



**LATIN AMERICAN REGIONAL OBSERVATORY
OF RENEWABLE ENERGIES**

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1. INTRODUCTION

The United Nations Industrial Development Organization (UNIDO) is preparing a Regional Program on Renewable Energies for Latin America aimed at reducing inequalities and poverty through the application of this type of energies to production. This Program will be presented at the Ministerial Meeting to be held in Montevideo from the 25th to the 29th of September 2006.

As one of its basic elements, the Program includes the creation of a Regional Observatory (Watch) to improve training and development of technological capacities on these matters and to offer specific solutions to the social demands presented. Institutional Platforms with the capacity to implement these solutions will be consolidated in the countries at the same time.

The Observatory is conceived as a knowledge network, and the objective of the current document is to analyze the organizational and managerial characteristics that the network should meet in order to be operational.

2. CONCEPTS ON KNOWLEDGE NETWORKS

It is advisable to make a necessary distinction before introducing the idea of knowledge network. Information is not the same as knowledge. When we are told that we live in the information society, it is true. But it is also true that we live in the knowledge society. What happens is that both things are different, and they reflect different phenomena, albeit well connected with each other. We could even say, that an overabundance of information that is not hierarchized or valued may result in a lower level of knowledge, understanding as such, among other attributes, the ability to correctly interpret the information received. From this perspective, we must clearly distinguish the information networks from the knowledge networks. The former provide information through interconnection of its sources. The latter generate knowledge through collaborative work in networks. Hence, they are two different realities, although one may not always be aware of it in the everyday language and in literature.

The Knowledge Network Concept

The knowledge networks are collaboration means that enable exchange of information, facilitate knowledge sharing, encourage corporate values and contribute to recognizing the strategic value of knowledge. They are platforms for attaining these objectives, but however positive and significant, none of these issues justifies the existence of the networks as such; what justifies them is the fact that they promote the creation of knowledge. If no knowledge is generated, what we will be facing is just a network for the exchange of information, but only that. This observation applies to networks in which activities exclusively focus on the organization of events and publications with the very valuable objective of consolidating relations between their members, or at times, creating platforms that sustain some type of claims or interests that are common to them. There are many networks of this type and it is all right for them to be like that, but strictly speaking they cannot and should not be considered knowledge networks, at least not in the sense that is given to the term in this paper.

The main characteristic of a knowledge network is the autonomy and diversity of its members, a diversity that may be sectoral, geographical, legal, cultural, etc. The institutions or persons are diverse from several

points of view, and they are usually scattered in space, with their own heterogeneous interests that do not have to (and generally do not) coincide with the network's objectives. However, these institutions or people commit themselves to a common project, and contribute to it with their active participation. They constitute what we could call a virtual team, and the way they work as such depends on the interrelations between its members, exactly the same as in a conventional team. The greater or lesser difficulty for establishing an interrelations system that may work adequately depends on the network's level of complexity, which is associated to the number of barriers that must be overcome. Here we mention some as examples:

- The network members belong to different organizations.
- The members come from different sectors, functions or disciplines.
- Degree of the network's geographical scattering in the regions.
- Degree of scattering among the countries.
- Time differences, if any.
- Language differences.
- Different level of access to communications infrastructure.

Each of these variables will have an impact on the network's level of complexity and on the interrelations system.

Another dimension that must be considered when thinking of the network's operations is the mechanism through which knowledge is generated. As is well known, only a part of knowledge is materialized in a coded manner (in writing, recorded electronically or through any other means); this is the so-called *explicit knowledge*. Together with that there is a *tacit knowledge* that is identified with the know how, and the *implicit knowledge* that corresponds to the context in which people act, their vision of things, values assumed, habits, etc. It is apparently not necessary to warn about the fact that the three levels intervene in generating knowledge, so exchanging and sharing explicit knowledge in the network, as reports, manuals, records, etc. would not be enough. This is evidently necessary, and it serves to

establish mechanics for common work; however, it will be necessary to tune up common ways of doing things (tacit knowledge), and to incorporate a contextualization of the network (implicit knowledge), depending on the final use of the output of their work. We should not forget, and we will immediately discuss this, that the network is justified because it provides new knowledge that may be used to adopt better decisions outside the network.

Conditions

Once this conceptual framework is accepted, we can identify a set of elements that in fact constitute the network's conditions of existence. Some of the elements can be identified because operation would be unthinkable without them, while others are identified because the advantages of working in a network would not become evident without them.

- The network is justified by the creation and dissemination of knowledge beyond the network's limits. In other words, its main aim is not to improve the level of its members (which will always occur, at any rate) but rather transferring knowledge to the outside.

- It provides benefits to all its members, which is obvious, because otherwise the members would not be part of it. In networks of other types (for example, information) people may stay there, even if the advantages are dubious, because of image or to maintain certain relations, although this would in a certain way be obtaining benefits. However, a knowledge network requires active participation, members must contribute with their work, and the benefits must be evident and tangible.
- Working in the network produces knowledge with a higher yield and faster than isolated work. There is a synergic effect, so by working in a network, two plus two will not be four, but rather five, six or seven.
- There is a formalized organization, one management and well-defined management procedures.
- There is a well developed communication strategy. without which network work cannot be conceived. Of course, contrary to what some technological disseminators think, good communications do not suffice to make the network work. However, it is indeed absolutely impossible to work without them.
- Involvement in a network causes cultural changes in its members, who go from their organizations' internal culture, with their unavoidable tendency to close within themselves, to an open culture that both receives influences and has impact on others. It is one of the most important and enriching factors, even if intangible.
- A new type of product is generated in the network (naturally, we are speaking of knowledge-related products); this is not necessarily a result of the natural course of its members' activities.

- The cost/benefit ratio obtained through working in networks is clearly better than the ratio obtained at each participating institution separately. Obviously, this does not apply initially, and in some cases it may never be attained, but experience shows this is quite frequently the case, especially due to factors related to the motivation of the people directly involved in the network.

Efficacy

An organization's efficacy is measured by the degree of achievement of its objectives, and the same applies to a network. The first issue is answering why the network was created, which at times is not as obvious as it may seem. In this regard, it is very important to determine the driving force that led to the creation of the network. If it is external, coming from some institution demanding the services a network can provide and generally financing all or part of its activities, the aim of creating the network is determined by that external institution, and so are the network's concrete objectives. These issues are frequently less apparent when the network originates from the initiative of any of its members. At any rate, one should answer questions like the one mentioned above, "Why was the network created?", and "Are the objectives clear?"

The following step will allow us to evaluate whether the objectives are met and if so, to what extent. As a conclusion, there are two other issues that are intimately related to the very justification of the network's existence: Is the advantage of working jointly evident? Is the knowledge generated relevant to decision-makers?

If the replies to this set of questions are affirmative, they constitute a measurement of the network's efficacy. To make those replies possible, the network must respect a strategic planning that must at least include very precise definitions on the aspects below:

- What type of strategic decisions do you expect to have impact on by generating knowledge?
- External relations: decision-makers in the system, scientific community, media, potential funding sources...
- What type of knowledge will be generated?
- How to transfer the knowledge generated to the decision system.

In the end, the intention is to position the network in a context that will justify its existence. Once the strategic framework has been precisely defined, it will be possible to identify indicators that evaluate the extent at which the results obtained meet the previously established objectives, which constitutes the measurement of the network's efficacy.

3. NETWORK OBSERVATORIES

3.1 The “Observatory” Concept

The word “observatory” is fashionable, and as frequently occurs with terms that are fashionable, its use may easily lead to confusion. It is important to bear in mind that what determines its character is not the Observatory in itself, but the object that is observed or watched. For example, observatories dedicated to monitoring wages and working conditions in the various sectors of a certain activity are not the same or have little to do with other observatories that target the development of the information society in a country, or with observatories focusing on citizens’ health. Not to speak of the observatories by excellence, that generate the term and concept: the astronomy observatories.

However, there is something that all the entities that share the word observatory in their name have in common; they observe something. They watch, analyze, draw conclusions and disseminate them. Briefly said, they generate knowledge and promote communication/dissemination of the knowledge generated. Let us see how the process occurs in further detail.

The first thing that characterizes an observatory is its specialization. As was said above, something is observed, but it is quite concrete. This concrete nature may be associated to the field observed or the philosophy of observation. An example of the above is EITO, the European Information Technology Observatory, or the sectoral observatories created in 2005 in pursuance of the initiative of the Spanish Ministry of Industry, Tourism and Trade. An example of the second may be OPTI (the Industrial Technology Prospective Observatory), whose field of observation is so broad that it encompasses all the technology applicable to industry (the word industry taken in a very flexible sense), but the concretion comes from the fact that the target observed is the evolution of these technologies in the future.

Another characteristic all observatories present is that their activity is necessarily supported on **acquiring information** coming from the environment; information may be data, events, opinions or studies. Observatories have networks spreading in all the field of their scope, and their efficacy consists of ensuring nothing relevant is being missed. All this leads to another feature shared by observatories, i.e., their ability to process the information they acquire in a targeted manner, depending on the aims proposed. Consequently, observatories constitute mechanisms for **processing information**, and the nature of this processing will depend on the observatory's nature, but that element is always there, and it may be very complex.

