Indecis
Sectorial Climate Services

Integrated approach for the **d**evelopment across **E**urope of user oriented **c**limate **i**ndicators for GFCS high-priority **s**ectors: Agriculture, disaster risk reduction, energy, health, water and tourism

Work Package 1

Deliverable 1.2

Plan for the Communication, Dissemination and Exploitation of the INDECIS' Project Results:

From Research to Social Impact of Science

This report arises from the Project INDECIS which is part of ERA4CS, an ERA-NET initiated by JPI Climate, and funded by FORMAS (SE), DLR (DE), BMWFW (AT), IFD (DK), MINECO (ES), ANR (FR), with co-funding by the European Union's Horizon 2020 research and innovation programme

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1. RATIONALE AND SCOPE

This report presents the Plan for the Communication, Dissemination and Exploitation of the INDECIS' project results. It aims to draw an overview **both theoretical and practical** about the strategy to communicate, disseminate and exploit results, and to share them between the broad society and among the stakeholders and the scientific community specifically.

Results are described as "any tangible or intangible output of the action" (they include data, knowledge, networks, information, processes, products, services, etc.), "as well as any attached rights, including intellectual property rights".[1]

The European Research and Innovation Roadmap for Climate Services (EC, 2015), "sets out a strategy for action and a framework for discussion. It provides a basis for shared solutions and pathways towards a climate services market that benefits society. In the context of the European Commission's climate services initiative, **the term 'climate services' has a broad meaning:** transforming climate-related data and other information into customised products such as projections, trends, economic analysis, advice on best practices, development and evaluation of solutions, and any other climate-related service liable to benefit that may be of use for the society. These services include data, information and knowledge that support adaptation, mitigation and disaster risk management". [2]

Regarding Climate change services, the same document understands them "in a broad sense, including climate change-related forecasts and risk/vulnerability assessments (not forgetting risks that are currently less understood, such as those related to water stewardship, forest commodities or supply chain resilience). It was also noted that research on high-resolution regional modelling was essential in order to improve our capacity to assess impacts and risks (EC, 2015: 14). It is clear that how science impact on everyday lives are key when research funding.

Thus, beyond the H2020 requirements new approaches regarding the socialization of science have been taken into account in this plan in order to maximize the social impact of science (SIS) since Responsible Research and Innovation (RRI) claims **"from science in society to science for society, with society"** (Owen, R. et al, 2012).

Therefore, we consider communication not just as a mere tool. **We are not only focusing on an instrumental point of view but also on a constitutive conception of communication which integrates dissemination as well as exploitation** objectives, activities, resources, media, monitoring and engagement with private and public stakeholders involved in the project.

[1] http://ec.europa.eu/research/participants/portal/desktop/en/support/reference_terms.html

[2] https://ec.europa.eu/research/environment/index.cfm?pg=climate_services

1.1. BACKGROUND AND THEORETICAL POSTULATES

To illustrate more in deep the relationships between communication, dissemination and exploitation it is necessary to enlarge our conception of communication to include into it, as has been already said, dissemination and exploitation.

In the classic communication model, the stream from a source to a receiver is linear, hierarchical (top-down) and one-way. This model is depicted in figure 1 as follows:

Figure 1: The classic communication model

But in our networked and mediated times this model is old-fashioned and does not reflects the changes happened in the media arena, (see figure 2). The complexity of the current scenario is determined by a non-linear, democratic and multi-way model of communication in which social media play a key role in addition to classic, mainstream media, and in which professional identities and practices of journalists, bloggers, public relations, advertising and stakeholders (official bodies, companies, lobbies, NGO's, etc.) are reformulating the public digital sphere: "Roles and channels define professional identity in the web 2.0 environment and practices associated with topics and sources are constitutive of the roles and identities of traditional journalists" (Prades et al., 2014:1).

