



# Root2Res

Root phenotyping and genetic improvement for rotational crops resilient to environmental change

## GUIDELINES FOR STAKEHOLDER ENGAGEMENT AND INTERACTION

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These guidelines for Stakeholder engagement and interaction were produced to guide project partners to build and manage Stakeholder communities, including the stakeholders' mapping at local-regional and pan-European levels.

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## 1. EXECUTIVE SUMMARY

When considering root traits for resilience, it is imperative to engage relevant stakeholders specifically, but not exclusively, breeders and farmers.

Root2Res will be collecting populations of a range of crops useful for current or future European rotations (barley, durum wheat, potato, faba bean, pea, lentil, sweet potato), and deploying genotyping, phenotyping, and modelling tools. Hence the project, through its team of crop geneticists, plant physiologists, microbiologists, modellers, agronomists, and breeders will obtain a unique data set of genotype responses in a range of agroclimatic zones within Europe, from both controlled environment and field trials. We aspire to interact with groups of stakeholders to help select, collect, and evaluate the improved genotypes, phenotyping tools and models.

To this end, Work Package 7 developed a framework to foster the involvement of actors related to the Agroclimatic Zones selected for the project. Involving stakeholders from regional communities to European-level is the first output of Task 7.1, led by FEUGA. The present document was delivered by month 6 of the project to ensure the consortium can manage interactions with stakeholders, from mapping networks to following-up on activities.

The proposed methodology was initially developed in collaboration with the Work Package and Task leaders. It was then further refined for Work Package 1 activities planned during months 4 and 5. Hence Deliverable 7.1: The Guidelines for Stakeholder Engagement and Interaction outlines 1) the multi-actor approach, 2) early methodology assessment, 3) interactive innovation, 4) governance, 5) complementary measures, and 6) procedures and methods.

## 2. LIST OF ABBREVIATIONS

ACZ	Agroclimatic Zone
AKIS	Agricultural Knowledge and Innovation Systems
EIP-AGRI	European Innovation Partnership for Agricultural productivity and Sustainability
EU	European Union
LH	Lighthouses
LL	Living Labs
MAA	Multi-Actor Approach
OG	Operational Groups
OI2	Open Innovation 2.0
RRI	Responsible Research and Innovation
STAB	Stakeholder Advisory Board
WP	Work Package

### 3. Multi-Actor Approach

Root2Res is a complex and ambitious project in terms of what it wants to accomplish, but also because of the human capital it requires. It combines multiple disciplines, and complementary actors across 13 countries from within and outside the EU. Context-wise, the project sits at the crossroads of rapidly evolving frameworks for stakeholder engagement on one hand and the influence of thematic networks at the EU-level on the other. Assessing both aspects is vital to understand the path chosen by the consortium and the methodology described below.

Firstly, the consortium identified the benefits of involving regional communities linked to the agricultural value chain, and the factors needed to generate trust and value in that relationship. And as a result, it fosters a process of joint creation to ensure lasting engagement while at the same time facilitating the uptake and replication of the innovations, tools and outputs developed by Root2Res.

This approach follows the experience of researchers and stakeholders in previous Horizon 2020 projects and explored within the European Innovation Partnership for Agricultural productivity and Sustainability (EIP-AGRI) [1]. More precisely, it is part of what is known as a Multi-Actor Approach (MAA), a framework that requires a shift in the traditional top-down flow of knowledge and the co-ownership of solutions.

EIP-AGRI defines MAA as the “use of complementary types of knowledge” paired with the “focus on real problems or opportunities” of stakeholders [2]. These practices have since greatly extended through the Horizon programme, spanning multiple call topics outside agrifood and bioeconomy, but the main values remain:

- demand-driven, local-fit solutions;
- co-ownership for quicker uptake;
- use of tacit knowledge;
- added value for existing practices;
- effective dissemination.

Assimilated over time by the participants of MAA projects, these values enabled the creation of structures and figures for knowledge transfer. Root2Res can benefit from the sound linkage of research and practice supported by EIP-AGRI; thematic networks, innovation systems or operational groups, which continues to provide stakeholder engagement opportunities.

Despite the successful implementation of this model, the full realisation of the MAA approach requires a novel strategy capable of avoiding duplicities with similar initiatives, sustaining the knowledge transfer beyond the projects lifetime, and aligning cross-cutting priorities, namely Open Innovation 2.0 (OI2) [3] and Responsible Research and Innovation (RRI) [4].

