AMBER

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D5.12 Plan of Exploitation and Dissemination of Results M48

History of changes

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Executive summary

The present document is a deliverable of the AMBER project, which is funded by the European Union's Horizon 2020 Programme under Grant Agreement (GA) #689682.

This document presents the project's "Plan on Exploitation and Dissemination of Results" (PEDR), defining the strategy and implementation measures envisioned to efficiently disseminate project outputs in order to ensure the best exploitation of its results, as part of Work Package 5 – "Dissemination".

The Plan of Exploitation and Dissemination of results (PEDR) describes the measures proposed by the AMBER consortium to disseminate and best exploit project results. This document serves as a management tool for both the project partnership and the European Commission to ensure that the AMBER dissemination and exploitation activities are adequately and timely planned and implemented. It is meant to be a living document that will be systematically reviewed and updated at each consortium meeting. A revised version of this document will be prepared after M12 when the activities delivered over the first year will be assessed and the strategy for the second year described.

The AMBER project's Plan on Exploitation and Dissemination of Results" (PEDR) will be systematically reviewed and updated on the occasion of each consortium meeting in a dedicated slot. Based on the project progress, the measured impact and the effectiveness of the disseminations, this plan on exploitation and dissemination of result will be revised once a year (in line with the periodic reporting).

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1   INTRODUCTION

Nearly all major EU Rivers are heavily fragmented. Stream fragmentation remains one of the main reasons for failure to meet WFD targets, whilst barriers for hydropower generation are expected to increase in number, which will cause further fragmentation. Also, stream connectivity is poorly defined and criteria for restoration are often arbitrary and taxon-specific. While there is no global overview of stream barriers in Europe, there are many more barriers than is possible to mitigate for. In addition, available information on stream barriers is fragmentary, uses different data standards, is based on different criteria, and is largely inaccessible to most stakeholders. Lastly the existing tools for barrier impact assessment, prioritisation, and assessment tend to be heavily biased towards migratory fish.

AMBER will generate:
1. An Interactive European map of stream barriers;
2. Efficient methods of measuring stream connectivity;
3. A decision support tool to help mitigate for the impact of barriers;
4. Tools and protocols for adaptive barrier management;
5. Citizen science (interaction with the general audience, creating advocates to raise awareness and to improve the current situation).

AMBER exploitation will target four strategically important EU priorities:
1. **Growth:** AMBER will target one of the main limitations of current stream restoration efforts and will thus produce more effective restoration strategies for river ecosystems, which is compatible with other water uses. This will improve energy security, help protect jobs, and boost European competitiveness, particularly in rural economies.
2. **Conservation of Biodiversity:** AMBER will have beneficial effects on the restauration of freshwater flora and fauna and will serve to protect global biodiversity in running waters by decreasing river fragmentation, promoting habitat connectivity, and evaluating the merits of different restoration actions through several quantified targets.
3. **Transnational Cooperation:** AMBER will serve to showcase what Europe can achieve in terms of international strategic collaboration, while knowledge transfer promoted through the consortium will help in the sharing of innovative ideas and technologies.
4. **Public involvement and Education**: AMBER will merge public knowledge with expert assessment from participating NGOs, thus highlighting the value of participatory resource management.

2   FRAMEWORK OF DISSEMINATION AND EXPLOITATION

2.1   Key concepts and objectives

Since dissemination is closely tied to communication, this framework of dissemination and exploitation activities also includes some communication elements. However, to clearly make the distinction between dissemination and communication, the EC defines communication and dissemination as:

"Communication on projects is a strategically planned process, which starts at the outset of the action and continues throughout its entire lifetime, aimed at promoting the action and its results. It requires strategic and targeted measures for communicating about (i) the action and (ii) its results to a

multitude of audiences, including the media and the public and possibly engaging in a two-way exchange."
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/glossary
Communication will therefore contribute to supporting dissemination and exploitation objectives.

Dissemination: "The public disclosure of the results by any appropriate means (other than resulting from protecting or exploiting the results), including by scientific publications in any medium."
http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/h2020-guide-comm_en.pdf
The dissemination of the project outputs to key stakeholders aims at making the knowledge (results) developed through the project available to the widest audience and enhancing project exploitation potential.

AMBER has established an exploitation and dissemination strategy to ensure that information is adequately transferred and can be used beyond the life of the project. AMBER expects a long-term return from data, since it hopes to achieve a paradigm shift necessary to achieve a more efficient restoration of stream connectivity in Europe.

AMBER endeavours to:
- Inspire long term commitments from key players;
- Influence policy makers by delivering pragmatic solutions to restoring river connectivity across Europe during workshops;
- Encourage participation of citizens to participate in river restoration through using the AMBER app. One of the novel aspects of AMBER is that it will use data provided by citizens to improve the barrier database. This will continue after the project is finished and will contribute to ensuring continued progress after the project is complete. A detailed plan will be developed within the citizen science program;
- Provide technical advances and necessary tools, models and the guidelines for barrier removal, adaptive barrier planning and code for best practices, which have never been attempted before. These will all be readily available (open-source) for practitioners, policy makers and other interested parties to use;
- Build knowledge that can be applied to development of future studies and teaching programs;
- Encourage future research activities based on the resulting outcomes of the project.

The strategy of dissemination and exploitation of the AMBER project is based on the following logical framework.

Following the completion of the project, all partners will ensure that resources are also available on their respective websites.

2.2 Roadmap of activities

At the start of the project, as no results are available yet, the communication strategy focused on raising project awareness among the stakeholder community, then, as first project results became available, dissemination of project outputs started and lasted until the end of the project period. During the last quarter of the project, the consortium made sure the project results are available to the wider audience to promote use in future research activities and further exploitation.

2.3 Roles and responsibilities

The World Fish Migration Foundation (WFMF) is leading lead the AMBER project exploitation and dissemination activities based the actions listed in this Plan on Exploitation and Dissemination of

Results (PEDR) and the Knowledge Translation Strategy*. This Plan on Exploitation and Dissemination of Results (PEDR) should be read in conjunction with the Knowledge Translation Strategy. WFMF encourages all project partners to contribute to these communication, exploitation and dissemination activities. The list shown below in **Table 1** lists in more details the activities and the roles and responsibilities of each project partner.

Table 1. Overview of activities related to dissemination and exploitation and their responsible partners

Activity	Responsible project partners
Plans	
Plan for Exploitation and Dissemination	WFMF (L)
Knowledge Translation Strategy*	WFMF (L)
Products	
AMBER flyer	WFMF (L)
Media articles	WFMF (L), DTU, ERCE, SOTON JRC, SU
Project Reports	WFMF (L), DTU, ERCE, SOTON JRC, SU
Policy Briefings	WFMF (L), DTU, ERCE, SOTON JRC, SU
Peer reviewed publications	WFMF (L), DTU, ERCE, SOTON JRC, SU
Short videos	WFMF (L), DTU, ERCE, SOTON JRC, SU
Barrier Atlas	SU, WFMF, JRC (L)
Decision support tools	ERCE (L), SOTON (L)
Citizen Science program	WFMF (L)
Online Channels	
Website	WFMF (L)
Newsletters	WFMF (L)
Social Media	WFMF (L), DTU, ERCE, SOTON JRC, SU
Smartphone App	SU, WFMF (L), JRC
Contact database	WFMF (L), DTU, ERCE, SOTON JRC, SU
Offline Channels	
Workshops	WFMF (L), DTU, ERCE, SOTON JRC, SU
Presentations	WFMF (L), DTU, ERCE, SOTON JRC, SU
Events	WFMF (L), DTU, ERCE, SOTON JRC, SU
Print (magazine, newspaper, journal)	WFMF (L), DTU, ERCE, SOTON JRC, SU

*Since there is a clear link between communication and Dissemination, the communication plan (Knowledge Translation Strategy) has been included in the list of responsibilities.

2.4   Target audiences

Whichever the target audience, the final output of communication is ultimately with the citizens. There are five different scales of communication.

International: International NGO's, International hydropower companies, European Policy makers.

National: National NGOs, National associations, National Policy makers, National hydropower companies.

Regional: Water authorities, regional Authorities, Angling associations, Wildlife trusts, Canoeing associations, educational institutions.

Local: Fisheries and environmental groups, general public, Farmer communities.

Citizens: People within the EU who are ultimately affected by the AMBER outputs.

First the target audience must be identified, subsequently the strategy for communication can be determined.
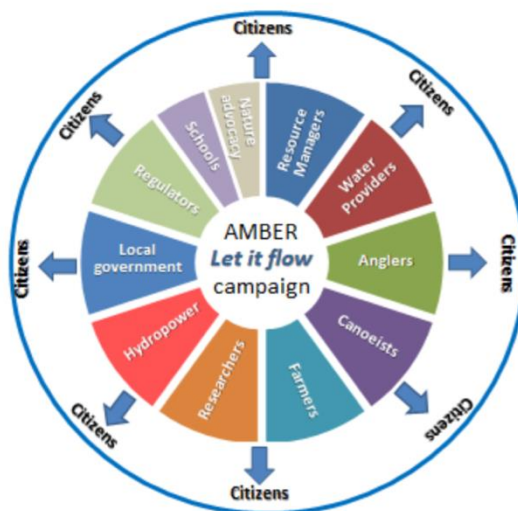
Figure 1. AMBER Target audiences.

2.4.1   Identifying the target audiences

How does the project reach the target audiences? That depends on the scale.

International: international communication, using AMBER tools, sharing of information and influence policy and decision making.

National: national communication, using AMBER tools, sharing of information and influence policy and decision making. They have a huge base of followers and therefore a lot of reach to effectively share content, information and communication.

Regional: ensure spreading the message that AMBER is communicating, reaching (local) organisations, communities and groups and become active users of the AMBER tools.

Local: actively participate in AMBER by supporting citizen science and using the smartphone application. Their work impacts not only the work of AMBER but also their local communities.

Citizens: the biggest group with the biggest reach but also the most diverse and difficult to reach. As shown in figure 1, they are at the end of the communication model. Therefore, an important aspect of the communication is that if content is shared by local, regional or national organisations it still needs to appeal to the citizens.

2.4.2 Trends, channels and the needs of the target audience

As part of identifying the target audiences their segmentation, trends and needs have been established. This information is listed in **Table 2** below.

Table 2. Overview target audiences, associated channels and trends.

