



Lahden ammattikorkeakoulu
Lahti University of Applied Sciences
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CIRCULAR ECONOMY AT THE LAHTI UNIVERSITY OF APPLIED SCIENCES



Lahti University of Applied Sciences

- Multidisciplinary higher education institution
- Faculties: Technology, Business and Tourism, Social and healthcare and Institute of Arts and design
- Over 5 000 students and 400 staff members
- Particularly recognised for its design and environmental know-how

The Faculty of Technology provides

- Degree Programme in Energy and Environmental Engineering
- Master Degree Programme in Urban Sustainability
- [Read more](#)

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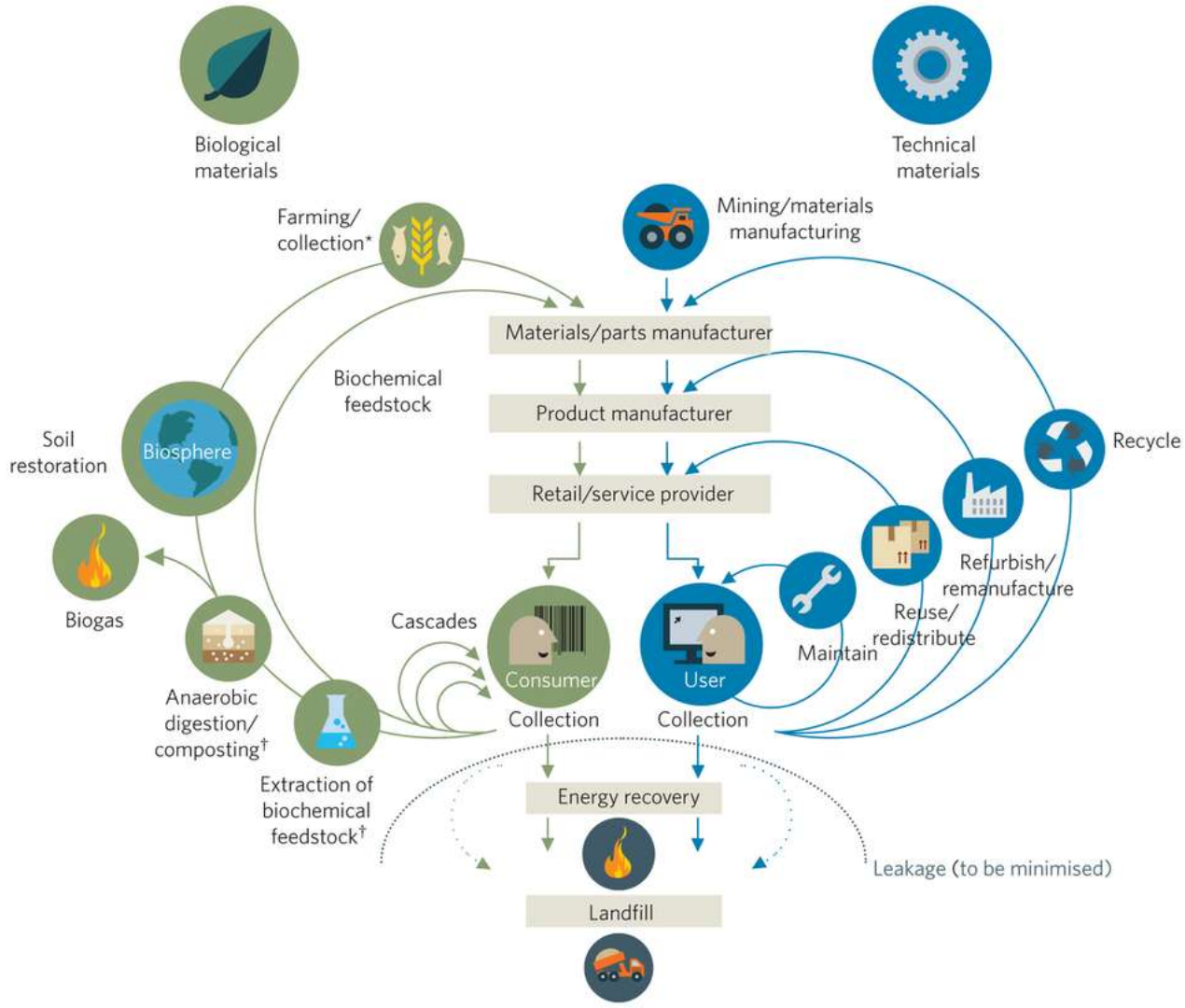
From Cleantech Solutions towards
Circular Economy by
capacity building, student
involvement and RDI

What is cleantech?

