2nd International Seminar on Towards Sustainable Green Society

29th October 2021

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Aalto University
School of Engineering

SEMINAR BOOKLET

In theory, theory and practice are the same.
In practice, they are not. ***Albert Einstein***

CONTENTS

PREFACE

The seminar on ' Towards Sustainable Green Society (TSGS2021) has been organized to introduce *Social Acceptability Study (SAS) Network* and its activities to universities, research institutes, industries and business centres at national and international level as well as making a collaboration with global sustainable green society thinkers in general.

Over the past 100 years, immense technological progress has taken place to produce unprecedented social inequality that is one of the key premises of addressing sustainability. Discussions on sustainable development in terms of social inequality provide the lens to see the relation between state and society that is fundamental in understanding a community's economic development perspectives. Many questions have emerged from our present sustainable development discussions: How does community's economic development support to reduce social inequality in terms sustainable development? How the indicators of existing sustainability provide on how innovation can be introduced in a sustainable manner.

Moreover, many world-class both sustainability scientists and social scientists argue that sustainability provides manifolds injustices. Questions remain: How to reduce injustice that characterize the world tend to define the domain of application of the analysis of justice? Here, a very legitimate question might be: Is the role/law of sustainability addressing the freedom of development; what do you think?

The seminar aims to provide a forum for the presentation and exchange ideas, policies, concepts and practices related to sustainable green society. The seminar focuses on interdisciplinary aspects to present the concerns of sustainable development research, policy, and practice that builds on cutting-edge knowledge to future for a world in transformation. Additionally, the aim of the panel discussion is to learn to create trust among the peoples and political will to build pathways to genuinely sustainable futures. More clearly, the subject for today's panel session (sustainability –research, policies, politics and practices) will provide us new train of thought about how we see the challenges of sustainability by the eyes of rest of the mankind?

Likewise, the seminar organizing committee believes that the TSGS2021 seminar acts as learning space for the participants about how economic performance, social opportunity, political voice and public reasoning are all deeply interrelated. A number of internationally acknowledged scholars have been invited to speak in the seminar to promote transdisciplinary dialogue and understanding. Social Acceptability Study (SAS) Network hopes that the outcome of the seminar is expected to be a catalyst for a happy collective arrival at sustainable solutions.

On behalf of seminar organizing committee:
Md. Munjur E. Moula, Dr.Soc.Sc
President, SAS Network
Aalto University, Finland
October 2021

2nd International Seminar on Towards Sustainable Green Society

TSGS2021

PROGRAM

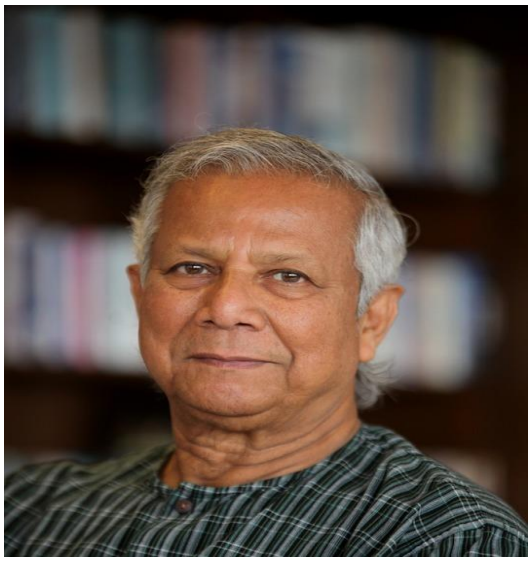
12:30-13:00	**Registration**
Opening session	
13.00 – 13.05	**Welcome** Dr. Md. Munjur E. Moula, President, SAS Network
13.05 – 13.15	**Opening words**, Provost Kristiina Mäkelä, Aalto University
13.15 – 13.45	**Opening chief guest speaker** Nobel Laureate Professor Muhammad Yunus, Bangladesh
Topic	*Sustainability –A World of Three Zeros*
	Moderator: Professor Annukka Santasalo-Aarnio, Advisor SAS Network, Aalto University, Finland
13.45 – 14.00	**Q & A**
14.05 – 14.30	**Opening keynote speakers'** Professor Brian Chi-ang Lin, National Chengchi University, Taiwan
Topic	*Sustainable Growth: A Circular Economy Perspective*
	Moderator: Professor Annukka Santasalo-Aarnio, Advisor SAS Network, Aalto University, Finland
14.30 – 14.40	**Q & A**
14.45 – 15.10	Senior Research Fellow Sabiruddin Mirza, Harvard University, USA
Topic	*Lab*-On-A-Chip: A game changing econ-friendly technology for fine chemical discovery and development
	Moderator: Professor Annukka Santasalo-Aarnio, Advisor SAS Network, Aalto University, Finland
15.10 – 15.20	**Q & A**
15.20 – 15.25	**Opening session remarks**: Dr.Timo Laukkanen, Chair, Advisory Board SAS Network, Aalto University, Finland
15.25 – 15.40	**Coffee break**
Panel session 15.40 – 16.55	**Sustainability: research, politics, policies and practices**
Chair	Professor Jari Porras, LUT University, Finland
Moderator	Professor Heidi Kuusniemi, University of Vaasa, Finland
Assistant	Doctoral student Roshi Dahal, Aalto University, Finland
Panellists'	Senior Researcher Liisa Laakso, The Nordic Africa Institute, Sweden Professor Electo Eduardo Silva Lora, Federal University of Ijajuba', Brazil Professor Eva Pogra'cz, University of Oulu, Finland Professor Abu Yousuf Md. Abdullah, University of Dhaka, Bangladesh Professor Diaa-Eldin Mansour, Tanta University, Egypt Professor Philippe FORET, University of Basel & American University of Central Asia.
16.55 – 17.00	**Closing remarks and thanks given** Professor Risto Lahdelma, Former President, Advisor SAS Network, Aalto University, Finland.

