



# AQUAREL

AQUATIC RESOURCES FOR  
GREEN ENERGY REALIZATION



Aquarel Seminar, 7<sup>th</sup> May 2014

Petrozavodsk

Pirjo Rousu, Oy Culmentor Ltd.

# Agenda

14-14:20

*Opening, AQUAREL project presentation*

**Pirjo Rousu**, Senior Expert, Quality & Project Management, Culmentor

14:20-15:30

*How to utilize fish waste in a sustainable and eco-efficient way*

**Jaakko Seppälä**, Managing Director, Ecofoster Group Ltd.

**Jouni Havukainen**, Environmental Technology, Waste Management Technology, Lappeenranta University of Technology

15:30-16:00

**Coffee**

16-16:30

*Sustainable utilization of the White Sea biological resources: trends and prospects*

**Anton Shcherbak**, intern Researcher, Institute of Economics, Karelian Research Centre

16:30-17:00

*Economic feasibility on the utility of the fish processing and agricultural waste in Karelia*

**Sergey Tishkov**, Junior Researcher, Institute of Economics, Karelian Research Centre, PhD. of Economic

**Anton Shcherbak**, Intern Researcher, Institute of Economics, Karelian Research Centre

17-17:30

**Summary and Discussion**

17:30

**Closing**

*Facilitators:*

**Pirjo Rousu**, Senior Expert, Quality & Project Management, Culmentor

**Igor Shevchuk**, Foreign Relations Officer, Karelian Research Centre of RAS; Director, “North-Centre”



# Aquarel project presentation - Content

- Aquarel project general information; Goal, Partners, Objectives, Implementation phases
- Bio-waste in scope
- Aquarel concept
- Funding sources



# Project Goal

- A project financed by the Karelia ENPI CBC Programme.
- Main goal:  
*to develop energy production from fish waste and aquatic biomaterials,  
improving the state of environment and  
reducing the load on ecosystem  
in the Republic of Karelia.*
- Started in October 2012, duration: 24 months



AQUAREL	
<a href="http://www.culmentor.com/aquarel">www.culmentor.com/aquarel</a>	
Project number :	KA397
Duration :	15/10/2012-14/10/2014
Budget :	775 000 EUR



# Organisations involved in the project

<b><u>Russia</u></b>	<b>Karelian Research Centre</b>	<b>Energy Efficiency Center</b>	<b>Belomorskiy Port JSC</b> <b>Mariproduct JSC</b> <b>Vilia Ltd</b>
<b><u>Finland</u></b>	<b>Lappeenranta University of Technology</b>		<b>Oy Culmentor Ltd. (Lead Partner)</b> <b>Ecofoster Group Ltd</b>