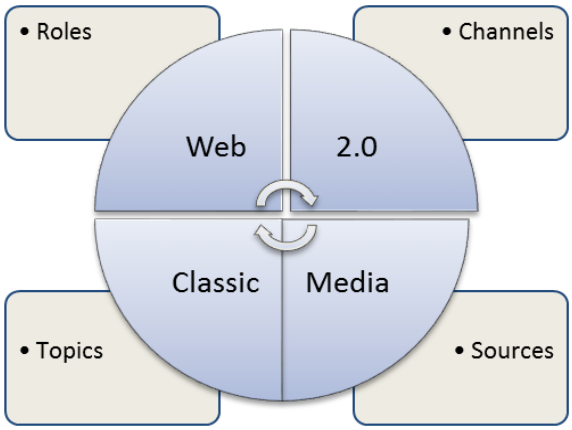


Figure 2: The new media environment

Environmental communication has particular characteristics that make it strategically interesting from the perspective of research in communication of risks and benefits: health, sustainability, socio-cultural and economic implications, etc. The complexity and uncertainty of the communication of risks are also reflected when communicating benefits. Actually, they are two sides of the same coin.[3]

To name just a few environmental communication areas of study include the rhetoric and the social–symbolic construction of nature; public participation in environmental decision making; collaboration and conflict resolution; media and journalism; representations of nature in corporate advertising and popular culture; advocacy campaigns and message construction; environmental law; and science and risk communication.

Therefore, it is clear that environmental communication cannot be reduced to a simple process of transmission of information from a source to a receiver as mentioned above. Unlike, as Cox (2006) clearly puts:

> "If we focus on symbolic action, then [...] I use the phrase environmental communication to mean the pragmatic and constitutive vehicle for our understanding of the environment as well as our relationships to the natural world; it is the symbolic medium that we use in constructing environmental problems and in negotiating society's different responses to them" (Cox, 2006: 19).

Hence environmental communication is **pragmatic** (or instrumental) and **constitutive** (framing problems, conflicts, values and solutions), which means that involves symbolic action, beliefs, attitudes, behaviours, concerns and discourses in a mediated (and mediatised) public sphere where diverse voices (citizens; community and environmental groups; scientists; corporations and lobbyists; anti-environmentalists and climate change critics; news media, journalists and social media users; and public and official bodies) are competing to gain attention in order to impose their messages both to a broad audiences and specific sectors (Cox, 2006; Prades and De la Varga, 2016).

In such media environment communication should facilitate the comprehension of research by non-specialists and, when possible, promote a two-way exchange and engagement between scientists, stakeholders and the whole public.

According to the Special Eurobarometer 401 about Responsible Research and Innovation (RRI), Science and Technology, the best qualified people involved to explain the impact of such topics on society are "scientists working at universities or in government laboratories" (66%). Television journalists (20%) and newspaper journalists (15%) are also mentioned. Other sources such as the industry (9%), authors (7%), government representatives (6%) and politicians (4%) are less valued (EU, 2013:12).

[3] Prades, J.; Farré, J.; Gonzalo, J.L. (2014). Journalists and bloggers. Professional identities and practices in food risk/benefits communication in Spain. Communication & Society, 27(1), 1-21.

2. FUNDAMENTALS

Public investment science projects must be converted into socio-economic benefits for the society as the Horizon 2020 Rules for Participation reflects in article 43 (Exploitation and Dissemination results: "Each participant that has received Union funding shall use its best efforts to exploit the results it owns, or to have them exploited by another legal entity, in particular through the transfer and licensing of results" [...]).[4]

To "better put funded R&I project results to economic and social use" and "to make available scientific evidence in support of policy making" are parts of the strategy for an effective dissemination and exploitation.[5]

The Horizon 2020 Annotated Model Grant Agreement[6] refers both to "dissemination" (article 29) and "exploitation" (article 28) of EU funded projects, while "communication" is later mentioned (article 38).

2.1. COMMUNICATION, DISSEMINATION AND EXPLOTAITION

An understanding of "dissemination" and "exploitation" as communication forms allow us to adopt a holistic point of view to be taken into account when designing plans, strategies and actions in order to transfer and translate research outcomes to society.