Finally, it does not suffice to do things, or even to do them well; things must be useful, and in the case of the observatories this means that the results obtained should be disseminated and they should reach the natural destinies within terms that may make them effective. Hence, an observatory must be an effective **communications engine**. Actually, a considerable part of any observatory's budget is devoted to communication and dissemination activities.

In summary, we can state that observatories constitute a mechanism for generating knowledge. Having said this, however, we should go back to the consideration with which we opened these lines. The essence of an observatory is not the "observatory" itself, but the object observed. It is important not to forget this, to avoid any dangerous confusions.

3.2 Some Observatories Operating in Networks

Out of the broad range of observatories in different fields of activity operating at present, we have selected some that may serve as a reference for the project that is being contemplated. We will give a very brief presentation of their main characteristics, as they differ a lot from each other, expanding the information about them in the annex to this document. Their common factors are their nature as “observatories” and the fact they operate in networks. They are the following:

- OPTI, The Industrial Technology Prospective Observatory (Spain)
- ESTO, The European Science & Technology Observatory (European Union)
- The PASCAL Observatory (Australia- United Kingdom)
- The Innovation Projects Observatory (NPD-NET) (United Kingdom)
- The Innovation & Technology Observatory (United Kingdom)
- Canadian Medical Technology Watch (Canada)
- Helio International (France)
- Technology and Standards Watch (TSW) (United Kingdom)

OPTI

The Industrial Technology Prospective Observatory (OPTI) is a Foundation dependent on the Spanish Ministry of Industry, Tourism and Trade, whose mission is to conduct prospective studies in all sectors and areas of knowledge related with science, technology and industry. It also conducts technological surveillance activities and advisory projects on technological strategies and policies related to the implementation of the results of the prospective studies conducted. OPTI is made up of a network that includes nine technological bodies, all of which undertake research and development activities in various areas of activities. All these entities (technological centers) have a recognized level of excellence in their research activity, and a strong implication and knowledge of industry in the sector where they operate.

OPTI started to operate in 1998, and it works primarily for the Spanish administration, for the autonomous (regional) governments in Spain and for companies and business associations. It has an intense activity in Latin America and it has participated and continues to participate in numerous European projects.

ESTO

The European Science and Technology Observatory, ESTO, is a network of organizations that work under the auspices and funding of the European Union's Joint Research Center's (JRC) Institute for Prospective Technological Studies (IPTS) since 1997.

The ESTO network's mission is to develop and broaden JRC-IPTS's knowledge basis on science and technology perspectives, to provide European Union decision-makers information that may be potentially relevant to the EU's society, economy and policies.

ESTO is currently integrated by twenty European institutions with experience in the field of scientific and technological perspectives and advice at a national level. These organizations are formally related to IPTS and they are the core of a broader network. The network undergoes continuous renovation and extension of its membership, trying to incorporate competent organizations, both in the EU and abroad, paying special attention to countries candidates to entering the EU. The ESTO members share the obligation of providing IPTS-JRC up-to-date high quality information, which is facilitated by the extension of the network and by each of its members' activities and relations.

The PASCAL Observatory

The PASCAL International Observatory provides strategic information and advice on the application of concepts such as Place Management, Social Capital and Learning Regions, as a support to sustainable development. PASCAL is an alliance of the RMIT University, Victoria (Australia), the University of Stirling, in Scotland, the State Government of Victoria, the Scottish Executive Scottish Communities and Kent County Council, UK.

PASCAL offers an online portal with relevant documents, analyses, news, events and research results, providing an efficient and cost-effective access to relevant and useful information. The core purpose of PASCAL is to facilitate the implementation of policies that may improve the quality of living and working conditions at local and regional levels, considering the significance of concepts like *place management, social capital and learning regions*, and the need of partnerships for the successful implementation of those policies.

Innovation Projects Observatory (NPD-NET)

NPD-NET is an inter regional cooperation project implemented by the Innovation Projects Observatory with the objective of assisting in Launching New Projects to the Market, through the establishment of inter- and intra-regional networks of suppliers of specialized services.

Participants in this project include the regions of Central Macedonia and Attica (Greece), the LEIA Foundation (Basque Country, Spain), Cardiff Business School (University of Wales, Cardiff, UK), Institute Jozef Stefan (Slovenia), Tartu Science Park (Estonia) and the Regional Development Agency of South West Oltenia (Romania).

New Product Development (NPD) focuses on the renewal or up-date of products which, as a result of technological and socio-economic conditions, have become obsolete and are of no help when new markets are sought. While in many regions technological innovation may result in employment reduction, mainly because of the introduction of new technologies and automation, in the case of product-based innovation, regional wealth increases in parallel with employment. NPD covers a wide range of services required in the field of consulting (product conception, market analysis, competitors analysis, marketing etc.) ranging from product design to prototyping.

The philosophy of NPD-NET is to address the regional gap in terms of NPD services and consultancy, especially in the Least Favored Nations (LFNs), by developing inter- and intra- regional consultants networks.

The Innovation & Technology Observatory

The Innovation & Technology Observatory is a tool aimed at analyzing aspects related to technological development, implemented by the Centre for Urban and Regional Studies, of the University of Birmingham.

This Observatory focuses its activities on the study and monitoring of innovation in the region, in different sectors of industry. For that purpose, it examines the most relevant technology trends, as well as the industry's acceptance and take-up of emerging technologies.

Medical Technology Watch Canada

This Observatory provides Canadian SMEs information about scientific and technological breakthroughs, markets, patents and regulatory issues related to the health sector, making that information available for their decision-making and strategic planning processes.

The information is provided in technological surveillance newsletters that are issued every two months, produced thanks to the fruitful collaboration between top-level health centers in Canada.

Helio International

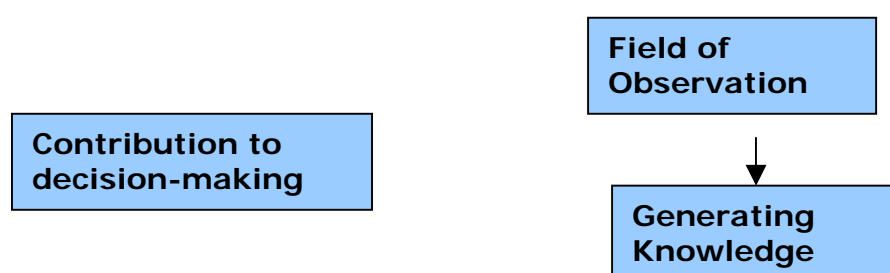
HELIO International is an international network of energy analysts, whose objective is to identify, assess, measure and disseminate information about the contribution of the various energy systems and policies to sustainable development. Helio publishes technological surveillance newsletters on "Sustainable Energy", develops indicators and promotes their use.

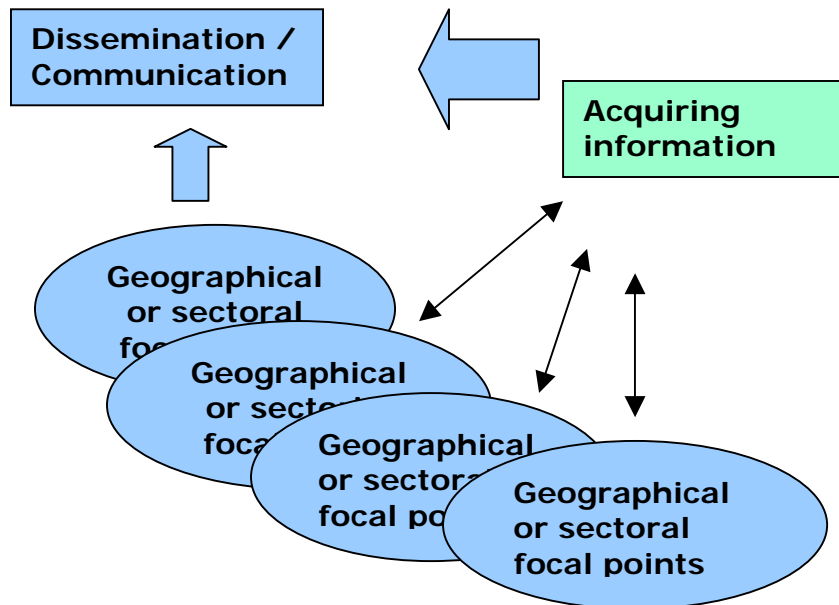
Technology and Standards Watch (TechWatch, TSW).

The Technology and Standards Watch initiative was launched in 2000 by the JISC (Joint Information Systems Committee), being its main function to promote the use of Information and Communications Technology (ICTs) at the tertiary education centers and institutes, offering strategic services and giving advise about the advantages that these technologies can offer in the field of education, research and administrative tasks.

For that purpose, this Observatory identifies and tracks developments in the area of Information and Communications Technology (ICT) that are expected to have significant impact on the higher education (HE) institutes and on further education (FE) in a five-year period. TechWatch commissions reports on specific technologies, which they later post on their Web. Likewise, the observatory constitutes a point of encounter for all those researchers wishing to publish articles on the technologies under study on the web.

Figure 1





OBSERVATORIES IN NETWORK – FIG 1

4. OBSERVATORY OBJECTIVES

The objectives proposed for the Observatory of Renewable Energies are:

- To generate and distribute useful information and knowledge on energy and especially on renewable energies in the countries in the region.
- To provide experts' advice to the agents involved in decision making both at a national and regional level.