TSGS2021: Speakers' Biography

Sustainability-A World of Three Zeros

Chief Guest Speaker Nobel Laureate Professor Muhammad Yunus, Ph.D, Bangladesh

Nobel Laureate Professor Muhammad Yunus is the father of both social business and microcredit,



the founder of Grameen Bank, and of more than 50 other companies in Bangladesh. For his constant innovation and enterprise, the Fortune Magazine named Professor Yunus in March 2012 as "one of the greatest entrepreneurs of our time." In 2006, Professor Yunus and Grameen Bank were jointly awarded Nobel Peace Prize. Professor Yunus became the second recipient of Tokyo Olympic Laurel. He is the recipient of 61 honorary degrees from universities across 24 countries. He has received 136 awards from 33 countries including state honours from 10 countries. He is one of only seven individuals to have received the Nobel Peace Prize, the United States Presidential Medal of Freedom and the United States Congressional Gold Medal. He has appeared on the cover of Time Magazine, Newsweek and Forbes Magazine.

Sustainable Growth: A Circular Economy Perspective

Keynote Speaker Professor Brian Chi-ang Lin, Ph.D, National Chengchi University, Taiwan

Professor of Sustainability Brian Lin, developer of Circular GDP, has taught in the Department of

Public Finance at **National Chengchi University** since August 1997. He is also Associate Editor for The *Journal of Economic Surveys* and *Forum for Social Economics*. Brian has rich experience in administrative services, academic editorship, business advising, and international cooperation. He has lectured widely on the circular economy and sustainability issues in Taiwan, Japan, China, South Korea, and greatly enjoys his association in the East Asian region. To Brian, higher educational institutions are an important source of inspiration for individual students and the society as a whole. For individual persons, inspiration is the process of realizing an individual's knowledge capacity for furthering her or his working performance, economic status, living satisfaction, or social responsibility. In this regard, Brian has regularly led large groups of students to visit rural areas and remote tribes in order to generate learning inspirations for his students. For previous field trips, his students have often remarked that they felt like the child protagonists from the Chronicles of Narnia.

Lab-On-A-Chip: A game changing eco-friendly technology for fine chemicals discovery and development

Keynote Speaker Senior Research Fellow Sabiruddin Mirza, Ph.D, Harvard University, USA

Sabiruddin Mirza is a Senior Research Fellow at the School of Engineering and Applied Sciences at Harvard University, Cambridge, MA, USA, and an Adjunct Professor (Docent) at the University of Helsinki, Helsinki, Finland. Dr. Mirza received his M.S. degree in pharmaceutical chemistry from the Ukrainian Pharmaceutical Academy, Ukraine, in 1994 and began his professional career in the pharmaceutical industry as a production pharmacist. After several years in full-time industry, he escaped to academia and earned his Ph.D. degree in pharmaceutical technology from the University of Helsinki in 2007. His dissertation research has been awarded the 2008 American Association of Pharmaceutical Scientist's Outstanding Graduate Research Award in Pharmaceutical Technologies. Dr. Mirza's current research is focused on engineering of advanced nanosystems for drug delivery applications. In addition, his areas of expertise include pharmaceutical crystallization, cocrystallization and nanocrystallization, droplet-based microfluidics, and solid-state characterization, preformulation and formulation.