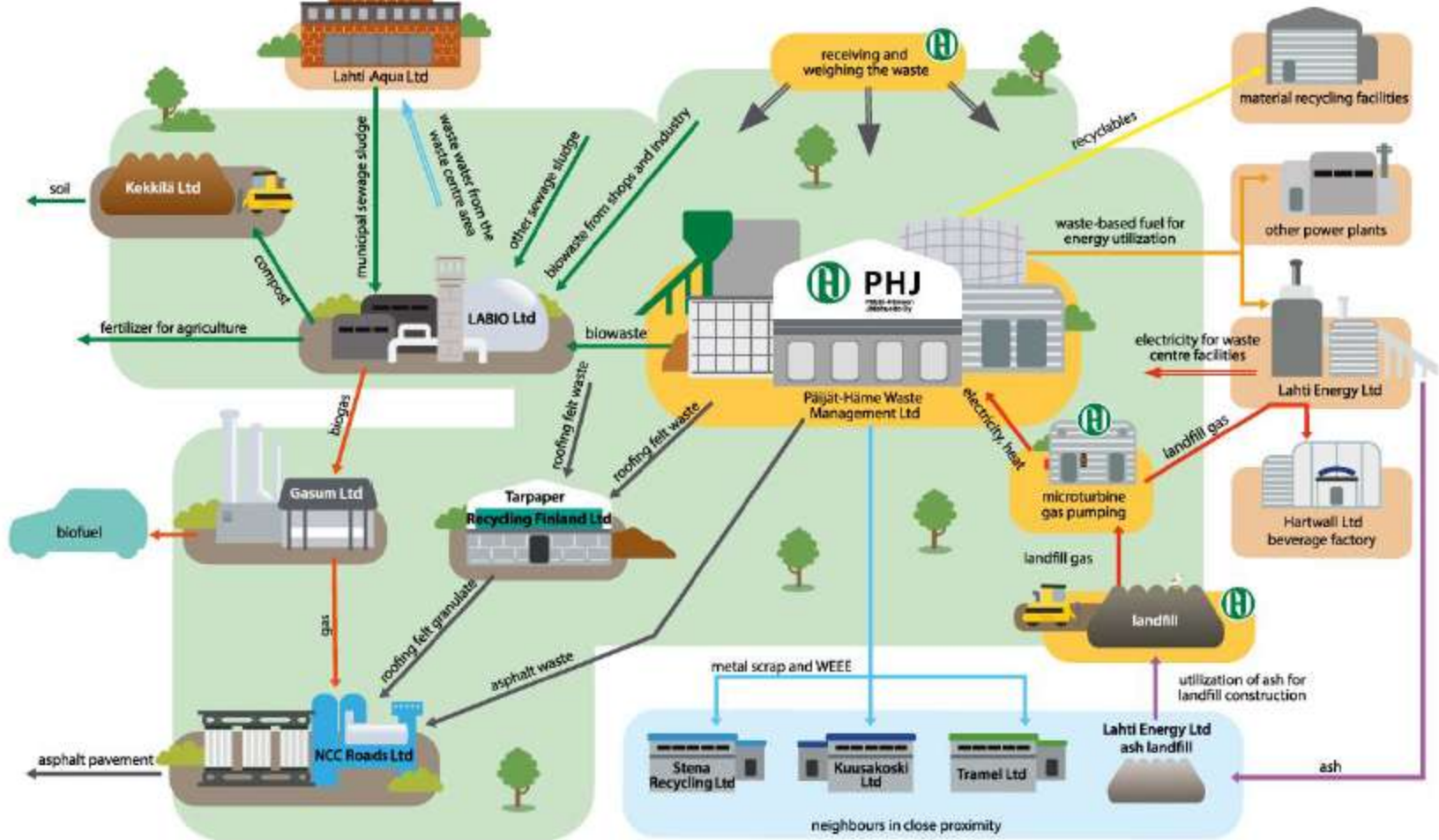
- Cleantech refers to clean technologies, i.e. all products, services, processes and technologies which promote the sustainable use of natural resources and reduce the environmental impacts.
- New clean technologies may include innovations for example in the context of energy efficiency, recycling of materials and nutrient loading.
- Clean technologies helps us to move towards a more circular economy system.