From the more general one to the most specific in relation to the project and their social impact these key terms are defined in this way by the Horizon 2020 Annotated Model Grant Agreement:

- **Communication (article 38):** According to the article 38.1 (Communication activities by beneficiaries) there is an obligation "to promote the action and its results by providing targeted information to multiple audiences (including the media and the public) in a strategic and effective manner".

- **Dissemination (article 29):** Article 29 establishes an obligation to disseminate results. It means "to make the results of a project public (— by any appropriate means other than protecting or exploiting them, *e.g. scientific publications*)".[7]

[4] REGULATION (EU) No 1290/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL: http://ec.europa.eu/research/participants/data/ref/h2020/legal_basis/rules_participation/h2020-rules-participation_en.pdf

[5] http://ec.europa.eu/research/participants/data/ref/h2020/other/events/2017-03-01/8_result-dissemination-exploitation.pdf

[6] http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf

[7] http://ec.europa.eu/research/participants/portal/desktop/en/support/reference_terms.html

- **Exploitation (article 28):** This article determines that "each beneficiary must —up to four years after the period set out in Article 3— [which stablishes the duration and starting date of the action] take measures aiming to ensure 'exploitation' of its results (either directly or indirectly, in particular through transfer or licensing; see Article 30) by: (a) using them in further research activities (outside the action); (b) developing, creating or marketing a product or process; (c) creating and providing a service, or (d) using them in standardisation activities".[8]

  In sum exploitation "means to make use of the results produced in an EU project in further activities (other than those covered by the project, e.*g. in other research activities; in developing, creating and marketing a product, process or service; in standardisation activities*)".[9]

Accordingly to these definitions, some differences can be highlighted between these three terms: [10]

- **Communication** is about the project and results, "it reaches out to society as a whole and in particular to some specific audiences" beyond the project's own community. It shows the benefits of research in order to "demonstrate how EU funding contributes to tackling societal challenges". Press releases, media conferences, meetings with official bodies and with private companies, videos and podcasts, printed and/or online contents (newsletters, leaflets, factsheets, flyers, and brochures), websites and social media are some examples of communication tools.

- **Dissemination** is about results only, it transfers knowledge "to the ones that can best make use of it" and "maximizes the impact of research, enabling the value of results to be potentially wider than the original focus". Some examples are peer-reviewed papers, books and book chapters, presentations on scientific conferences and social events.

- **Exploitation** recognizes stakeholders that can "make use of the results" and "concretise the value and impact of the R&I activity for societal challenges". Datasets, indices, benchmarks, standards, software, training courses and obviously climate services fall into this category.

These differences should be considered due that the confusion between communication, dissemination and exploitation is often a barrier to achieve defined objectives in terms of spreading messages, sharing knowledge and using results.

[8] If the GA includes the option for information on standardisation, the beneficiaries must moreover inform the Commission/Agency on any results that could contribute to European or international standards. Example: The results are produced in an area in which standards play an important role (such as in mobile communication, diagnostics or immunological diseases) [Shortened from http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf].

[9] http://ec.europa.eu/research/participants/portal/desktop/en/support/reference_terms.html

[10] http://ec.europa.eu/research/participants/data/ref/h2020/other/events/2017-03-01/8_result-dissemination-exploitation.pdf

2.2. SOCIAL IMPACT OF SCIENCE (SIS)

Last but not least another key term must be considered as part of the fundamentals of the INDECIS' Communication, Dissemination and Exploitation Plan, namely the Social Impact of Science (SIS). The so-called SIS is closely linked to social goals such as defined by the European Commission in the COM (2010) 2020: *Europe 2020, A European strategy for smart, sustainable and inclusive growth*.

By Science and/or Research impact:

> "[…] we are talking about beneficial changes that will happen in the real world (beyond the world of researchers) as a result of your research. This can include 'negative impacts' such as evidence that prevents the launch of a harmful product or law. Impacts may occur in the immediate or long-term future, and there can be challenges tracking and attributing impacts […] Impacts occur through processes of knowledge exchange [management, sharing, co-production, transfer, brokerage, transformation, mobilisation, and translation] where new ideas are developed in relationship with the people who will put those ideas into practice" (Red, 2016:10).

