**Synthesis of the meeting WP2 January 18, 2024 Zoom meeting 9 :00-10 :00 am CET.**

Participants :

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**WP2 Biomass supply and pre-treatment**

2,1 Red algae cultivation

SEA6Energy is currently farming thousands of tons of *Kappaphycus sp*. and *Eucheuma sp*., year-round, and exploring the farming of other commercially important red and brown algal species (*Gracilaria, Halymenia & Sargassum* for example). The seaweed biomass that theygrow is converted into dehydrated seaweed flakes (DSF), produced sustainably with no additives. This has two advantages - reduces salt/ash content and reduces fresh water consumption drastically during downstream processing. DSF is a ready raw material for directly feeding into plastics processing systems.

Depending of the demand from the material producers, Sea6 Energy could provide biomass in the range of kgs fresh weight until tons of fresh or dried seaweeds.

2,2 Brown algae cultivation and wild harvest

**Seaweed Solutions** controls the whole value chain from spore and production of seedlings from *Saccharina latissima* and *Alaria esculenta* in their in-house hatchery, to deployment and harvest of fully-grown seaweed in their sea farm in Frøya, Norway. The farm is one of the largest seaweed farms in Europe, with 150 tons produced in 2021. In the project, it aims is to continue to scale up the production, and to reach more than 1000 tons yearly production by the end of the project. Seaweed solutions has invested in developing new techniques for cultivation scale-up, as well as mechanized tools during the recent years.

Depending of the demand from the material producers, Seaweed Solutions could provide biomass in the range of kgs fresh weight until tons of fresh seaweeds.

**Algaia** is currently operating an alginate extraction plant in Brittany (France) that exploit the two kelps species *Laminaria digitata* and *L. hyperborea* and the fucoid *Ascophyllum nodosum* which are harvested from wild populations in Brittany at a scale reaching 35, 000 fesh tons per year of raw biomass. During the recent years and in the context of developing a seaweed biorefinery (GENIALG, SEAMARK EU Projects), they have implemented the valorization of some waste streams during the extraction process and in addition with refined alginates they can provide various fractions with interesting material as fibers of biopolymers suitable for biodegradable packaging materials.

2,3 Biomass characterization and quality monitoring (SINTEF, NTNU ?, CNRS)

**SINTEF** could provide in close cooperation with **NTNU** the monitoring of the biomass quality suitable for processing and applications within the project by studying seasonal variablity of the main biopolymers during the growth season and during the pre-processing of the biomass before entering the biorefinery. **CNRS** could also complement these analyses for red seaweeds produced by Sea6 Energy.

2,4 Pre-treatment and stabilization for biorefinery entry SINTEF. Seaweed Solutions, Sea6 Energy, Algaia, CNRS

**Seaweed Solutions** has developed various processing and preservation (ensilaging, fermentation) pipeline for farmed seaweed biomass to ensure a supply of raw material throughout the year, independently of harvest season. It is also developing some acidic preservation of the raw biomass with **SINTEF**.

**Sea6 Energy** is currently processing eucheumoid biomass in a plant located in Bali which is producing liquid extracts for agriculture biostimulants. The waste solid fraction DSF is a suitable raw material for packaging material and could provide a stabilized form.

**Algaia** and **CNRS** will also contributing for this task.

**GENERAL Discussions**

* CNRS as a WP leader will contribute in most of the tasks from this WP. However, we will not develop new research to improve seaweed cultivation or domestication of new crops but will rather transfer the existing knowledge about crop yield and quality improvement that is developed in other EU project such as SEAMARK for brown algae or from previous EU projects related with brown’s and red’s.
* All along this WP, the participants will aim to develop cultivation and harvesting techniques that could reduce the cost of production of the raw biomass and developp pre-processing of the biomass with low energy and low cost treatments that could keeep the best properties for the targeted biopolymers.
* At this stage of the proposal submission we will not dispaly any confidential information that could be sensitive for a participating company. These IP issues will be anticipated within WP7 and will be well defined a the grant agreement.
* The two processing companies involved in the project are already implementing circularity in their operations and they aim to improve their process to reach the requirement of the value chains we will develop for brown and red seaweeds.
* The different actors within WP2 will also provide the data and specifications that will be important to feed LCA and Technico-economical assessment within WP6.
* Next step is to produce a synthetic slide for the next Tuesday meeting of the consortium summarizing our discussions and displaying the strategy for the project.