member of the editorial board of the European Review of Agricultural Economics and of several Spanish journals. Professor Varela-Ortega has been the country representative for Spain in the International Association of Agricultural Economist (IAAE) and has taken part in the scientific committee and advisory panels of several international institutions, such as the Global and National Food and Water System for the international CGIAR Challenge Program on Water and Food. She is one of the members in the FAO expert international panel on Water Scarcity and agriculture and was a member of the international panel of reviewers for the national climate change research program of the Netherlands, Knowledge for Climate.

In EU research networks she has been directly involved, since the early 90's, as a scientific coordinator for the Spanish research team in more than 20 national and international projects where she coordinated the participatory modeling initiative in several LA regions. At present she is PI of H2020 PROTEIN2FOOD (Development of high-quality food protein from multi-purpose crops through optimized, sustainable production and processing methods) where she coordinates the socio-economic and policy analysis of the potential of plant protein products. MADFORWATER (DevelopmentAnd application of integrated technological and management solutionsFORwasteWATER treatment and efficient reuse in agriculture tailored to the needs of Mediterranean African Countries) where she coordinates the agricultural and water economics and policy analysis in the MENA region.

During the last fifteen years professor Varela-Ortega has been collaborating extensively as panel expert of research projects and programs with the Directorate-General for Research of the EU Commission, she has been a panel member in the joint research initiative EU-China with the Directorate of Social Sciences and Humanities and a FP7 member of the Advisory group for Environment and Climate Change in the Directorate of Environment. She has been recently a member of the expert group for the review of the EU Bioeconomy Strategy and its Action Plan and the European Research and Innovation for Food and Nutrition Security - Food2030 in the Directorate-General for Research and Innovation of the European Commission.

consuelo.varela@upm.es



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