TSGS2021: Panelists

Sustainability: research, politics, policies and practices

Senior Researcher Liisa Laakso, The Nordic Africa Institute, Sweden
Professor Electo Eduardo Silva Lora, Federal University of Ijajuba', Brazil
Professor Eva Pogra'cz, University of Oulu, Finland
Professor Abu Yousuf Md. Abdullah, University of Dhaka, Bangladesh
Professor Diaa-Eldin Mansour, Tanta University, Egypt
Professor Philippe FORET, University of Basel & American University of Central Asia.

Speech summary

Sustainable Growth: A Circular Economy Perspective

Keynote Speaker Professor Brian Chi-ang Lin, Ph.D, National Chengchi University, Taiwan

(A) To mitigate climate change, the United Nations (UN) has seriously acknowledged the significance of global transition to the circular economy. In the meantime, the UN has admitted that 'business as usual' i.e., the conventional linear economy, will not help us to achieve the Sustainable Development Goals (SDGs).

(B) Take the UN SDG 8 as stated as 'promote sustained, inclusive and **sustainable economic growth**, full and productive employment and decent work for all' for example. The UN still relies on GDP to measure and monitor the progress towards sustainability. Let's take target 8.4 for example:

Indicator 8.4.1: Material footprint, material footprint per capita, and material footprint per GDP

Indicator 8.4.2: Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP

(C) As clearly stated in the 2030 Agenda Paragraph 48**: I**ndicators are being developed to assist this work...We are committed to developing broader measures of progress to complement gross domestic product (GDP). The UN, however, has yet to offer clear indicators for monitoring the various targets such as the ambitious target 8.4 is to "decouple economic growth from environmental degradation."

(D) As Figure 1 shows, part of the output waste generated at the end of each period along with other circular resources available for future use are steered into the circular output flow and connected to the flow of raw materials in the succeeding periods. In the long run, the amount of pollution decreases and the value of circular output increases, a win-win scenario for promoting environmental protection and economic growth.

(E) The existing rationale for measuring national output and its related components was developed by Prof. Simon Kuznets, the 1971 Nobel laureate in economics. Within the circular economy framework, the national income accounting can now be expressed as

$$\boldsymbol{Y = C + I + G + NX + SD}$$

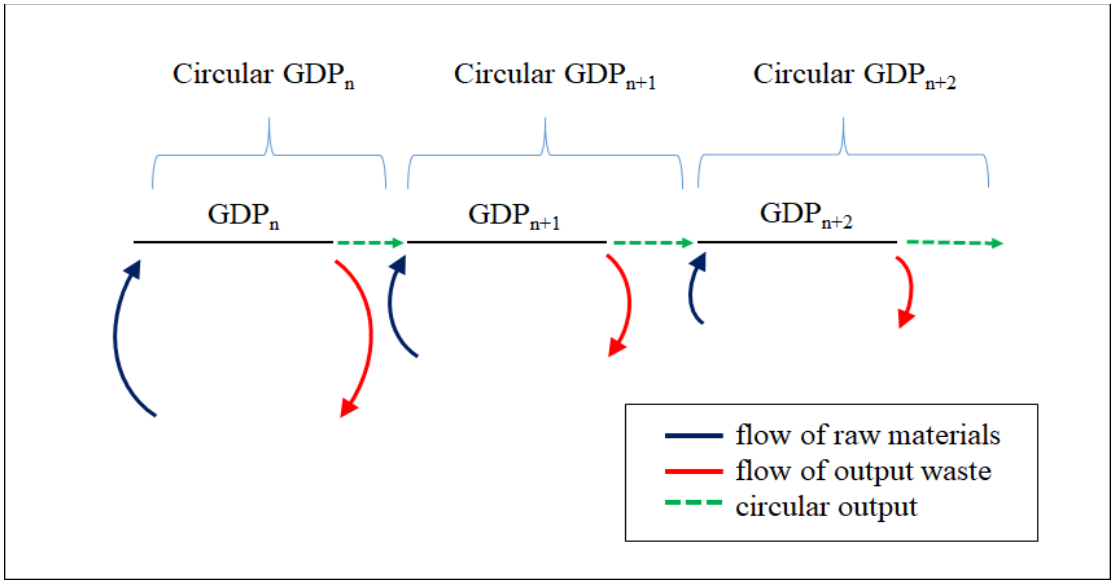
where Y is domestic output, C is consumption spending, I is investment spending, G is government spending, NX is net exports, and SD is circular output representing the domestic demand for sustainable development . The total output measured within a given time period can be referred to as circular GDP, i.e., the summation of a) GDP and b) circular output.