Networks play a crucial role in configuring and reviewing the rules and roles needed to implement a MAA. In the case of Root2Res, the relation with umbrella organisations is partially addressed by setting up the Stakeholder Advisory Board (STAB), an *ad hoc* internal body, which will provide members of the consortium with the socio-

economic and regulatory knowledge, as well as offering peer-review and counsel with regards to the project progress.

Consequently, the strategy here envisioned is influenced by a series of EU initiatives with a strong social science component and networking opportunities:

- The Farm to Fork strategy [5]. A harmonised set of EU regulatory and non-regulatory initiatives for sustainable food systems, arranged via three lines of action: empowering citizens, supporting farmers (and fishers), and nature and climate measures. Plant legislation changes are expected for the second quarter of 2023.
- The Biodiversity Destination [6]. The Horizon Europe work programme for 2024 emphasises the need to link new research with the EIP-AGRI knowledge exchange alliances, contributing to its Operational Groups (OG), sharing practice abstracts, and expanding the requirements for Responsible Research and Innovation and Multi-Actor Approach.
- Mission Soil [7]. The Soil Deal for Europe is one of the five missions that articulate Horizon Europe research and innovation priorities. During 2023 and until 2024, Mission Soil is accelerating innovation by putting in place the first wave of 100 Living Labs (LL) and Lighthouses (LH). These two multi-actor innovation ecosystems differ in size and scope; while LHs are single sites for solution demonstration, LLs involve local value chains, and are linked to EIP-AGRI's Operational Groups and, more broadly, to Agricultural Knowledge and Innovation Systems (AKIS).

In the short-term, Root2Res can advance these initiatives by identifying and collaborating with already and newly established Living Labs within the Agroclimatic Zones (see Figure 1, section 3.2). Later on, the project is expected to benefit from the support structures Mission Soil is implementing from 2024 onwards, similar to the incipient Mission Adaptation's Community of Practice [8].

Contributing to this network of networks will bring Root2Res closer to its objectives and strongly connect value chain actors for a more rapid and broader uptake of solutions. The structures conceived in this methodology are aligned with the current state of Mission Soil and its expected development. For more information, see sections 4 and 4.3, Governance and Complementary Measures.

### 3.1. INITIAL METHODOLOGY

The initial version of the proposed methodology was developed for nascent activities in WP1 in month 4 of the project. The objective was to obtain knowledge from stakeholders to drive the meta-analysis and modelling aimed at defining ideotypes able to cope with abiotic stress.

Although the intended stakeholder engagement activities were to take place two months later, their outcome was deemed critical for this non-linear, complex project;

moreover, it represented an opportunity to create trustworthy, local channels from the very start of the project, in line with European Commission recommendations [9].

Building on the feedback from dedicated WP7 sessions with technical leaders during the Kick-Off Meeting and the Consensus Meeting, which solidified the MAA and basic procedures for stakeholder engagement, a task force began a series of exchanges to agree on a baseline strategy, calendar, and tools to carry out a series of workshops. ADAS, ARVALIS, JHI, FEUGA and FIBL applied the principles encompassed in these guidelines while this document was being reviewed, testing channels, promotional materials, and data management procedures. They also proved the importance of relying on local partners, STAB members and EIP-AGRI to engage relevant stakeholders.

The initial methodology allowed Root2Res to undertake the first of a range of activities -identification of ideotypes, field phenotyping, physiology, genotype identification and testing of ideotypes related genotypes- that will require the full implementation of this novel framework, creating the conditions for a sustained bottom-up flow of knowledge.

### 3.2. INTERACTIVE INNOVATION

Social adoption is required in any innovation process [10]. Innovation by itself, however, cannot guarantee widespread adoption nor absence of redundancies. Only under the right conditions can bottom-up knowledge transfer be sustained, and that requires an ecosystem able to adapt the collaboration to evolving circumstances, take different roles and accelerate the adoption of solutions. This stage of development can be defined as interactive innovation [1].

The focus of MAA is therefore on enabling conditions for stakeholders to innovate outside the direction of external research. As for Root2Res, this implies that each Agroclimatic Zone (Figure 1) is to be treated as an independent system. Instead of project or thematic contact points, the experimental field sites are intended to generate knowledge, from root traits identification to cultivar trials and demonstration. Each hub needs a structure of its own, and power to revert the traditional top-down dynamic.