What is Circular Economy?

- Inspired by living systems, the circular economy concept is built around optimizing an entire system of resource or material flows.
- Cycles are built around reuse, remanufacture and recycling
- Circular economy system implies innovations not only in technologies, but also in organizations, society, finance methods and policies.
- Industrial symbiosis is one key factor enabling the circular economy.

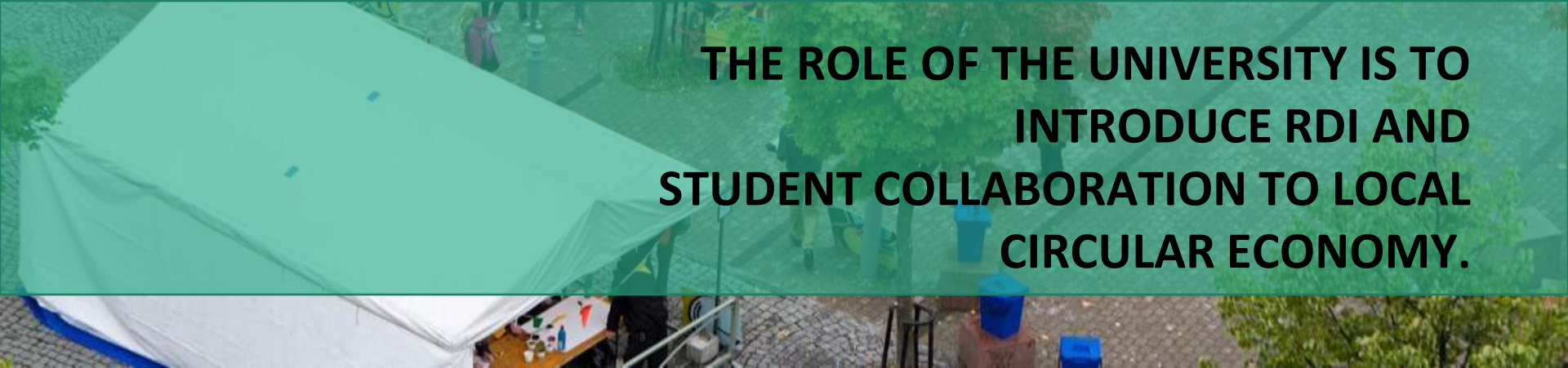


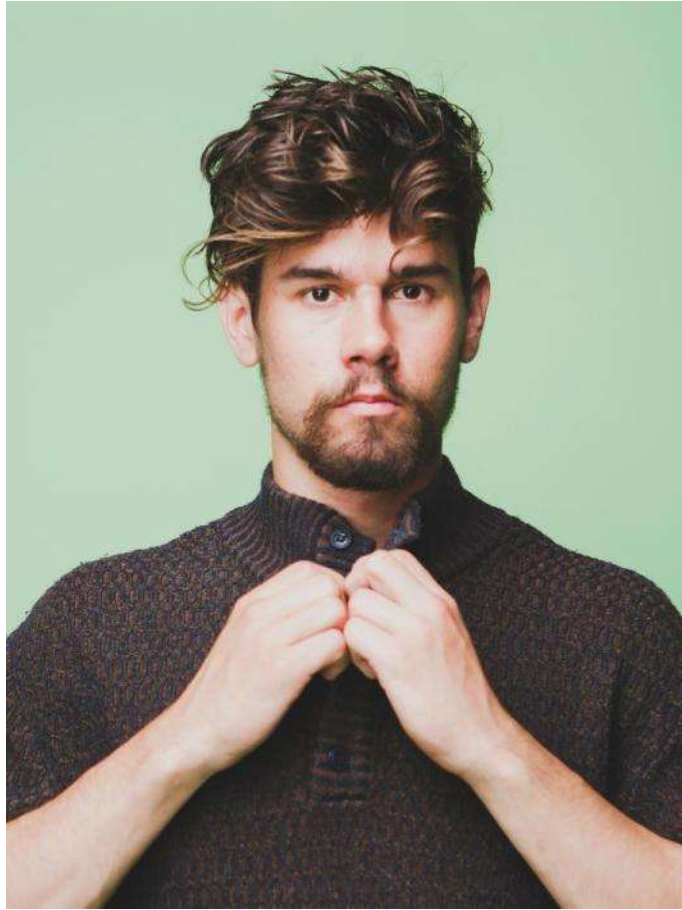
Kujala Waste Centre – Industrial Symbiosis Lahti, Finland





