



D8.4

PLAN FOR THE EXPLOITATION OF ECF4CLIM RESULTS AND FOR STIMULATING SYNERGIES











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|----------------------------|---|---------------------|-----------|
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WHO WE ARE

The ECF consortium consists of ten partners. The project is coordinated by Centro de Investigaciones Energeticas, Medioambientales y Tecnologicas-CIEMAT.

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|---|---------|---|
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| Smartwatt Energy Sercuces SA Smartwatt | PT |  |
| Que Technologies Kefalaiochiki Etaireia QUE | GR |  |



ABOUT THE PROJECT

Through a multidisciplinary, transdisciplinary and participatory process, ECF4CLIM develops, tests and validates a European Competence Framework (ECF) for transformational change, which will empower the educational community to take action against climate change and towards sustainable development.

Applying a novel hybrid participatory approach, rooted in participatory action research and citizen science, ECF4CLIM co-designs the ECF in selected schools and universities, by: 1) elaborating an initial ECF, supported by crowdsourcing of ideas and analysis of existing ECFs; 2) establishing the baseline of individual and collective competences, as well as environmental performance indicators; 3) implementing practical, replicable and context adapted technical, behavioural, and organisational interventions that foster the acquisition of competences; 4) evaluating the ability of the interventions to strengthen sustainability competences and environmental performance; and 5) validating the ECF.

The proposed ECF is unique in that it encompasses the interacting STEM (Science, Technology, Engineering, and Mathematics) --related, digital and social competences, and systematically explores individual, organisational and institutional factors that enable or constrain the desired change. The novel hybrid participatory approach provides the broad educational community with: an ECF adaptable to a range of settings; new ways of collaboration between public, private and third-sector bodies; and innovative organisational models of engagement and action for sustainability (Sustainability Competence Teams and Committees).

To encourage learning-by-doing, several novel tools will be co-designed with and made available to citizens, including a digital platform for crowdsourcing, IoT solutions for real-time monitoring of selected parameters, and a digital learning space. Participation of various SMEs in the consortium maximises the broad adoption and applicability of the ECF for the required transformational change towards sustainability.

| Project information | |
|---------------------------|--|
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1 EXECUTIVE SUMMARY

This document is the Deliverable 8.4, **Plan for the Exploitation of ECF4CLIM Results and for Stimulating Synergies (PERSS)**, project funded by the European Commission under the **H2020- European Green Deal Call**, under the grant agreement no. **101036505**.

In accordance with the H2020 Online Manual [1] the **exploitation process** is targeting the **effectively use of the results by turning them into concrete values** such as “the use of results for commercial purposes or in public policymaking” [1]. In the **dissemination process** only the transfer of the knowledge and of the results to enable the use of them is approached, whereas in **the communication** process the main purpose is to show the impact and benefits of the project to different stakeholders.

The main objective of the deliverable is to produce the PERSS to ensure an effective and efficient exploitation process for the ECF4CLIM results. The deliverable introduces a separate section for the methodology explaining the main methods and tools planned to be used for the exploitation. Two approaches a top-down and a bottom-up are used. The top down is devoted to perform an integral analysis of the whole project, starting with the expected results of the project, and benefiting of the contribution of all partners. The bottom-up approach is planned to offer the opportunity to discuss the exploitable potential of some specific components or innovative elements carried out in the frame of the project, generally by a limited number of partners. A set of selection criteria are defined to identify the exploitable deliverables and results.

Some procedures aimed to assist the partners in the exploitation process are developed and presented. Due to the extension of the exploitation beyond the duration of the project, the procedures are developed to be practicable for whole estimated period. In the construction of procedures, a special attention is paid for the cooperation between partners and IPR issues. An Exploitation Manager, nominated by the Steering Committee, will play a central role for the coordination of all exploitation activities. The procedural steps and the responsibilities are described in detail, such as the construction of the List of Exploitable Deliverables and List of Exploitable Results, definition, approval and implementation of the actions.

Another section is dedicated to the description of the key performance indicators (KPIs) established for the exploitation process, together with the measures planned to maximize the impact, and proposed targets.



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The target groups are described for a better understanding of the planned exploitation actions. Due to the specificity of ECF4CLIM project the audience will be approached in two phases, an engaging one and a bridging one. An Action Plan of the ECF4CLIM project consisting of the all activities devoted to the exploitation during the implementation of the project and a projection of the actions expected beyond the duration of the ECF4CLIM is also presented. It will be updated periodically in accordance with the progress of the projects.

The deliverable includes the monitoring and evaluation actions, presented in a separate section.



2. OBJECTIVES

The objective of the Plan for the Exploitation of ECF4CLIM Results and for Stimulating Synergies (PERSS) is **to identify and organize the activities to be performed in order to reach a maximum influence/impact of the project and to prepare the exploitation activities**, including the identification of the appropriate routes to transfer the project's results.

In the **exploitation process** an **effectively use of the results by turning them into concrete values** is targeted. Making concrete use of the research results (not just commercial) is the central focus.

In the **dissemination process** only the transfer of the knowledge and of the results to enable the use of them is approached, whereas in **the communication** process the main purpose is to show the impact and benefits of the project to the society and different stakeholders.

The **secondary objectives** of the dissemination plan are the following:

- to identify the target audiences,
- to select the most appropriate tools and methods, as well as the optimal approaches for speeding up the exploitation of the project's results and stimulating the creation of synergies with other projects,
- to define the implementation approach for the exploitation activities and to provide an indicative timetable,
- to assist the partners of the project for a correct implementation of the exploitation actions,
- to define the appropriate KPIs, aimed to measure and to demonstrate the effectiveness and efficiency of the exploitation activities,
- to guarantee a transparent process during the project implementation, and beyond of them, including the management of the Intellectual Property Rights (IPRs),
- to ensure the collaboration between partners in terms of the use of the results after the finalisation of the project.

3. METHODOLOGY

PERSS is developed in agreement with the existing practices and recommendations for the European projects. According with [2] (EC, H2020) “any tangible or intangible output of the action, such as data, knowledge and information whatever their form or nature, whether or not they can be protected” are considered as results of a project. The key exploitable results are “the outputs generated during the project which can be used and create impact, either by the project partners or by other stakeholders” [2].

