



FlexSNG

**Deliverable D9.7**

# **Report and a short dissemination video of the second Industrial Topical Workshop**

Dissemination level: Public

Date: 25/03/2024

Grant Agreement (GA) No. 101022432

Research and Innovation Actions (RIA) project

Granted by: Climate, Infrastructure and Environment Executive Agency (CINEA)



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 101022432 and the Government of Canada's New Frontiers in Research Fund (NFRF) and the Fonds de recherche du Québec (FRQ).



## Document Control Sheet

<b>Project</b>	FlexSNG - Flexible Production of Synthetic Natural Gas and Biochar via Gasification of Biomass and Waste Feedstocks		
<b>Call/Topic</b>	International cooperation with Canada on advanced biofuels and bioenergy		
<b>Type of action</b>	Research and Innovation Action (RIA)		
<b>Grant Agreement No</b>	101022432		
<b>Start date</b>	01/06/2021	<b>Duration</b>	43 Months
<b>Project Coordinator</b>	VTT Technical Research Centre of Finland Ltd		

<b>Work Package No</b>	WP9	<b>Task No</b>	Task 9.7
<b>Due date (in months)</b>	M43		
<b>Actual submission date</b>	25.3.2024		

<b>Lead Beneficiary</b>	ETA-Florence Renewable Energies - ETA		
<b>Contributor(s)</b>	All		
<b>Dissemination level</b>	Public	X	
	Confidential, only for members of the consortium (including the Commission services)		

## Revision history

Version	Date	Modification	Author
0.1	23/02/24	First	Emma Fromant (ETA)
1.0	25/03/24	Final version	Minna Kurkela (VTT)

## Disclaimer

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## 1 Executive summary

This report presents Deliverable 9.7: Report and a short dissemination video of the second Industrial Topical Workshop, in relation to Task 9.3 of the Grant Agreement. This report starts with the introduction and in Sections 3 and 4 moves on to describe how the event was prepared through various meetings, and promoted through all the project online channels. In Section 5 of the report the event is summarized, including the running order and summary of the round table discussion. Sections 6 and 7 of the report provide summaries of the post event feedback and summaries of the technical field visits that were carried out as part of the trip to Canada. Finally, this report is rounded off with a short summary and screenshots from the project video that was filmed during the workshop, and then subsequently edited and produced.

## 2 Introduction

This report describes the FlexSNG Second Topical Workshop and short dissemination video, including the preparation phases for both aspects. In particular, this document reports on activities concerning to **D9.7: Report and a short dissemination video of the second Industrial Topical Workshop** due in M43 of the project (December 2024).

In line with Task 9.3 of the Grant Agreement, the workshop was held at this year's BIOFOR conference at PaperWeek Canada, Montreal, and was titled, **Competitive advantage and risk mitigation for a large-scale biofuel process**. The workshop included a presentation of technical aspects of the technology, the experience gained within the project and the country specific potential analysis, and concluded with an interactive roundtable session involved the stakeholders. The project team spent a week in Canada to incorporate a project meeting and several technical field visits, also in line with Task 9.3 of the GA 'whenever feasible, each workshop will be followed by a technical visit to facilities of interest for the FlexSNG project'. The event planning and execution was carried out by ETA-Florence with the Canadian side of

organization carried out by project partner, Polytechnique Montreal, including hosting the project meeting on the Polytechnique campus.

The short dissemination video that was produced as part of this deliverable was filmed during the workshop and after the event was edited into the final video that has been published on the project's website and social media pages.

### **3 Event Preparation**

Preparations for the event started in mid-2023, initial arrangements were made between ETA-Florence and Polytechnique Montreal, who drafted the first version of the agenda together before presenting the idea to the project coordinators, VTT. The date of the event was the first thing to be finalized as it needed to be inline with the BIOFOR event at PaperWeek Canada, 5<sup>th</sup> – 8<sup>th</sup> February 2024. It was decided that the workshop would be held on the 6<sup>th</sup> in the morning, as this part of the conference would be held in person, whilst the first and last day of the conference would be online only, and the third day there would be a field visit in the afternoon that FlexSNG would attend.