The need to act as a capillary in the various countries requires the observatory to work as a network constituted by focal points located in the countries. Furthermore, the first of these objectives clearly constitutes a network of knowledge in the terms that were described in the previous chapter. Finally, the second objective incorporates the need to have a certain executive capacity to provide the intended advice.

5. ACTIVITIES AND PRODUCTS

We contemplate the following types of activities:

1. Collecting data on all the actions and initiatives conducted in the region in the field of energy, and managing such information to promote scale economies and to enhance those initiatives through alliances and collaborate work.
2. Creating a *Knowledge Inventory* of renewable energies from three points of view.
 - a. **Technological:** at a national, regional and world scale.
 - b. **The incentivator's:** conditions for investment, financial mechanisms, fiscal treatment, etc.
 - c. **The regulator's:** Role of the State, government plans, regulatory mechanisms, etc.
3. Conducting *Diagnoses on Renewable Energies* in the countries, to detect their real needs and to discuss potential ways to meet them using renewable energies.
4. Giving advice to institutions that make decisions related to technology, standards, project feasibility, etc...
5. Promoting initiatives aimed at promoting a greater and better use of renewable energies in the countries of the region.

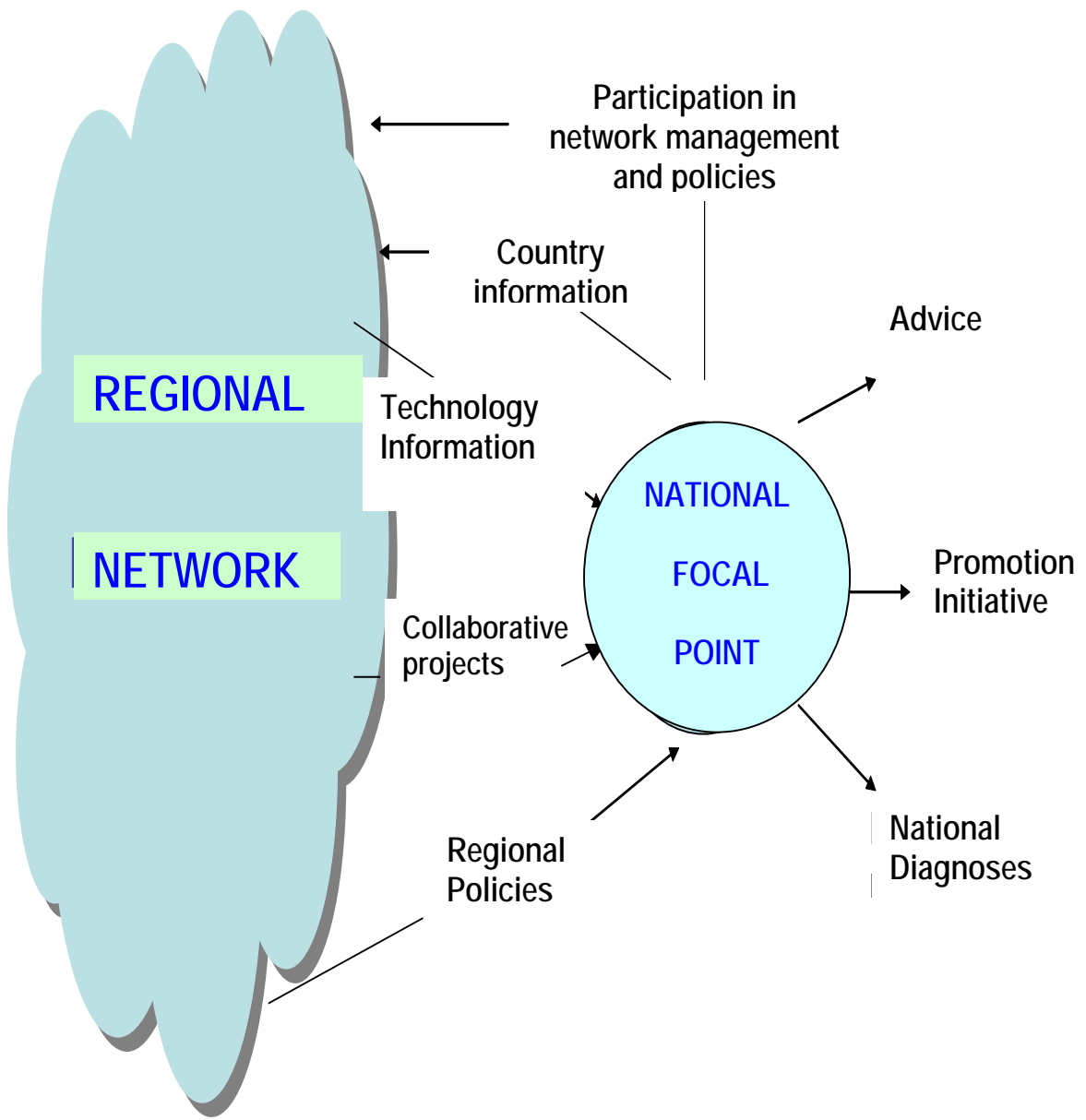
These activities are materialized in the products discussed in the Chart below:

Chart 1: OBSERVATORY PRODUCTS
<ul style="list-style-type: none"> • Technological information: Information services supported on the <i>Knowledge Inventory on Renewable Energies</i> database • Diagnoses: Baseline studies on natural conditions for the use of renewable energies in the countries. • Training Programs: Design and implementation of educational initiatives

upon the countries' request, e.g., a master's degree at some prestigious university.

- **Regulatory Issues:** Analysis of the legal standards and regulatory systems in the countries and proposals for their changes upon the governments' request.
- **Viability Analysis:** Feasibility studies of projects aimed at implementing renewable energies.
- **Projects:** Developing proposals for projects to implement renewable energies in concrete countries, or under an international cooperation regimen.
- **Technology Evaluation:** Selection, adaptation and validation of technologies identified as positive for a specific place and purpose.
- **Advice in Selection and Contracting:** Selection and advice in case of negotiations with technology, equipment and service suppliers.

All nodes or focal points should be capable of conducting these activities in their own countries, but the network is more than the summation of the focal points, so the inter relation between them and the permanent crossing of information may allow them to develop joint visions and to design joint action strategies. The achievement of the above should not be taken for granted, and we cannot rely solely on the spontaneous and well-intentioned relationships of the network components. The network and its management mechanisms should be designed so as to enable an effective operation. That is further discussed in the following chapters of this report.



REGIONAL OBSERVATORY OF RENEWABLE ENERGIES

Figure 2

6. STRUCTURE

6.1. Focal Points

The Network's nodes or focal points are entities or groups of people that integrate the network in each country. The main characteristic that connects them is their heterogeneity. They are in different countries and they will usually differ a lot with regard their legal capacity. Some may be public, others private; they might belong to the industry or the academy; they may be small, specialized entities or part of large institutions...at any rate, the interest of these entities with regard their own purposes will differ. The only characteristic they would have in common is their relation to the energy sector. Considering all the issues mentioned in item 2.2, these characteristics make this a highly complex network.

Chart 2: Focal Points Profile

- Entities operating in the Energy sector.
- Technological content
- High level of excellence
- Operational capacity.
- No Ministry Departments or consulting companies.

As stated in this profile, focal points cannot be limited to two consultants in an office building; they have to be supported by important institutions in the sector (as powerful as possible); they should have their own technical contents and the capacity to flexibly increase or reduce the resources allocated to activities aimed at collaborating with the Observatory.

The **selection criteria** to select the focal points can be drawn from the objectives mentioned above and the activities to be developed. These are some of such criteria:

- Belong to the energy sector.
- Knowledge or easy access to knowledge on renewable energies.
- Experience in international activities or at least Inter American activities.
- Availability of an adequate Information and Communications Technology (ICT) infrastructure.
- Relations and movement capacity in the country.
- Experience in production development projects.
- Dissemination / communication capacity.
- Experience in training activities.
- Easy relations with the Administration and with public powers in general (including local or regional powers).

It is quite likely that these criteria may not be met simultaneously; however they must be considered as a reference of the desirable conditions. At any rate, the position of each candidate to a focal point should be analyzed against each criterion and, to the extent possible, one should weigh which is closest to meeting such criteria.

Motivation of the Network Members

A very important aspect that should be taken into account at the time of creating this network is its members' **motivation** to be part of it - motivation affecting people and institutions. It is important to highlight that participating in this type of projects rarely provides economic compensations proportionate to the effort they imply. This applies both to the entities that owe themselves to their own objectives, from which they may be deviated, and to the people that directly make this effort. That is why motivation issues must be analyzed and programmed at the beginning of the project. This consists of identifying what in the project is attractive both for the people and for the institutions, and making those attractive elements explicit as a counterpart to the commitment acquired. Below we mention some of the benefits both for the entities and for the people, which may be capitalized as attractive elements, for example:

- Brand image of the Regional Observatory and its participants.
- Access to international programs.
- Access to interesting and up-to-date information on energy development and related topics from other countries and international agencies.
- Establishment of privileged networking.
- Development of personal or group capacities.