(F) **The circular economy accounting framework provides an institutional appraisal of a country's regenerative capacity within a given time period.** Within this accounting framework a country's economy is considered to comprise five sectors: households, firms or businesses, the government, the sustainability sector, and the foreign sector. In the circular economy system, sustainable growth is not only theoretically feasible (Shieh, Lin, and Chen 2019), but also looks promising for community-leaders and policy-makers.

(G) Within the circular economy framework, a growing sense of shared responsibility for sustainability helps people in the community to frequently interact and work together. To

warrant a society's full consideration of the needs of future generations, it is essential to form an integrated sustainability sector - a collective institution - preferably comprised of sustainable businesses and responsible households. More importantly, the transition to a circular economy not only relies on technological progress but is also related to the institutional arrangements of society.

Figure 1: The Circular Economy National Income Accounting Framework



Source: Lin (2019)

Table 1: Characteristics of the Linear Economy and the Circular Economy

	Linear Economy	Circular Economy
Raw materials / Natural resources	Indispensable factors of production	Less use is desirable
Production and consumption waste	No value / Source of pollution	Don't waste waste / New resources
Physical capital and products	Depreciate over time toward zero value	Regenerate over time to release new resources
Environmental protection	Subsidiary subject	Default
Focus of research	Economic growth	Sustainability
Growth potential	Limited	Sustainable
Socioeconomic network	Making profits for economic growth	Shared responsibility for sustainable development
Sustainability sector	Irrelevant or minor	Essential
Industrial processes	Vertical and lateral integration of firms	Circular industry
Policy stance	Free-market or pro-market policies	Some degree of institutional planning
Major indicators	GDP, Green GDP, MEW	**Circular GDP**
Scope of Application	Mainstream curricula, business models, and economic agendas.	EU circular economy action plan, and circular business models.

Source: Lin (2019)

References

George, Donald A.R, Brian Chi-ang Lin and Yunmin Chen. "A Circular Economy Model of Economic Growth." *Environmental Modelling & Software* 73 (2015): 60-63.

Lin, Brian Chi-ang. 2020. "Sustainable Growth: A Circular Economy Perspective." *Journal of Economic Issues* 54 (2): 465-471.

Lin, Brian Chi-ang. 2021. "Institutional Failure and Sustainability Policy." *Journal of Economic Issues* 55 (2): 454-460.

Lin, Brian Ch-ang. "Circular GDP: A New Sustainability Indicator." Unpublished, 2019.