The Special Eurobarometer 401 on RRI, Science and Technology (EU, 2013) highlights that "more than three quarters of respondents (77%) think that science and technology have a positive influence on society overall" (EU, 2013: 13) and at least half of the respondents in each country agree with the statement that "science and technology make our lives easier, more comfortable and healthier". In addition to this impact on quality of life "three quarters of respondents agree that science and technology provide more opportunities for future generations, while only 7% disagree" (EU, 2013: 19).

Figure 3 depicts relationships between communication, dissemination, exploitation and social impact:

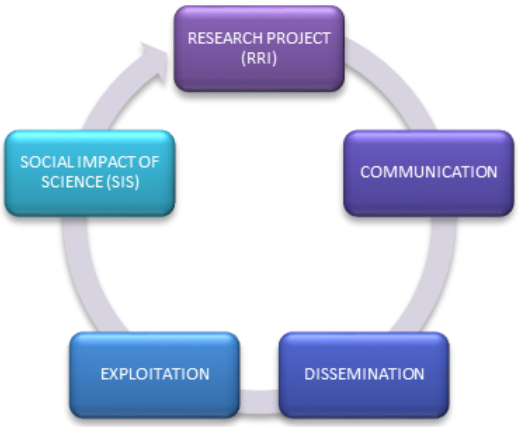


Figure 3: Project communication, dissemination and exploitation to reach social impact

2.2.1 DESCRIBING IMPACT: TYPES, PRINCIPLES AND STEPS

The same author (Red, 2016:10) lists the following **types of impact**:

1- Instrumental (changes in policy or practice).
2- Conceptual (broad new understanding / awareness-raising).
3- Capacity-building impacts (training of students or professionals, Continuing Professional Development).
4- Attitudinal or cultural impacts (increased willingness in general to engage in new collaborations).
5- Enduring connectivity impacts (follow-on interactions such as joint proposals, reciprocal visits, shared workshops, lasting relationships).

In its turn, the report *Collecting Research Impact Evidence. Best Practice Guidance for the Research Community* (Vertigo Ventures and Digital Science, 2016) also distinguishes between five areas (in this case based on areas of knowledge instead of on theoretical categories).

These five **types of impact are**:

1- Health and wellbeing.
2- Commercial and economic.
3- Public policy.
4- Societal and cultural.
5- Environmental.

Here it is worth to mention that the INDECIS Project mix Atmospheric Sciences (or, in a broader sense, Environmental Sciences) and Social Sciences. In that sense, as for Social Sciences and Humanities, Reale et al. (2017) understand impact "as a change that research outcomes produce upon academic activities, the economy, and society at large", and they distinguish between three different **types of impact**:

1- Scientific
2- Social
3- Political

They analyse Social Sciences and Humanities to gain a better understanding of how research in these fields "is likely to generate change in science and in society". According to them, as "the conceptualization of the social impact of research remains an ongoing effort" there is not a unique definition yet. Nonetheless, it can be said that "the social impact of research occurs when published and disseminated results, which have been transferred into a policy or an NGO-led initiative, produce improvements in relation to the stated goals of society".

Again Red (2016:10) also highlights **five principles** (design, represent, engage, early impact, reflect and sustain) and **five steps** (envision, plan, cut back, get specific, achieve impact and monitor success) to underpin impact and fast track it respectively.

Finally, regarding the research life-cycle and the impact evidence collection, Vertigo Ventures (2016) describes **six phases**: detect the potential impact; design activities and plan evidence collection of their impact; perform designed activities; collect proofs of their impact; report impact to project's partners and third parts (official bodies, funders and stakeholders) and, finally, use reports to increase the scope of the project and to find new funding opportunities.[11]

2.2.2 EXPECTED IMPACT

When implementing INDECIS it is necessary to note that some of these topics are aligned to the EU Strategy on Sustainable Development-COM (2001) 264 final[12]; to the UN Sustainable Development Goals[13] and, obviously, to the World Meteorological Organization Global Framework for Climate Services principles:[14]