**THE ROLE OF THE UNIVERSITY IS TO
INTRODUCE RDI AND
STUDENT COLLABORATION TO LOCAL
CIRCULAR ECONOMY.**





Example of Basic Training: Waste Management

Introduction to waste management

- Waste collection, transport, treatment, disposal
- Type of wastes
- Opportunities to reduce waste volumes
- A waste management plan for a company or a public organisation

Landfill management

- Environmental challenges in the landfill, e.g. water management
- Current landfills and landfills under consideration
- Theory of the landfill sampling and field analyses

Benchmarking excursions

- Visits to Waste management cluster organizations
- Landfill sampling and field analyses in practice



Advanced Training: Waste Innovations

- Co-creation of the waste separation tools for the SMEs, schools and kindergardens
- Workshops for development of new products and services in waste business
- Introduction to resource efficiency - waste as part of the material cycle

Circular Economy Study Package (3 x 15 ECTS)

- Multidisciplinary teams (engineering, business, health care and design students) are working with circular economy topics
- The pilot program with 60 student started in September 2016
- Lectures, virtual learning, team working (9 teams with different RDI topics)
- Studies start with 24 h Boot Camps customized to fit the businesses' needs



UPM Sidestream Boot Camp

LAMK & UPM Plywood will arrange the **#UPMBootCamp** about UPM Plywood's sidestreams in Biofore House, Helsinki on **13-14.10.2016**.

Contact persons
Engineering: Silla Totevainen, Pii Hoopaa
Design: Hanni Kallionmäki
Business: Arno Pajari
UFM Mywood: Heikki Marttila
heikki.marttila@upm.com

The boot camp is a part of the Circular Economy path studies. Only a limited amount of entrepreneurial minded students will be chosen to attend the boot camp. Applying will take place between September 1th and 21th.

Read more at www.wisaphywood.com/bootcamp
& [#UPMBBootCamp](https://twitter.com/UPMBBootCamp)

BESIDES CIRCULAR ECONOMY STUDENTS LEARN COMMUNICATION, PROJECT MANAGEMENT, BUSINESS, MARKETING, PRESENTING, PLANNING, SCHEDULING, INFORMATION SEARCH SKILLS.

**COMPANIES GET KNOWHOW AND NEW IDEAS
TO DEVELOP THEIR PROCESSES AND PRODUCTS.
THEY ALSO GET AN OPPORTUNITY TO FIND
POTENTIAL FUTURE EMPLOYEES.**



RDI projects in Circular Economy

**RDI ACTIVITIES DEVELOP EFFICIENT WAYS OF USING
THE REGION'S RESOURCES AND
RENEWABLE ENERGY SOLUTIONS
IN COOPERATION WITH BUSINESSES.**



RDI projects: Clean and Dynamic Environment

Circular economy

- KIERTOLIIKE - Päijät-Häme Region Circular Economy Model and New Business Opportunities
- REISKA - New business using resource efficiency
- REISKAtex - Textile identifying and sorting unit
- ERREC – Environmental Responsibility and Resource Efficiency of Companies
- NEW: Bioregio – networking and best practices towards European model

Energy efficiency and renewable energy

- InforME - Promoting the potential of renewable energy through information design
- ELLI - Promoting cleantech business, energy efficiency and regional energy production
- NETS – Industrial symbiosis and energy ecosystems in Nastola

Sustainable urban environment

- IWAMA – Interactive Water Management

KIERTOLIIKE - Päijät-Häme Region Circular Economy Model and New Business Opportunities

CIRCULAR ECONOMY AND BUSINESS MODELS

- Developing a regional circular economy model and a road map towards circular economy
- Identifying business opportunities and creating business models together with companies
- Piloting and demonstrating new circular economy concepts

Partners:	LUT, LADEC, Muovipoli, Lahden työn Paikka
Schedule:	2016-2018
Budget:	995 449 €
Lahti UAS budget:	396 522 €
Funded by:	European Regional Development Fund



REISKA - New business using resource efficiency

CIRCULAR ECONOMY AND RESOURCE EFFICIENCY

- Increasing resource efficiency knowhow and awareness of SMEs in the Päijät-Häme region
- Industrial material side streams, resource efficient events, waste textile and fibre streams, sustainable food economy