With the day decided as Tuesday 6<sup>th</sup> February 2024, it was agreed the morning slot was best for the FlexSNG half-day workshop due to the time difference with Europe (the morning in Montreal, is the afternoon in Europe), therefore it would be a reasonable hour for the online speakers, as well as the European audience.

After a couple of meetings with ETA, VTT and Polytechnique Montreal, the format of the event was agreed to be as interactive as possible, therefore the event was split into three sessions. Starting with an hour keynote presentation, from Sumitomo (SHI-FW), then a session about the FlexSNG concept with three presentations and finished off with a discussion panel on the 'de-risking of FlexSNG'.

The workshop title was, **Competitive advantage and risk mitigation for a large-scale biofuel process**, and the agenda followed this theme, a summary is provided herein and the full in Appendix A:

Session 1:

- Keynote: State-of-the-art biomass gasification – a long time coming: why now is the right time! Presented by David Longden. SHI-FW.

Session 2:

- Biomass gasification for synthetic fuels and chemicals – FlexSNG process concept. Presented by Ilkka Hiltunen, VTT.
- Flexible and integrated biomass value chains. Presented by Erik Rönnqvist, Creative Optimization.
- Syngas: the gateway to sustainable fuels and chemicals. Presented by Andrew Steele, Johnson Matthey.

Session 3:

Discussion Panel – De-Risking FlexSNG

- The business of de-risking FlexSNG process: VTT's Research challenges, overview. Minna Kurkela, VTT.
- Oxygen transport membranes in biomass gasification systems. Francesco Mondì, DTU.
- Challenges for the procurement of biomass and coordinating multiple value chain. Mikael Rönnqvist, Université Laval.
- Derisking Biochar Production: Strategies for Sustainable and Profitable Operations. Karol Witkowski, EIFER.
- Navigating the Future of Industrial Symbiosis: Challenges and Implementation Strategies in Biorefineries. TUNET Olivier, Polytechnique Montréal.
- The role of numerical tools and modelling on de-risking FlexSNG. Kostis Atsonios, CERTH.

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## 4 Event Promotion

This workshop was part of a bigger conference, PaperWeek Canada, and therefore it was promoted in conjunction with that, as well as through the FlexSNG channels. In addition, a special 50% discount was provided for those who wanted to attend only the FlexSNG workshop online.

The event was promoted on the PaperWeek Canada website as follows:

PAPERWEEK CANADA 2024 Program 2024 Tradeshow and networking

### TUESDAY FEBRUARY 6, 2024 (On-Site + On-Line)

#### Morning

- 08:00 - 09:00: BIOFOR FlexSNG Session
  - Keynote Biomass Gasification
- 08:30 - 10:00: Technical Sessions
  - Energy
- 08:30 - 17:00: Reliability Workshop
- 09:00 - 10:30: BIOFOR FlexSNG Session presentations
- 10:00 - 10:30: Coffee Break & Tradeshow
- 10:00 - 11:30: Mill Managers Forum - VIRTUAL
- 10:30 - 12:00: Technical Sessions
  - Papermaking - New Product Development Roundtable
  - BIOFOR Roundtable - Derisking FlexSNG
- 12:00 - 13:30: Networking and Lunch Break

#### Afternoon

- 13:30 - 15:00: Technical Sessions
  - Tissue : Safety Creating a Culture of Safety
  - BIOFOR : Carbon Management - The Value of Carbon
- 15:00 - 15:30: Coffee Break & Tradeshow
- 15:30 - 17:00: Technical Sessions
  - Advances in Papermaking Technology - I
  - BIOFOR : Carbon Management - CCUS in the Forest Products Industry
- 17:00 - 19:00: Welcoming Reception

See the detailed program

On The FlexSNG website

FlexSNG

# FlexSNG Workshop at Paper Week Canada!

January 23, 2024

FlexSNG at PAPERWEEK CANADA 2024 Tuesday 6 Feb 2024

Competitive advantage and risk mitigation for a large-scale biofuels process: FlexSNG

#### MORE NEWS

##### Natural Resources Canada Meeting


23 February 2024

During FlexSNG's trip to Canada, on 9th February 2024, we had a fruitful meeting with Natural Resources Canada (NRCAN) at their CanmetENERGY site in Ottawa.