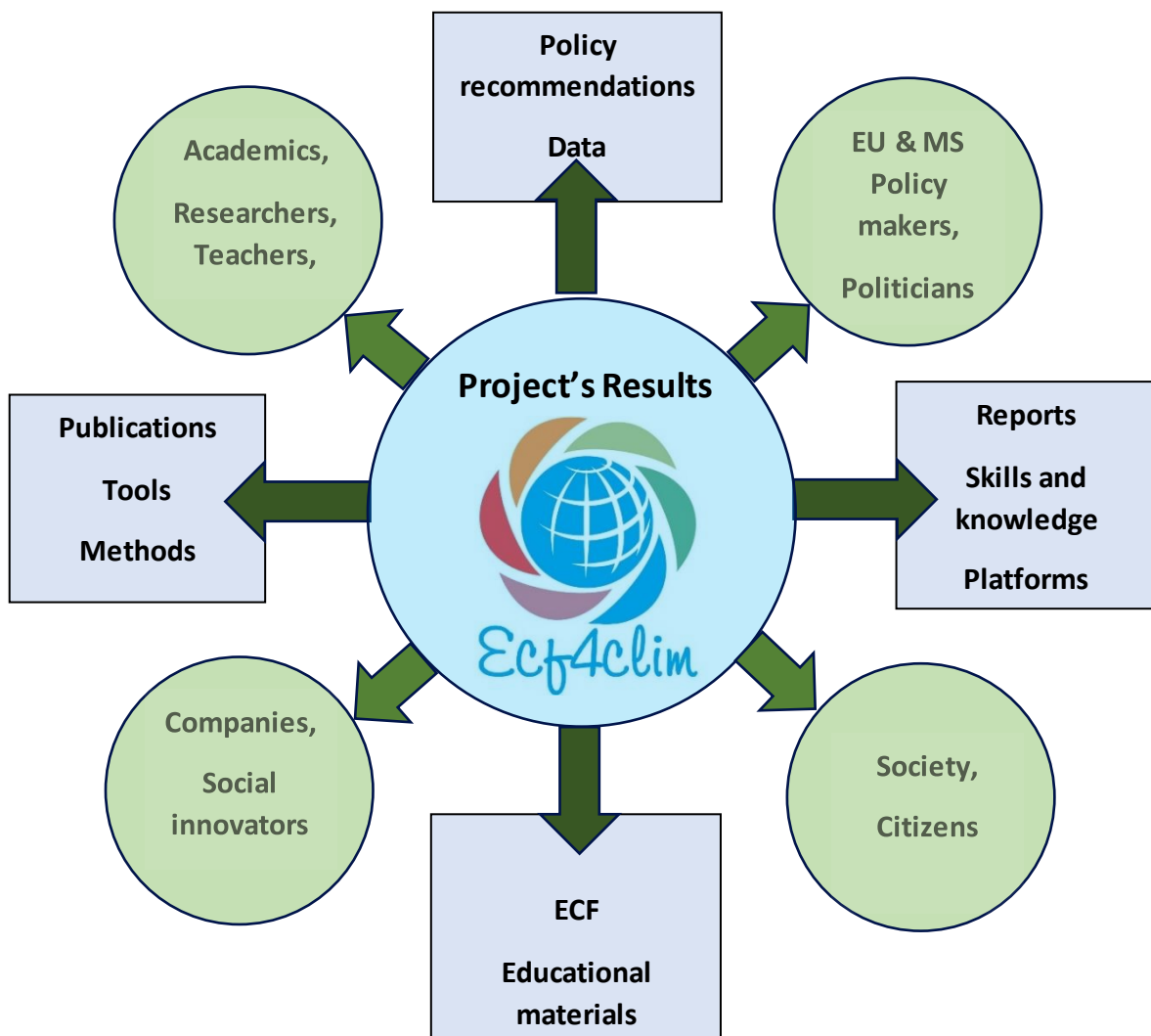


Fig. 3.1 Exploitable results and target audiences



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The project's results include exploitable elements (such as inventions, prototypes, concepts, services, etc) and elements having potential to contribute for further work on research or innovation (such as processes, networks, knowledge, etc).

The development of an Exploitation Plan is an obligation stated into the financing rules and also in the Grant Agreement (Article 28). The plan will be: (1) proportionate to the scale of the project, (2) contains exploitation measures to be implemented both during and after the end of the project, which help to achieve the expected impact of the project.

PERSS is a tool to help the partners to make use of the results both during and beyond the duration of the ECF4CLIM project. It will be built on two main pillars: (1) the identification of key deliverables and results with a particularly high impact potential amongst the various audiences, (2) the selection of the most appropriate delivery targets in order to maximise the impact. In Figure 3.1 a schematic view is presented to understand the main categories of results, and the target audiences.

It should be noted that the results may be important in terms of commercial, societal, and political values, or for the empowering of citizens with improved knowledge and actions, including the recommendations for policy making.

The exploitation process has three main steps:

- (s1) identification of the exploitable results and their target audience,
- (s2) building the procedures aimed to assist the partners in the exploitation process and to create the synergies,
- (s3) define and implement the exploitation actions (the implementation process for exploitation).

3.1 The identification of the exploitable results and their target audience

For the first step, two approaches are planned to be used:

- (A1) a top-down approach,
- (A2) a bottom-up approach.

The top down approach has the advantage of an integral analysis of the whole project, starting with the expected results of the project, and benefiting of the contribution of all partners. The bottom-up approach is mainly devoted to some specific components



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or innovative elements carried out in the frame of the project, generally by a limited number of partners. Both approaches are described below.

The **top down approach** was started at the beginning of the project. An integrative analysis of all the deliverables has identified those having potential for the exploitation purposes. The list of exploitable deliverables (LED), produced as the initial list, is presented in a separate section (Section 5.2). The LED will be periodically updated (annually, as a regular planning), and, if necessary, more frequently, according to the evolution of the project, work progress and the accumulated knowledge. The updating process may be initiated by the release of any deliverable included in the current LED.

A set of selection criteria will be used in order to identify the exploitable results:

- (DC1) The deliverable contains exploitable elements (new knowledge, new tools, innovations, recommendations),
- (DC2) The exploitable elements address the real world/market needs,
- (DC3) There is a short- or medium-term implementation of the results,
- (DC4) There is an estimated benefit (market value, monetary or non-monetary).

For each of them, the evaluation criterion consists in YES or NO answer. A result will be included in the updated LED if all four criteria are answered by YES.

It is recommended to schedule a separate meeting, during each annual project meeting, to discuss the exploitation activities. In the 1st project meeting (Spring 2022), the list of deliverables having potential for the exploitation will be discussed and approved. The preliminary list is presented in the current deliverable (Section 5.2).

The periodically updating will be coordinated by the Exploitation Manager (EM) and supported by the Steering Committee (SC). The EM will be nominated by the SC during the 1st annual meeting (Spring 2022). The EM will coordinate the exploitation process, taking into consideration the management of IPR and the objectives of PERSS. The responsibilities of the EM are presented in this section (Table 3.1).

To analyze the content of a deliverable already included in the LED, the EM will be supported by a team (Exploitation team, ET) consisting of: WP leader, Task responsible, and the main authors of the deliverable. The exploitable results will be identified based on the content of deliverable and using a set of criteria:

- (RC1) The result addresses the real world/market needs,
- (RC2) There is a short- or medium-term implementation of the result,
- (RC3) There is an estimated benefit (market value, monetary or non-monetary) for the specific result.



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If all criteria will be answered by YES, the result will be retained as exploitable and included in the list of exploitable results (LER) for each considered deliverable.

The **bottom-up approach** may be initiated by any partner or a group of partners, task leader, WP leader, the EM, or the project coordinator, based on peculiar considerations for a certain result. In this case the initiator has identified a result (not included yet in the LER) as an exploitable one by his/her own resources and analysis. The initiator will complete a dedicated form (Exploitable Result Form, ERF) and sent it to the EM in order to be discussed in an SC meeting. The Form is presented in a separate section (Annex 1). It will be available on the Private Area of ECF4CLIM website. The selection criteria (RC1-RC3) are used in the ERF. Only the ERF with YES at all three criteria will be sent to the EM.

This approach is mainly devoted to some individual results, components or innovative elements, carried out in the project by one partner or a limited number of partners and not well represented in the expected exploitable results of the project.

3.2 The construction of the procedures

Second step is to build the set of the procedures aimed to assist the partners in the exploitation process. It should be noted the activity is planned for whole duration of the project. Due to the usual timing of the exploitation process an approach for the implementation of the exploitation activities beyond the duration of the project will be also established by PERSS.

Three procedures are defined in support of the exploitation process:

- (P1) identification of the exploitable results and including in LER,
- (P2) planning of the actions for a specific exploitable result,
- (P3) reporting on the progress of the implementation.

The identification of an exploitable results consists of two steps:

- (1) analysis of the content of a finalized and approved deliverable (included in the LED),
- (2) producing the LER based on the selection criteria (RC1-RC3) (top-down approach) or based on the ERF sent by the initiator (bottom-up approach); the LER is in the responsibility of EM assisted by the exploitation team (defined for each deliverable of LED),
- (3) identification of the target audience for each result.