Partners:	Lahti University of Applied Sciences Lappeenranta University of Technology
Schedule:	2015-2017
Budget:	908 540 €
Lahti UAS budget:	572 024 €
Funded by:	European Regional Development Fund

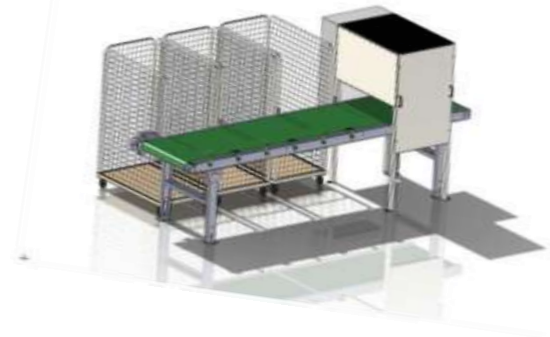


REISKAtex - Textile identifying and sorting unit

CIRCULAR ECONOMY AND RESOURCE EFFICIENCY

- Developing a semi-automatic cost-effective identifying and sorting unit which enables identifying of textiles using IR analytics
- Building a pilot scale textile identifying and sorting unit feasible for SMEs

Schedule:	2016
Budget:	122 016 €
Lahti UAS budget:	122 016 €
Funded by:	European Regional Development Fund



InforME - Promoting the potential of renewable energy through information design

CLEAR INFORMATION ABOUT RENEWABLE ENERGY IN RURAL AREAS

- Promoting production and use of renewable energy in rural areas in Häme
- Producing simple and comparable information
- Using information design for illustrating and disseminating it to the target group

Partners:	Lahti University of Applied Sciences Häme University of Applied Sciences Lappeenranta University of Technology Pro Agria Southern Finland Association of ProAgria Centres
Schedule:	1.1.2016-31.12.2018
Budget:	574 000 €
Lahti UAS budget:	312 700 €
Funded by:	European Agricultural Fund for Rural Development



ELLI -

Promoting cleantech business, energy efficiency and regional energy production



ENERGY EFFICIENCY IMPROVEMENT ACTS AND LOCAL ENERGY PRODUCTION

- Defining the main aspects of energy efficiency in case residential districts
- Producing promotional material to inform and support cleantech businesses
- ~~Coordinate workshops on alternative future prospects~~

Partners: regional planning and sustainable strategies

University of Applied Sciences
Häme University of Applied Sciences
Lahti Region Development LADEC Ltd
Laurea University of Applied Sciences
Lappeenranta University of Technology
Sykli Environmental School of Finland

Time: 1.1.2016 – 31.12.2017

Budget: 573 434 €

Lahti UAS budget: 120 560 €

Funded by: European Regional Development Fund



NETS –

Industrial symbiosis and energy ecosystems in Nastola

ENERGY EFFICIENCY IMPROVEMENT THROUGH LOCAL ECOSYSTEM

- Improving the energy efficiency of local companies
- Developing a local energy ecosystem and industrial symbiosis
- Using information design and system oriented design

Time:	2016-2018
Budget:	336 850 €
Lahti UAS budget:	336 850 €
Funded by:	European Regional Development Fund



IWAMA – Interactive Water Management

SMART, RESOURCE EFFICIENT WASTEWATER MANAGEMENT IN THE BALTIC SEA REGION

- Promoting efficient nutrient removal, smart sludge and energy management
- Capacity development to support lifelong learning of waste water treatment sector
- Pilot investments at waste water treatment plants

Partners: Lahti University of Applied Sciences, 17 organisations from Finland, Denmark, Estonia, Lithuania, Sweden, Poland and Latvia representing waste water treatment plants, (waste) water operators' associations, environmental centers and research institutions. Union of the Baltic Cities, Sustainable Cities Commission

Schedule: 2016-2018

Budget: 4 625 535 €

Lahti UAS budget: 441 940 €

Funded by: European Union (European Regional Development Fund)





Student involvement in regional development work

**BESIDES BRINGING COMPETENCE KNOWLEDGE,
TEACHERS ARE COACHES. STUDENTS PLAN AND DO
THE WORK WHILE TEACHERS MONITOR THE
PROCESS, GIVING ADVICE WHEN NEEDED.**

Lahti2017 FIS Nordic World Ski Championships



Material Efficiency aims

- All waste produced at the competition area is utilised as material or energy
- 50% of waste produced is utilised as material
- Waste sorting, signs, guidance
- Eco Compass Catering Criteria