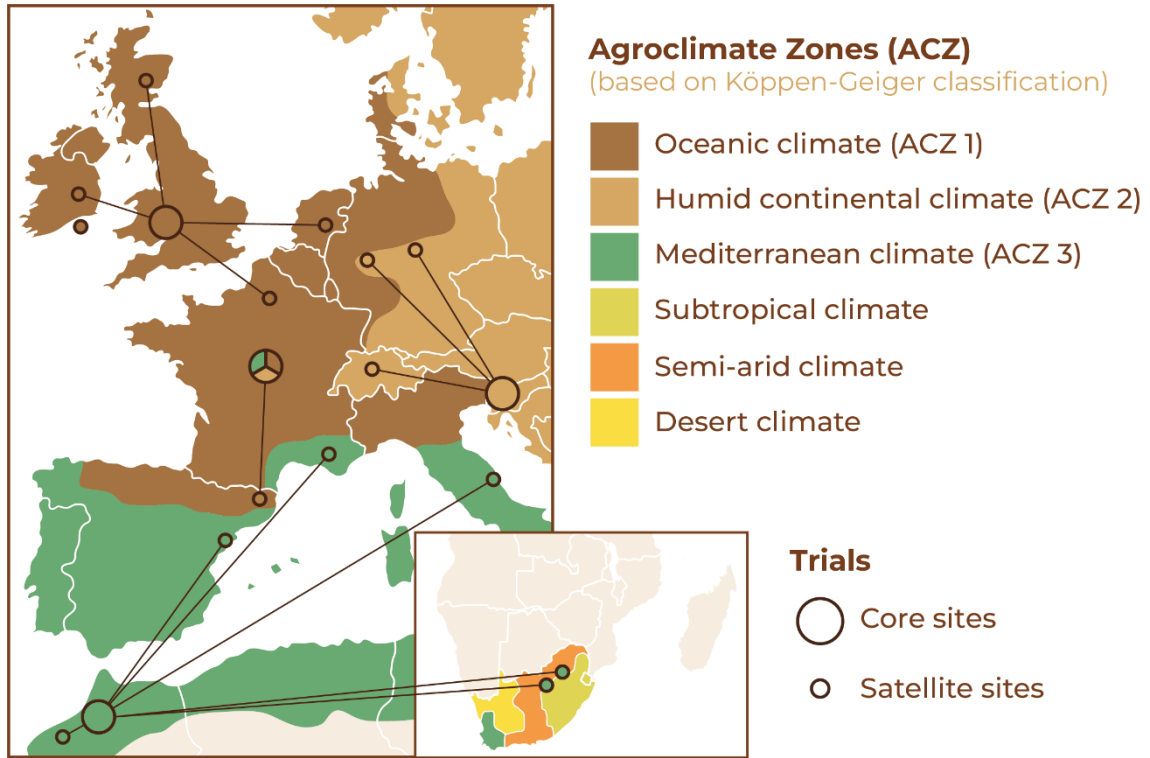


Figure 1. Agroclimatic Zones for Root2Res

## 4. GOVERNANCE

In accordance with MAA principles, the consortium reached a consensus for dividing the partners between two separate dimensions, i.e., the technical and geographical dimensions. These dimensions share experimental sites with networks of facilitators and complementary individuals and entities. These are the two enabling conditions for interactive innovation.

### 4.1. INTERACTIVE INNOVATION DIMENSIONS

At each ACZ, Root2Res participants split between a Technical Dimension, represented by the research leaders in charge of Tasks or Work Packages; and a Geographical Dimension, where stakeholders are empowered and accompanied by local partners and facilitators (Figure 2).

Assigning different roles in the governance confers balance to the innovation ecosystem, hence favouring a bottom-up flow of knowledge, and preserving the interests of the stakeholders. The counterweights are depicted in Figure 2.