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The details of the procedure were described in the section 3.1. When a result with an exploitation potential has been considered as marketable, a decision making process is started. In case of bottom-up approach, the initiator sends the ERF to EM. If the EM is the initiator the ERF will be completed by the EM, and the ERF will be discussed in the SC. For the next steps, SC checks the opportunity and feasibility of the marketable results and then the SC performs an analysis on the IPR aspects at the level of Consortium and approves the results to enter effectively into exploitation procedure.

New elements may be added depending on the peculiarities of a certain result.

The planning of the actions for a specific result is based on:

- (1) identification of the objectives to be followed,
- (2) definition of the actions, responsibilities and deadlines,
- (3) definition of the key performance indicators.

SC identifies the involved partners and set-up the Decision Group (DG) for a specific marketable result. The DG is formed by the representatives of the involved partners (one per organization having IPR for the marketable specific result). The activity of DG consists in the planning and approval of the implementation actions for a specific exploitable result.

The reporting on the progress of the implementation includes:

- (1) define the timing for the reporting
- (2) define the responsible,
- (3) define the content of the reporting (description of the progress, values of key performance indicators, etc.)

After the decision recognizing a certain result of the project is exploitable (therefore the including it in the LER) **the implementation process** is started. It will be based on actions defined for each exploitable result.

After the approval of the implementation action, the Exploitation Group (EG) is responsible with the exploitation of the result. The structure of EG is similar with the DG, one representative per organization owning IPRs for the result.

A schematic view of the main steps of the implementation, and the involved decision-makers, is presented in Fig. 3.2. The roles of the different decision makers involved in exploitable process are presented in Table 3.1.

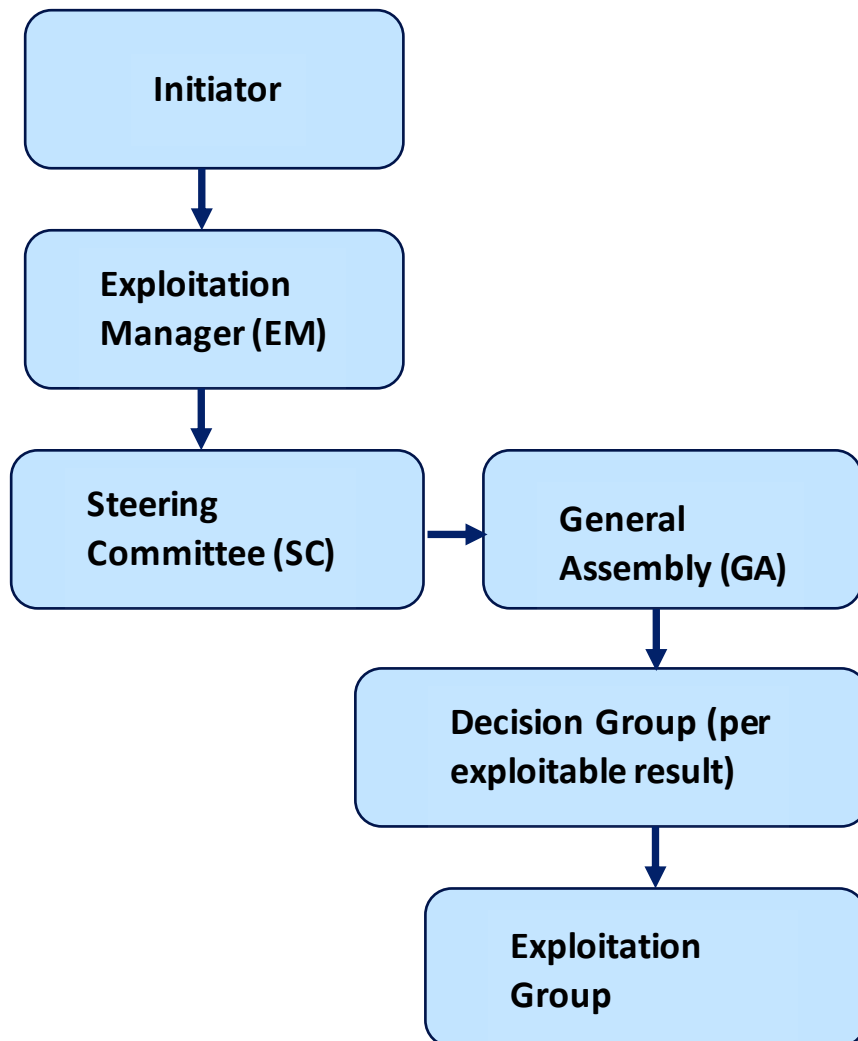


Fig. 3.2 Decision makers for the exploitation process



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Table 3.1 The role of decision makers in the exploitation process

| | Decision makers | Who could be/Who is | Role |
|---|------------------------|---|---|
| 1 | Initiator | Any partner or group of partners Task leader WP leader Project coordinator Exploitation manager | Initiates a proposal for exploitable results: - identify the results - fill the REF - send ERF to EM |
| 2 | Exploitation manager | Nominated during the SC meeting and validated in the GA meeting | - coordinates the exploitation and dissemination of the results, - report to the SC on the evolution of the exploitation process, - inform the project Coordinator on the progress of the exploit process beyond the duration of the project, - cooperates, if necessary, with technical and commercial staff of all the partners - propose appropriate actions to the SC |
| 3 | Steering Committee | Steering Committee | checks the opportunity and feasibility of the marketable results |
| 4 | General Assembly | General Assembly | - analyses the IPR at the level of Consortium and approves the including of the result in the exploitation process - initiate and approve the Decision Group, for a specific marketable result |
| 5 | Decision Group | Exploitation manager and one representative per each partner (having IPR for the marketable result) | Define and approves the implementation actions for a specific exploitable result |
| 6 | Exploitation Group | EM and one representative per each involved partner. | Implement the actions to exploit a specific result |



3.3 The implementation process

During the duration of the ECF4CLIM project and beyond that, the partners can exploit results themselves, or make arrangements for the exploitation by others (for example using open licenses) and collect the benefits by dedicate procedures and rules. The PERSS is devoted to support the partners to identify the appropriate actions for a successful exploitation process.

In Fig.3.3 a general view of the exploitation process is presented. At the beginning of the project the preliminary LED was developed based on the consultation with work package leaders. On the other hand, all partners were consulted to estimate the potential of their results for the exploitation activities. The LED included in the PERSS will be discussed and approved by the first SC meeting (Spring 2023). Also, the SC will nominate a responsible for the coordination of all exploitation activities (Exploitation Manager, EM). The responsible will periodically report to the SC on the impact of the exploitation actions. Corrective measures will be proposed (e.g. adjusting the target audiences, refining the information materials, updating the collaboration plans) in accordance with the success criteria defined in PERSS.

The implementation process will consist of a set of actions defined for each result. An Exploitation Group (EG) (Fig. 3.2), composed by the EM and one representative per each partner (having IPR for the marketable result), will be in charge of the implementation both for the duration of the project and beyond it. The EG will produce the specific Action Plan for a certain result and inform the project's Coordinator on the planning.

The EG will produce regular reporting (annually). The EM will send the reports to the project's Coordinator in order to inform whole the consortium on the progress.

One specificity of the ECF4CLIM project is created by the intervention sites, educational and local communities involved in the process. Each partner is integrated into a specific geographic and societal reality and has a deep understanding of the individuals, institutions, citizens that should be enrolled in the project and empowered.

On the other hand, the complexity of the knowledge to be exploited, especially by empowerment of the educational communities, citizens, policy-makers, and other stakeholders for climate and environmental actions, will need a broad spectrum of actions to obtain a successful exploitation of the ECF4CLIM project.