AUDIENCE	SEGMENTATION	CHANNELS	TRENDS	NEED AND CHARACTERISTICS
General Audience	- Local - Regional - National - International - Active outdoor living - Green living - Connected to rivers/water	- Social Media - Through organizations related to their interest/hobbies/sport - Newsletters from organizations - TV, Radio, newspaper, magazine	- Sustainability - Aware of nature - Power to the people - Interested in rivers/water but not in science	- To receive feedback - Personal satisfaction - Have little time to spend - Use spare time for hobby or interest - Learn (new skills) - Want two-sided communication
Dam Owners	- Local - Regional	- Magazines - Industry updates (blogs) - Partner Newsletters - ICOLD - www.hydroworld.com	- growing need for water - the largest percentage of single-purpose dams, which make up more than 70% of dams worldwide, are designed for irrigation, providing a valuable asset to agricultural and rural regions. - The second largest use (18%) of single-purpose dams is to impound	- Serious approach - What is in it for me? - Everything costs money - Managing aging infrastructure - Using new technology

AUDIENCE	SEGMENTATION	CHANNELS	TRENDS	NEED AND CHARACTERISTICS
			water for hydroelectric power generation	
Water authorities & River Basin Authorities	- Regional	- reports, analytic data Feedback from constituents Other water authorities	- Building with nature - Water safety remains priority	- very depend on constituents - Political agendas - Competitive with other water authorities
Municipalities	- Regional	- Other municipalities - Government - Local and regional feedback	- integrating data and technology - Cloud computing - Government as platform - Social collaboration - The Sensing Environment	- Inexpensive solution to big problems - Pushback against custom development - Prefer Outcome-Based Engagement - Using Multichannel Citizen Engagement
Angling associations	- Local - Regional - National - International	- Fishing magazines/blogs/sites/vlogs - Social media groups - Events	- Fly fishing - Catching the biggest fish - growing demand for fishery products - Sustainability	- Love for what they do - Motivated - Strong community feeling - Meeting likeminded people - Close to nature
Water Sport organizations	- Local - Regional	- Water sport brands (e.g. quicksilver, Patagonia, The North Face) - Social media (specific groups)	- Rising popularity water sports - Have a local reach but together regional impact	- Active - Rely on participants - Depend on free-flowing rivers for business - Their target is young and active
Educational institutions	- Regional - national - Universities - Education boards	- newspaper, magazines, print ads - newsletters	- Bring your own device (BYOD) - 3D printing	- Digital approach - Adapting to "new learning" - Open for new educational materials

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AUDIENCE	SEGMENTATION	CHANNELS	TRENDS	NEED AND CHARACTERISTICS
		- Student feedback	- Student-driven learning - The internationalization of education	- The Power of Personalized Learning Through Tech
NGO's	- National - International - Nature conservation - Water, rivers	- feedback from people - Reports - Scientific data	- Sustainability - Biodiversity conservation - Stimulate own responsibility of citizens	- Sensitive to input from funding parties, often individual citizens in form of membership - Awareness creating - Partnering with industry - Using Multichannel Citizen Engagement
Policy makers	- National - International (in particular WFD working groups and the DG environment of the European Commission)	- Reports, analytic data - Feedback from the people - Scientific data	- power shifts and diffusion - technological innovation - growing economic and financial interconnectedness - climate change - resource scarcity - population growth - evolution of the Internet - Individual activism - public debt; and - urbanization	- What is the impact? - Awareness is nice but what are the long term results? - Political agendas - Geopolitical realignment - Anonymity, privacy, security
Hydropower companies	- National - International	- Industry updates (blog, magazine, policy)	- Advanced hydropower control technologies enable	- IHA, International Hydropower Association - Partners - Managing aging infrastructure

AUDIENCE	SEGMENTATION	CHANNELS	TRENDS	NEED AND CHARACTERISTICS
		- Board meetings - Partner channels (on and offline) - www.hydro world.com	renewable hybrids - Climate aspects increasingly influence project design - Climate bonds market attracts strong hydropower interest - Hydropower drives regional interconnecti ons	

2.4.3   Further research into target audiences

In order to further identify key stakeholders among the proposed target audience, the AMBER project planned a series of stakeholder workshops.

Two stakeholder workshops focused on integration of AMBER results into EU policy (the 1st, an introductory meeting/workshop originally planned in 2017, and the 2nd was a large stakeholder workshop originally scheduled for 2019). Furthermore, a series of national AMBER workshop were planned to take place from 2017 to 2019 to also identify and interact with key stakeholders in the different countries.

The AMBER project interacted with other EU funded projects to obtain network connections and assess possibilities for cooperation. Examples are: FITHYDRO, KEEPFISH, MARS, RECONNECT and though finished, the REFORM project (especially the River Restoration Wiki).

3   EXPLOITATION AND DISSEMINATION STRATEGY

3.1   Aim of the Strategy

AMBER is closely aligned with Horizon 2020 strategies and its impact can be measured through several quantitative indicators and targets designed to help exit the current economic crisis. It targeted four strategically important EU priorities:

1. **Growth.** There are more than 50 million sport fishermen in Europe who bring in excess of €30 billion to the economy and whose activities depend in part on the maintenance of healthy, well connected rivers. On the other hand, Small Hydro Power Plants (SHP) generate an annual turnover of c. €180 million and supports in excess of 20,000 jobs in the EU-15 SHP sector alone. Water is also used extensively for irrigation in agriculture but it is recognised that an increase in water resource efficiency is a EU priority for agricultural practice, in coordination with the Water Framework Directive, to improve water quality and quantity. Good agricultural and environmental conditions (GAEC) are a requirement under the EU Common Agricultural Policy (CAP). By promoting the restoration of stream connectivity through adaptive barrier management, AMBER targets one of the main limitations of current stream restoration efforts and will achieve a more effective restoration of river ecosystems, which is compatible with other water uses. This should improve energy security, help protect jobs, and boost European competitiveness, particularly in rural economies.

2. **Conservation of Biodiversity.** AMBER is closely aligned with the EU 2020 Biodiversity Strategy (including Natura 2000 zones). It will have beneficial effects on the restauration of freshwater flora and fauna and will serve to protect global biodiversity in running waters by decreasing river fragmentation, promoting habitat connectivity, and evaluating the merits of different restoration actions through several quantified targets, including:
   - meeting the target of achieving 100% improvement in the conservation status of freshwater species under the Habitat Directive, and securing 50% improvement in the status of some riverine species listed under the Bird Directive
   - establishing green infrastructures for the maintenance and enhancement of freshwater ecosystems and their services, and the restauration of at least 15% of degraded fluvial systems (especially in urban areas)
   - bringing about measurable improvement in the conservation status of aquatic species and stream habitats affected by agriculture and forestry
   - generating beneficial effects on the population age and size of protected and umbrella species through better management (e.g. reduced impact of barriers on migratory fishes)

3. **Transnational Cooperation**. AMBER will serve to showcase what Europe can achieve in terms of international strategic collaboration, while knowledge transfer promoted through the consortium will help to overcome the innovation divide between regions. AMBER fits particularly well with the 2013 EU Strategy on green infrastructures, that aim to make greater use of wetlands and other natural areas across Europe to reduce flood risk and result in cleaner water.

4. **Public involvement and Education**. Nine Higher Education Institutions and two NGOs are represented in AMBER and the project has consequently strong education and outreach components. The project will merge public knowledge with expert assessment from participating NGOs, thus highlighting the value of participatory resource management.

3.2 Strategy

AMBER established an exploitation and dissemination strategy to ensure that information was adequately transferred and can be used beyond the life of the project. AMBER expects a long-term return from data, since it hopes to achieve a paradigm shift necessary to achieve more efficient restoration of stream connectivity in Europe. In this strategy, the definition of Exploitation is the same as defined by the European Commission: "The utilisation of results in further research activities other

than those covered by the action concerned, or in developing, creating and marketing a product or process, or in creating and providing a service, or in standardisation activities."`

Challenges experienced

Having learned from the first and second period of the project and the evaluations, WP5 concluded that the project had two main challenges:

- Getting citizens involved. The target audiences are immense and currently the awareness on the subject of river fragmentation is low. In general, one could say that issue has little attention and priority, which makes it harder to get people involved.

- Connecting experts and citizens. One could argue that when it comes to this subject, the gap between citizens and experts is huge. Scientists working on the subject use words for concepts that are often still unknown by citizens. That means that in communication this gap between the 'two worlds' somehow has to be bridged.

Consequences for the strategy

For the strategy, the challenges experienced led to strategic decisions:

- The project results need to be more adjusted to the target audience. To get citizens involved in the citizen science, we decided:
    o to insist on using the right language (per country)
    o to make the app easy and attractive to use (including data of existing databases)
    o to add a competitive element for users of the app

- Having recognised that the target audiences are immense, and our project resources are limited, WP5 decided to focus on 'Changemakers regarding fragmentation of rivers'. This strategy made our communication, exploitation and dissemination activities more effective. Also, we expect that the changemakers can be the most important end-users of the project results after 2020. These changemakers (or sometimes called change agents) are people who want to improve connectivity of rivers and are able to make it happen. They can be angling fishermen, kayakers, government, water authority, NGOs, etc. There is no official title for that, but in general we are all able to mention a couple of people who actually take such a role in certain countries or regions.

- The above means that identifying the changemakers is a bit of a subjective activity. They have to be identified by personal interpretations of people, in this case the team members and through their networks. The names and contact are gathered via the WFMF and the details will be included in the contact database.

Logical Framework

The strategy for dissemination and exploitation is built on the reasoning which is shown in the logical framework (**Figure 2**).
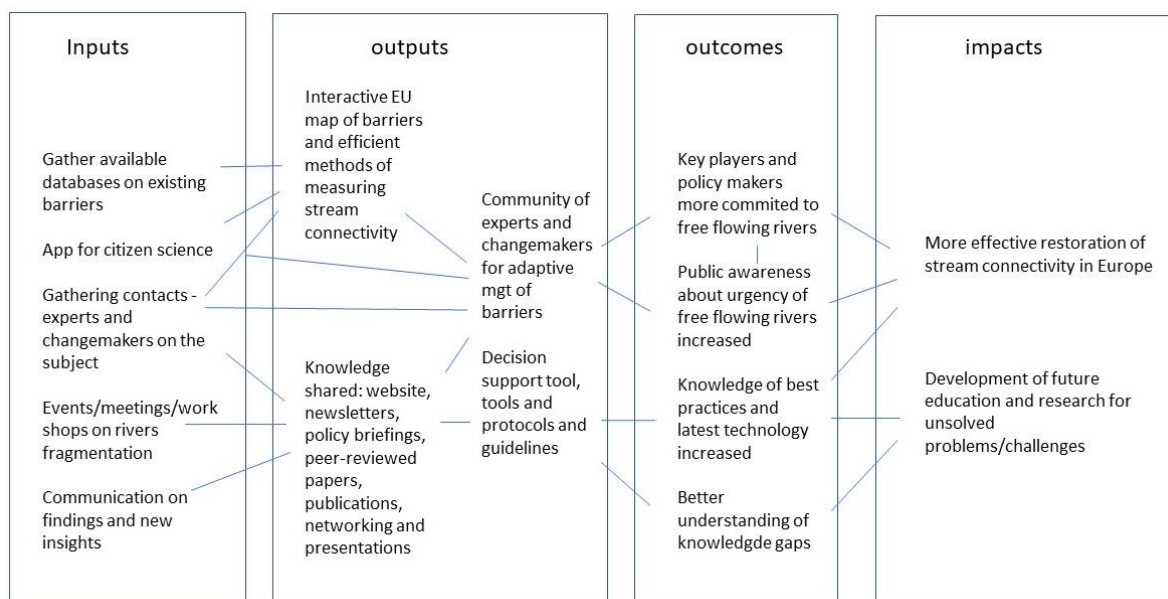
Figure 2. Logical framework.