1. High priority for the needs of **climate-vulnerable developing countries.**
2. Primary focus is the **better access and use of climate information** by users.
3. Framework will address needs at three spatial scales: **global, regional and national.**
4. Climate services must be **operational and continuously updated.**
5. Climate information is primarily an **international public good** and governments will have a central role in the Framework.
6. The Framework will encourage **global, free and open exchange** of climate-relevant data.
7. The Framework will **facilitate and strengthen** - not duplicate.
8. The Framework will be built through **partnerships.**

Other societal challenges that are directly and/or indirectly addressed by INDECIS and to those the project can contribute to where addressed by the first SIS International Conference celebrated until now (SIS2016, Barcelona). Some of these goals are linked to INDECIS targets, namely Agriculture, Disaster risk reduction, Energy, Health, Water and Tourism. To name just a few, issues discussed in SIS2016 were:[15]

[11] Online available at: https://www.research-strategy.admin.cam.ac.uk/files/collecting_research_impact_evidence_best_practice_guidance.pdf

[12] http://ec.europa.eu/regional_policy/archive/innovation/pdf/library/strategy_sustdev_en.pdf

[13] http://www.un.org/sustainabledevelopment/sustainable-development-goals/

[14] http://www.wmo.int/gfcs/principles

[15] http://socialimpactscience.org/sis2016/about/

- Environmental sustainability:

  - Reverse the loss of environmental resources.
  - Conserve and sustainably use the oceans, seas and marine resources.
  - Sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and to take action for their restoration in order to achieve healthy and productive oceans.
  - Ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development.
  - Implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.
  - Introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species.
  - Increasing the use of energy from renewable.

- Availability and sustainable management of water:

  - Implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.
  - Protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

- Promotion of gender equality and women empowerment:

  - Through Natural Sciences Sector, provide strong role models and mentors for women and girls in science throughout the world. Promote the contributions of outstanding women to scientific knowledge, especially when it is related to the broad area of climate science.

- Promotion of inclusive and sustainable economic growth:

  - Promote sustainable tourism that creates jobs and promotes local culture and products.

2.2.3 IMPACT ASSESSMENT AND INDICATORS

Depending on the moment, the expected SIS of a project can be evaluated *ex-ante* (before it starts), *in-itinere* (during the project) and *ex-post* (when the research is already finished).

Ex-ante: As for INDECIS, the project has been favourably evaluated ex-ante in the ERA4CS Joint Call for Transnational Collaborative Research Projects as evidenced by its approval and funding. Section 11 of the project (entitled *Impact, engagement and dissemination plan*, pages 29-33) shows (in bold) that "the close collaboration with relevant end-users and managers **from the start of the project** will ensure that the research outputs are useful in operational practice in the different catchments chosen as case-studies of the project, but also that the methods and the results can be exported to other catchments".

Moreover, WP7 deals with the generation and communication of climate services and is actually embedded in the whole project to the point that includes four deliverables:

- D7.1: Document Communication Strategy for Delivering Effective Climate Services.

- D7.2 Document Business Cases Study for the Delivery of Climate Services in the Tourism Sector.

- D7.3 Release of the software suite and integration into IDSIP (INDECIS data, indices & climate services portal).

- D7.4 Basic semi-automated Climate Services and protocol for requesting advanced climate services launched at IDISP (INDECIS data, indices & climate services portal).

In-itinere: This evaluation will be done throughout the research by collecting diverse useful material as robust impact evidence. In that sense, sources for audit purposes could include reports, reviews and web links as well as individuals and beneficiaries of the project that with factual statements can corroborate specific claims. Stakeholders and users' statements, recorded activities, stories describing the journey from research to social impact and others indicators —empirical metrics demonstrating the impact that has occurred— should be captured in order to demonstrate the SIS of the project (for more details please see the report *Collecting Research Impact Evidence. Best Practice Guidance for the Research Community*).[16] A preliminary in-itinere evaluation will be detailed in the INDECIS' Mid-term report.