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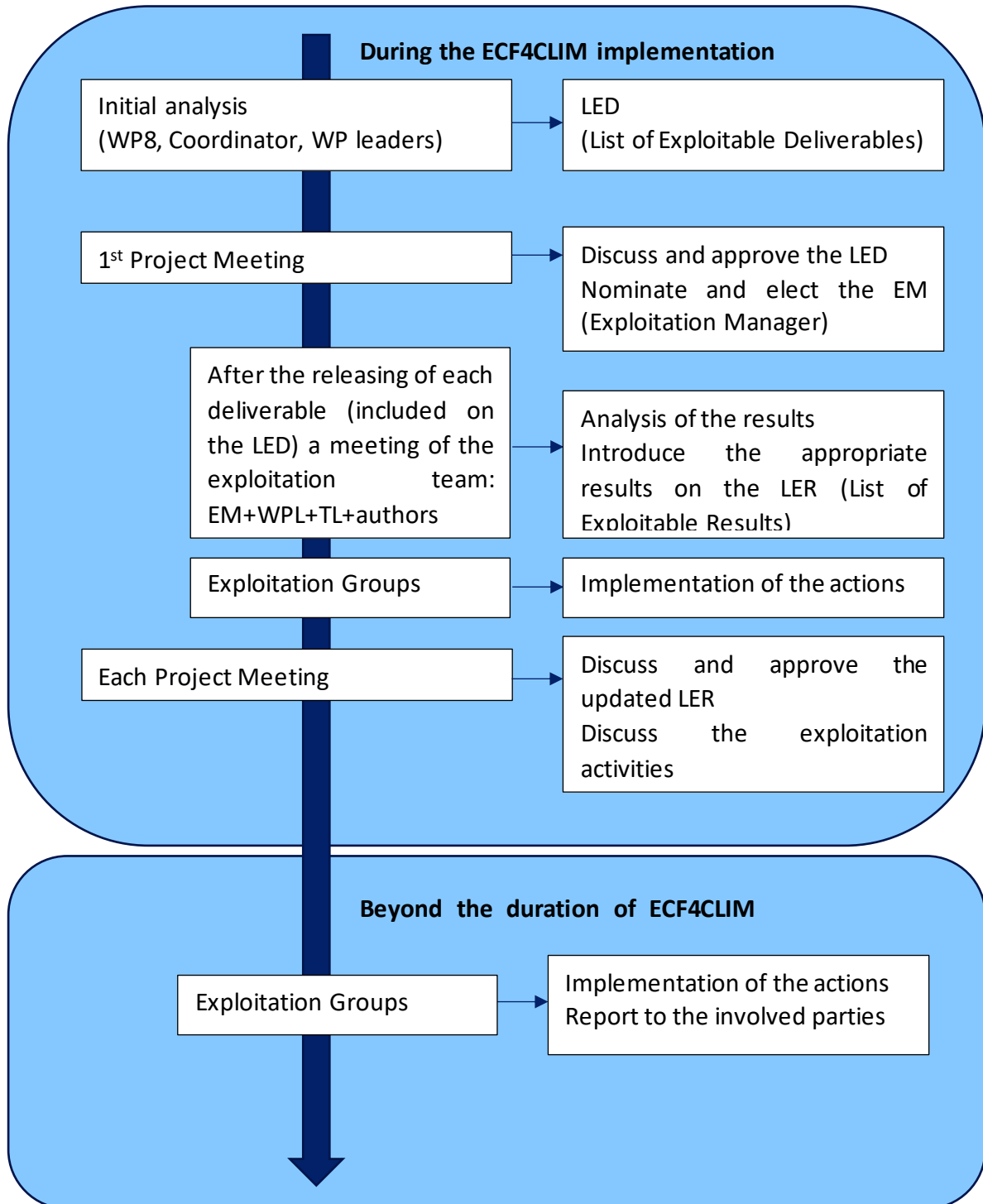


Fig. 3.3 A schematic view of the main steps of the exploitation process



3.4 Stimulation of the synergies

The complexity of the climate change actions involves the participation of a broad spectrum of stakeholders and the use of a large variety of methods, tools, and actions, usually grouped in programmes and projects.

Dedicated activities to enhance the cooperation between all relevant stakeholders (research scientists, professionals, universities, business, society, other research and innovation actors) are included in different European programmes with the aim to accelerate the transfer of knowledge, methods, tools, and practices for climate actions, and also to stimulate the synergies between different groups and between different initiatives.

Considering the ECF4CLIM main objectives the stimulation of the synergies will approach:

- (1) the identification of the appropriate projects, actions, and initiatives having potential to create synergies,
- (2) organize meeting with different team to discuss the expected results, the progress of their efforts, and to identify the suitable actions to stimulate the synergies,
- (3) create a common planning of actions to support the synergies, and integrate the actions in the PERSS,
- (4) cooperate with the teams, including the monitorization of the common actions.

Due to the specificity of ECF4CLIM project (working with educational communities and empowering the citizens) at the local/national level each national team will identify the **initiatives and activities** (in progress or planned) having potential to create synergies. A contact with these teams/initiators will be created. The potential synergy will be communicated to the WP8 and project Coordinator using a dedicated form (Sinergy Identification Form, SIF). It is presented in a separate section (Annex 2). A decision will be produced at the level of SC in order to define dedicated actions and include them into the PERSS.

The ECF4CLIM website, the Digital platform and social media pages (ECF4CLIM Facebook, YouTube, LinkedIn) will be used to spread the information on the activities of different initiatives in order to increase the participation and stimulate the synergies with ECF4CLIM activities.



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Another source of possible synergies will result from the **clustering activities** grouped in the Task 8.4. A series of periodic meetings and joint activities are planned to be organised. The first one (2022 February 14 and February 23) has grouped the representatives of the following projects:

- (1) ECF4CLIM and GreenSCENT, both financed in Green Deal LC-GD-10-3-2020, Sub topic 1 “Enabling citizens to act on climate change and for sustainable development through education”. Green Scent and ECF4CLIM are acting as sister project, and common activities, including stimulation of synergies, were started from the yearly phase of the two projects.
- (2) Five projects financed in the same Call, Sub topic 2 “Enabling citizens to act on climate change and for sustainable development through better monitoring and observing of the environment and their environmental impacts” as follows:

Projects focussing on monitoring of the environment

SOCIO-BEE (Wearables and drones fOr City Socio- Environmental Observations and BEhavioral ChangE, coordinated by the ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS (Greece),

Compare (Community Observation Measurement & Participation in AIR Science), coordinated by VLAAMSE GEWEST (Belgium),

I-CHANGE (Individual Change of HABits Needed for Green European transition) coordinated by Centro Internazionale in Monitoraggio Ambientale -Fondazione CIMA (Italy),

Projects focussing on monitoring environmental impacts

PSLifestyle (Co-Creating Positive and Sustainable Lifestyle Tool with and for European Citizens), coordinated by SUOMEN ITSENAISYYDEN JUHLARAHASTO (Finland),

AURORA (Achieving a new European Energy Awareness), coordinated by UNIVERSIDAD POLITECNICA DE MADRID (Spain).

The meeting approaches two objectives; (1) to communicate and discuss relevant policy contexts, (2) to shape collaboration between projects, on subjects where there is a mutual interest. The identification of the synergies are the basis to develop Action Plans on the identified topics in order to maximise the impacts.

Some areas of complementarities across the projects within the same sub topic but also across sub topics were identified before the workshop organized in February 2022. This event was devoted to have a first interaction in order to stimulate synergies, even co-create components, setting up joint communication and exploitation events, or



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exchange approaches, methods and tools. A strong collaboration will be the basis to keep a cluster initiative on-going after the lifetime of the projects.