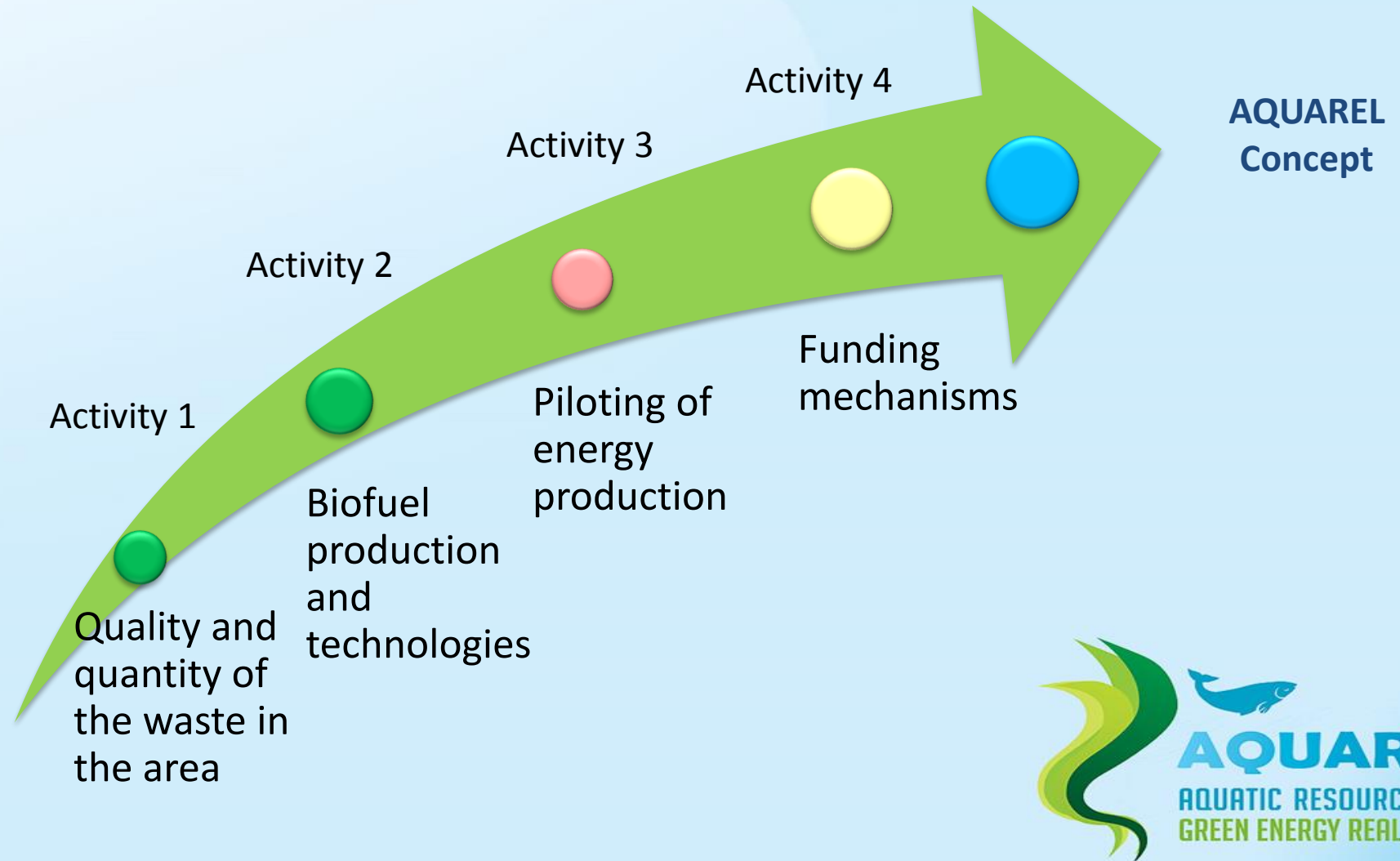


# AQUAREL Objectives

- To develop and introduce an innovative and efficient **concept for green energy production** and recycling of bio-waste for fish farms and other local actors in Karelia.
- The concept will include both **technical and economic solutions** for green energy production, logistic solutions and for the needed investments.
- To significantly reduce the **environmental impact** caused by bio-waste disposal
- To initiate an **ideological change** in the way **bio-waste** is seen, from “waste” to valuable **by-product**



# Implementation phases



# Bio-waste in scope

## KARELIA

Bio-waste

Fish waste

Algae

Manure

Sewage  
sludge

End product

Fish oil  
Biodiesel

Biogas

Other

Biodiesel

Biogas

Other

Biogas

Biogas

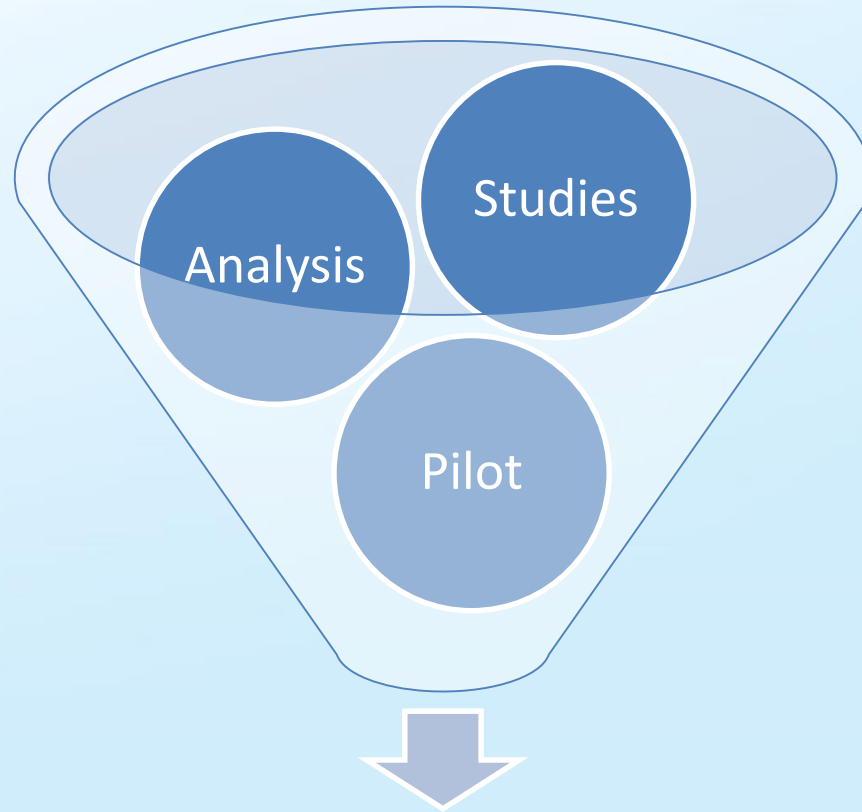
Meal, fodder, fertilizers,  
medical & industrial  
applications

Food,  
pharmaceutical  
and chemical  
industry





# Project Outcome $\Rightarrow$ AQUAREL Concept



## AQUAREL Concept

- Conclusions
- Recommendations

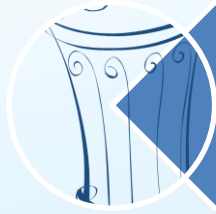


### Support for decision making

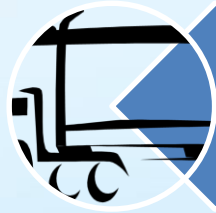
- What is profitable?
- Sustainability aspects?
- End product?
- Optimal solution for Karelia?
- Financing the investments?



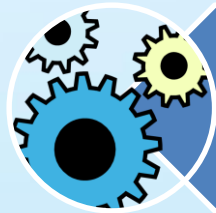
# Viewpoints considered



Bio-waste Quantity and Quality



Location; Transportation, Logistics



Production process; Technology, Equipment



Economic aspects

- End Product Market Environment; Demand, Price
- The cost of equipment and process

# Financing Eco Investments in Karelia

- Available and/or potential public and private funding
  - Local
  - National
  - International

*To be studied e.g. NEFCO, EBRD, The Baltic Sea Programme...*
- Stakeholders and their role
  - Fish farms
  - Fish processing companies
  - Others
- Needed investments
  - Fish farms
  - Fish processing
  - Waste collection
  - Biofuel / bioenergy / bio-product production companies



# For more information

- Visit project web site  
<http://www.culmentor.com/aquarel/>
- E.g. Report Aquarel 1<sup>st</sup> year Results



**Kiitos!**  
**Спасибо!**  
**Thank you!**

[www.culmentor.com/Aquarel](http://www.culmentor.com/Aquarel)