Furthermore, it is important to seriously consider that when the entities selected to collaborate as potential focal points are summoned to integrate the Observatory Network, their appointment cannot be limited to the government in question, or alternatively an invitation letter by UNIDO or any formal procedure of this type. There must be personal contact with the people responsible for the project, enough knowledge of the nominee's capacities and attitudes, and a true "sale" of the projects to those who are actually going to participate in it. This preliminary phase must be devoted enough time to guarantee a sound collaboration, based on mutual understanding and a good comprehension of the objectives sought and the nature of the commitment acquired. Only that will ensure the level of trust the network needs to operate.

Finally, we must discuss the way the entities selected as focal points will relate to the Observatory, that is the **adherence mechanisms**. They must be flexible, since they reflect a voluntary collaboration, but they must be binding enough, to allow the enforcement of a set of common rules and to guarantee the continuity of the project. The suggestion is that there should be a common instrument applicable to all the countries, or else that the adaptations for each country be minimal, not affecting the basic contents on which there is consensus. The legal instrument may be an agreement or a contract, as assessed by UNIDO's legal services.

6.2. Management /Coordination

The network's operation must allow the fulfillment of the Observatory's objectives, going far beyond the limits of a willful exchange of information. Coordination of the focal points and the activities developed by them is the guarantee to that. This coordination may follow two different models:

- The coordinator as *primus inter pares*, a function similar to that of a Standing Secretariat, facilitating the exchange of information, summoning and invigorating meetings and events, preparing documentation, promoting institutional relationships, drafting reports on the activities, etc...
- The coordinator, as a real network manager, assuming the executive functions attributed to this role.

Given the heterogeneous characteristics of the network components, the first option could seem more feasible, but the level of consistency that it would provide may not suffice. Once again, we must remember that it all depends on the objectives proposed; the objectives assigned to the Observatory turn this operation into a difficult project that requires an adequate management. Consequently, the recommendation is that the coordinator's functions may be as similar to those of a true manager's as possible. Among other things, this implies he/she should have enough authority to assign tasks to focal points, and to do a strict monitoring of the execution of such tasks.

The type of network we are contemplating is under a permanent tension between the centralization of its objectives and basic philosophy, and decentralization of operations in each country, operations that will arise from each focal point's activity, but that only have a meaning in the Observatory's framework. The adequate response to this tension lies on the effectiveness of the coordinator's or manager's functions. It lies on his/her ability to maintain the links between the focal points flexible enough to keep their work creative, so they can meet the local needs and requirements, while sufficiently strong so that the whole may be managed as such.

The terms of reference of the manager or coordinator must be explicit, well known by all the network components and they must be formalized in a document.

A decision must be made as to whether the observatory as such will have legal capacity or not. The main advantage of having legal capacity is that it provides stability *vis à vis* potential political changes, both in the multilateral institutions that promote the project and in the participating countries. A second advantage is that it forces institutionalization of the relations between participants. On the other hand, one of the drawbacks is that there is a risk that it may become a rigidity factor. At any rate, creating an institution should not be the first thing; the first priority should be to put the network to work. It seems prudent to plan one first stage that includes getting the network started and launching its first activities on a "virtual" basis, before facing the creation of a completely new legal entity.

7. ORGANIZATION

7.1 Management Bodies

Steering Committee

It is formed by high-level institutional representatives of the participating countries and supranational organizations. The Steering Committee is the institutional organ that guarantees the countries' commitment to the Observatory and ensures that its operations adjust to its purposes, while assessing the Observatory's greater or lesser success in attaining its objectives.

Chart 3: Functions of the Steering Committees:

- To propose regional development strategies and application of renewable energies to the governments involved and the international community.
- To define the Observatory's strategic action lines.
- To approve the incorporation of new focal points to the network.
- To know the Observatory's action plan and annual budget, and to approve it, if required.
- To know the Observatory's annual execution report and accounts statement, approving them in due case.
- To appoint (and in due case to remove) the person executively responsible for the network (coordinator or director).

General Management

The General Management is in charge of the network's executive responsibilities. Other alternative denominations, such as General Secretariat or Standing Secretariat, may offer advantages from a political perspective. The person responsible for managing the network must be aware that the technical work and the design of solutions to the problems that may arise are carried out at the focal points and that his/her role is to guarantee the day-to-day work that will enable the focal points to complete their work adequately. This role includes managing the network as a global product, implanting the communications and participation mechanisms among the members, facilitating a communications system provided of an adequate infrastructure, managing human and financial resources, evaluating the tasks performed and generating reports and statements of accounts *vis à vis* the Executive Committee.

As a minimum, **management functions** must cover the aspects mentioned in the following chart:

Chart 4: Management Functions of the Secretariat:

- To plan the activities to be performed and to assign the resources required to carry them out
- To streamline the flow of information through the network.
- To maintain commitment of participants with the product as a whole.
- To obtain the balance between the members' initiatives and their participation, and the preponderance of the network's global working plan.
- To manage the network's financing.
- To evaluate the results obtained.
- To guarantee that adequate methodologies are used at the work to be performed.
- To keep the Standing Committee informed and to be periodically held accountable.
- To manage the Observatory's external relations.

Together with these management functions, the Secretariat shall conduct technical tasks related to the aspects below, which go beyond what is done by each focal point. Thus, the following **technical functions** may be identified:

Chart 5: Secretariat's technical functions:

- Developing joint reports at a regional scale or as a group of countries.
- Collecting data on technological advances and the use of technology, and disseminating them to focal points.
- Collecting and disseminating information on financial and regulatory issues, among others.
- Keeping a database on up-to-date knowledge concerning renewable energies, including technology level, conditions for investment, applications in the region, world references, funding mechanisms available, legal and regulatory frameworks in the various countries, expert institutions, etc...
- Providing advice to supranational institutions.
- If necessary, coaching collaborative projects involving several focal points.
- If necessary, direct execution of projects that cannot be approached by any focal points.

7.2 Coordination Mechanisms

Focal points will operate mainly at a national scale, each in its own country; however, that should not preclude the fact that the organization is a network, and that should be seen as its most important added value. This means that bilateral relations between management and members are not enough; guaranteeing multi-laterality is absolutely essential, so that all members may participate effectively in the whole network's progress.

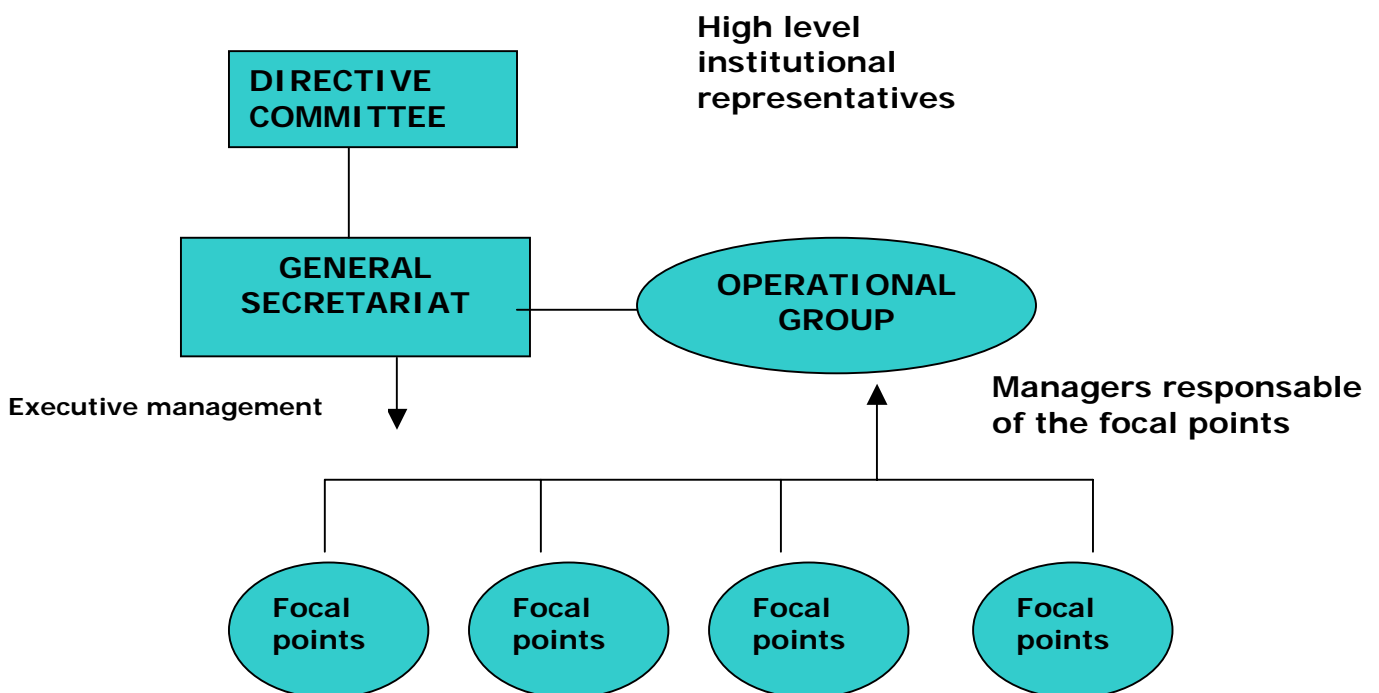
It is advisable to institutionalize this participation, to have it materialized in a coordination mechanism and bestowed with reference terms reflected in a document. The coordination mechanism proposed may adopt the shape of a **Task Force**, made up of the people responsible for each and all the national focal points, also including the Observatory's management. The aim of this group is to promote and facilitate the exchange of ideas and the communication among members, especially concerning the issues below:

- Work carried out in each country.
- Analyzing the potentials for regional joint projects.
- Exchanging methodologies used.
- Developing methodologies of common interest.
- Exchanging experiences in the use and development of technologies.
- Providing information on the use of renewable energies.
- Facilitating contacts of interest in each country.
- Putting forward proposals concerning the Observatory's activity.
- Exchanging staff as trainees in internships.