During the first day of the workshop some synergies were identified and preliminary agreed among the coordinators of the projects. Drafts of action plans (bi- or multi-lateral) were prepared by discussion between parties.

Four areas of synergies/cooperation were identified. The ECF4CLIM project will participate in the following four:

- (1) “Environmental, Carbon Footprint Calculator, Evaluation of people environmental impacts”, lead by ECF4CLIM, participants: ECF4CLIM, AURORA, PFLifeStyle, I-Change, CompAir
- (2) “Citizen engagement strategies and collaboration on pilot areas”, participants: ECF4CLIM, GreenSCENT, CompAir, I-Change, Socio-Bee, AURORA, PFLifeStyle.
- (3) “Air quality”, participants: Socio-Bee, CompAir, ECF4CLIM, GreenSCENT, I-Change,
- (4) “Synergies for Dissemination and links with broader initiatives”, participants: AURORA, Socio-Bee, CompAir, ECF4CLIM, GreenSCENT, I-Change, PSLifestyle.

Other elements having potential interest are: (1) sharing knowledge on ethical issues (including working with children), (2) Green Deal ambassadors.

The drafts of the Action Plans developed for each category of identified synergy are presented in Annex 3 (Action Plan for Carbon Footprint Calculator), Annex 4 (Citizen engagement strategies and collaboration on pilot areas), Annex 5 (Air quality), Annex 6 (Synergies for Dissemination and links with broader initiatives).

The actions involving ECF4CLIM collaboration aiming the stimulation of synergies are part of the PERSS. It should be noted the living character of these documents regularly updated through the interaction among projects.

The **GreenSCENT project** (funded under the Green Deal call topic 10.3, subtopic 1: “Enabling citizens to act on climate change and for sustainable development through education”) is of a special interest since ECF4CLIM and GreenSCENT are acting as sister projects. Common actions were already agreed and planned [3]. The project is coordinated by the Università Telematica Internazionale UNINETTUNO (Italy). A detailed Action Plan has been developed already in the GA preparation phase, and it is presented in [3]. The two projects agreed about a shared strategy for continuous and mutual updates, synergies development and definition of Joint activities. GreenSCENT and ECF4CLIM will setup a set of mechanism for collaborating on a regular basis. Regular meetings for synchronization are planned approaching the common actions, including



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the stimulation of the synergies. It should be noted three sets of activities were identified as the basis for synergies: (1) meta-analysis/desk research, performed by consortium experts, (2) co-design/citizen engagement/participatory approach, (3) common advisory boards involvement.

The ECF4CLIM will act also to create synergies with the JRC activities aimed to develop a **common reference framework on Sustainability competences (GreenComp)**. For this, the JRC competence framework will be considered as a starting point of the competence framework developed in ECF4CLIM (and also for the GreenSCENT, the sister project). Coordination activities with GreenComp were early started, both by ECF4CLIM and GreenSCENT (2021 September 15th, second expert workshop on a European competence framework on sustainability). The final conceptual framework was obtained based on a validation process (a separate workshop with stakeholders from Member States) and it is treated as a living document subject to further refinement and improvements especially from the work performed under ECF4CLIM and GreenSCENT.

As part of these coordination activities, JRC and DG EAC representatives were participated in different meetings (for example ECF4CLIM kick off meeting October 18th 2021, ECF4CLIM and GreenSCENT meeting on November 19th 2021). The exploitation of possible synergies was included in the discussions.

The simulation of the synergies is also planned with the **European Climate Pact (ECP)** (an EU-wide initiative inviting people, communities and organizations to participate in climate action and build a greener Europe). Three categories of activities are targeted: (1) Connect and share knowledge, (2) Learn about climate change, (3) Develop, implement and scale up solutions.

The activities of the ECF4CLIM project are fully in line with all four areas (Green areas, Green transport, Green buildings and Green skills) of the Climate Pact. ECF4CLIM project will encourage the participation of the educational establishments to become Climate Pact Ambassadors [3]. Exchange of information with Climate Pact is planned, especially on the environmental interventions implemented in ECF4CLIM (WP5, WP6), with the aim of knowledge spreading and to increase the awareness and empowerment to implement climate solutions.

Information concerning the environmental interventions implemented in WP5 and evaluated in WP6 could be communicated to the other participants on Climate Pact activities in order to spread knowledge and awareness and collectively develop and implement climate solutions.



4. KEY PERFORMANCE INDICATORS, KPIS

A set of key performance indicators (KPIs) were established for different actions of the exploitation process, including the stimulation of synergies with other project and climate actions (Table 4.1). Measures planned to maximize the impact are included.

Table 4.1. KPIs for the exploitation and stimulation of the synergies

| Action | Measures to maximize the impact | KPI | Target |
|--|--|-------------------------------------|--------|
| Create links and synergies with local/national initiatives | <p>Early identification of local and national initiatives having potential for synergies with ECF4CLIM actions</p> <p>Present key findings of ECF4CLIM and identify the synergies</p> <p>Avoid parallelism and acting together for an optimal use of the resources</p> | No of initiatives | 8 |
| Involve the educational communities in the ECP (European Climate Pact actions) | <p>Prepare the schools and universities (intervention sites) for the participation in ECP actions</p> <p>Methodological support from ECF4CLIM</p> | No of schools/universities involved | 12 |
| Create synergies with GreenComp | <p>Include the main results of GreenComp in the crowdsourcing activities with the schools and universities</p> <p>Develop feedback for JRC and other European organizations/institutions</p> | No of schools/universities involved | 12 |



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| | | | |
|---|--|--|----|
| Create synergies with GreenScent | Early contact with GreenScent Periodic analysis for optimal use of the resources of the project and develop some common results | No of results involving the effect of synergies | 6 |
| Create synergies with European Projects | Early start of the analysis of possible synergies, development of common results and exploitation of them Build an action plan for each bi-lateral activity | No of other projects contacted to create synergies | 5 |
| Exploitation of ECF4CLIM results | Early development of exploitation procedures Involvement of all partners in the process Nominate the EM Regular reporting (EM to SC) | Number of results launched in the exploitation process | 12 |

5. WHAT TO EXPLOIT

5.1 Identification of the exploitable results

In the [4] the estimated results of the ECF4CLIM project are presented. Based on them, an initial analysis was performed to identify the results having potential for the exploitation process. The analysis was based on the criteria (RC1-RC3) presented in Section 3. By grouping them, six categories resulted as follows:

- (1) tools,
- (2) methods and processes,
- (3) methodologies,
- (4) analysis,
- (5) data,
- (6) knowledge.

The identified results are:



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- **Tools:**
 - ECF for climate change and sustainable development,
 - digital platform,
 - crowdsourcing collaborative space,
 - retrofitting tool kit,
 - environmental footprint calculator,
 - tools to evaluate the sustainability of interventions,
 - learning space and its educational resources (Digital Learning Contents, games, narratives, storytelling, and creative writing tasks integrated in the games).

- **Methods and processes:**
 - direct involvement and civic engagement of the entire educational community,
 - working with digital platform and its tools/products to empower the educational communities and the citizens.

- **Methodologies:**
 - national and international crowdsourcing exercises,
 - validation of ECF through internal and external validation,
 - hybrid participatory approach to evaluate the collective and individual competences,
 - co-design to strengthen environmental awareness, engage the school communities, and strengthen knowledge, skills and attitudes,
 - testing of the interventions in the schools and universities,
 - deliberative process of reflection involving the educational community and other stakeholders (NGOs, relevant public and private-sector organisations, etc.),
 - participatory evaluation of the interventions,
 - IoT Ecosystem for Multipurpose Monitoring.