The inputs are the activities of the project team, which lead to project results (output). Together these project results have effects (outcomes) which will lead to changes in stream connectivity of European rivers and future education and research. The project results will be discussed in more detail in the next chapter.

3.2.1   Dissemination strategy

Sharing research results with potential users has been done through several activities. First, a list of contacts, changemakers and people that are potential end users and/or people that are likely to disseminate our information within their networks. Second, updated website, the use of social media, newsletters, scientific and non-scientific articles, presentations and use of professional networks.

As discussed in the previous chapter we reached citizens through different target audiences, with their own specific needs and characteristics:

- **National & International:** In-depth information with clear results and case studies with media articles and reports. All still provided with an activating and visually appealing theme. Channels: mailing, website, media articles, reports, offline channels: events, workshops, social media (TW, FB, YT).

- **Regional:** In-depth information on regional level with an activating message "spread, share, join, etc.". Less focus on citizens but still trying to avoid scientific jargon. Channels: Newsletters, Social Media (LI, TW, YT), print ready materials, smartphone app, offline channels: events, workshops, website, media articles.

- **Local:** To the point messaging about news, data, case studies, updates from their own area. Keep it local, keep it simple and activating and understandable for citizens. Channels: Social Media (TW, FB, YT), mailing, media articles, website, offline channels: events, workshops, smartphone app, offering print ready materials for outreach and information.

- **Citizens:** Some citizens will be interested by local communication and others by regional or national since they all offer a different style of content. Channels: website, print materials, social media (TW, FB, YT)

Given the importance of engaging citizens in the project and the limited resources for such an immense target audience, social media was a channel of priority.

The citizen science programme was launched by presenting the app from the 21st of April 2018. The launch was done in three different phases, starting with the countries where language translations are available, the right contact persons have been identified and where we had the best we information on existing databases. The start of the launches coincided with the World Fish Migration Day, to increase chances that press, and other stakeholders would pick up the invitation to join. The partners organised special events, to involve the relevant stakeholders or to create extra momentum for communication possibilities. Lessons learned, and success stories were used for the second phase, inviting changemakers in countries where the project has no partners to become active. They were asked to make translations and launch the citizen project in the respective country.

The communication was supported with materials, which will be discussed in more detail in the next chapter.

3.2.2   Exploitation strategy

Next to the dissemination of the project results, we wanted the project to be used to have the impact intended. After the project is finished, we want the AMBER Barrier Atlas to be updated regularly, the policies being adjusted, and further research developed.

A first important step towards exploitation was to involve direct stakeholders, changemakers and citizens in build the AMBER Barrier Atlas together, leading to more understanding in society that fragmentation is an important issue, and that there are tools and guidelines available to enable change. Events like the national workshops with a selected group of people are meant to inspire so that after the workshops they will be more willing to cooperated and eager to start. The project should be seen as the start of a process, optimising the AMBER Barrier Atlas and planning for improvements in connectivity of European rivers.

3.2.2.1   Strategies for exploitation activities

The following activities are specifically meant for exploitation of the project results:

- **Policy briefings**: the briefings will be made available as downloads on a dedicated location and on search engines. Their free, long-term availability ensures that project results will be easily accessible for policy makers and can serve as a component of new policies related to river connectivity.

- **Workshops**: with direct stakeholders in the respective countries, with whom we would like to share the project results, are mean to inspire participants to continue the project after 2020. For example, we think of people working at national water authorities or specific changemakers from other target audiences.

- **Making the AMBER Barrier Atlas easily and interactive accessible:** so it will be the first location people will visit when they are looking for information on river barriers. The database

of barriers collated through the Barrier Tracker App is accessible on the app itself in map form, so people can check barriers in the field. This is an added value which currently does not exist in the market beyond AMBER. In order to best exploit the Barrier Atlas developed during the AMBER project, after the completion of the project, the atlas will stay available on a dedicated location along with the corresponding databases. Also, the connection with the smartphone app will remain to ensure the atlas can continue to be fed data from users in the field. After the completion of the project, the smartphone app will be made freely available as download in the google play store (android) and the apple store (IOS). Long term support of the App will be secured during its production and funding provided from the AMBER budget. After the completion of the project, the citizen science program shall be continued by the WFMF. This will ensure the citizen scientists stay active, involved and motivated.

- **Creating Decision Support Tools:** that explicitly recognise the existence of local adaptation, making it possible to restore connectivity at the catchment scale whilst acting locally. missing.

- **Free availability of peer-reviewed publications:** in order to best exploit the peer-reviewed publications developed during the AMBER project, after the completion of the project, the publications will be made available as downloads on a dedicated location and on scientific search engines. Their free availability in the long-term ensures that project results will be easily accessible for other scientist and researchers and that the project results function as basis for future top-level research on river connectivity.

Each of the project partners involved in AMBER is responsible for adequate exploitation of their own developed product to their own abilities. WFMF will oversee the exploitation on a project level. SU will provide a dedicated location for program, report and data storage on the long term after completion of the project.

3.2.2.2   Innovation aspects of AMBER and opportunities for commercialisation

AMBER is a scientific project with a strong link to citizen science and participation of a diverse audience. Keeping in mind that information from the project can also be read by the general public, this information has been presented in a visually appealing way, providing infographics, videos, animations and GIFs. This approach had many innovative aspects; like making scientific results interactive and understandable for a wide audience and motivating citizens to participate and see how their contribution is having a positive impact on river connectivity in Europe. Contrary to many other scientific projects, AMBER has an added focus on the general audience which can be considered innovative.

Two main innovative elements in the AMBER project are the AMBER Barrier Atlas and smartphone application, the "Barrier Tracker App". AMBER provided an unprecedented overview of existing barriers in European rivers in the Barrier Atlas. The Atlas is based on highly fragmented existing data and supplemented using data acquired through the AMBER smartphone application, which allows users to record and submit barriers and contribute to the data of the Atlas. The Barrier Atlas and AMBER smartphone app geographically cover all 28 EU member states and are therefore has a large impact as they provided a first of its kind barrier inventory for the entire European Union.

Another innovative element in the AMBER project is that it developed decision support tools for use in river basin management. The tools focus on river infrastructure assessment, river infrastructure planning and management scenario comparisons. These are the first support tools developed for adaptive barrier management and are intended to become standard operating procedures.

The app, the Barrier Atlas and the decision support tools are products that can be of value to companies or industry. Although at the moment not directly envisioned, by creating them to be accessible through the internet, a wide range of commercialisation opportunities are possible. Through parties like industry, NGO's or water authorities, the app, the Barrier Atlas and the decision support tools can for instance be further developed into internationally used tools and thereby have an everlasting effect on river connectivity and barrier management policies.

3.2.2.3   Data management

To ensure the best possible exploitation of the project outcomes, the data, metadata and results from the AMBER project are made as "FAIR" (Findable, Accessible, Interoperable & Re-useable) as possible, as detailed in the AMBER Data Management Plan (D6.1).

The expected data from the AMBER project is listed in the AMBER Data Management Plans. Part of the expected data is expected to have further utilities beyond the scope and duration of the AMBER project. This data could be considered potentially interesting to other projects and stakeholders for future use. **Tables 3** and **Table 4** therefore show an overview of information on the further utility of data (taken from the AMBER Data Management Plan).

Table 3. Summary of data types collected within the AMBER project WP1,2,3. 'Further utility' are applications for the data outside the direct scope of the project.

Data	Further utility
Collation of barrier data throughout Europe	Scientific investigations
Metadata on the barrier inventory (T1.2.1)	Understanding the barrier data; procuring further barrier data within Europe
Validation data	Representative of intense and comprehensive barrier surveys
Barrier inventory	Research; shaping policy
Drone generated river habitat data	Research for improving image interpretation; promotional media
European sediment connectivity data	Widespread research applications
Effect of climate change on river connectivity	Research; example for strategic planning of climate change scenarios for environment agencies
eDNA detection thresholds	Widespread use for application of metabarcoding; improvement/research to further develop metabarcoding
Presence/absence of aquatic biota based on eDNA sampling in test catchments	Example for other metabarcoding field exercises
Ecosystem services and interaction with stakeholders	Example of relationships between ESS, barriers, and stakeholders
Hydropower potential and pass ability	Example of assessing hydropower potential (though data likely to be combined with other data within decision tool)
Hydrodynamic conditions at river infrastructures	Useful data for research, regulatory bodies and hydropower industry
Behaviour and locomotory performance of weak swimmers	Research
Field data of pass ability of species (focus on non-salmonids)	Important information for regulatory bodies: informing EU habitats directive and Convention on Biological Diversity and movement of invasives.
Cost-Benefit of restoring stream connectivity	Regulators/Public: data to assist conflict resolution in barrier management; Research
Social attitudes to dams in rivers	Regulatory bodies/public: for understanding and informing conflict resolution
Inventory of barriers and river structures within German test catchment	Representative of intense and comprehensive barrier surveys

Table 4. Data collected during WP4 (Case Studies).

Data	Further utility
River Nalon field data (Spain)	Case study examples for public/regulators; catchment management within the specific catchments
River Allier (France) field data	
River Munster (Ireland) field data	
River Gary (Scotland) field data	
River Vistula (Poland) field data	
Lowland river (various countries) field data	
River Guardalhorce (Spain) field data	
Trans-European Status of Atlantic Salmon	Informing policy decisions; national and local conservation/ restoration efforts

3.2.3   Strategy per target group

Considering the different target groups, the strategy for dissemination and exploitation is shown in **Table 5** below. The table also shows the main activity concerned and which indicators can be used to measure progress during the progress of the project. The indicators will be quantified in a later paragraph of this document.