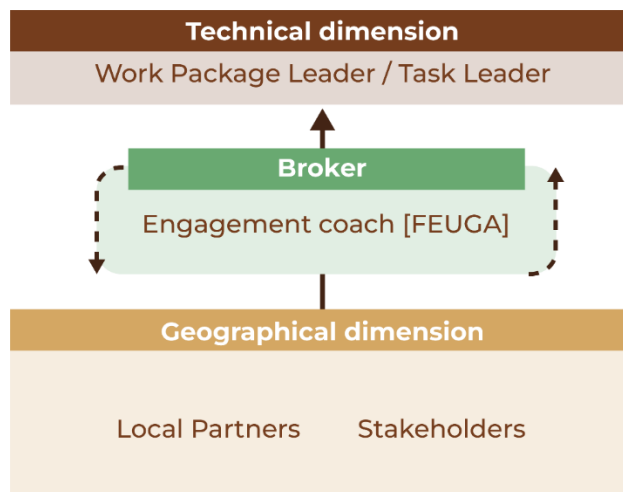


Figure 2. ACZ composition

According to this structure, local partners are tasked with consulting stakeholders and relaying their feedback to the Technical Dimension; then, research leaders accompany the activities by agreeing on the engagement method, providing resources and, eventually, extracting knowledge. By contrast, the Geographical Dimension uses local channels and languages to ensure the involvement of relevant profiles, encouraging co-owned, local solutions, and following-up on the interactions.

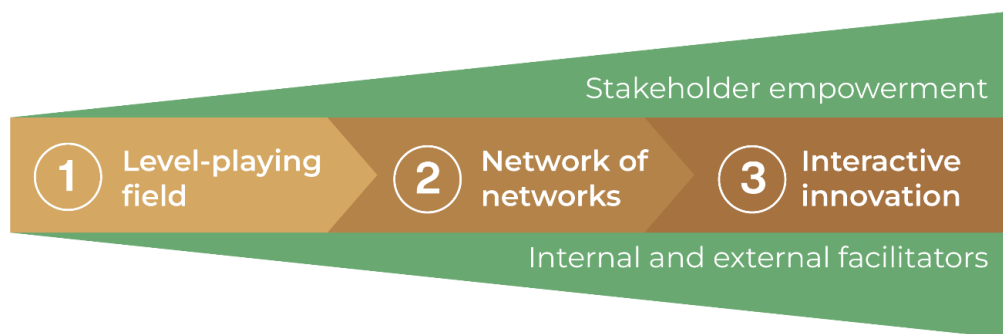
Even though ACZs are expected to function independently from one another, the present strategy identifies the need for finding suitable engagement methods and accelerating the uptake through frequent exchanges of best practices, cross-learning workshops, and peer-to-peer learning. The findings from the various ACZs will also be aligned and commonalities will be identified that can become global findings and outcomes of Root2Res.

In this model, stakeholders have the last word when it comes to how they relate to the project, when they interact, and what issues need to be addressed. First contacts and regular exchanges with local partners, even with 1:1 meetings, can motivate actors to participate early on, which in turn is vital for building trust and creating a sense of belonging and being valued.

Even with incentives to stakeholder empowerment, progressing towards a state of interactive innovation requires the regional communities to share the ACZ with facilitators, both internal and external, accessing networks from a local to an EU-level.

#### 4.2. INTERACTIVE INNOVATION BROKER

Addressing diversity within each ACZ and initiating the interactive innovation process requires compromises between participants and a careful balancing of rules and roles, empowering stakeholders while crafting networks of facilitators. Brokering this agreement ensures a level-playing field for lasting knowledge transfer among multiple levels and disciplines (Figure 3).



*Figure 3. Process of interactive innovation and its drivers*

Without assuming the coordination of activities, the Interactive Innovation Broker bears the responsibility of creating the right conditions for interactive innovation in the experimental sites. Its role of facilitator will change over time, folding back as each ACZ completes the three phases towards interactive innovation.

Initially, the Broker provides methods and training for stakeholder engagement, checking on the consensual procedures of reporting and conflict resolution being fulfilled. Then, as ACZs link and incorporate umbrella organisations and facilitators, the Broker progressively delegates the oversight on a transversal network of networks, to the Community of Practice.

For Root2Res, the figure of the Interactive Innovation Broker is assumed by FEUGA, although other participants and local facilitators may also share some or all the responsibilities. The recommended contact for this is Óscar Bernárdez. Any changes will be duly notified by FEUGA and addressed during the Executive Committee meetings.