- **Analysis:**
 - international/national/regional policy frameworks,
 - mapping national curricula for climate change education,
 - evaluation of the collective competences for climate action and sustainability,
 - evaluation of the individual competences: knowledge, skills, attitudes,
 - environmental evaluation of the selected educational establishments,



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- evaluation of the interventions.
- **Data:**
 - baseline of collective and individual competences and environmental performance,
 - results of the testing of the interventions in the schools and universities such as viability of them and the impacts.
- **Knowledge:**
 - small-scale demonstration solutions to improve sustainability jointly with the educational community,
 - proposals and recommendations on key components and requirements for the ECF.

5.2 The preliminary list of exploitable deliverables

The previous analysis has produced the preliminary list of exploitable deliverables (Table 5.2.1). This list will be updated according with the progress of the activities of ECF4CLIM project. After the release of each deliverable included in the list, an analysis of the content and results will be performed to check if the result is confirmed as exploitable, and to identify any other exploitable result.

Table 5.2.1 Preliminary list of exploitable deliverables (LED)

| | Deliverable | Type of results | Expected exploitable results |
|------|--------------------|--|---|
| WP3 | D3.1 | Methodology | Methodology for national and international crowdsourcing exercises |
| | | Data | Crowdsourcing results |
| | | Analysis | Constraints and enablers of sustainability education, how to operationalize sustainability competences. |
| | D3.2 | Analysis | International/national/regional policy frameworks |
| | | Analysis | Mapping national curricula for climate change education |
| | D3.5 | Methodology | Validation of ECF through internal and external validation |
| Tool | | ECF for climate change and sustainable development | |



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| | | | |
|-----|------------|-------------|--|
| WP4 | D4.1 | Method | Direct involvement and civic engagement of the entire educational community |
| | | Data | Baseline of collective competences and environmental performance |
| | | Methodology | Hybrid participatory approach to evaluate the collective competences |
| | D4.2 | Data | Baseline of individual competences and environmental performance |
| | | Methodology | Hybrid participatory approach to evaluate the individual competences |
| | D4.3 | Data | Baseline Assessment of the environmental performance of the schools and universities |
| | D4.4 | Methodology | Co-design to strengthen environmental awareness, engage the school communities, and strengthen knowledge, skills and attitudes |
| WP5 | D5.1, D5.2 | Methodology | Testing of the interventions in the schools and universities |
| | D5.4 | Methodology | Deliberative process of reflection involving the educational community and other stakeholders (NGOs, relevant public and private-sector organisations, etc.) |
| | D5.2 | Data | Results of the testing of the interventions in the schools and universities such as viability of them and the impacts |
| | D5.2, D5.3 | Knowledge | Small-scale demonstration solutions to improve sustainability jointly with the educational community |
| WP6 | D6.1 | Analysis | Evaluation of the collective competences for climate action and sustainability |
| | D6.2 | Analysis | Evaluation of the individual competences: knowledge, skills, attitudes (WP6) |
| | D6.3 | Analysis | Environmental evaluation of the selected educational establishments |
| | D6.3 | Analysis | Evaluation of the interventions |
| | D6.4 | Methodology | Participatory evaluation of the interventions |
| | D6.5 | Knowledge | Proposals and recommendations on key components and requirements for the ECF |
| WP7 | D7.8 | Tool | Environmental footprint calculator |
| | D7.9 | Tool | Retrofitting tool kit |
| | D7.10 | Tool | Tools to evaluate the sustainability of interventions |
| | D7.12 | Methodology | IoT Ecosystem for Multipurpose Monitoring |



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| | | | |
|--|--------------|--------|---|
| | D7.13, D7.14 | Tool | Learning space and its educational resources (Digital Learning Contents, games, narratives, storytelling, and creative writing tasks integrated in the games) |
| | D7.15 | Method | Use of the digital platform and its tools/products to empower the educational communities and the citizens |
| | | Tool | Digital platform |
| | | Tool | Crowdsourcing collaborative space |

6. TARGET GROUPS

Taking into consideration the results identified in the previous section the target groups (defined as those potentially making concrete use of the project results) for the exploitation process are:

- (1) **educational communities** from the intervention sites - students, teachers, parents and the wider educational community (from primary schools to universities) engaged in project as associated partners,
- (2) **other educational communities** reached by the spreading of the information, knowledge and practice and exploitation processes,
- (3) **different NGOs and organizations** acting in the field of education and climate actions,
- (4) **policy-makers** (national and European),
- (5) **local communities** various actor groups to change their personal and collective behaviors, habits, routines and social norms in order to foster sustainable development, represented by,
- (6) **companies and other organizations** involved in initiatives about sustainability competences for civil society,
- (7) **general public**.

Given the education orientation of the ECF4CLIM project, working with educational communities and empowering the citizens and other stakeholders, two main phases are envisaged:

- an **engaging phase** aimed to create the awareness to the target audience on the benefits to act for sustainability, including the use of the exploitable results of the ECF4CLIM project; relevant feedbacks will be collected to understand and create the conditions to maximize the added-value of the results,



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- a **bridging phase** aimed to launch the results in a broader market targeting other stakeholders than the educational communities and actors already involved in the project; feedback will be collected also in this phase.

7. ACTION PLAN

An Action Plan of the ECF4CLIM project is presented in Table 8.1 consisting of the all activities devoted to the exploitation during the implementation of the project and a projection of the actions expected beyond the duration of the ECF4CLIM. It will be updated periodically in accordance with the progress of the projects.

Table 7.1 The Action Plan for Exploitation of the Results and Simulation of Synergies

| | Action | Responsible | Planning |
|---|--|-----------------------|--|
| 1 | Integrative analysis of the all deliverables to generate the initial list of exploitable deliverables (LED) | WPLs, Coordinator | February 2022 |
| 2 | Nomination of Exploitation Manager (EM) | SC | March 2022 |
| 3 | Finalization of the exploitation procedures (including the upload of exploitation forms in ECF4CLIM website, Private Area) | WP8 | March 2022 |
| 4 | PERSS communicated to partners | WP8 | March 2022 |
| 5 | Identification of possible synergies with other project and developing of action plans | Coordinator, WP8L | March 2022 |
| 6 | Development of the LER (List of Exploitable Results) and approval of it | EM and SC | After releasing of each deliverable of LED |
| 7 | Create a Decision Group for each exploitable result | EM and SC | After each updating of LER |
| 8 | Development of the implementation actions (Action Plan) for a specific exploitable | EM and Decision Group | After each updating of LER |



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| | | | |
|----|--|---------------------------|---|
| | result and create the Exploitation Group for a certain result | | |
| 9 | Implementation of the actions | EM and Exploitation Group | Continuous after the including of result in the LER, in agreement with the action plan for a certain result |
| 10 | Periodical reporting | EM | SC meetings |
| 11 | Clustering actions with GD projects to stimulate the synergies | Coordinator, WP8L | Continuous, according with the separate Action Plans defined per each synergy category |

8. RULES AND RECOMMENDATIONS

All the partners are invited to understand the role of the exploitation procedures and to apply them in the current activities of ECF4CLIM project.

The exploitation process will respect the following procedural steps and recommendations:

- (1) the exploitation activities will respect the methodology and procedures established in the current PERSS in terms of initiation, deadlines, coordination and responsibilities,
- (2) any partner may propose a specific result to be included in the exploitation process (by filling the Exploitation Result Form); after the approval in the SC the implementation actions will be in the responsibility of the Exploitation Group,
- (3) the Exploitation Manager will have a critical role in the coordination of all the exploitation actions; EM will coordinate the efforts of the partners for the implementation of all actions defined in the PERSS,
- (4) the progress of the exploitation activities will be regularly reported by the EM to SC, the reports will be uploaded in the Private Area section of the ECF4CLIM project,



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(5) any exploitation activity will consider the rules established for the IPR management.