To be effective as a basic coordination and participation mechanism, the Task Force must meet periodically, at least 3 or 4 times a year. From the economical point of view, promoting meetings that require physical presence does not seem possible, so videoconference systems should be used. However, those virtual meetings should be formal; they should have an agenda; any necessary documentation should be prepared and distributed in advance, and minutes of the meetings containing the agreements adopted must be drafted and approved.

Although videoconferences may facilitate the execution of these meetings, it is highly convenient not to neglect the possibility of a physical meeting of the group members, at least twice a year, especially at the first stage. These meetings will be true events and are aimed at promoting personal and informal relations among the people responsible for the focal points. Planning complementary activities that may foster these relations is deemed to be of utmost importance.

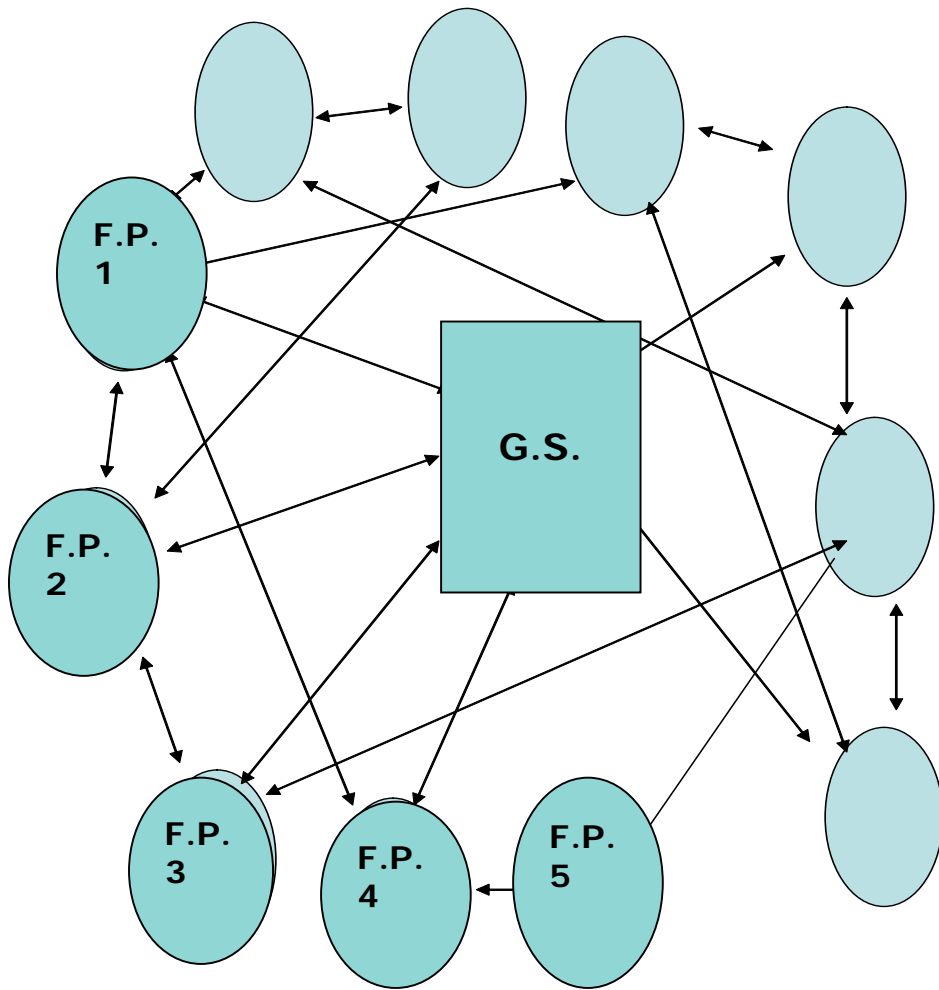
Figure 3



7.3 Interaction Among Members

Apart from the Task Force's formal meetings, the network's cohesion lies on the existence of fluent and constant relations among members. Developing mutual trust is a key aspect that should be promoted. That requires an adequate communications infrastructure to enable the implementation of the basic tools: portal or web, e-mail, video-conference, extranet... The support provided by that infrastructure may allow the implementation of several initiatives, such as thematic blogs, not necessarily on professional issues, but somehow focused on the Observatory's objectives. It is important to highlight that all the network members must have the same level and ease of access to the communications infrastructure. If any problems reflecting unequal capacities in that respect were detected, they must be solved at the first phase of the network's implementation, by providing the technical and financial means required.

One of the elements that must be encouraged is the establishment of bilateral and multilateral relations resulting from contribution of data, technology or methodology among members. A comprehensive distribution list must be made available for that purpose, and it should be accessible to all members and the Secretariat. These relations may give rise to initiatives for common projects involving two or more focal points (or countries). One of the Secretariat's missions is to facilitate the occurrence and development of this kind of projects.



G.S. General Secretariat
 F.P. Focal Point

NET TOPOLOGY

Figure 4

8. INSTITUTIONAL SUPPORT

The network's efficacy does not depend solely on the way its members work and relate with each other, but also on the frameworks of reference they operate under in their respective countries and the support they receive. Involvement in international projects frequently depends on the participants' willingness to participate, their interest on the topics proposed and, in the end, on their personal or group ability to contribute to common tasks. This position may even be effective in scientific-technological (ST) development projects, especially if there are external funding sources (for instance, regional or global agencies), which may guarantee coverage, even if partial, of the costs involved. Nevertheless, this philosophy is not applicable to the network proposed herein, the Renewable Energies Observatory. In this case, the main objective is not to achieve technological developments, or generating information and/or knowledge to make them available to society or institutions. That will be done, but it is not the rationale for implementing the network.

Some of the Observatory's main objectives have a political nature, since they are expected to propose and adopt decisions involving public and private investment, conditioning the way people live and act with regard an issue as relevant as energy consumption. It is not about generating smart documents that will be more or less accepted at intellectual or professional spheres, but rather, designing options that will have a strong impact on the collective future. In that regard, it is essential for the work performed by the people or entities in the focal points to receive explicit institutional support.

Previous experience in similar projects indicates that, unfortunately, it is frequent to see that at the time of appointing the person or entity responsible for participating in a multilateral project for a country, the

election and its consequences receive less attention than they deserve. Consequently, bureaucratic criteria are applied and the country's representation in the Project is selected as a logical result of the selected person or entity's position in an organization chart. In these cases there is usually no motivation to ensure a really active participation in common tasks, and very often, the people appointed are not familiar enough with the initiative's rules, nor do they feel involved in its success, considering participation in the project as a marginal activity, with no visible profit for them.

The correct situation implies that participation in the Observatory be decided politically in each country, at high enough levels, and that the people or entities appointed be convinced of the advantages of being present and willing to provide an adequate institutional support. It is at this level that decisions will be made, stating who is the fittest to play the role of national focal point, and will be paid due attention.

Accordingly, the institutions that will provide their direct support to the focal points will be those implicated in each country's energy policy. Nevertheless, it is advisable to also include other type of institutions in what we understand by institutional support, such as those related with consumption, construction, transportation, etc... In summary, each society must analyze the range of implications involved in the rational usage of energy and consolidate a mesh of interests and capacities behind each focal point to ensure that contributions will be effective.

The idea, therefore, is that all the institutions implied in the use and administration of energy will be to some extent committed to the project, even if they are not part of its operational structure. This will require devoting enough resources and efforts to previous information and negotiation tasks, defining the way each institution will be linked. It must be

noted that delicate issues related to those institutions' scopes are likely to be raised.