Energy Efficiency aims

- Utilisation of renewable energy
- Energy savings through renovations

Sustainable Transportation aims

- At least 70% of the audience will use public transportation, walk or cycle to the event
- Free local bus transportation for volunteers and media

[Video](#)



Lahti2017

Environmental awareness

- 10 000 people participate in material footprint challenge
- All partners sign the Code of Conduct
- Stakeholder co-operation: partner workshops on sustainable solutions
- Joint event during the games
- Tonnilähti-campaign with Sitra and the City of Lahti
- Communication –green snow flake
- Follow-up after the games



Safety and alternative cycling routes in Lahti

- Students cycled most used cycling routes in winter conditions and spring time
- Used GPS connected to videos
- Security and development suggestions were made



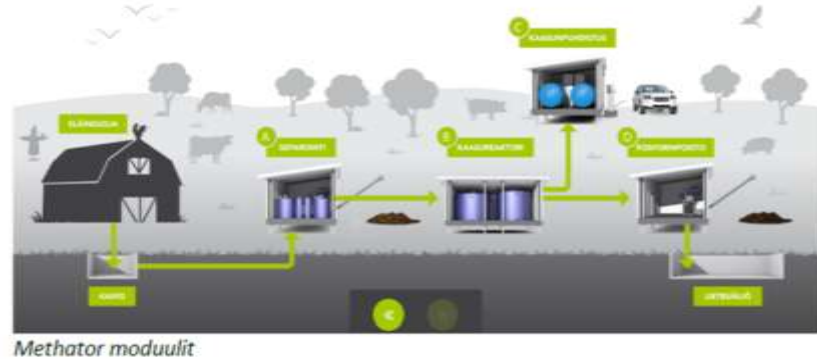
Estimating melting waters to lake Vesijärvi

- Students evaluated the amounts and quality melt waters
- The main method was quadrocopter videos



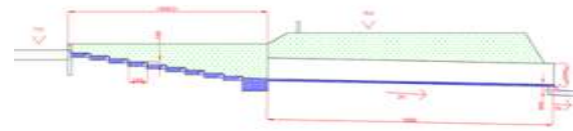
Farms alternative energy resources

- Students estimated different bio- and renewable (solar, wind) energy alternatives for the selected farms in Päijät-Häme regions
- Also costs and repayment periods were calculated



River's erosion protection and alternative dam design

- Students planned different protection methods for a "city river" which is strongly eroded
- Different dam alternatives were designed
- The costs of different alternatives were calculated





LADEC



DSV



KOSKISEN

onninen



Halton

CGI

TECHVILLA



FISKARS®



posti



Maatila-liha
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THANK YOU!

Further information

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New Campus M19

CLEANTECH VENTURE DAY



CLEANTECH VENTURE DAY

MEET INVESTORS AND PARTNERS

Cleantech Venture Day is the **biggest cleantech investor event in the Nordics**. As Patric Gresko from European Investment Fund put it: “The organisation was top-notch and my participation turned out to be very fruitful for our business in many ways, as the who’s who of the European Cleantech market was in Lahti”

TOP DEALFLOW FROM THE NORDICS!

Meet the top Nordic cleantech companies. The remarkable “**Speed-dating**” session will break the ice in the morning – if not on the lake Vesijärvi but inside the hall. Followed by the themed **dealflow sessions** with eager cleantech companies **pitching** in front of the investor jury!

Year 2016 the participants came from **18 different countries** and we hosted again over **60 investors**. We witnessed around **260 speed-dating** meetings and **28 companies pitched** on stage.



Nordic Innovation Accelerator

Cleantech Venture Day

Largest investor event in the Northern Europe.
10 years – concrete results.

**CLEANTECH
VENTURE
DAY®** **16**

OCTOBER 3-5th 2016 | LAHTI, FINLAND



**160 SCREENED
COMPANIES**
have pitched in
Cleantech Venture
Day.



**400 MILLION
EUROS**
in investments after
the event.



**MORE THAN
300 INVESTORS**
have visited the event.

Cleantech Venture Day



<https://www.youtube.com/watch?v=L6Ti8Z3HAac>

Thank you!

FOR MORE INFORMATION,
PLEASE VISIT:
[WWW.LAHTIBUSINESSREGION
.COM](http://WWW.LAHTIBUSINESSREGION.COM)