All IPR aspects are strictly ruled in the Consortium Agreement, Article 23a and 24-28 [5] which complies with the EC Grant Agreement [6] (and related Annexes) provisions. Knowledge generated and used within the project will be properly managed. Any Intellectual Property (IP) issue identified will be protected while allowing for open access publications and the transfer of data generated to open repositories for training and/or dissemination as appropriate. IP management will follow the legal requirements defined in the official documentation published by the European Commission: 'H2020 Rules for Participation' and specified in the Consortium Agreement. The data will be collected, generated, stored and handled with the respect of ECF4CLIM Data Management Plan.

The description of the procedural steps to be followed in the exploitation process are described in the Section 3 (Methodology).

9. MONITORING AND EVALUATION

The main objective of the monitoring and evaluation is to ensure a high-quality execution of the PERSS. The monitoring of the exploitation activities is vital for the transfer of the research results in the reality of educational communities, citizens and other stakeholders.

It is important that this evaluation is carried out on a continuous basis to ensure:

- the effectivity of the impact of the exploitation activities; corrective measures will be introduced, if necessary, also a redefinition of the exploitation activities is possible in agreement with the evolution, objectives, target audiences, and available resources,
- a high quality of the exploitation activities based on an appropriate adaptation to the real needs of the users, a detailed planning and preparation of the activities, the use of performant methods and tools.

The PERSS will be monitored based on the indicators defined in Section 4 (Key performance indicators, KPIs), Table 4.1. For each result launched in the exploitation process, specific indicators will be defined by the Exploitation Group and included in the planning of the actions.

The impact of the exploitation of a result will be used to measure and assess the exploitation activities in terms of their relevance and quality. The assessment can help the consortium to understand the level of success in reaching the target groups and also to ensure the effectively use of the project's results. Some indicators (qualitative or quantitative) to measures the impact will be defined for a specific result (by Exploitation Group) and included in the planning of the actions.



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The Exploitation Group will send periodically reports to the coordinator, informing on the status of the exploitation activity. The Exploitation Group will be represented by the Exploitation Manager. During the project, the Exploitation Manager will inform the SC and GB on the progress of the exploitation activity at each annual project meeting.

During the project, the report will be send annually, preferably with one month before the annual project meeting. Since many exploitation activities will be continued after the ending of the project and the Exploitation Group has to finalize its work, the reporting will be performed annually (preferably at the beginning of December) until the finalization of the planned activities.

Beyond the end of the project lifetime, the coordinator will inform each partner on the progress of the exploitation activities until their finalization, based on the reporting activities of the Exploitation Groups.



10. REFERENCES

- [1] European Commission, Dissemination & Exploitation of results, https://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/grant-management/dissemination-of-results_en.htm
- [2] European Commission, Communicating EU research and innovation guidance for project participants, http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/h2020-guide-comm_en.pdf
- [3] (D8.2, Clustering) Y. Lechon et al, Clustering Plan, ECF4CLIM project, Deliverable D8.2, December 2021
- [4] (PMP) A.Prades et al, ECF4CLIM Project Management Plan, Deliverable D2.1, December 2021
- [5] (CA) ECF4CLIM - Consortium Agreement
- [6] (GA) ECF4CLIM - EC Grant Agreement (GA)



ANNEX 1. EXPLOITABLE RESULT FORM (ERF)

1. **Date of application**

2. **Initiator**
 - Exploitation Manager
 - WP Leader
 - Task Leader
 - Partner, please specify the name.....
 - Group of partners, please specify the names
 -

3. **Type of result**
 - Tool
 - Method or process
 - Methodology
 - Analysis
 - Data
 - Knowledge
 - Other, please specify

4. **Name of the result**
5. **Description of the result**
-
-
-
-
-
-

6. **Potential users of the results** (please specify)
-
-

7. **Main arguments to include the results in the List of Exploitable Results**
.....
-
-

8. **Preliminary evaluation for the criteria DR1-DR3**
 - (RC1) The result addresses the real world/market needs YES NO
 - (RC2) There is a short- or medium-term implementation of the result YES NO
 - (RC3) There is an estimated benefit (market value, monetary or non-monetary) for the specific result YES NO



ANNEX 2. SINERGY IDENTIFICATION FORM (SIF)

- 1. Date of application**

- 2. Initiator**
 - Exploitation Manager
 - WP Leader
 - Task Leader
 - Partner, please specify the name.....
 - Group of partners, please specify the names
 -

- 3. Expected synergies of ECF4CLIM with another:**
 - Project
 - Initiative
 - Action
 - Other, please specify

- 4. Current state of the corresponding project/initiative/action:**
 - In progress
 - Planned

- 5. Short name of the synergy:**

- 6. Description of the synergy, including expected results:**
.....
.....
.....
.....

- 7. Proposed measures for stimulation of the synergy:**
.....
.....
.....
.....



ANNEX 3. ACTION PLAN FOR SINERGY: CARBON FOOTPRINT CALCULATOR

Scope of carbon footprint calculators clustering area is to develop CFCs. The following specificities are identified: (1) **AURORA** is developing a carbon footprint calculator focused on **energy consumption** (electricity, heat and mobility), (2) **PSLifestyle** develops a **lifestyle** carbon footprint covering consumption-based GHG emissions of housing, transport & tourism, food, other consumption, (3) **I_CHANGE** is developing a **Smartphone Application for personalized Carbon footprint calculator** with a focus on Household Energy consumption, Transport, Food consumption, Water and wastewater consumption, etc., (4) **COMPAIR** will develop a **Carbon Footprint Dashboard** designed to support specific experiments around carbon footprints, (5) **ECF4CLIM** is developing an **environmental footprint calculator** thought for the self-assessment of **students** and **educational institutions**.

Actions:

| | | Coordinated by | Purpose |
|---|---|--|--|
| 1 | Share/Compare databases The projects will share the databases used in their tools to the extent possible (open source data). When data come from proprietary databases (those coming from Ecoinvent for example), a comparison of data will be performed to identify major discrepancies. | ECF4CLIM in cooperation with PSLifestyle | Use common/comparable background data for carbon footprint calculations |
| Next steps: Create and share a template to be filled by the projects | | | |
| 2 | Common labelling approach The projects will share the methodology employed to define these labels and a possible common approach on labeling will be studied | AURORA in cooperation with PSLifestyle. | Adopt a common approach for a simplified communication of CF results oriented to laypeople |
| Next steps: Sharing of the methods for labelling by AURORA and PSLifestyle and planning of discussions among projects on the possibilities to implement similar approach in the other 3 projects | | | |
| 3 | External review process An open peer-review processes within our "cluster" can be performed once the various calculators are finalized | AURORA | Review of approaches, methods and underlying data used in the tools |
| Next steps: Select the volunteers for the peer review among the projects' partners | | | |
| 4 | Joint exploitation The projects will develop a common exploitation strategy based on the following elements: (1) offer a package of | ECF4CLIM | Maximize the impact |



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| | | | |
|---|---|----------|---|
| | applications (2) identification of the well fitted audiences (3) identify the best ways to reach the audiences, (4) define the common rules for the exploitation | | |
| 5 | <p>Common hosting of the tools</p> <p>The projects will host a link to their calculators in a common platform. A possible option would be https://living-in.eu/.</p> <p>Next steps: Check possible options for this common platform</p> | CompAir | Facilitate the use of the package of applications |
| 6 | <p>Intercomparability exercise</p> <p>The projects will perform an intercomparability exercise when all the calculators are ready</p> | I-CHANGE | Make sure that the tools provide comparable results |

- The projects will meet **twice per year** by videoconference to update on the development of each other's calculators and to make a review of the status of the 6 clustering activities planned.
- Next meeting will be organized after the summer 2022.