Ex-post: The last evaluation will be confirmed by means of collected evidences and trough a comparison of the expected results and those achieved at the end of the project (INDECIS' final report) and in the following years.

[16] https://www.research-strategy.admin.cam.ac.uk/files/collecting_research_impact_evidence_best_practice_guidance.pdf

3. COMMUNICATION, DISSEMINATION AND EXPLOITATION ACTIVITIES

This section presents some guidelines to develop the WP7 —more specifically the deliverable D7.1 (Communication Strategy for Delivering Effective Climate Services) and the deliverable D7.2 (Business Cases Study for the Delivery of Climate Services in the Tourism Sector) —, and to be taken into account in deliverables D7.3 and D7.4 (INDECIS data, indices & climate services portal-IDSIP). Thus, several actions are proposed in order to reach a broad audience(s) and public(s) in the GFCS high-priority sectors plus tourism.

D7.1 will build upon "a fresh approach to public engagement" trough five key principles for creating (social marketing) campaigns on climate change communication and climate services provision and delivery (Corner and Clarke, 2017): **1)** Learning lessons from previous campaigns and being prepared to test assumptions; **2)** Starting from the "values-up" instead from the "numbers-down"; **3)** Telling new values-based stories to shift climate change from a scientific to a social reality; **4)** Turning from "nudge" to "think" to build climate citizenship; **5)** Promoting new voices to reach beyond the so called "usual suspects".

Also, WP7 and D7.1 will be based on the **six steps of risks and benefits communication methods and tools** reproduced below:[17]

Figure 4: The six steps of risk and benefits communication

A cornerstone in communication is to spread coherent and consistent messages. A common approach to classical media as well as to new channels of communication and engagement will be developed based on efficient communication strategies **tailored to specific groups** in order to bring about appropriate behavioural changes.

When design this "Plan for the Communication, Exploitation and Dissemination of the INDECIS' Project Results: From Research to Social Impact of Science" it is important to be aware of what sources of information about science and technology are most or less used and in which countries.

[17] Retrieved from: http://resourcecentre.foodrisc.org/

The Special Eurobarometer 401 (EU, 2013: 9) says that television is the main source of information on these issues (65%). This is followed by newspapers (33%) and websites (32%). Overall 35% of respondents get information from the internet (including social media and blogs). Just over one quarter look in magazines (26%), while radio (17%), books (14%) and social media and blogs (10%) are less popular. More than one in ten (16%) say they do not look at all for information about developments in science and technology.

The same Eurobarometer higlights some geographical differences:

> "A review of the country level results shows that respondents in Sweden are the most likely to look for information on developments in science and technology in each source listed, except on websites.
>
> "Television is the most mentioned source of information on developments in science and technology in each country, ranging from 84% of Swedish respondents, to 44% of those in Ireland. In fact, Ireland is the only country where fewer than 50% say they get this information from the television.
>
> "The highest proportion of those using the internet (websites, and/or social media and blogs) for this kind of information are found in the Scandinavian and Baltic regions, while those living in central and eastern regions are generally less likely to use the internet for this information".[18]

Being aware of these differences in-deep interviews, workshops, focus groups, surveys and web-based surveys, iterative dialogue and two-way communication techniques should be performed throughout the project to enrich our understanding of who says what, where and when is being said, to whom is addressed and why.

We understand constitutive communication as a process, not as a product. If the same is for news and notices this conception could be also applied to climate services: they can be a product itself (instrumental use) but in the communicative process of co-creation they can be improved by public participation and engagement procedures. Indeed, "the literature seems to converge around the need to engage users in the 'co-production' of climate services in order to ensure that products are useful, useable and used" (Vaughan et al., 2017:20). **Communication plays a key role in these transformation processes when embed in the core of climate-related research projects such INDECIS.**

Beyond climate change information, in this turn for climate services communication our aim is to cover all ISI's aforementioned dimensions, from the three more general regarding Social

[18] In the Spanish case, weather forecast is one of the most viewed content by cybernauts (71.9%) either on mobile phones or on computers. Only seeing maps (72.1%), watching videos (81.3%) and reading news (84.6%) are more frequent activities. Looking for weather forecast is even more usual than watching movies and TV series (48.6%), consulting cinema show times (47.8%), and look for health (38.7%) or for financial information (35.9%). [Source: 20th macro-survey *Navegantes en la red* (Surfers on the net) from AIMC (*Asociación para la Investigación de Medios de Comunicación*) — Association for Media Research. Available at: http://www.aimc.es/otros-estudios-trabajos/navegantes-la-red/.]