It appeared that measuring the reach and numbers of specific civil society target groups (like angling associations and water sport organizations) was difficult, because many of the people involved act on social media on a personal level, rather than as a member of a civil society organisation. We believe that measuring the reach of social media and the number of citizens involved is sufficient, therefore, we do not measure the reach of specific target groups specifically.

Table 5. Strategy per target group for dissemination and exploitation.

AUDIENCE	Main dissemination strategy	Main exploitation strategy	Main activity concerned	Main indicators
General Audience	- Make people aware that barriers are an important issue, on local and European level, via the Citizen Science programme.	- Make information on barriers that easily accessible that people are triggered to look for this information within their own region.	- Citizen Science Programme	- Reach Social Media - Number of citizens involved
Dam Owners	- Make them aware of the issue and project results via media	- Stress in communication that solutions are possible and not necessarily expensive	- Media exposure	- Number of media articles

AUDIENCE	Main dissemination strategy	Main exploitation strategy	Main activity concerned	Main indicators
Water authorities & River Basin Authorities	- Share changemakers the results of the Citizen Science programme, together with products like the Decision Support tools	- Involve changemakers with the gathering of the data for the Atlas and involve them for the launch of the Citizen Science programme where possible.	- National Workshops	- Number of attendees of all workshops
Municipalities	- Same as above (for water authorities)	- Involve changemakers for (the launch of) the Citizen Science programme where possible	- Citizen Science Programme	- too difficult/expensive to measure separately
Angling associations	- Ask European Angling Association and regional organizations to disseminate project results	- Involve changemakers for (the launch of) the Citizen Science programme where possible	- Citizen Science Programme	- too difficult/expensive to measure separately
Water Sport organizations	- Ask regional organizations to disseminate project results	- Involve changemakers for (the launch of) the Citizen Science programme where possible	- Citizen Science Programme	- too difficult/expensive to measure separately
Educational institutions	- Ask changemakers within educational institutions to disseminate project results	- Involve changemakers for (the launch of) the Citizen Science programme where possible	- Citizen Science Programme	- too difficult/expensive to measure separately
NGO's	- Ask NGOs to disseminate project results	- Involve changemakers for (the launch) of the Citizen Science programme where possible	- Citizen Science Programme	- too difficult/expensive to measure separately

AUDIENCE	Main dissemination strategy	Main exploitation strategy	Main activity concerned	Main indicators
Policy makers	- Ask changemakers within policymaking institutes to disseminate project results	- Organize specific workshops at the right time of policy cycles for policymakers with project results	- Policy briefings	- Number of policy briefings
Hydropower companies	- Share results from the Amber project via Dam Owner changemakers in workshops and cooperation with FitHydro.	- Having involved hydropower organizations in the Amber project and organizing the final event together with FitHydro will mean they have to specify how they will make use of the results of the Amber project.	- Final event and cooperation with FitHydro	- Number of attendee's event

3.3   "Let it flow" campaign

A main challenge of the project was to bridge the 'world and language' of experts and the citizens. A separate campaign enabled messaging for a wider audience. Called "Let it Flow", the term, look and feel was consistent for different audiences, whilst the messages and channels are more audience specific. Therefore, an important part of the content of the external communication was based on the "Let it flow" campaign. It had a consistent visual standard for communication. The communication campaign aimed to connect with the target audiences and inspire action, participation and innovation. The campaign also ensured the consistent use of social media hashtags, communication style, use of visuals, video and overall communication to interact with the target audiences.

AMBER was new name/brand at the project launch, and therefore it was introduced. The link with AMBER and the let it flow campaign ensures that the communication covered both brand awareness of the AMBER project and outreach by using the "let it Flow" theme. Communication of AMBER often included a link to the "Let it Flow" theme (e.g. slogan in combination with logo) or social posts with #letitflow. The Let it Flow theme always has to be combined with the AMBER logo and/or textual explanation.

3.3.1   Communication Style

The main goal for the Let it Flow campaign was to engage with the target audiences. To successfully start a dialogue with both the general audience and other target audiences the campaign had to communicate to each of them in a specific way:

General Audience

- Avoid scientific jargon and use short, clear and easy to understand vocabulary without losing the core message.
- Write in an activating tone "Join, Help, Work Together, etc.".
- Ask questions, engage people to join the conversation.
- Support communication with visual elements.
- Use humour.

Scientists, corporations

- Scientific terms can be used, but not on social media.
- Write in a formal and clear tone.
- Give conclusions, new findings, start a discussion.
- Support communication with data visualisation
- Include reports or visuals related to a specific research or method.

Closely involved (NGO, partners, river managers)

- Scientific jargon can be used, but not on social media.
- Write in a formal, activating and clear tone.
- Give conclusions, new findings, start a discussion, can use humour.
- Support communication with data visualisation or beautiful visuals
- Include reports or visuals related to a specific research or method.

On Social Media

Social media is not a channel people use to read big stories on. People tend to scan these channels, so the communication style must be short, clear and ideally supported by visual elements as photo, video, data visualisation or GIFs. On all 'Let it flow' related tweets the following hashtags should be used: #letitflow, #AMBER, @ambertools

3.3.2 Tactics

The Let it Flow campaign included the following dissemination products & channels (described in detail in chapters 2.5 & 2.6):

- Case studies
- Citizen science platform
- Newsletters
- Barrier atlas
- Social media
- Events

3.4 Expected impact of exploitation and dissemination activities

3.4.1 More effective restoration of stream connectivity in Europe

The consequences of meeting the challenges proposed by AMBER are potentially enormous. Meeting the proposed goals will build knowledge based on empirical data and provide a benchmark for implementing similar valuations for other ecosystems, while providing an alternative source of wealth through the promotion of adaptive management of instream structures. Likewise, high societal impact

will be achieved through specific training and education components considered in AMBER, as well as through the engagement of citizens through an innovative citizen science programme.

Furthermore, the external communication of AMBER has been aimed at creating public awareness in relation value and importance of river ecosystems. Because of this heightened awareness, targeted people in the EU will likely care more about their rivers, feel more involved with their rivers and are more likely to get involved in future projects related to rivers and river management.

The policy briefings developed during the AMBER project, along with the consultation of the primary policy stakeholders (WFD working groups and the DG Environment of the European Commission) during stakeholder workshop or meetings will ensure the results from the AMBER project are integrated into relevant policy, maximising the impact of the AMBER project on the field of policy.

The decision support tools developed during the AMBER project are intended to support practitioners the field of barrier management and barrier planning with implementing adaptive barrier management. This will result in more barriers being adjusted to ensure mitigation of negative effects on river ecosystems, the removal of outdated or unused barriers and hopefully the protection of pristine sections of rivers from new hydropower initiatives.

3.4.2   Development of future education and research

Many of the instigators of AMBER are research driven institutions, and achieving high scientific impact is very much at the heart of this project. Outputs of AMBER need to be scientifically sound and accepted by peers if they are going to achieve societal impact. Thus, AMBER has produced a series of high impact peer-reviewed publications underpinned by several standard operating procedures in relation to (1) data mining and modelling, (2) development of citizen science, (3) ecosystem service valuation, and (4) adaptive barrier management. With these high-quality peer-reviewed publications and standards operating procedures, the AMBER project has set a precedent and paved the way for future projects working on adaptive barrier management .

4   EXPLOITATION AND DISSEMANTION PRODUCTS AND CHANNELS

4.1   Visual identity

Description: The visual identity of AMBER shows that the project has a clear link with the Water Framework Directive (WFD) whilst giving the project its own identity as an EU-funded project. Based on the colour palette of the Water Framework Directive and a connection to "let it flow", a logo, a set of templates and visual materials have been designed by WFMF and made available to all project partners in a so-called "Branding Toolkit".

This "Branding Toolkit" includes:
- AMBER logo;
- AMBER style elements;
- AMBER font;
- Template for PowerPoint presentations;
- Word document template
- Guidance document on use of visual material.

Goal: Creating brand awareness. The materials in this "Branding Toolkit" ensure that the AMBER visual identity is consistent throughout the duration of the project. The materials in the toolkit are mostly used for external communication.

Target: All target audiences

Dissemination results: Introduce AMBER and create a recognizable "brand" which people can rely on when it comes to Adaptive Barrier Management in Europe.

4.2   Amber flyer

Description: An AMBER flyer has been produced. This flyer is handed out at AMBER events and presentations. It can also be distributed online under the form of clear and appealing info-graphics, that can be easily spread through social networks and interested websites.

Goal: to present the topic, objectives and activities of the project and a call to action with a link to the AMBER website. This is a way to show the need for this project in an appealing way and not like a scientific leaflet.

Target: General audience, NGO, partners

Dissemination results: 500 copies

4.3   Media articles

Description: Media articles (as listed on the project website http://amber.international/resources/) make reference to all types of written press articles focusing on presenting the project, its activities, its outcomes, etc., that are published on different channels. They may take the form of news, announcements, tweets, LinkedIn posts, press releases, published on external websites including partners' websites, on social networks, etc.

Goal: reach the classic and serious part of the target audience to show the competence and results of the project. By doing this a big list of press and online news contacts can be made.

Target: NGO, Scientist, Water authorities, Policy makers, hydropower, education

Dissemination results: broad contact list for press, more than 20 publications.

4.4   Project reports

Description: Project reports will form important dissemination products. During the lifecycle of the AMBER project, 14 project reports will be delivered and disseminated. The reports will be produced by WP1, WP2, WP3, WP4 and WP5. Their subjects are listed in **Table 6** below.

Goal: to provide in-depth information and innovative solutions to problems related to the AMBER project and keep people updated. Also, a good way to start the conversation on a serious level.

Target: NGO, Scientist, Water authorities, Policy makers, hydropower, education

Dissemination results: provide valuable information to create links to AMBER and initiate conversations and innovative results based on the outcomes of the reports.