### 4.3. COMPLEMENTARY MEASURES

On top of the structure previously described, Root2Res incorporates other measures to further solidify the MAA implementation. Precisely, the project is expected to cope with a rapidly evolving galaxy of similar initiatives coming from other existing and future Horizon Europe projects, while simultaneously addressing a huge diversity of actors and regulatory requirements.

### 4.4. STAKEHOLDER ADVISORY BOARD

This context determined the creation of a Stakeholder Advisory Board (STAB) to complement the nature of the consortium from a local to an EU-level. Its requirements are influenced by the innovation ecosystems and umbrella organisations it is expected to deal with, including Mission Soil, so it is vital for the STAB to follow a flexible methodology and remain open to change, incorporating opinion leaders, regulators, breeders, farmers, wholesalers, retailers, and other relevant representatives from the agricultural value chain in all the ACZ.

During the project submission, several entities expressed their interest to be part of the projects STAB:

- **Plants for the Future (Plant ETP - UE)**, as central representative of breeders at European scale.
- **Union Nationale des producteurs de pomme de terre (UNPT – FR)** as a central farmers union for potatoes.
- **The Irish Farmers Association (IFA - Ireland)** as a central farmers assembly for all relevant crops.
- **Processors and Growers Research Organisation (PRGO - UK)** as a central organization leading research on legumes (Faba beans and peas).
- **Assemblée Générale des Producteurs de Blé (AGPB – FR)** as a central farmers union for cereals.
- **Institut Français de la Brasserie et de la Malterie (IFBM - FR)** as a central organization representing the process sector of barley malting and brewery.

The process to confirm their commitment is currently under way.

As the project carries out engagement activities (see Section 5 for details), further actors will be identified and contacted. Of those, some will be in a position to contribute to the STAB in the short term, increasing the representativeness of the ACZs as well as the variety of profiles needed to achieve the objectives previously defined in Section 4 above: reviewing stakeholder engagement outcomes and prospects, peer-reviewing the research, and informing about pressing socio-economic and regulatory issues.

With regards to their links to EU-networks, expectations need to be handled carefully. A secretariat will be created by FEUGA and the project coordination to manage their regular affairs before month 9 of the project. This will allow for STAB members and potential candidates to participate in their first remote meeting, and soon after they will be invited to the next Annual Meeting in an advisory capacity.

Following the first round of stakeholder related activities at ACZs, the final composition of the STAB will be decided by the secretariat based on the recommendation of the partners, ensuring gender balance and matching cross-cutting priorities of geographical distribution, complementary knowledge and multi-level representation.

In its final form, the STAB will be in a position to align with umbrella organisations, such as Mission Soil, during the second year of Root2Res. Its members can be expected to act as ambassadors of their regions to the network of Living Labs and similar initiatives, ensuring that the innovation process outlives the project.

In addition to collaborating in dissemination efforts, STAB members will be asked to contribute to project research, according to their expertise and availability; the secretariat will contact them individually or collectively, and reports will be produced by the research partner that requested assistance to reflect their contribution.

## 5. PROCEDURES

Similar to Deliverable 7.2, these guidelines contain all the steps and the information needed to carry out engagement activities throughout the project lifespan. A basic set of tools is included to accompany what will be tailor-made methods for each interaction. It is fundamental to respect the Governance rules outlined in Section 5, as well as including stakeholder inputs in all the steps.

The operational management procedures for stakeholder engagement are similar to other MAA-based projects, entailing an endless cycle that must be repeated for all the activities. Steps include particular tools (Figure 4).