Sciences and Humanities (scientific, social and political) as well as the five areas of knowledge (Health and wellbeing; Commercial and economic; Public policy; Societal and cultural; Environmental), to the more specifics (instrumental) and constitutive —that means conceptual, formative, attitudinal and interactional.

In short, "the necessary and most important processes and approaches" in the co-production of climate services are "**assessing user's needs**; **translating, communicating, and sharing knowledge**; supporting the production of social capital; capacity building; and leadership and organizational design" (McNie, 2012:19).

This report focuses on marked aspects (in bold) of the previous paragraph. In line with our understanding of communication as a process this plan is a living document, so planned actions will be monitored and updated during the project, in collaboration with all consortium' partners, and actions taken in each WP in terms of communication, dissemination and exploitation will be reassessed for the purpose of achieve the maximum scientific, social and political impact in all aforementioned areas and dimensions of knowledge.

Now we turn to more practical questions, e.g. how to put into practice what we have been saying? Next sections describe our proposals, provide several tools to take action and specify how to collect impact evidences.

Here it is essential to warn that the optimal is not always the possible. We must not forget that climate sciences are the core and priority of INDECIS, so in terms of communication the project will limit actions to its real possibilities regarding budged, time and manpower. Even so, the following is a complete proposal that will allow choosing among the most pertinent activities, especially in the fields of dissemination and exploitation, as the project develops.

3.1 COMMUNICATION ACTIVITIES

Like climate datasets, which must be catalogued and homogenized in order to improve their quality and reliability, corporate communication must be homogeneous too in order to be effective, easily recognisable and linkable to our project at first sight.

For this reason INDECIS' graphic identity is based in coherent, consistent and robust corporate communication. INDECIS' logo in different formats, power point slides, templates for deliverables and other communicative resources are available on the INDECIS' Moodle site (https://moodle.urv.cat/moodle/course/view.php?id=74045).

Partners are highly encouraged to use all these resources in their activities (reports, presentations, posters, speeches and so on).

Logo

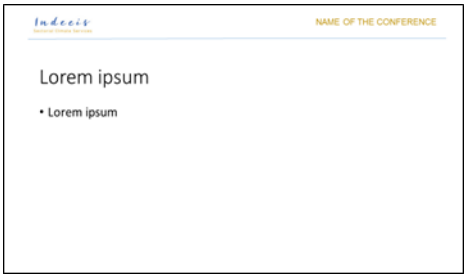
Indecis
Sectorial Climate Services

(Available in jpg, tiff, png, giff).

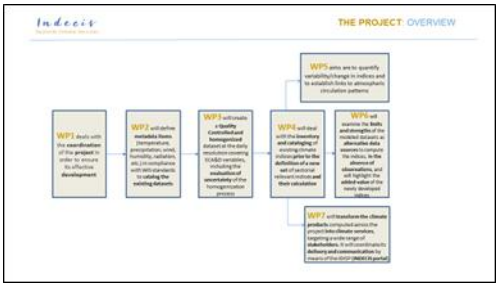
Power point templates

Front page

following pages



Project overview



Partners' logos

Partners, WP leaders and PIs

back cover

Expected impacts of communication activities described in table 1 are designed to gain media attention, socialize science and increase and improve scientific literacy of audiences.