Table 6. Overview of Project Reports

Work Package	Topic
1	Guidance on stream barrier surveying and reporting
2	Classification map of running waters considering fish community structure and barrier impacts
	Conceptual model of ecological impacts of barriers in EU considering habitat selection criteria for running Waters
	Rapid habitat assessment methodology supported by remote sensing
	Report on the molecular toolkit: taxon-specific sets of primers, protocols and pipelines
	Overview of river ESS demand and delivery in selected case studies under different scenarios of climate change and barrier management
3	Response by a range of aquatic organisms to hydrodynamic conditions commonly created at river infrastructures
	Quantification of economic costs and benefits of river infrastructures (evaluation of natural capital)
	Inventory of barriers and river infrastructures at test catchment with demonstration of Integrated Agent Based Dispersal Model
	Report on results of questionnaire to model social attitudes to dams and reservoirs
	Impediments to barrier planning and stakeholder conflict resolution
4	Review and meta-analysis of benefits, challenges, and trade-offs in adaptive barrier management
	EU salmon Atlas
5	Best practice guidance document on adaptive barrier management

4.5   Policy briefings

Description: Policy Briefings will form important exploitation products and help to include the results and findings of the AMBER project into European policy, for instance the WFD. During the lifecycle of the AMBER project, 3 policy briefings will be delivered and distributed for exploitation. The briefings will be written by WP1, WP2 and WP4 and edited by WP5 together with the project manager. Their subjects are listed in **Table 7** below. The AMBER Policy Briefs are available on the project website at https://amber.international/policy-briefs/.

Goal: to provide insights on policy changes and to reach a difficult target audience that can use the results of the project

Target: Policy makers, Water authorities, Dam owners, Hydropower

Exploitation results: 3 policy briefings

Table 7. Overview of Policy Briefings

Work Package	Topic
1	JRC Science for Policy Report on barrier metadata
2	Impact of stream barriers on ecosystem services and benefits of restoring connectivity
3	Adaptive barrier management

4.6 Peer-reviewed publications

Description: Peer reviewed publications will also form important dissemination products. They will be submitted and published in (scientific) journals. During the project lifecycle, 7 Peer reviewed publications will be delivered and disseminated. The briefings will be produced by WP1 (2), WP2 (2), WP3 (2) and WP4 (1). Their subjects are listed in **Table 8** below. To date, 22 peer reviewed publications have been produced and are available on the AMBER website at https://amber.international/peer-reviewed-publications/.

Goal: provide scientific results that can be spread among journals and magazines to share knowledge and initiate action and collaboration among scientists in the EU.

Target: Scientists, magazines, blogs

Results: a minimum of 7 peer-reviewed publications**.** To date, 22 peer reviewed publications have been produced, and are available on the AMBER website at https://amber.international/peer-reviewed-publications/.

Table 8. Overview of Peer-reviewed Publications

Work Package	Topic
1	Development of the Barrier Inventory and online Atlas
	extent of river fragmentation in Europe
2	Conceptual framework for estimating barrier effects on fluvial processes,
	Conceptual framework for estimating Barrier effects for a range of aquatic biota
3	Application of the AMBER decision support tool for barrier mitigation and planning
	Socio-economic drivers and impediments for successful reconnecting of rivers
4	Case studies in restoration of stream connectivity

4.7 Short video's

Description: Three short videos trailers (< 2 min) will be produced; one at M12 to promote clearly and succinctly the projects objectives and challenges; one at M24 to spread the goals, preliminary results and progress of AMBER and one at M36 to summarize the main outcomes of the project. Using drone footage and clear messaging, as well as utilizing the recording capabilities of online platforms used for project events and workshops, 43 videos have been produced. All AMBER videos are available at https://www.youtube.com/channel/UCPB6VBaM-p9Mv7s0yjfmDqA/videos.

Goal: Easily shared info on the web, and can be displayed on screens at events, video trailers are another very effective way to communicate.

Target: General audience, NGO, water sport, angling, dam owners

Results: 3 short videos, which will be used on the website, shared on social networks, and used during events to share valuable information about the AMBER project. Reach: more than 3.000 views.

4.8 Smartphone app

Description: As part of the AMBER project a Smartphone App will be developed. With this App users, can upload barriers they find in the field to the European Barrier Inventory. This way the barrier database can be filled cost effectively. The smartphone app is available as a download for Android and IOS on the AMBER website at https://portal.amber.international/.

Goal: Provide citizens and organisations with an easy tool to participate in a European research project.

Target: General audience, NGO, local, national and international organisations

Results: Citizen Science: filling database by using citizen insights and local data (over 1000 active users)

4.9 Barrier Atlas

Description: AMBER will feature an online interactive Atlas of stream barriers. There is no global inventory of stream barriers in Europe, only fragmentary records that vary from country to country. To agree on a common methodology and map the location of all types of physical barriers (and not just of large dams) will be the priority of AMBER. This will become the cornerstone of our work and feed into the rest of the project. The map needs to have a strong interactive element for both the general audience, scientist and water managers to use it. It will be an online tool and therefore easy to share but not to embed in another site. The traffic should remain in the AMBER environment. The AMBER Barrier Atlas was launched on 29th June 2020 and is available on the project website at https://amber.international/european-barrier-atlas/.

Goal: To provide the first complete overview of barriers on European Rivers, made together with citizens, organisations and scientists.

Target: All target audiences

Exploitation results: Trustworthy database to use for European research and easy access interactive atlas for a wide audience to create awareness and to inspire to take (local and national) action. (over 300 active users)

4.10 Decision support tools

Description: AMBER will feature three online decision support tools to aid in stream restoration in relation to barrier location, and in the monitoring of barrier mitigation scheme. These will be developed in work packages 2 and 3, as listed in **Table 9** below. Streams often harbour local endemism's and are affected by processes that operate at multiple scales. To restore connectivity will require managers to think globally, at the catchment scale, but to act locally. Explicit recognition of the existence of local adaptations is one of the distinctive features of AMBER. The tools produced by AMBER are available on the project website at https://amber.international/software/.

Goal: better barrier management of barriers in European rivers.

Target: NGO, researchers, water authorities, dam owners, hydropower companies, education

Exploitation results: Useful tools to be used in research (100 active users)

Table 9. Overview of Decision Support Tools

Work Package	Topic
2	Digital river infrastructure assessment and classification software tool (pass ability and hydropower potential)
	Simulation and modelling methodology with indicators ('habitat stress days') for management scenario comparisons
3	River infrastructure planning (removal, mitigation and installation) decision support tool

4.11 Citizen science

Description: AMBER includes a citizen science programme to engage with all water users and the citizens and help map the location of stream barriers across Europe. They will become ambassadors and active members in a normally only scientist environment. They help make a difference. One novel aspect of AMBER is the use of data provided by ordinary citizens to improve river restoration, making use of the capacity for data capture of modern smartphones, and the data processing possibilities offered by large citizen science datasets. Such an approach recognises the value and need for participatory resource management and is well aligned with CBD Guiding Principles for Ecosystem Management.

The citizen science program includes the production of a smartphone application, a web-based Citizen science platform, a Smartphone app Flyer and Project Flyer. A Project flyer will be created to advertise the AMBER vision, the partners involved, what the project entails, why it is important, how citizens can get involved, and contact information. The Smartphone app Flyer will advertise and describe the use of the app. The web-based citizen science platform will allow citizens to interact with data gathered with the smartphone application (https://portal.amber.international/).

Goal: create ambassadors and data processing possibilities offered by large citizen science datasets

Target: General audience, NGO, Water sport, Angling, Education

Results: over 1000 citizens actively involved.

4.12 EXPLOITATION AND DISSEMINATION CHANNELS

4.12.1 Website

Description: AMBER features an attractive website (https://amber.international/), which describes the project and its objectives to a broad audience. It will be used as one of the main vehicles of dissemination and interaction with the public. It includes Home, News, about us, the AMBER Barrier Atlas (developed by WP1), Publications (including reports and peer-reviewed scientific papers from all facets of the project as well as downloadable products such as Best practice guidance on dam removal in Europe); incorporation of training and educational materials for citizens and other stakeholders.;

agendas (workshops and citizen awareness meetings); the Barrier Tracker App (downloadable app with information and guidelines); Get involved (details about how the public can help) and a Contact page. All partners will be encouraged to publish documents and keep people informed about the project progress in news and social media. The data will be easily accessible and visible on the website in a format that is user friendly. AMBER will be linked to Facebook, Twitter, and LinkedIn. The website will be managed by WFMF, but all partners will be able to make suggestions and contribute to the contents. It will be designed following EU Project Websites – Best Practice Guidelines (March 2010).

Goal: create a central place for people to reach about both AMBER and the state of European rivers but also to gather information and provide a newsletter signup and contact information.

Target: All target audiences

Results: 300 visitors per month

4.12.2 Newsletter

Description: Regular digital newsletters will be sent to end users informing them about the status of the projects within AMBER. These will be issued at least twice a year and distributed to partners, key regional coordinators, contacts, contributors and other parties who subscribe by registering online. The partners will further circulate the letters within their networks. This will also be available online on the website and posted on social media channels. In each newsletter, there will be a summary of events, a work package in the spotlight, upcoming events and news from partners, including progress and achievements. A professional emailing solution (e.g. Mailchimp) will be used to ensure the best delivery rate. Target groups will be segmented, and regular analysis will be driven on newsletter results (opens and clicks) to optimise the impact. After sending the newsletter it will also be made available on the AMBER website as download in pdf format. The schedule for the AMBER newsletters is shown in **Table 10** below. All newsletters are available on the project website at https://amber.international/newsletters/.

Goal: Provide consistent feedback to people involved and to update on industry related subjects

Target: Partners, subscribers from website or social and segmented parts of target audience by using Mailchimp analytics

Results: 2000 recipients

Table 10. AMBER Newsletter schedule

Schedule	Topics in newsletter
November 2016	Welcome, Introduction to AMBER, Overview of work packages, Upcoming events Overview of last 6 months, WP1 in the Spotlight, Upcoming events, News from partners, Progress and milestones
April 2017	Overview of last 6 months, WP2&3 in the Spotlight, Upcoming events, News from partners, Progress and milestones
November 2017	Overview of last 6 months, WP4&5 in the Spotlight, Upcoming events, News from partners, Progress and milestones
April 2018	Overview of last 6 months, WP1 in the Spotlight, Upcoming events, News from partners, Progress and milestones
November 2018	Overview of last 6 months, WP2&3 in the Spotlight, Upcoming events, News from partners, Progress and milestones
April 2019	Overview of last 6 months, WP4&5 in the Spotlight, Upcoming events, News from partners, Progress and milestones
November 2019	Overview of last 6 months, WP in the Spotlight, Upcoming events, News from partners, Progress and milestones
April 2020	Overview of project, launch of products, Upcoming events, News from partners Progress and milestones

4.12.3 Social media

Description: Incorporating social media (YouTube, Facebook, Twitter, LinkedIn) into the project will help extend the dissemination of results and reach a wider audience to drive traffic to the website and other publications. Therefore, the AMBER project has several dedicated social media channels set up for communication and dissemination purposes. Theses social media channels include:

- Twitter account, called @AMBERtools, https://twitter.com/AMBERtools;
- Facebook page, called @AMBERtools, https://www.facebook.com/AMBERtools;
- LinkedIn group, called "River Connectivity Network" (2480 members), https://www.linkedin.com/groups/1215847
- YouTube channels: https://www.youtube.com/channel/UCPB6VBaM-p9Mv7s0yjfmDqA

Results from social media will be measured using:

- Twitter analytics
- Hashtag tracker
- Facebook analytics
- YouTube analytics

Communication on social media will be short, activating and informative. Mostly driving traffic to the AMBER website or publications related to AMBER (content can also be entertaining). AMBER will also produce visually appealing content that can be shared on social media. This content will be mostly video, visuals, photos and they all need to have a connection to either AMBER and Let it Flow by using the correct hashtags or visuals. Everything will be planned according to a Content Calendar. For example, #LetItFLow and @AMBER.International could be used.