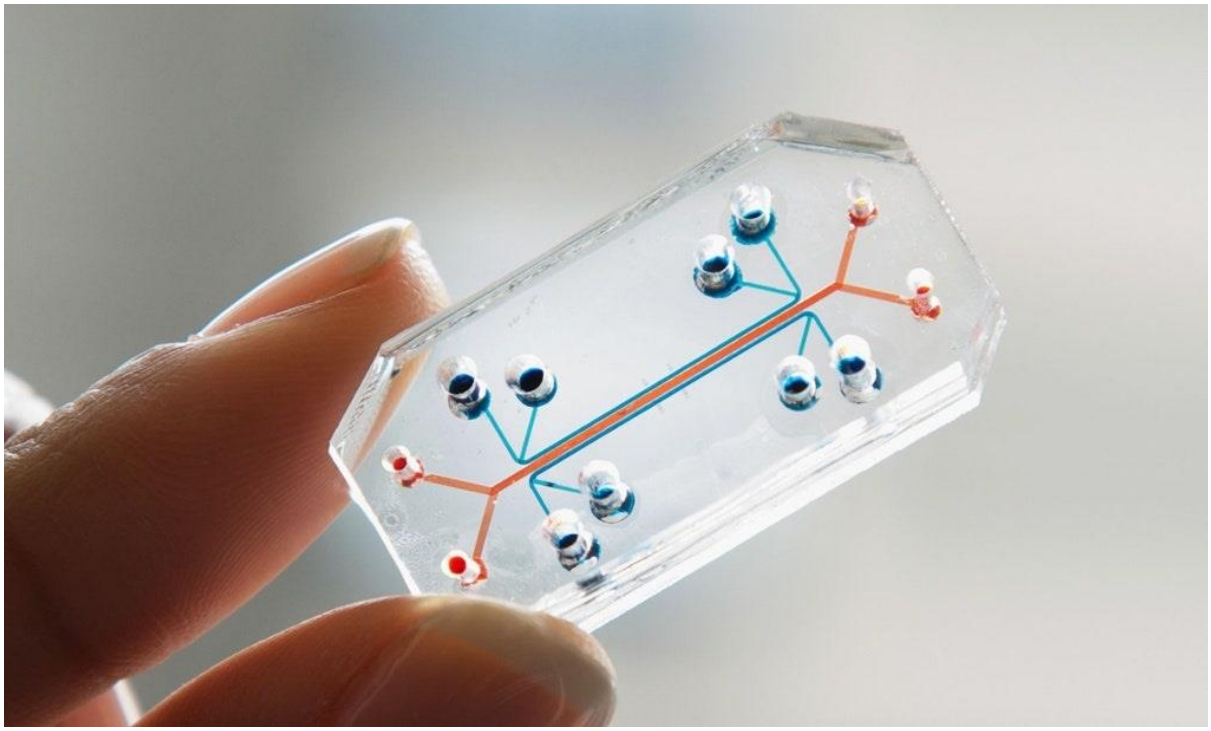
Shieh, Jhy-Yuan, Brian Chi-ang Lin and Jhy-Hwa Chen. "A Circular Economy Model of Sustainable Growth." Unpublished, 2019.

Speech Summary

Lab-On-A-Chip: A game changing eco-friendly technology for fine chemicals discovery and development

Keynote Speaker Senior Research Fellow Sabiruddin Mirza, Ph.D, Harvard University, USA

A lab-on-a-chip is a miniaturized microfluidic device that integrates one or several reactions, which are usually performed in a laboratory, into a single chip. Microfluidics is the science and technology of systems that process or manipulate small (nano and picolitres) amounts of fluids using microchannels. By exploiting two characteristic features – tiny volume and laminar flow – microfluidic devices open a myriad of new perspectives for chemical, biomedical, and environmental sciences.



This presentation highlights the benefits of the microfluidic platforms as an eco-friendly technology that enables a high-throughput capability and cost- and time-effectiveness. Most importantly, material-saving and waste minimization, the attributes that are intrinsically associated with microfluidic devices, position this technology as an appealing choice for a more sustainable future.

TSGS2021: Chair and Moderators

Panel Chairperson
Professor Jari Porras, Lappeenranta University of Technology, Finland

Moderators
Professor Heidi Kuusniemi, Director Digital Economy, University of Vaasa
Assist. Professor Annukka-Santasalo Aarnio, Advisor, SAS Network, Aalto University

TSGS2021: Organizing Committee Members

Assist. Professor Annukka Santasalo-Aarnio, Advisor, SAS Network, Aalto University
Dr. Abul Rahman, University of Eastern Finland
Dr. Dr. Edinam K. Glover, University of Helsinki, Finland
Sr.University Lecturer Henrik Holmberg, Advisor, SAS Network, Aalto University, Finland
Professor Heidi Kuusniemi, Director Digital Economy, University of Vaasa, Finland
Professor Jari Porras, Lappeenranta University of Technology, Finland
Dr. Karhan Özdenkci, Member, SAS Network, Äbo Academy University, Finland
Postdoc Karar Mahmoud, Member, SAS Network, Aalto University, Finland
Visiting Lecturer Dr. Md. Munjur E. Moula, President, SAS Network, Aalto University
Assist Professor Sakir Hossain, American International University, Bangladesh
Professor Olli Kuivalainen, Lappeenranta University of Technology, Finland
Assist Professor A.K.M Najmul Islam, Lappeenranta University of Technology, Finland
Postdoc Md. Sanaul Haque, Lappeenranta University of Technology, Finland
Professor Risto Lahdelma, Honorary Member, SAS Network, Aalto University, Finland
Staff Scientist Timo Laukkanen, Chair, Advisory Board of SAS Network, Aalto University
Assist Professor Ahm Shamsuzzoha, University of Vaasa, Finland
Sr.University Lecturer Tuomas Paloposki, Advisor, SAS Network, Aalto University, Finland
Adjunct Professor Md. Zahirul Islam, University of Helsinki, Finland
Postdoc Tahmina Khanum, University of Eastern Finland, Finland
Dr. Md. Zahirul Islam, University of Helsinki, Finland
MSc Voitto Walter Kotiaho, self-employed, Finland