ANNEX 4. ACTION PLAN FOR SINERGY: CITIZEN ENGAGEMENT STRATEGIES AND COLLABORATION ON PILOT AREAS

Scope of Citizen Engagement area: exploitation of the potential of all seven projects to engage citizens in experimenting the EU Green Deal in order to: (1) emphasize the role of participatory design and citizen engagement in the definition/adoption of a policy, (2) enable projects to share practices and lesson learned (and possible data collected by the research participants), (3) start the definition of a EU user research repository.

Actions:

| | | Coordinated by | Purpose |
|---|---|----------------|--|
| 1 | <p>Map the projects' activities involving citizens/users in the different projects in terms of: characteristics of actors involved, geographic scope, nature of information/feedback requested/collected</p> <p>Define an online form to be shared with the projects, mapping the activities involving citizens/users during the project lifetime, and the expected level of engagement</p> | GreenSCENT | Exchange of the experiences in involving citizens/users, identify good practices |
| | Next actions: (1) form preparation and launch (mid of April 22), (2) collect the data (June 22), (3) online meeting (June 22) | | |
| 2 | <p>Elaborate a short template (2 pages) for the exchange of information between projects (short reports on feedback gathered)</p> <p>The following elements will be included: (1) geographical regions involved, (2) number of participants and their characteristics, (3) methodology, (4) key results, (5) difficulties and risks prevention measures to be incorporated in lesson learned</p> | GreenSCENT | Enhance the knowledge exchange and strengthen the collaboration possibilities |
| | Next actions: Template to be circulated in September 22, Short reports – start the circulation in Fal 22 | | |
| 3 | <p>Establish a basic user exchange data process</p> <p>Develop a minimum protocol for the exchange of user research data among projects (variables, type). Establish a EU user research repository.</p> | tbd | Increase the capacity of projects to exchange data from engagement activities |



ANNEX 5. ACTION PLAN FOR SINERGY: AIR QUALITY

Scope of Air Quality synergy area: explore how to better communicate air quality to citizens and young students in order to educate, raise awareness and promote behavioural changes, e.g. how to visualise scientific data in a way that is understandable to non-experts (for example by developing augmented reality app).

Actions:

| | | Coordinated by | Purpose |
|--|---|----------------|--|
| 1 | <p>Map activities and initiatives related to air quality Create a list of relevant activities planned by each project that are related to air quality. The activities list will be updated regularly.</p> | tbd | Understand the nature, timings and geographical distribution of activities planned in each project; better identify specific areas for synergy and opportunities for collaboration |
| Next steps: Create and share activity template / form; all projects to fill this in | | | |
| 2 | <p>Regularly share lessons learnt Share the lessons learnt from the air quality activities and interactions with schools and citizens; oral presentation or written summary during cluster meetings scheduled at the end (or beginning) of each school semester - approx. every 3 months</p> | tbd | Exchange knowledge on the methodology used and good practices; learn from each other and avoid repeating errors; have a larger pool of knowledge and feedback to help shape and improve future actions |
| Next steps: meetings March/April, September, December... | | | |
| 3 | <p>Draft a pathway for synergies Through the regular interactions, identify and create a plan for collaboration (such as organize a joint event, convene a joint session or share a booth at a conference, participate in the planned activities of other projects, joint communication activities...)</p> | tbd | |
| Next steps: Identify any collaboration opportunities by the end of 2022 | | | |
| 4 | <p>Legal aspects of air quality Investigation of the legal frameworks and identification of the common legal aspects and peculiarities to be considered</p> | tbd | |



ANNEX 6. ACTION PLAN FOR SINERGY: DISSEMINATION AND LINKS WITH BROADER INITIATIVES

Scope of the Dissemination and Links with Broader Initiatives is to develop common actions in support of the communication, dissemination and exploitation of the projects' results.

Actions:

| | | Coordinated by | Purpose |
|---|---|--------------------------------|-------------------------------|
| 1 | Briefing sessions for DGs and the EU Parliament Build support for the integration of our work in the EU Directives and subsequent implementation | AURORA, SOCIO-BEE, and COMPAIR | Political and policy briefing |
| 2 | Briefing sessions with MS representatives and EU representatives on UN Standing Committees multi-lateral agreements for UNEA Develop champions able to argue for the replication of the cluster findings into UNEA multi-lateral agreements | AURORA, SOCIO-BEE, and COMPAIR | Political and policy briefing |
| 3 | Headline speakers at critical UN events To illustrate the values of the cluster work in delivering UN objectives. To create champions for replication of the cluster work | AURORA, SOCIO-BEE, and COMPAIR | Political and policy briefing |
| 4 | Bi-monthly meetings to share project progress and brainstorm common issues Sharing the best practices, brainstorming on common problems, fostering cooperative working, developing a common agenda | tbd | Developing common materials |
| 5 | Brainstorm/Hackathon events to develop a suite of common tools and methods Developing low-cost tools and procedures to meet common objectives of the cluster | tbd | Developing common materials |
| 6 | Develop a common Green Deal Cluster website with EU-Citizen Science Developing a value for money solution building on the existing EU investments in EU Citizen Science avoiding proliferation of websites on similar topics. Developing strong links to the global citizen science | tbd | Developing common materials |



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| | | | |
|---|---|-----------|---|
| | community to support replication activities | | |
| 7 | <p>Developing common approach and methodology to measure citizen science impact on society</p> <p>Developing a standard best practices procedure to measure the societal impact of citizen science</p> | SOCIO-BEE | Promoting long-term programmes and data systems |
| 8 | <p>Building regional and global replication programmes with DG INTP, the GSCP, and the UNSPBF</p> <p>Developing and replicating model that would support uptake of the outputs as part of EU overseas aid development programmes. Identifying business opportunities supporting global replication in support of the delivery of key SDG's and Climate change targets with UNSPBF partners</p> | tbd | Promoting long-term programmes and data systems |



ANNEX 7. ABBREVIATIONS & ACRONYMS

| | |
|-----------------|---|
| CINEA | European Climate Infrastructure and Environment Executive Agency |
| DG | Decision Group |
| DG EAC | Directorate General for Education and Culture |
| DG INTPA | Directorate-General for International Partnership |
| ECF | European Competence Framework |
| ECP | European Climate Pact |
| EG | Exploitation Group |
| EM | Exploitation Manager |
| ERF | Exploitable Result Form |
| ET | Exploitation Team |
| EU | European Union |
| GSCP | Global Smart City Partnership |
| IoT | Internet of Things |
| IPR | Intellectual Property Rights |
| JRC | Joint Research Centre |
| KPIs | Key Performance Indicators |
| LEDs | List of Exploitable Deliverables |
| LERs | List of Exploitable Results |
| MS | Member State |
| NGOs | Non-governmental Organizations |
| PERSS | Plan for the Exploitation of ECF4CLIM Results and for Stimulating Synergies |
| SC | Steering Committee |
| SIF | Sinergy Identification Form |
| SMEs | Small and Medium size Enterprises |



H2020-LC-GD-2020-3, Project 101036505, ECF4CLIM, European
Competence Framework for a Low Carbon Economy and
Sustainability through Education

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| | |
|---------------|---|
| STEM | Science, Technology, Engineering, and Mathematics |
| UN | United Nations |
| UNEA | United Nations Environment Assembly |
| UNSPBF | United Nations Science Policy Business Forum |