The strategy will be in 3 consecutive phases:

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1. **Brand awareness** for AMBER by communicating all content in a relevant, easy to understand and visually appealing way. Social Media is a place where people go in their spare time and where organisations make connections and share news and knowledge.
2. **Sharing knowledge**, spreading news, and sharing content. This to keep the fans, partners and target audience aware of the developments, goals and progress of AMBER.
3. **Recruitment**, mostly directed at citizen science. Where communication is based on activating content and call to action to the smartphone app and the barrier atlas.

Goal: short, activating and informative about the AMBER project and to communicate to a broad audience

Target: general audience, NGO, water authorities, Hydropower, dam owners, municipalities, water sport, angling

Results: 50.000 reach per month

4.12.4 Contact database

Description: AMBER will build during these four years a database of contacts made through the different project activities, which will be used to keep this audience interested in the project and regularly updated on its developments. The databases will be segmented (newsletter subscriptions, project events, partners' contacts, etc.) to have targeted communication when needed. Newsletters, invitations to events and to fill in evaluation surveys, etc., will be regularly sent.

Goal: have contacts for each channel and spread our messaging fast and effective among target audiences

Target: Press, blog, newspaper, paper, television channels, radio

Results: Contact database (over 2.000 contacts)

4.13 Offline channels

4.13.1 Events & Workshops

Description: Events and workshops are a key channel of the AMBER project. During the lifetime of the AMBER project there will be several events and workshops organised to communicate about AMBER and disseminate the developed products and results of the project. The currently scheduled events and workshops are listed in **Table 11** below. Events and workshops are also combined to plan meetings with partners, interact with key stakeholders and national coordinators within member States.

Goal: Provide communication between organisations, general audience and the industry and to educate and share knowledge

Target: General audience, scientist, NGO, Policy makers, Hydropower, Dam owners

Results: 600 attendees

Table 11. AMBER events & workshop schedule

Date	Activity
November 2016	Launch events
February/March 2017	Eu meeting 1 / Workshop 1
2017 - May 2019	AMBER National Workshops
April 2018	AMBER events for World Fish Migration Day
May 2019	EU meeting 2 / Workshop 2
March 2020	Let it Flow event

4.13.2 Presentations

Description: To communicate about the goals and progress and later disseminate the project results, the project partners shall all hold presentations at conferences and symposia related to the topic of barrier management. A preliminary list of potentially interesting conferences and symposia for the AMBER project has been compiled and listed in **Table 12** below.

Goal: Sharing knowledge, educate, communicate

Target: Scientists, water authorities, hydropower, dam owners, policy makers

Results: 500 attendees

Table 12. AMBER Conference presences schedule

Date	Name	Location
4-6 October, 2016	IFM 47th Annual Conference: Fisheries	Norwich, UK
6-7 October, 2016	Fish Market: International workshop	Roermond, Netherlands
14-15 November, 2016	Dam Removal Europe – 2nd Workshop	Castilla-y-Leon Region, Spain
4-5-April, 2017	Sustainable Hydropower Development Forum	Prague, Czech Republic
25 April, 2017	7th IFM Specialist Conference	Newport, UK
31 May – 2 June, 2017	Ecological Continuity conference	Beaune, France
13-15 June, 2017	International Eel Science Symposium	London, UK
19-21 June, 2017	Fish Passage Conference	Corvallis, USA
26-28 June, 2017	EIFAAC International Symposium	Olsztyn, Poland
19-21- July, 2017	River Basin Management Conference	Prague, Czech Republic
20-24 August, 2017	AFS Annual Meeting	Tampa, Florida
3 September, 2017	EIFAAC International Symposium: Adaptation of inland fisheries and aquaculture to climate change	Poland
11 September, 2017	WMCAUS 2017	Prague, Czech Republic
14 September, 2017	Management and restoration of the Natura 2000 in rivers Challenges, Opportunities and Experiences	Vizcaya, Spain.

Date	Name	Location
14 September, 2017	XXXV Convegno Nazionale di Idraulica e Costruzioni Idrauliche	Bologna, Italy
25 September, 2017	Dam and Weir Removal in the urban environment	Birmingham, UK
26 September, 2017	International symposium Ecohydrology for Circular Economy and Nature-based solutions towards mitigation/ adaptations to Climate Change	Łódź, Poland
8 November, 2017	Conference TSMR2017, Transport Solide et Morphodynamique des Rivières	Villeurbanne, France
8 November, 2017	Robotic Photosieving from low-cost multirotor sUAS: a proof-of-concept	Delhi, India
1 December, 2017	Webinar Series "Restoring river connectivity: methods and open challenges"	-

4.13.3 Print (newspapers, magazines, journals)

Description: Printed newspapers, magazines and journals are also an important channel used to disseminate the AMBER project results. Products such as the project reports, policy briefings and peer reviewed publications will be published in printed magazines and journals. Media articles will also be submitted for publication in printed newspapers and magazines. Articles have already been submitted to the magazine of the Sustainable Eel Group and the German magazine "Am Haken". All media articles featuring AMBER are available on the project website at https://amber.international/articles/.

Goal: spread AMBER related news among scientific newspapers and magazines to initiate conversations about European rivers and to communicate about the results of the project.

Target: General audience, scientist, water authorities, dam owners, hydropower, policy makers, municipalities

Results: 20.000 reach

5   MEDIA ENGAGEMENT PLAN

Getting citizens on board has been a challenge as the subject is relatively unknown and for many not a priority (yet!). As resources are limited and the target audience immense this plan is about making engaging media as effective as possible.

5.1   Media engagement objectives
- Use the right media channels to reach potential users of the citizen science programme, to share relevant information and to use consistent call to actions to increase the participation in the AMBER project.
- Making use of free publicity.

5.2   Media engagement strategy
- Social media: since we have low budgets and have an emphasis on using networks of the project partners we rely a lot on social media. Which social media are used most depends on the target audience. The tone of voice will be partly informing, partly entertaining and mostly

activating. We will not be anti-barriers, but we want to bring people together on positive, possible solutions.

- Written media: because we have low budgets we have to get attention from written media by releasing news items. That will be done either via newsletters or for special occasions through press releases. The press releases will be sent out via the partners in the relevant countries, or via organisations that are known through the networks of the partners.

6   TIMELINE AND CONTENT PLANNING

An overview of the main activities for dissemination and exploitation is shown in **Table 13** below.

Table 13. Overview of main dissemination and exploitation activities.

	2016	2017	2018				2019				2020		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Launch project	▓												
Preparation	▓	▓	▓										
Europ. contact database	▓	▓	▓	▓									
Launch app 1st phase					▓								
Launch app 2nd phase						▓							
Launch app 3rd phase							▓						
National workshops					▓	▓	▓	▓	▓	▓			
EU Meetings								▓		▓			
Book on best guidance											▓	▓	
Final let it flow event													▓
Processing Citizen Science information			▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓
Website, social media and newsletters	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓
Publications		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓
Networking and presentations	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓

A content calendar was developed to plan (visual) content related to the Let it Flow campaign for all the communication channels. The calendar had per-day planning and made sure AMBER stayed active on all social channels, but to also keep updating the website. A timeline describing the different phases in the Let it Flow campaign can be seen in **Figure 3** below.
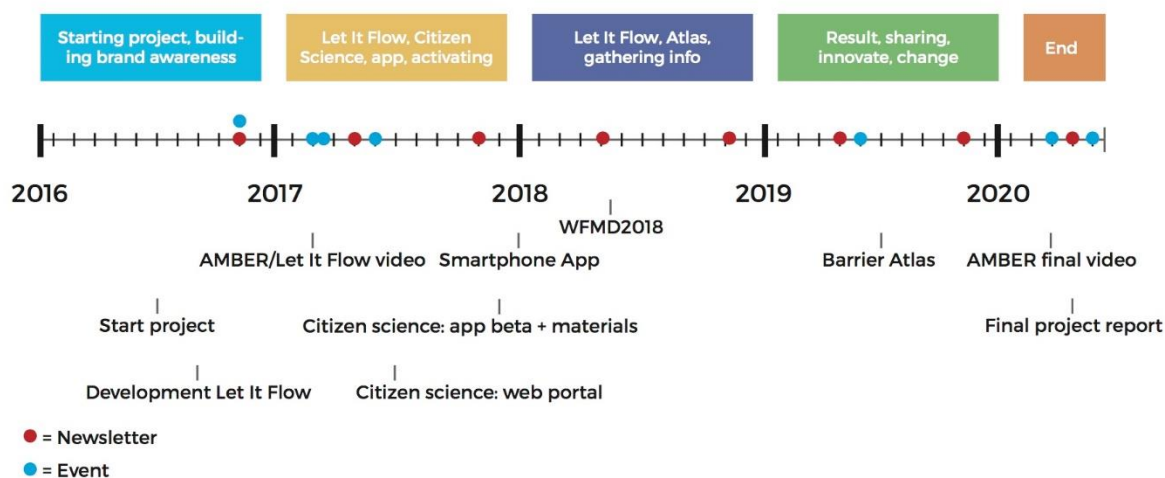
Figure 3. Timeline for the Let it Flow campaign as part of the AMBER project.

More specific than the general overview, the timing and target audience for the different output products are mentioned in **Table 14**.

Table 14. AMBER Dissemination and exploitation Chart**.** The output column list the main associated deliverables.