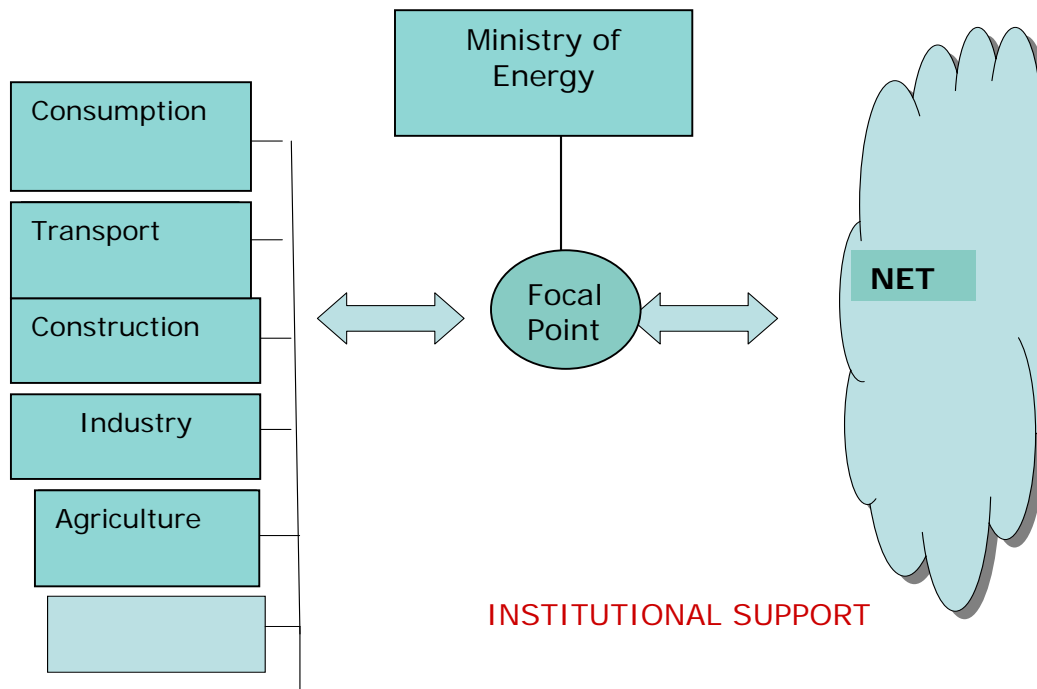


Figure 5

Another aspect that requires an active institutional support is the solution of potential conflicts concerning the people responsible for the focal points, conflicts between the tasks they do as collaboration with the Observatory and their own functions at their natural position. Not always will it be possible for these people to offer exclusive dedication, since almost always they must continue to be in charge of their own obligations, added to those generated from their activity at the Observatory at the same time. In these cases, it is indispensable for the two areas to be explicitly delimited, even including an assessment of the percentages of each activity and the time applicable to each. Otherwise, there is a high risk that the collaboration in the Observatory network will gradually become something marginal. Likewise, in such situations, it is likely that the Observatory tasks may fall on less qualified assistants, with the ensuing impairment in the quality of the results obtained. Consequently, the institutional support is needed in this case, to ensure that the focal points are duly taken care of.

9. SYSTEMS AND PROCEDURES

The Observatory Network is an organization and, as such, one of the factors that have an impact on its efficiency is the formalization of its external relations and among its members, i.e., the systems and procedures that are established. It is important to avoid creating a bureaucracy that may hinder the networks' streamlined operation, but at the same time, it is necessary to have a minimum of commonly accepted standards of procedures that are applied in a generalized manner.

These procedures affect the following aspects:

Contracts

All the contracts for the goods and services required for running the Observatory must be expressly related to the latter's aims. Whenever the contract is performed by a national focal point, in virtue of its own legal capacity, the contract must be authorized by the General Secretariat, and it must expressly refer to the activities related with the Observatory, to leave no room for confusion with the application of the entity's natural aims performed by the focal point. If the contract is charged to the Observatory's common funds, not only does the contract have to be authorized; it should also be fully managed by the Secretariat.

Proposals and Offers

Proposals for work to be done will sometimes originate from the focal points' initiatives, and other times from the Secretariat or from the guidelines issued by the Steering Committee. As a whole, there are two large blocks of activities, depending on their origin and funding:

- Work commissioned by the Steering Committee and financed with the Observatory's common funds.
- Work commissioned by the institutions or governments that finance their development.

In the first case, the detail of the activities will be referred to an action plan that will be approved by the Steering Committee every year, being the Secretariat responsible for its execution. In virtue of this plan, the Secretariat entrusts activities and allocates resources to the focal points involved in the various phases of the work to be performed. Likewise, the Secretariat monitors the activities and receives their outputs in valid conditions with regard terms, cost and quality.

In the second case, when an order is received, a proposal is prepared, stating its appropriate quotation, always under the supervision of the Secretariat and using the Observatory's own standard format, even if the proposal implies only one of the focal points in the national scope of its competences. The Secretariat is also responsible for monitoring and delivering this work. The Steering Committee will be regularly informed about the work done under this modality.

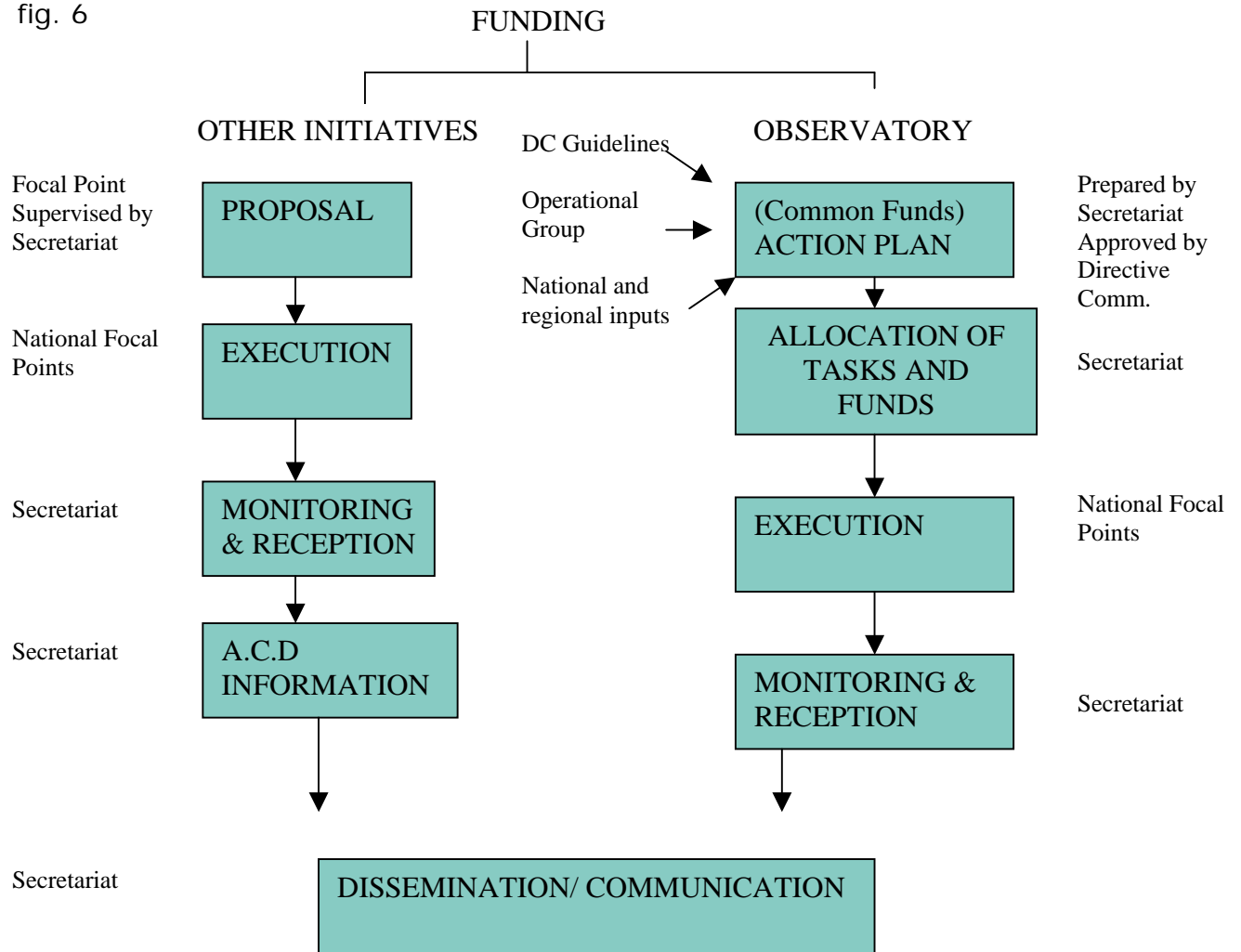
In brief, regardless of the origin of the request and its funding, the Observatory's activities must always be conducted as such with regard their image, and with regard the Secretariat's responsibility with respect their development. (See Figure 5)

Reports and Publications

The Observatory reports the results of its activity through reports and publications for external communication. Reports are material directed to decision-making or policy-making national and multilateral institutions, while publications are aimed at disseminating the knowledge generated through the development of the above-mentioned activities.

Figure 6

fig. 6



From the regulatory perspective, the Dissemination /Communication apparatus depends on the Secretariat, which will set up the policy for image, logos, formats, colors, editorial line, etc,. Even if the actions are executed in each country with local resources, in all cases they must adjust to the communications policy referred to, so the publications will appear as the Observatory's publications developed in collaboration with the Focal Point entity, and both share their copyrights. The Secretariat shall survey compliance with the communications policy and regularly brief the Steering Committee on its results. It is worth highlighting that communication is a very significant element in this operation.

Chart 6: Some potential dissemination actions

- Editing a periodical newsletter (quarterly) providing information on the Observatory, its activities, course of the implementation of renewable energies, etc...
- Seminars on renewable energies held in the member countries.
- Public acts for presenting the results of the studies and projects executed in each country.
- International meeting (once a year), rotating venues among the countries that participate, and broad attendance. This meeting may coincide with a physical meeting of the Operational Group and, possibly, a formal meeting of the Steering Committee.

Action Plan and Budget

The second semester each year, the Secretariat shall present the following year's Action Plan and Budget to the Steering Committee. This Plan will preceptively refer to those actions funded with the Observatory's common funds, which have to be approved by the Committee in detail. Tentatively, the Plan will also mention the expectations of other types of actions with open funding. The Plan will be developed basically considering the Steering Committee's guidelines and the Task Force's contributions and initiatives.