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## D9.7 Report and a short dissemination video of the second Industrial Topical Workshop



 FlexSNG

the European Union and Canada in the strategic sectors of bioenergy and bioeconomy. These sessions will illustrate how this gasification-methanation process called FlexSNG is being systematically developed, and where the de-risked process is expected to lead to improved economics and a competitive position as the demand for synthetic natural gas (SNG) grows.

Agenda:

Keynote speaker David Longden, Sumitomo SHI FW 08:00am (EST)  
The state-of-the-art in biomass gasification:  
A long time coming: Why now is the right time!

The technology and business case for the FlexSNG Process 09:00am (EST)  
What is the FlexSNG process: its strengths, its risks, and all of the opportunities for creating competitive advantage for synthetic energy.

Round table discussion: The business of de-risking the FlexSNG process 10:30am (EST)  
Key aspects and challenges being addressed in the FlexSNG process, direct from the talented research team.

Registration to attend all of Paper Week can be found here: <https://www.paperweek.ca/>  
50% DISCOUNT for all FlexSNG online attendees!!  
Send an email to: [admin@paptac.ca](mailto:admin@paptac.ca)  
With your Name, Company, Phone number and subject 'Registration for FlexSNG'  
to receive payment instructions.

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On the FlexSNG LinkedIn page, that has over 1100 followers


The screenshot shows the LinkedIn profile for FlexSNG Project, which has 1,159 followers. The page features two posts from the FlexSNG Project page:

- Post 1:** Announces a keynote by David Longden, PhD, Strategic Business Development Manager at Sumitomo Foster Wheeler (SFW), on Tuesday 6 Feb 2024 at 08:00 (EST) / 14:00 (CET). The topic is "State-of-the-art biomass gasification – a long time coming: why now is the right time!". The post includes a graphic with the FlexSNG logo and text: "Competitive advantage and risk mitigation for a large-scale biofuels process: FlexSNG".
- Post 2:** Announces a presentation by Ilkka Hiltunen, M.Sc. (Tech), on the same date and time. The topic is "Biomass gasification for synthetic fuels and chemicals – FlexSNG process concept". The post includes a similar graphic.

The right sidebar shows promoted content from Upwork, LinkedIn, and Ingenn. The bottom of the page shows the LinkedIn footer with copyright information for 2024.




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**FlexSNG Project**  
1,159 followers  
3w • 🌐

Just a few days until our exciting Topical Workshop! It's not too late to sign up!!



**FlexSNG Project**  
1,159 followers  
1mo • 🌐

🔗 50% DISCOUNT for all FlexSNG online attendees!! 🔗

✉️ Send an email to: [admin@paptac.ca](mailto:admin@paptac.ca)


📄 With your Name, Company, Phone number and subject 'Registration for FlexSNG'

✅ To register your place and receive payment instructions.

Registration to attend all of Paper Week can be found here: <https://lnkd.in/eEJzi-J>


#energy #climatechange #europe #sustainable #change #bioenergy #biogas #biochar #futureofenergy #research #creative #technology #valuechain #testing #university #project #paper #pulpandpaperindustry

Project Partners:  
VTT, DTU - Technical University of Denmark, Skogforsk, Sumitomo SHI FW, Wood, EIFER - European Institute for Energy Research, ETA Florence Renewable Energies, Creative Optimization, Johnson Matthey, Centre for Research & Technology Hellas (CERTH), Polytechnique Montréal, Université Laval



**FlexSNG**

Competitive advantage and risk mitigation for a large-scale biofuels process





TUESDAY FEBRUARY 6, 2024

Join this workshop to hear how the FlexSNG gasification-methanation project is being systematically developed, and how the de-risked process is expected to lead to improved economics and a competitive position as the demand for synthetic natural gas (SNG) grows.


**keynote speaker David Longden, Sumitomo SHI FW (8- 9am)**  
The state-of-the-art in biomass gasification: A long time coming: Why now is the right time!

