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Recommendations for improving the dissemination of research outcomes

In the regional workshops as well as in the stakeholder meetings, participants felt that the professional sector has little access to scientific knowledge and that information transfer is insufficient at present. Hence dissemination of research outcomes needs improvement. It needs to be acknowledged that **knowledge is 'co-constructed'**, everyone can contribute with expertise and criticism. **Scientific knowledge and empirical knowledge are complementary.** Rather than one-way dissemination, **knowledge questions should be identified in cooperation**, hence as part of a network of industry and science.

STRUCTURE

In general terms, **the network should extend from the local level (closest to the producers) to the International and European levels**, where studies can be of interest for a shellfish stakeholder (scientific, producers, extension worker, etc.) that may originate in another country.

Various organisations/structures could be applicable, for example:

- one national reference centre and regional centres;
- national reference centres with different areas of expertise;
- no national centre but a "database" and network of institutions and research facilities able to answer to producers' needs.

Technical centres are of major importance to provide technical-scientific assistance to producers. They could play a strong role as **extension platforms**. This role cannot be carried out by research agencies that have other purposes and various constraints (including the problem of the scientific production and publications).

The main need is an **adequate and stable source of funding** that allows the network to last. The obvious long-term solution seems to be a **structure supported by the professional sector**.

FUNCTION

It is not always easy to find the appropriate interlocutor. **Networking** enables to share and disseminate knowledge, it facilitates contacts and helps to find the good person (either interested or competent people). However it is necessary that the network is well organized and that the **links are effective and constant**. Each member of the network must have **clearly defined functions and competences** to avoid confusion, duplication and gaps.

Public meetings should be organized more regularly. For example, three meetings per year regardless of the current situation, regardless of the progress of projects. These meetings can be organized by the national or regional organizations representing producers or by research centres or technical centres, or jointly. It is important to have **physical meetings** to discuss projects that are completed, ongoing and future, to discuss about progress and difficulties, in a transparent manner.

Annual conferences can also be organized where short presentations are made, followed by open floor discussions.

Meetings in the form of farm visits, lab visits, forums bringing stakeholders together, workshops, exchanges between professionals and scientists should be held regularly.

Discussion groups could be set up either by producers, or by local organizations, but the will/decision has to come from local producers. A group of about 10 producers can decide to work together. They organize regular meetings where they discuss about specific problems and try to find solutions together by experimentations. They can invite specialist, scientists, to bring some advice.

IMPLEMENTATION

Efficient coordination is the key. Researchers must better coordinate in order to avoid duplication of work. Producers can also benefit from a good coordination, helping them to solve problems in their companies (production, administration, etc.). And of course, science and industry must coordinate their action so that they can work together efficiently.

National producer representative organisations should be the focus point for the regional organisations. Vice versa, local structures must also raise issues to the national level.

Local structures must also communicate more with each other, for example through sharing experience and information from discussion groups, environmental organizations, FLAGS, education establishments etc. Each region may determine the structure(s) that is/are best able to relay information.

If they are to be the key players in an extension network, **it is essential that producers' organizations are reinforced**, with the support of local administrations. They must have **technical staff** to require that research and concrete actions are conducted to solve problems.

Strengthening FLAGS could promote the sector. They should be structured with their own staff and their decisions should be determinant at national level in defining the criteria of quality, sizes and all other decisions relevant to the industry.

SKILLS OF EXTENSION WORKERS

The success of an extension network may be reflected by the actual persons that are responsible "at the interface". **Knowledge management requires special skills**. The extension workers must have **strong knowledge on the area**, enjoy teaching, be a **pedagogue**, and have interpersonal skills. They must be **good listeners** and able to understand situations. They may be neither scientific nor professional, which allows them to be **neutral**. They must establish **trust** with their partners and maintain a balanced relationship.

Positions of aquaculture consultants or advisers could be created, as is the case with agricultural advisors. They could ensure a **scientific and administrative watch to collect, sort, verify, gather, cross-check, synthesize and disseminate information**. They could play a role of **matchmaker between scientists and professionals**.

If scientists wish to do the extension themselves, it is essential that they have the qualities mentioned above. They should be **humble and explain (for certain issues) the difficulties encountered**, why it takes time, why it does not work. Those receiving the information must be **indulgent, patient and respectful** with regard to the person who gives its knowledge.

The person transferring knowledge must be able to **translate the information from scientific language to plain language**. But the information to be transmitted should be **simplified without being altered** and its context (in some cases) should be well explained.

Communication and transfer must be a **two-way process**, where knowledge and skills that are developed by those who are on the field are passed to those in research.

Demonstration by giving examples is a good way to popularize. It is generally easier to understand a phenomenon when observed oneself, even better, when experienced. Experiments are essential not only to advance the research, but also to understand various phenomena.