Table 1. Communication activities: Actions, tools and impact measurement

COMMUNICATION ACTIVITIES	ACTIONS	TOOLS	IMPACT MEASUREMENT
	Involve journalists and influencers	Press releases Press conferences	Number of news about the project published in the media
	Public relations	Contacts with official bodies / companies	Number and representativeness of contacts
	Audiovisual communication	Video / podcast	Number of visits
	Publications and advertising	Leaflets, factsheets, brochures, flyers, newsletter	Number of downloads
	Web and social media use	Website Facebook Twitter LinkedIn ResearchGate	Number of visits Number of followers Shared contents

NOTES:

1.-) As it is mandatory, all partners shall use in each report, deliverable, presentation, paper and other project-related document the EU logo and acknowledge INDECIS' donors by adding the following sentence: **INDECIS is part of ERA4CS, an ERA-NET initiated by JPI Climate, and funded by FORMAS (SE), DLR (DE), BMWFW (AT), IFD (DK), MINECO (ES), ANR (FR) with co-funding by the European Union's Horizon 2020 research and innovation programme under grant agreement no. 690462.**

2.-) In all communication activities, please remember to refer to:

- The project's website URL (www.indecis.eu).
- Facebook (www.facebook.com/Indecisproject/)
- Twitter (@INDECISproject) https://twitter.com/INDECISproject

3.2 DISSEMINATION ACTIVITIES

Expected impacts of planned activities at scientific level (see table 2) are mainly thought to make results available and to transfer knowledge.

Table 2. Dissemination activities: Actions, tools and impact measurement

	ACTIONS	TOOLS	IMPACT MEASUREMENT
DISSEMINATION ACTIVITIES	Publication of peer-review papers	Scientific Journals	Impact factor of journals Number of quotations
	Publication of books and /or book chapters	Scientific publishers	Prestige/scope of the publishers Number of quotations
	Presentations on scientific conferences	Oral presentations Posters	Number of presentations and relevance of the attended conferences at domestic/international level
	Organization of events with stakeholders	Workshops, conferences, seminars	Number of organized events and number and representativeness of the attendants
	Participation in science events	Science fairs Showrooms/contests	Number of participations and attendants

3.3 EXPLOITATION ACTIVITIES

Expected impacts of exploitation activities described in table 3 are basically to make use of results, scale the reach of the project, increase the value of R&I and foster social/policy change.

Although quantity and quality of peer-reviewed publications, presentations at international conferences, data and methods are the most important outputs in terms of dissemination and scientific impact, the project should not be evaluated using bibliometric and academic methods only, but also using indicators like "reports, models, white papers, forecasts, workshops, training sessions, etc.", as McNie (2012) suggest:

> "In addition to evaluating outputs, programmatic *outcomes* must also be evaluated, such as improved understanding of climate science, policies enacted, resources saved or conserved, decisions made, models designed, stakeholder networks created, and social capital developed" (McNie, 2012: 24).

WP7 will go more in-deep on these topics from a user-oriented research, e.g. a case study approach on tourism (D7.2).

Table 3. Exploitation activities: Actions, tools and impact measurement

	ACTIONS	TOOLS	IMPACT MEASUREMENT
EXPLOITATION ACTIVITIES	Create Climate Datasets, including Climate Data and Climate Indices	INDECIS Data, Indices & climate Services Portal (IDISP)	Number of visits Number of downloads
	Create and disseminate software suites under open licences	GitHub, IDISP	Number of licensed users
	Provide Climate Services	IDISP	Number of licensed users
	Conduct Education and Training Events	INDECIS website	Number of workshops and attendants
	Promote spin-off research (e.g. PhD thesis)	Supervision protocol of PhD candidates	Number of theses made

To end, the overall impact of the project will be evaluated and measured from three different approaches:

> "A positivist one, where a picture of the real world is built by adopting rational and objective value measurements; a critical one, where measurement is based on the principles of democracy and accountability, since measurement plays a role both between (and within) organisations and society, stakeholders play an important role in it; and an interpretative one, where measurement serves as a 'symbolic mediator' between various social groups and as a tool for dialogue between companies and their stakeholders to encourage social change" (Milotay, 2017:2-3).[19]

[19] http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/603930/EPRS_BRI(2017)603930_EN.pdf

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