**The technology and business case for the FlexSNG Process (9 - 10am)**  
What is the FlexSNG process? Its strengths, its risks, and the opportunity for creating competitive advantage for synthetic biofuels.

**Roundtable discussion: The business of de-risking (10:30am -noon)**  
Key aspects and challenges being addressed in the FlexSNG process, direct from the talented research team.



This project has received funding from the European Union's Horizon Research and Innovation Programme under Grant Agreement No. 101019743 and the Government of Canada's New Frontiers in Research Fund (NFRF) and the Fonds de recherche du Québec (FRQ).





Esa Kulkala and 1 other

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Organic impressions: 139 Impressions
Preview results ▾

## 5 Summary of Event

The half-day workshop ‘Competitive advantage and risk mitigation for a large-scale biofuels process: FlexSNG’, was carried out on Tuesday 6<sup>th</sup> February 2024, from 8am until midday, at the Fairmont Queen Elizabeth, Downtown Montreal, Canada.



*(Right) Erik Rönnqvist from Creative Optimization.*

The workshop kicked off with key-note speaker David Longdon representing Sumitomo Foster Wheeler, SFW. David covered a brief history of SFW’s key contributions to date, describe the current activities and aspirations into the future, as well as key collaborations and areas of focus to ensure that “now is the right time!”.

The first session continued with Ilkka Hiltunen, Research Team Leader of the Gasification and synthesis gas processing Research Team at VTT gave us an overview of VTT’s development in biomass gasification and describe the current status of the technology, in the context of the FlexSNG project, that targets co-production of biomethane and biochar via biomass gasification.



*(Left) Ilkka Hiltunen from VTT, (Right) Andrew Steele from Johnson Matthey.*

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We also heard from Erik Rönqvist, from Creative Optimization about how a flexible approach can be integrated into the value chain with the utilization of decision support systems for planning feedstocks as well as analysing market viability and profitability for investment in the development of SNG and energy production. And from Dr Andrew Steele, Johnson Matthey, about how syngas could be the gateway to sustainable fuels and chemical production.



*Discussion Panel*

The second session was dedicated to a lively roundtable discussion panel focusing on ‘De-Risking FlexSNG’ in which our project researchers shared some challenges they have already faced or expect to face during the project or in the future.

Paul Stuart rightly said *“Developing a biofuel process is capital intensive which make small risks look very large and there have been some spectacular failures in the past... so the stakes are high”*.

That’s why derisking becomes even more important as technology moves up through the TRL stages. The panel discussion brought forward some interesting questions about different end uses for the talking the technology such as different fuels or use in the metal industry. There was conversation around economies of scale and if a higher pressure could be used to reduce the size of the plant.

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## 6 Post Event Follow-Up

The FlexSNG second topical workshop was a success in reaching global audiences both in person and online. The in person attendance was more than maximum capacity, seeing the all seats full and several standing in the room, the maximum counted was 61 people. Online attendees reached 51 in total.

The filming of the workshop, including all presentations, has been made available to view for free on the project website:

<https://www.flexsng.eu/news/flexsng-second-topical-workshop-at-biofor-paperweek-canada-2024/>

Therefore, an audience of more than 100 people for a niche event such as this one for FlexSNG, with a lot of questions and participation, is considered a great success.

## 7 Summary of field visits

In addition to the workshop the FlexSNG project team took the opportunity of being in Canada to meet with other relevant institutes to present the project and explore potential pathways for future collaborations, especially now that Canada is eligible for funding under Pillar II of Horizon Europe. A summary of the meetings is provided below:

### **FPIinnovations, Montreal, Canada**

On Wednesday 7<sup>th</sup> February 2024, the team had the pleasure of a site visit to FPIinnovations R&D laboratories. FPIinnovations is a private not-for-profit organization that specializes in the creation of solutions in support of the Canadian forest sector's global competitiveness.

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During the site visit we were shown around the paper and pulp facilities and shown how FPIInnovations is addressing industry challenges through research into competitiveness aspects of the mills through efficiency improvements, cost reduction initiatives and automation processes, as well as creating roadmaps towards reducing GHG emissions.