Seminar Organizer:

Social Acceptability Study (SAS) Network, Aalto University, Finland

Co-organizers:

University of Helsinki, Finland

Lappeenranta University of Technology, Finland

University of Vaasa, Finland

Social Acceptability Study (SAS) Network

History of SAS Network

Aalto University promotes multidisciplinary research in its agenda. By definition, research into alternative energy resources is also multi-disciplinary in nature. In light of this, 23rd April, 2013, Professor Mika Järvinen organized a meeting to outline how natural scientists can collaborate with social science community. Participants discussed about the imminent need for the people and society to accept the energy solutions and support policies to implement them. Accordingly, Postdoctoral Researcher Md. Munjur E. Moula named the meeting 'Social Acceptability Study (SAS) Network', and new platform was born.

Founding Members of SAS Network (April, 2013)

Professor Mika Järvinen, Aalto University
Professor Risto Lahdelma, Head, Depart. Energy Technology, Aalto University
Dr. Tuomas Paloposki, Lecturer, Aalto University
Dr. Jukka Paatero, Lecturer, Aalto University
Dr. Md. Munjur E. Moula, Postdoctoral Researcher, EES, Aalto University
Dr. Timo_Laukkanen, Lab Manager, EES, Aalto University
Dr. Sanni Eloneva, Postdoctoral Researcher, Aalto University
MSc Thomas Khol, Doctoral Student, Aalto University
MSc Laura Kainiemi, Doctoral Student, Aalto University.

What is SAS Network ?

Social Acceptability Study (SAS) network, a platform for knowledge and experience sharing about how we might be able to construct a sustainable society. More clearly, this network will work as green-energy hub: allowing coordinated, strong, timely and sustained information with powerful content and partners. These activities will help us to increase

collective intelligence and to create value efficiency while lowering costs. In addition, SAS is an interdisciplinary energy and waste management innovation network located at Aalto University. We bring together practitioners, national and international policy makers, market participants, and researchers from Economics, Environmental Sciences, Engineering, Social Sciences, and Management Sciences to guide and to shape the transformation of the energy and waste sectors. SAS aspires to become the professional body which prepares pro-active proposals and objective assessments for technical, market and policy issues related to global sustainable society. Nevertheless, this network will provide information about how to overcome the barriers to social acceptability aspects to build a sustainable society.

Specific Objectives:

1. To stimulate new thinking and public and policy-maker awareness and understanding about relationship between technological approaches and behavioral approaches towards green energy production and utilization that is sustainable for people and the planet;
2. To facilitate national and international policies and initiatives that strengthen the development of renewable energy and waste product markets, infrastructure and technology for a more resource-efficient and sustainable society.
3. To increase cooperation between experts in social acceptability research from around the globe;
4. To make regular and structured contacts and cooperation between partners that contribute to the evaluation toward a sustainable planet; more specifically, regular meetings and events of SAS help the affiliate to discover new opportunities in their field;
5. To undertake joint activities (e.g. publication, seminar\conference\workshop and academic collaboration etc.) of a variety of sustainable topics;
6. To develop trust in biomass based technology;
7. To offer an opportunity to share a broad range of professional expertise from diverse energy communities.

Main Activities:

- Research and teaching
- New / special courses offer
- Mentoring and supervision
- Product design and development
- Market survey
- Organize workshop, seminar and conference
- Organize monthly research presentation
- Regular meetings, e.g., five times each year
- Annual meeting with SAS Network members
- Election for SAS Network's executive body
- Annual report dissemination
- Fund raising
- Projects submission
- Networking and advocacy
- Visiting fellowship program (1 month)
- Scientific publications

For details: https://www.aalto.fi/en/school-of-engineering/social-acceptability-study-sas-network

1st International Seminar on Towards Sustainable Tomorrows: From Sound Concepts To Sound Practice', 31st October-1st November 2019

The seminar on 'Towards Sustainable Tomorrows: From Sound Concepts to Sound Practice' organized to introduce Social Acceptability Study (SAS) Network and its activities to universities, research centers and industries at national and international level as well as initiating a collaboration with global sustainable policy leaders in general and Latin American countries in particular. To get more information, please visit the link below. https://aaltodoc.aalto.fi/handle/123456789/40770

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