Work Package	Output	Dissemination /exploitation tool	Dissemination /exploitation Channel	Timing	Target Audience
1	D1.1 Guidance on stream barrier surveying and reporting	Project report	Website, Newsletter, social media, Workshops, Presentations & Document	M6	water authorities, NGO, scientist, Policy makers, dam owners, hydropower, educational institutions
	D1.2 JRC Science for Policy Report: Country-specific reports containing the metadata - JRC Science for Policy Report	D5.9 Policy Briefing	Website, Newsletter, social media, Workshops, Presentations & Document	M12	Policy makers, NGO, water authorities, dam owners, municipalities
	D1.3 Barrier Inventory & Atlas: Web Portal with interface for data input by the public with INSPIRE-compliant harmonised database and metadata	Barrier Atlas	Website, Newsletter, social media, Workshops & Presentations	M36	General audience, NGO, educational institutions, water authorities, dam owners, municipalities,

Work Package	Output	Dissemination /exploitation tool	Dissemination /exploitation Channel	Timing	Target Audience
					water sports, angling
	(D5.3) Peer-reviewed Publication on development of the Barrier Inventory and online Atlas	D5.3 Peer-reviewed Publications	Website, Newsletter, social media, Workshops, Presentations & Document	M48	Scientist, NGO, water authorities, dam owners
	(D5.3) Peer-reviewed Publication on extent of river fragmentation in Europe			M48	Scientist, NGO, water authorities, dam owners, hydropower
2	D2.5 Report on the molecular toolkit: taxon-specific sets of primers, protocols and pipelines	Project report	Website, Newsletter, social media, Workshops, Presentations & Document	M12	Scientist, dam owners, hydropower
	D2.1 Classification map of running waters considering fish community structure and barrier impacts			M18	scientist, NGO, educational institutions
	D2.2 Conceptual model of ecological impacts of barriers in EU considering habitat selection criteria for running Waters			M24	Scientist, NGO, water authorities, dam owners, hydropower
	D2.4 Rapid habitat assessment methodology supported by remote sensing			M24	Scientist, water authorities
	D2.7 Overview of river ESS demand and delivery in selected case studies under different scenarios of climate change and barrier management			M34	Scientist, NGO, water authorities, dam owners, hydropower
	D2.3 Digital river infrastructure assessment and classification software	Decision Support Tool	Website, Newsletter, social media,	M24	scientist, NGO, water authorities, dam owners,

Work Package	Output	Dissemination /exploitation tool	Dissemination /exploitation Channel	Timing	Target Audience
	tool (pass ability and hydropower potential)		Workshops & Presentations		municipalities, hydropower
	D2.6 Simulation and modelling methodology with indicators ('habitat stress days') for management scenario comparisons			M32	Scientist, water authorities
	(D5.9) Impact of stream barriers on ecosystem services and benefits of restoring connectivity	D5.9 Policy Briefing	Website, Newsletter, social media, Workshops, Presentations & Document	M48	Policy makers, dam owners, NGO, municipalities, dam owners
	(D5.3) Conceptual framework for estimating barrier effects on fluvial processes,	D5.3 Peer-reviewed Publication	Website, Newsletter, social media, Workshops, Presentations & Document	M48	Scientist, NGO, water authorities
	(D5.3) Conceptual framework for estimating Barrier effects for a range of aquatic biota			M48	Scientist, NGO, water authorities
3	D3.6 Impediments to barrier planning and stakeholder conflict resolution	Project report	Website, Newsletter, social media, Workshops, Presentations & Document	M24	Dam owners, hydropower companies, NGO, municipalities, water authorities
	D3.1 Response by a range of aquatic organisms to hydrodynamic conditions commonly created at river infrastructures			M30	Scientist, water authorities
	D3.2 Quantification of economic costs and benefits of river infrastructures (evaluation of natural capital)			M30	Dam owners, hydropower, municipalities, water authorities, policy makers

Work Package	Output	Dissemination /exploitation tool	Dissemination /exploitation Channel	Timing	Target Audience
	D3.5 Report on results of questionnaire to model social attitudes to dams and reservoirs			M30	General audience, NGO, Municipalities, Angling, water sports, Policy makers, water authorities
	D3.3 Inventory of barriers and river infrastructures at test catchment with demonstration of Integrated Agent Based Dispersal Model			M36	Scientist, water authorities
	D3.4 River infrastructure planning (removal, mitigation and installation) decision support tool	Decision Support Tool	Website, Newsletter, social media, Workshops & Presentations	M36	Scientist, water authorities, dam owners, hydropower, municipalities
	(D5.3) Peer-reviewed Publication on application of the AMBER decision support tool for barrier mitigation and planning	D5.3 Peer-reviewed Publication	Website, Newsletter, social media, Workshops, Presentations & Document	M48	Scientist, dam owners, hydropower, municipalities, NGO, water authorities
	(D5.3) Peer-reviewed Publication on Socio-economic drivers and impediments for successful reconnecting of rivers			M48	Water authorities, municipalities, policy makers, NGO, General audience
4	(D4.1) Review and meta-analysis of benefits, challenges, and trade-offs in adaptive barrier management	Project report	Website, Newsletter, social media, Workshops, Presentations & Document	M18	Dam owners, hydropower, water authorities, municipalities, policy makers
	(D4.3) EU Salmon Atlas			M44	Angling, water authorities, scientist, general audience, educational institutions

Work Package	Output	Dissemination /exploitation tool	Dissemination /exploitation Channel	Timing	Target Audience
	(D4.2) policy briefing on adaptive barrier management	D5.9 Policy Briefing	Website, Newsletter, social media, Workshops, Presentations & Document	M42	Policy makers, NGO, water authorities, dam owners, hydropower
	(D5.3) Peer-reviewed Publication on case studies in restoration of stream connectivity	D5.3 Peer-reviewed Publication	Website, Newsletter, social media, Workshops, Presentations & Document	M48	Water authorities, NGO, scientist
5	(D5.7) Short description AMBER project + call to action	Flyer	Website, Newsletter, social media, Workshops, Presentations & Print	M4	General audience, water sports, angling, scientists, NGO
	(D5.7) Video on project set-up, challenges and expectations	Short video	Website, Newsletter, social media, Workshops & Presentations	M12	General audience, NGO, Angling, water authorities
	(D5.7) Video on progress and preliminary results			M24	General audience, NGO, Angling, water authorities, water sports
	(D5.7) Video on project outcome and results			M36	All target audiences
	D5.4 Smartphone/tablet application (AMBER app)	Smartphone App	Website, Newsletter, social media, Workshops & Presentations	M18	General audience, water authorities, water sports, NGO, municipalities, Educational institutions, Angling
	D5.8 The citizen science program	Citizen Science	Website, Newsletter, social media, Smartphone App, Workshops, Presentations & Document	M18	General audience, NGO, Educational institutions

Work Package	Output	Dissemination /exploitation tool	Dissemination /exploitation Channel	Timing	Target Audience
	D5.10 Best practice guidance document on adaptive barrier management	Project report	Website, Newsletter, social media, Workshops, Presentations & Print	M48	Scientists, Water authorities, Dam owners, Hydropower, Policy makers

7   MANAGEMENT STRUCTURE

The World Fish Migration Foundation (WFMF) oversees the AMBER project exploitation and dissemination activities. This is done according to the structure described in the list below. The list below shows the planned general management structure for all dissemination activities of the AMBER project and the roles and responsibilities of each project partner.

1. **Target audience research** (WFMF)
   The first step in the structure to manage each exploitation and dissemination activities is research into the target audience; Who needs to be reached, how they can be reached, what trends they follow and what the expected result and impact could be. The target audience research is conducted by WP5.

2. **Conclusion on trends, needs and which channels** (WFMF)
   Based on the target audience research an approach to each exploitation and dissemination activity is proposed; Use data to decide on how to proceed, which products have to be made, when they are going to be published and how this is a useful and innovative for the proposed target audience. The proposal of the approach to each exploitation and dissemination activity is conducted by WP5.

3. **Feedback consortium (**WFMF (L), DTU, ERCE, SOTON JRC, SU)
   After proposal of an approach to each exploitation and dissemination activity this approach is discussed with the consortium partners. These partners will include the Project manager, WP leaders and if applicable based on the activity in question, also other consortium partners. Feedback will be given during meetings or via email.

4. **Agreement on approach**
   Based on the feedback from the partners involved the proposed approach is adjusted and a final approach to each exploitation and dissemination activity is agreed upon. The partners involved will include the Project manager, WP leaders and if applicable based on the activity in question, also other consortium partners.

5. **Division of tasks among partners** (WFMF (L), DTU, ERCE, SOTON JRC, SU)
   After adopting a final approach to each exploitation and dissemination activity, the roles for the execution of the activity will be decided upon and tasks will be distributed based on the planning, skills and budget. The partners involved will include the Project manager, WP leaders and if applicable based on the activity in question, also other consortium partners.

6. **Produce, execute and publish** (WFMF (L), DTU, ERCE, SOTON JRC, SU)
Based on the division of tasks among the various partners, the adopted approach to each exploitation and dissemination activity will be executed and spread among the different channels. The partners involved will differ based on the activity in question. WP5 oversees adhering to the schedule of proposed exploitation and dissemination activities.

7. **Evaluate** (WFMF)
After execution of each exploitation and dissemination activity the effect of the activity will be measured and used to improve further actions and activities. The evaluation is performed by WP5. If necessary, the results of these evaluations are shared with the project manager.

8   MEASURING EFFECTIVENESS OF DISSEMINATION AND EXPLOITATION

To assess the effectiveness and measure the impact of the project, indicators and their respective targets have been compared to the realised performance.

8.1   Planned expected results

An important aspect of the plan on exploitation and dissemination of results is assessing its effectiveness in spreading the results to a wide audience. To assess the effectiveness and measure the impact of the project indicators, their respective targets have been established for all dissemination/exploitation tools and channels. These are shown in **Table 15** and **Table 16** below.