The part of tour most relevant to the FlexSNG team was hearing about and seeing the research carried out into 'bio-sourced products'. FPIInnovations are paving the way for new markets and incomes streams for the forest industry including low-carbon fuels through the byproduct of paper production: black-liquor, and also by creating bio-sourced chemicals and materials, such as absorbent fibres that can be used for medical purposes.



### Greenfield Global, Quebec, Canada

On 8<sup>th</sup> February 2024 FlexSNG was hosted by Greenfield Global at their Varennes biofuel production site. We learnt how ethanol, animal feed, and corn oil, are produced from grain provided by farmers within a 75-kilometre radius. The Greenfield Global biofuel plant is one of the biggest in the world, and significantly contributes to Canada's domestic gasoline market.



**This ethanol is a high-quality, high-octane fuel which:**

- Is made from renewable crops and resources.
- Reduces lifecycle greenhouse gas emissions from transportation fuels.
- Supports local agriculture by providing a value-added market for grains.
- Provides consumers with an affordable, more environmentally friendly fuel at the pump.

**Information about Ethanol in Canada:**

Ethanol is an essential component of the domestic gasoline market. It is the leading renewable fuel in Canada with approximately 2.9 billion litres blended into the Canadian gasoline supply each year.

Ethanol is approved for use in all cars at a blend of up to 10% (15% for model year 2001 and later), light-duty trucks, and medium duty passenger vehicles. Most major urban markets in Canada use ethanol blended fuels.

Ethanol is the single most effective way to decarbonize transportation fuels today. Greenfield's fuel ethanol reduces greenhouse gas emissions by as much as 62% compared to fossil fuel.



Each year, domestic ethanol use and production lowers Canada's greenhouse gas emissions by 2 million tonnes — the carbon equivalent of removing 400,000 cars from the road. A litre of ethanol is consistently less expensive than gasoline. In 2017, the average wholesale discount

of ethanol to gasoline was 3 cents per litre. In 2018, ethanol's discount to gasoline remains near a five-year high of 25 cents per litre.

Ethanol is the cleanest and lowest-cost octane enhancer available and facilitates compliance for fuel efficiency and emissions standards. It also displaces the need for toxic aromatics linked to pollution and smog.

The majority of Canada's ethanol is made from the country's abundant corn supply. It also can be produced from other feedstocks such as wheat, barley, sugar beets, and sugar cane. Technologies are emerging to produce ethanol from agricultural residue, woody biomass, and even municipal solid waste.

The positive environmental and economic benefits of ethanol have motivated governments around the world to enact renewable fuels standards and other policies to encourage greater use. Today, more than 50 countries around the world have ethanol mandates.

(source: <https://greenfield.com/our-markets/renewable-energy/biofuels/>)

### **Natural Resources Canada, Ottawa**

During FlexSNG's trip to Canada, on 9<sup>th</sup> February 2024, we had a fruitful meeting with Natural Resources Canada (NRCan) at their CanmetENERGY site in Ottawa. At this site the research and development focuses on clean energy innovation for a low-carbon future, the relevant aspect to FlexSNG is that NRCan is researching gasification techniques. During the meeting we were also given a tour of the biofuel and gasification experimental labs.

With the new Pillar II agreement recently signed between Canada and the European Commission for inclusion in the Horizon Europe programme there is now a real opportunity for European national centres to collaborate perhaps in the follow up to FlexSNG.



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In addition to European funding, we were introduced to the ‘Mission Innovation’ which is a global initiative to catalyse action and investment in research, development and demonstration to make clean energy affordable, attractive and accessible to all this decade. This will accelerate progress towards the Paris Agreement goals and pathways to net zero (Source: <https://mission-innovation.net/about-mi/overview/>). This also opens the door for further collaborations between Europe and Canada.



## 8 Video Production and Summary

The inspiration and aim of this video was to showcase the consortium with short interviews, in which each project partner presents themselves, the role one project and why it is important. These interviews were filmed at the BIOFOR conference, after the FlexSNG workshop. During the event short clips of the atmosphere were also filmed to be used in the video compilation.