As a minimum, the Plan will contain the items below:

1. Actions the various Focal Points are to develop along the year.
2. Communications Program: publications, public acts, etc....
3. Steering Committee and Task Force meetings anticipated, both physical and through videoconferences.
4. Institutional initiatives before the governments of the countries involved and the multilateral organizations.
5. Receipts and expenditures budget.

Financial Statement of Accounts

The first semester every year, the Secretariat shall present the Steering Committee a Statement of the previous year's performance and the appropriate annual accounts for approval. The Financial Statement shall include, at least, the items below:

1. Institutional Aspects:

- Agreements signed
- Incorporation of new members to the Network.
- Changes occurring in the composition of the Steering Committee.
- New international regulations related with the Observatory's activities.
- Initiatives and projects in the countries involved.
- Etc....

2. Reporting activities:

- Actions executed.
- Development of the communications program.
- Meetings held by the governing and coordination bodies.
- Other data of interest.

The economic justification will in turn contain the data below, stated through the annual accounts:

1. The Secretariat's results accounts (Receipts and Expenditures), specifying the application of common funds to the various Focal Points.
2. Balance sheet at the end of the year.
3. Report explaining these economic documents.
4. Auditing conducted by a prestigious international institution.

10. FINANCING

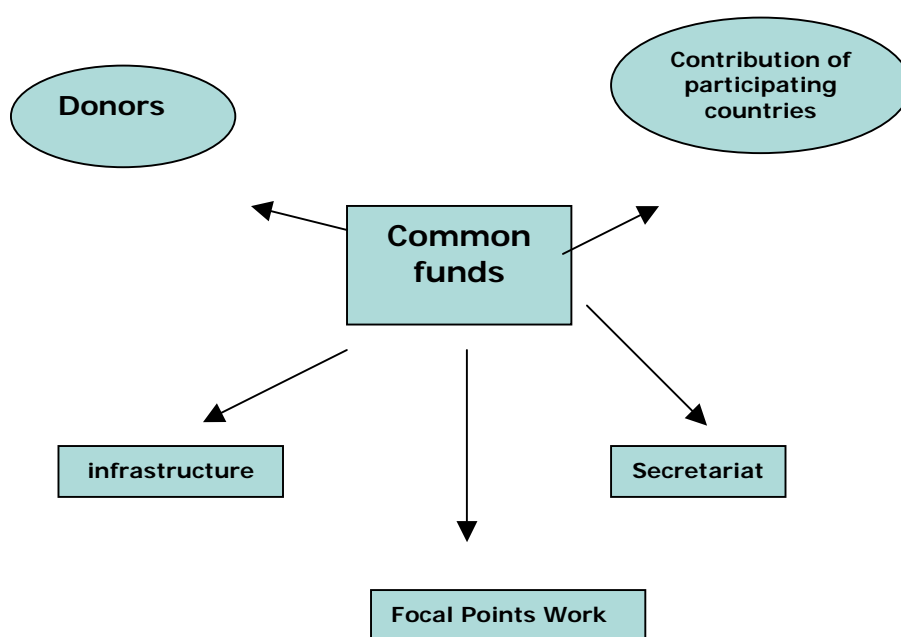
We depart from the hypothesis that the Observatory's activity will be financed through common funds that will be managed by the Secretariat. The origin of such funds is dual:

- Donations by multilateral institutions or by third countries as international cooperation.
- Contributions of the participating countries, which may be moneyed or in kind (professional work, facilities, traveling expenses and accommodation, etc...). In this second case, they must be assessed in terms of economic counterpart, and reflected in the Observatory's accounts as such.

Common funds have two functions:

- Sustaining the Observatory as such, that is, the Secretariat, any investment or expenditure required to achieve a homogeneous communications infrastructure available to all focal points, meetings of the management and coordination bodies, and communications program.
- Financing of the work conducted by the focal points resulting from the annual Action Plan approved by the Steering Committee. The work to be executed must be subject to a standardized description process and economic assessment, accepted by all the participants. Of course, actual costs of each action will not always match this reference evaluation one hundred per cent, but that difference (sometimes positive and others negative) will be assumed by the focal points.

As has already been said, the allocation of funds as a compensation for the work performed will be under the Secretariat's responsibility. An aspect that is especially delicate is that part of the funds applied to financing the work are not moneyed, but rather the economic equivalent of contributions in kind made by the countries. The assessment of these contributions in economic terms has to be supported on standardized and equitable criteria broadly accepted by all the Network members, and should not be the product of a case-by-case negotiation.



FUNDING STRUCTURE

Figure 7

Complementing the Observatory's own institutional funding through these common funds, it is possible to receive funding from entities ordering specific work within the range of activities conducted by the Observatory, for its own purposes. These cases will follow the procedure presented in Chapter 9. Offers requested and quotation of work to be performed will also adjust to the standards in force at the Observatory. Whenever more than one focal point participates in the projects, the distribution of the funds thus received among the participants (different focal points, Secretariat) will be done on the basis of the application of those standards.

11. SUSTAINABILITY

In the context of this project, sustainability is understood as the capacity to keep the Observatory running correctly in the long term, at least in a ten-year horizon. For that purpose, it is necessary to meet certain conditions that are briefly analyzed in the present chapter; these conditions have an impact on various aspects, such as continuity of funding, institutional support, commitment of the Network members, turnover of the staff, capacity to adapt to changes in the environment, etc...

Continuity of Funding

Although continuity of funding is not enough in itself, it is obviously a necessary condition. We have mentioned contributions as the sources of funding, as donations from international agencies and/or countries with a cooperation strategy. This type of contribution is frequently given in a point of time; consequently the problem is not solved, because they would be useful to get the project started, but not to ensure its long-term operation. It is important to consider that even if complementary funds are generated (which is unlikely to happen until the third or fourth year of operations), these funds will never be enough to support all the Network's structure, however minimal, or the work that justifies the Observatory's existence, which is not the work demanded in a market regimen, but those obeying to a regional development strategy, reflected in the guidelines developed by the Steering Committee, that is the Observatory's representative political organ, responsible at the highest level. As a consequence, obtaining a guarantee for permanent funding is the first condition for the project's viability.

A potential formula is to create a consortium that will include the multilateral agencies supporting the project, the governments involved and, eventually, other interested governments, committing themselves through a valid legal instrument, to contribute with a periodical quota aimed at funding the Observatory.

Institutional support

Refer to the observations on this issue mentioned in Chapter 7. Here we will only insist on the need that this support may continue in time. The problem arises when the institutional support, which is unavoidably impregnated of a political character, is intense at the initial stage of decision-making and commitments, and is then diluted as a result of changes of the people holding positions with responsibility in the institutions, or the political criteria behind the election processes. To prevent this, it is important to provide the Observatory legal capacity, an aspect that has already been mentioned.

Members' Commitment

There are two levels here:

Commitment with the Observatory by the entities that constitute the focal points as such entities, which is rigorously part of the institutional support. In this regard, it is especially relevant to consider the potential conflict that may arise between the attention paid to the Network and the entity's own objectives, and the consequences of this conflict will fall on the professionals that manage the focal point directly. These professionals may reach a point when they will have to face the management of the entities they are part of, something they will not do, of course, or they will leave the tasks related to the Network unattended. These entities must consider the Observatory's activities as their own to all effects, regardless of whether they receive enough economic payment for

their collaboration each time or not. An important indicator of this attitude is that these activities should be part of those entities' statements of accounts and that the focal points' functions should be incorporated to the entity's organization chart as an additional unit in the organization.

- A second level is that of the people acting as focal points and the continuity of their motivation to do that. One first aspect has to do with the rotation of these people, both within the entity, or because they leave it. In both cases their replacement must be negotiated between the entity and the Observatory's Secretariat. The latter's opinion should be taken into account predominantly, but that should not challenge the entity's sovereignty concerning its personnel policies. A moderate turnover of people is positive if that is a reflection that participation in the Observatory's tasks is a positive change value *vis à vis* internal promotion and the staff's projection in the marketplace. The members should have a true "sense of ownership" with regard the Network; they should consider it as their own and they should feel that staying in the Network for a long term is profitable.

Adapting to Changes in the Environment

Staying in the Network in the long term (we are talking of a ten-year horizon), implies adapting to a changing environment, in the technological, economical, social and political fields. That means that the culture applied by the Observatory, both at the level of the Steering Committee and the Secretariat, must be an adaptive and flexible culture, capable of assimilating changes and re-orienting their objectives and lines of action consistently. It is necessary to instrument procedures to analyze the evolution of the environment, the new events or expected events and responses to everything. The Task Force may be an adequate mechanism for this job, which implies surveillance and analysis.

The Network's Life Cycle

The very dynamics of the Network poses issues related to sustainability. The empirical observation of actual knowledge networks permits to identify several phases in their evolution, and even if they differ from each other, they present common aspects that constitute an approximation of what may be called the "networks' life cycle". This life cycle is sketched below, trying to assimilate it to the characteristics of the Network- Observatory proposed here.