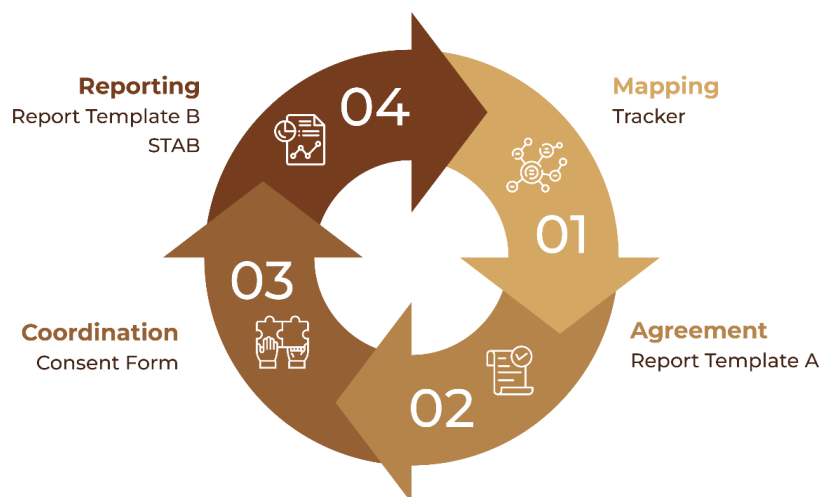


Figure 4. Procedures for stakeholder engagement

- **Step One.** Stakeholder mapping - based on the stakeholder categories (farmers and farm managers; plant breeders; other business; advisors and

consultants; NGO/NPO; scientific and research community; farm organisation), and following consultation with both the Technical and the Geographical dimensions, research leaders will inform about their roadmap using the tracker made available by WP7 in the [Sharepoint Planner](#) (see Deliverable 7.2 for more details).

- **Step Two.** Agreement on method and calendar - respecting the interest of the stakeholders, research leaders will share basic information about the activity following the instructions in the Report Template, part A, available at the [common repository](#).
- **Step Three.** Coordination and implementation - between technical leaders that provide resources and local partners trusted with carrying out the activity and trying to merge similar activities to reduce stakeholder fatigue. The Consent Form (managed by FEUGA) must be adapted and distributed beforehand.
- **Step Four.** Reporting - to the technical leader and WP7 using Part B of the Report Template, plus following up by updating steps one and two, and contacting the STAB if needed.

## 5.1. COORDINATION

FEUGA, as the Interactive Innovation Broker, will create and help adapt a series of tools and methods to facilitate engagement. Within WP7 biannual meetings, the methodology will be perfected, and the main outputs reviewed for best practices and peer-learning.

### CALENDAR FOR COORDINATION AND EVALUATION

- ✓ Monthly update of the Planner
- ✓ Biannual WP7 meetings
- ✓ Annual Meetings with STAB
- ✓ Best practices workshops during year 2 of the project

## 5.2. IMPORTANT CONSIDERATIONS

Stakeholders are not always available or keen to engage. Complying with MAA principles makes interactions easier, so the partners involved need to create neutral, balanced exchanges, where the conditions and topics are agreed beforehand. Additional recommended practices include creating a comfortable setting for the activity, contact and inform stakeholders prior to the event, organising parallel activities that focus on their known interests, and providing easy access to materials and sources of information.

Crucially, ACZ main contacts will ensure that stakeholders are addressed in their own languages (Table 1). For more information about the translation of contents, check the Communication Handbook, Annex 1 of Deliverable 7.2.

Table 1. ACZs and main contacts

ACZ	Organisation	Contact
<b>Transition</b>	ARVALIS	Jean-Pierre Cohan
<b>ACZ1</b>	ADAS	Charlotte White
<b>ACZ2</b>	KIS	Peter Dolničar
<b>ACZ3</b>	ICARDA	Andrea Visioni

Engagement is not limited to motivated and influential stakeholders, on the contrary, it should be directed to specific audiences depending on the research inputs needed; stakeholders need motivation to eventually evolve towards greater involvement. Method selection is easier when coupled with a correct and updated stakeholder mapping, which also reduces the probability of conflicts.

Within each method, specific activities need to be designed (Figure 5). Root2Res members will increasingly rely on networks of internal and external facilitators to further refine their approaches. Slight changes may render different results, and there is always room to combine different strategies. Following the public relations model [1], we can differentiate asymmetrical two-way engagements, unlikely to modify the behaviour of the parts involved, from symmetrical approaches that positively alter the relationship and thus facilitate common understanding. Ideally, exchanges should follow a bottom-up approach that generate a sense of co-ownership of the solutions.

	INFORM	CONSULT	INVOLVE	COLLABORATE
<b>Method</b>	One-way engagement	Asymmetrical two-way engagement	Symmetrical two-way engagement	Co-owned solutions
<b>Objective</b>	Dissemination	Data gathering	Community building	Incorporate knowledge
<b>Means</b>	Website, Social Media, Press Releases	Surveys, Interviews	Discussions, Policy Briefings, Trainings, Best Practices	Cross-Learning Workshops, Peer-to-peer Learning

Figure 5. Methods for engagement

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