Table 15. Indicators and expected results Dissemination and Exploitation tools

TOOL	Indicator	Expected results			
		m12	m18	m36	m48
AMBER flyer	Number of flyers handed out	100	200	400	>500
Short videos	Number of videos	2	4	6	10
	Number of views	200	400	600	>1,000
Newsletters	Number of recepients	200	400	1000	>2,000
	Number of views	100	200	500	>1,000
Non scientific publications	Number of media articles	5	10	15	>20
Barrier Atlas	Number of users	0	0	150	>300
Smartphone App	Number of (active) users	0	0	150	>300
Citizen Science portal	Number of Citizen involved	0	0	500	>1000
Decision Support Tool	Number of users	0	0	20	>100
Book on Best Guidance on Adaptive Barrier Management in Europe	Number of downloads	0	0	0	5064
	Number of hard copies handed out	0	0	0	4000
Policy briefings	Number of Policy Briefings	0	0	1	3
Peer-reviewed papers	Number of Publications	1	3	5	7
Networking	Number of contacts	150	250	700	>1000
Project reports	Number of reports	2	5	12	14

Table 16. Indicators and expected results Dissemination and Exploitation Channels

CHANNEL	Indicator	Expected results			
		m12	m18	m36	m48
Website	Number of visitors p/m	100	150	300	>1000
Social Media	Number of followers	50	80	2000	>5,000
	Expected reach p/m	500	800	20000	>50,000
European database of contacts/networks	Number of contacts	150	200	1000	>2,000
Regional Citizen Awareness Events	Number of event	0	0	2	0
	Number of people attending	0	0	100	0
National AMBER workshops	Number of workshops	3	5	9	11
	Number of attendees to all workshops	30	50	90	>100
EU Meetings	Number of EC officers attending	20	0	40	40
AMBER presentations	Number of attendees to all presentations	50	100	200	>500
Final Let it Flow event	Number of attendees	0	0	200	>200

9   REALISATION AGAINST PLANNED EXPECTED RESULTS-MONTH 12

Dissemination results for month 12 are given is **Table 17** and **Table 18.**

Table 17. Indicators and expected results Dissemination and Exploitation tools in Month 12

TOOL	Indicator	Expected results				Realized Results MONTH 12
		M12	M18	M36	M48	
AMBER flyer	Number of flyers handed out	100	200	400	>500	1000
Short videos	Number of videos	2	4	6	10	5
	Number of views	200	400	600	>1,000	800
Newsletters	Number of recepients	200	400	1000	>2,000	>100
	Number of views	100	200	500	>1,000	>50
Non scientific publications	Number of media articles	5	10	15	>20	>20
Barrier Atlas	Number of users	0	0	150	>300	0
Smartphone App	Number of (active) users	0	0	150	>300	0
Citizen Science portal	Number of Citizens involved	0	0	500	>1000	0
Decision Support Tool	Number of users	0	0	20	>100	0
Book on Best Guidance on Adaptive Barrier Management in Europe	Number of downloads	0	0	0	5064	0
	Number of hard copies handed out	0	0	0	4000	0

Policy briefings	Number of Policy Briefings	0	0	1	3	0
Peer-reviewed papers	Number of Publications	1	3	5	7	5
Networking	Number of contacts	150	250	700	>1000	200
Project reports	Number of reports	2	5	12	14	2

Table 18. Indicators and expected results Dissemination and Exploitation Channels in Month 12

CHANNEL	Indicator	Expected results				Realized Results MONTH 12
		M12	M18	M36	M48	
Website	Number of visitors p/m	100	150	300	>1000	>300
Social Media	Number of followers	50	80	2000	>5,000	>2,000
	Expected reach p/m	500	800	20000	>50,000	>20,000
European database of contacts/networks	Number of contacts	150	200	1000	>2,000	200
Regional Citizen Awareness Events	Number of event	0	0	2	0	0
	Number of people attending	0	0	100	0	0
National AMBER workshops	Number of workshops	3	5	9	11	2
	Number of attendees to all workshops	30	50	90	>100	51
EU Meetings	Number of EC officers attending	20	0	40	40	0
AMBER presentations	Audience reached	50	100	200	>500	>2,000
Final Let it Flow event	Number of attendees	0	0	200	>200	0

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10 REALISATION AGAINST PLANNED EXPECTED RESULTS-MONTH 18

Dissemination results for month 12 are given is **Table 19** and **Table 20**.

Table 19. Indicators and expected results Dissemination and Exploitation tools in month 18

TOOL	Indicator	Expected results				Realized Results MONTH 18
		M12	M18	M36	M48	
AMBER flyer	Number of flyers handed out	100	200	400	>500	3000
Short videos	Number of videos	2	4	6	10	6
	Number of views	200	400	600	>1,000	>1,000
Newsletters	Number of recepients	200	400	1000	>2,000	>300
	Number of views	100	200	500	>1,000	>150
Non scientific publications	Number of media articles	5	10	15	>20	>20
Barrier Atlas	Number of users	0	0	150	>300	0
Smartphone App	Number of (active) users	0	0	150	>300	0
Citizen Science portal	Number of Citizen involved	0	0	500	>1000	0
Decision Support Tool	Number of users	0	0	20	>100	0
Book on Best Guidance on Adaptive Barrier Management in Europe	Number of downloads	0	0	0	5064	0
	Number of hard copies handed out	0	0	0	4000	0
Policy briefings	Number of Policy Briefings	0	0	1	3	0
Peer-reviewed papers	Number of Publications	1	3	5	7	7
Networking	Number of contacts	150	250	700	>1000	200
Project reports	Number of reports	2	5	12	14	5

Table 20. Indicators and expected results Dissemination and Exploitation Channels in month 18

CHANNEL	Indicator	Expected results				Realized Results MONTH 18
		M12	M18	M36	M48	
Website	Number of visitors p/m	100	150	300	>1000	>500
Social Media	Number of followers	50	80	2000	>5,000	>3,000
	Expected reach p/m	500	800	20000	>50,000	>30,000
European database of contacts/networks	Number of contacts	150	200	1000	>2,000	200
Regional Citizen Awareness Events	Number of event	0	0	2	0	0
	Number of people attending	0	0	100	0	0
National AMBER workshops	Number of workshops	3	5	9	11	3
	Number of attendees to all workshops	30	50	90	>100	>80
EU Meetings	Number of EC officers attending	20	0	40	40	0
AMBER presentations	Number of attendees to all presentations	50	100	200	>500	>3000
Final Let it Flow event	Number of attendees	0	0	200	>200	0

11 REALISATION AGAINST PLANNED EXPECTED RESULTS-MONTH 36

Dissemination results for month 12 are given is **Table 21** and **Table 22**.

Table 21. Indicators and expected results Dissemination and Exploitation tools in month 36

TOOL	Indicator	Expected results				Realized Results MONTH 36
		M12	M18	M36	M48	
AMBER flyer	Number of flyers handed out	100	200	400	>500	3000
Short videos	Number of videos	2	4	6	10	16
	Number of views	200	400	600	>1,000	4,681 (youtube)
Newsletters	Number of recepients	200	400	1000	>2,000	>1,000
	Number of views	100	200	500	>1,000	263
Non scientific publications	Number of media articles	5	10	15	>20	>56
Barrier Atlas	Number of users	0	0	150	>300	936*
Smartphone App	Number of (active) users	0	0	150	>300	936*
Citizen Science portal	Number of Citizen involved	0	0	500	>1000	936*
Decision Support Tool	Number of users	0	0	20	>100	309 downloads
Book on Best Guidance on Adaptive Barrier Management in Europe	Number of downloads	0	0	0	5064	0
	Number of hard copies handed out	0	0	0	4000	0
Policy briefings	Number of Policy Briefings	0	0	1	3	0
Peer-reviewed papers	Number of Publications	1	3	5	7	13
Networking	Number of contacts	150	250	700	>1000	1,000
Project reports	Number of reports	2	5	12	14	12

Table 22. Indicators and expected results Dissemination and Exploitation Channels in month 36

CHANNEL	Indicator	Expected results				Realized Results MONTH 36
		M12	M18	M36	M48	
Website	Number of visitors p/m	100	150	300	>1000	>1,600
Social Media	Number of followers	50	80	2000	>5,000	>4,216 (twitter, Facebook, LinkedIn)
	Expected reach p/m	500	800	20000	>50,000	>40,000
European database of contacts/networks	Number of contacts	150	200	1000	>2,000	1,000
Regional Citizen Awareness Events	Number of event	0	0	2	0	11
	Number of people attending	0	0	100	0	12,912
National AMBER workshops	Number of workshops	3	5	9	11	12
	Number of attendees to all workshops	30	50	90	>100	>585
EU Meetings	Number of EC officers attending	20	0	40	40	5
AMBER presentations	Number of attendees to all presentations	50	100	200	>500	>11,267
Final Let it Flow event	Number of attendees	0	0	200	>200	0

12 REALISATION AGAINST PLANNED EXPECTED RESULTS-MONTH 51

Dissemination results for month 51 are given is **Table 23** and **Table 24**.

Table 23. Indicators and expected results Dissemination and Exploitation tools in month 51

TOOL	Indicator	Expected results				Realized Results MONTH 51
		M12	M18	M36	M48	
AMBER flyer	Number of flyers handed out	100	200	400	>500	4000
Short videos	Number of videos	2	4	6	10	43
	Number of views	200	400	600	>1,000	7,003 (views in youtube, exluding social media)
Newsletters	Number of recepients	200	400	1000	>2,000	2510
	Number of views	100	200	500	>1,000	3,263 (Opens throughout the project)
Non scientific publications	Number of media articles	5	10	15	>20	84
Barrier Atlas	Number of users	0	0	150	>300	1,600
Smartphone App	Number of (active) users	0	0	150	>300	1,600
Citizen Science portal	Number of Citizen involved	0	0	500	>1000	1,600
Decision Support Tool	Number of users	0	0	20	>100	878 downloads / page visits
Book on Best Guidance on Adaptive Barrier Management in Europe	Number of downloads	0	0	0	5064	679 downloads / page visits
	Number of hard copies handed out	0	0	0	4000	2,756 (Green week and WFMD20 still to follow)
Policy briefings	Number of Policy Briefings	0	0	1	3	3
Peer-reviewed papers	Number of Publications	1	3	5	7	21
Networking	Number of contacts	150	250	700	>1000	2000
Project reports	Number of reports	2	5	12	14	14

Table 24. Indicators and expected results Dissemination and Exploitation Channels in month 51

CHANNEL	Indicator	Expected results				Realized Results MONTH 51
		M12	M18	M36	M48	
Website	Number of visitors p/m	100	150	300	>1000	2,878
Social Media	Number of followers	50	80	200 0	>5,00 0	>4,907(twitter, Facebook, LinkedIn)
	Expected reach p/m	50 0	80 0	200 00	>50,0 00	>29,500. Averague reach for TW and FB
European database of contacts/networks	Number of contacts	15 0	20 0	100 0	>2,00 0	2000
Regional Citizen Awareness Events	Number of event	0	0	2	0	17 (still WFMD20 still to come)
	Number of people attending	0	0	100	0	13,270 (still WFMD20 still to come)
National AMBER workshops	Number of workshops	3	5	9	11	24
	Number of attendees to all workshops	30	50	90	>100	1115
EU Meetings	Number of EC officers attending	20	0	40	40	30
AMBER presentations	Number of attendees to all presentations	50	10 0	200	>500	19,137
Final Let it Flow event	Number of attendees	0	0	200	>200	600