The final video was produced by a video maker under the guidance of the WP9 leader, who created a very short script and running order for the complete video. The full video can be viewed on the project's YouTube channel, and has been share on through the projects social media pages.

This is the sharable link to the video: [https://youtu.be/3bxklfLkD0?si=qBZCs6\\_QxrJlphSI](https://youtu.be/3bxklfLkD0?si=qBZCs6_QxrJlphSI) and several screenshots are provided herein.



*(Left) Interview with Minna Kurkela, VTT, project coordinators.*



*(Right) Paul Stuart, Polytechnic Montreal, introducing the speakers at the event*



*(Left) Clip taken during the Q&A session*



*(Right) A clip from one of the project partner interviews*

## 9 Conclusion

The aim of the workshop was to hear about and discuss the 'Competitive advantage and risk mitigation for a large-scale biofuels process', this aim was achieved through active participation from all members of the FlexSNG consortium, as well as a larger than expected audience, online and in person. In addition to the workshop, the biggest value added to the trip to Canada was the three field visits and meetings that the team was privileged to participate in.

## Appendix A – Event Agenda

BIOFOR Workshop structure		
Time	Session	Presenter
08:00	Opening of workshop	Paul Stuart, Polytechnique Montreal
	Introducing Keynote speaker	Ilkka Hiltunen, M.Sc. (Tech).
08:10	<p><b>Keynote: State-of-the-art biomass gasification – a long time coming: why now is the right time!</b></p> <p>David’s presentation will cover a brief history of SFW’s key contributions to date, describe the current activities and aspirations into the future, as well as key collaborations and areas of focus to ensure that “now is the right time!”</p>	David Longden, PhD. Strategic Business Development Manager, Biofuels & Gasification. SHI-FW (Sumitomo Foster Wheeler, SFW)
08:40	Q&A + Conversation	Paul Stuart (chair)
	<b>FlexSNG Concept for bioSNG Production</b>	
9:00	<p><b>Biomass gasification for synthetic fuels and chemicals – FlexSNG process concept</b></p> <p>an overview of VTT’s development in biomass gasification and describe the current status of the technology, in the context of the FlexSNG project, that targets co-production of biomethane and biochar via biomass gasification.</p>	Ilkka Hiltunen, M.Sc. (Tech). Research Team Leader of the Gasification and synthesis gas processing Research Team, VTT
9:20	<p><b>Flexible and integrated biomass value chains</b></p> <p>how a flexible approach can be integrated into the value chain with the utilization of decision support systems for planning feedstocks as well as analyzing market viability and profitability for investment in the development of SNG and energy production.</p>	Erik Rönqvist, M.Sc. Chief Operations Officer Creative Optimization
9:40	<p><b>Syngas: the gateway to sustainable fuels and chemicals</b></p> <p>the path to sustainable synthetic fuels and chemicals.</p>	Dr Andrew Steele Principal Scientist Johnson Matthey
10-10:30	<b>Coffee Break</b>	
10:30	<b>Discussion Panel – De-Risking FlexSNG</b>	
10:30	Panelists introduction and Panel opening (≈10 min)	Paul Stuart
10:40	The business of de-risking FlexSNG process: VTT’s Research challenges, overview	Minna Kurkela Senior Scientist (FlexSNG coordinator) VTT Technical Research Centre of Finland Ltd
10:52	Oxygen transport membranes in biomass gasification systems	Francesco Mondì PhD DTU – Technical University of Denmark
10:58	Challenges for the procurement of biomass and coordinating multiple value chain	Professor Mikael Rönqvist Université Laval (Quebec, QC)

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11:04	Derisking Biochar Production: Strategies for Sustainable and Profitable Operations	Karol Witkowski Research Engineer EIFER - European Institute for Energy Research
11:10	Navigating the Future of Industrial Symbiosis: Challenges and Implementation Strategies in Biorefineries	Tunet Olivier Doctoral student Polytechnique Montréal
11:16	The role of numerical tools and modelling on de-risking FlexSNG	Kostis Atsonios Research Associate Centre for Research & Technology Hellas (CERTH)
11:55	Open Round Table	Paul Stuart (chair)
	Closing remarks	Paul Stuart
12:00	Session ends	