1. Constitution phase. This normally takes from 2 to 3 years. After adopting the appropriate political decisions, the network is organized, selecting the focal points, negotiating the way they will participate, defining the rules of the game, etc... The work is started, with local interests prevailing on the Observatory's as a regional project. The coordination effort has to be high, a lot of time and resources must be invested, and it is mainly focused on promoting mutual knowledge among the members of the network and generating broadly accepted working methodologies and
 1. procedures that will encourage collaboration.
 2. Consolidation phase. Approximately from year 3 to year 6. The members of the Network get to know each other and the advantages of collaboration start to become apparent. Regional common projects

arise (that is, projects involving 2, 3 or more focal points). The Observatory as such must have gained international visibility and technical prestige. After years 4 or 5, the output of some of the work conducted must be operational. The consolidation test may be to preserve the active interest of the countries participating in the project. In this phase, it is very likely to see an increase of the projects and activities that will rely more on the Secretariat's central organization, e.g., regional projects, or projects involving participation of several countries.

3. Critical phase. This may start at years 7 or 8. The causes are multiple: in some cases, conflicts between belonging to the Network and personal or corporate interests in the focal point entities; new doubts arise with respect the benefits of belonging to the Network; unequal participation of the various focal points in the tasks, leading some of them to gradually feel less and less involved in the common project; challenging the Secretariat's role; lack of political interest of one or several countries participating in the project; etc. It is in this phase that the force of the sustainability challenge, that is, the future maintenance of the Network, is strongly manifested. It is very likely that the Network's future will depend on the appearance of a group of especially active members interested in the Network's continuity, these members may form the Observatory's hard core for the future, undertaking a predictable in-depth review of the rules of the game. Some of the other members are also likely to drop out, or they may adopt a very passive role, limiting themselves to receive information.

12. IMPLEMENTATION AND WORKING PROGRAM

12.1 Implementation

The first step required for the implementation of the Observatory is the adoption of the political decision for its creation, and the accession of the countries interested in participating in it. This decision process is associated to the allocation of budgetary funds that should suffice to support the implantation stage and the commitment to analyze funding mechanisms that may ensure the continuity of the Observatory's activities. As has been previously said, the mechanism that looks more adequate is the constitution of a consortium, with the commitment of the countries and organizations involved to contribute regularly with funds. At any rate, it is assumed that all this political process has been fulfilled and it is used as a point of departure to schematically present the development of the activities leading to the start of the Observatory's operations.

Very schematically, the activities below are to be developed:

- Constitution of the consortium between the countries and the organizations integrating the Observatory.
- Appointment of the Steering Committee members.
- Selection of the focal points in each country.
- Creation of the Secretariat.
- Constitution of the Task Force.
- Definition of the regulation, rules of the game, methodologies to be used, type of activities to develop, etc...
- Preparation of a four-year Working Plan

12.2 Working Plan

The four-year **Working Plan** must approach the Observatory's basic activities, analyzing which of them can be conducted in that term, distinguishing tasks to be performed by the focal points and by the Secretariat's central organization, and resources to be assigned for that purpose. As a guide, these should be the first activities:

1. Baseline studies on the natural conditions for the usage of renewable energies in each country.
2. National diagnoses, to be performed by each focal point on the basis of a common methodology. They would include the following elements:
 - The country's energy requirements (the convenience of developing energy scenarios should be considered)
 - Actual or potential availability of renewable energies.
 - Regulatory framework.
 - Funding mechanisms.
3. Regional synthesis of such diagnoses, to be done by the Secretariat's central organization, and identification of key needs in each country
4. Design and implementation of a Data System that may serve as a basis to establish the Knowledge Inventory on Renewable Energies. This activity will be developed by the Secretariat's central organization, with the Task Force's support.
5. Implementation of the Knowledge Inventory, a permanent system that is fed and maintained through the collaboration of all the elements in the Observatory, although it is managed directly by the Secretariat.

6. Preparation of a communications plan and start of training, communications and dissemination activities on renewable energies. These are to be performed both from the focal points and from the central organization, on the basis of common regulations and a strategy developed by the Secretariat with the Task Force's support.
7. Development of regulations, methodology and technical training to start activities related to the selection, adaptation and validation of technologies, both at the focal points and the central organization.
8. Development of national activities at the focal points: revision of regulations, educational actions, improvement of management and financing instruments, and promotion of implementation projects. In this four-year horizon, that actually occurs from five to six years after the adoption of the political decisions, at least one implementation project should be developed in each country integrating the Observatory.

ESQUEMA DE FUNCIONAMIENTO

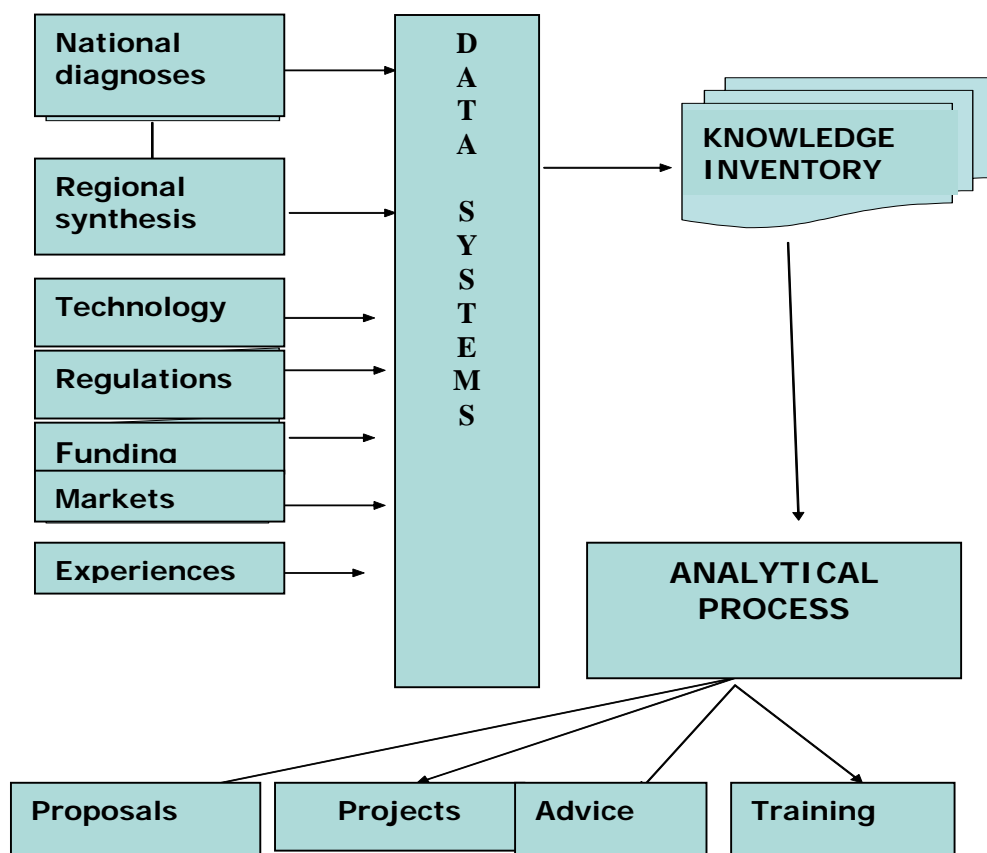


Figure 8

Figure 8 presents a sketch of the way the data system works and figure 9 shows the activities to be developed at the focal points.

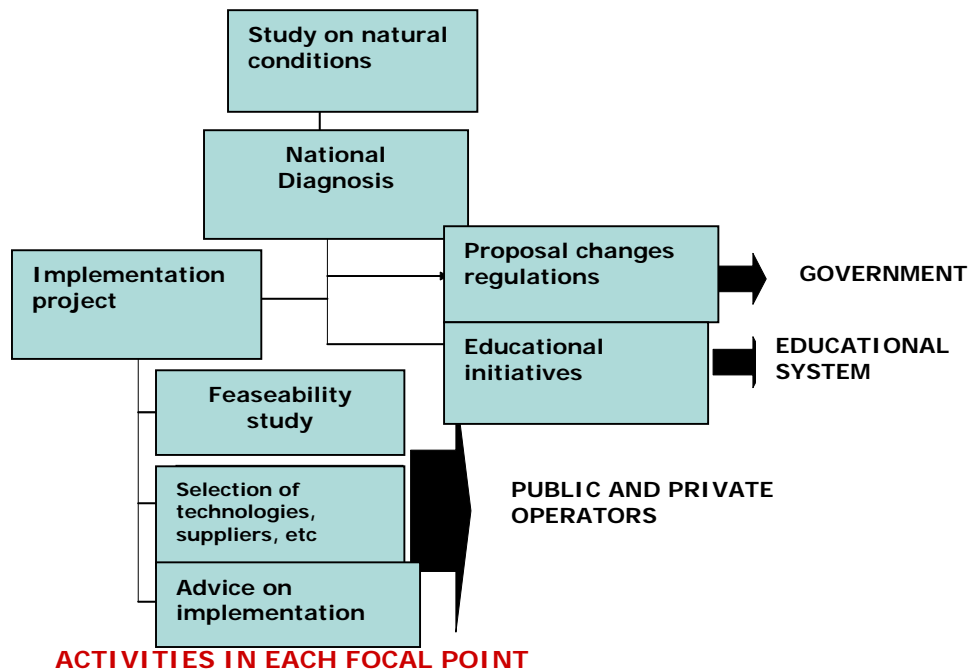


Figure 9

The next chart shows the activities to be carried out, the agents in charge of executing them, with a first approximation to the time required for each of them and the year they will take place following the adoption of the political decision to constitute the Observatory. It is worth pointing out that many of these activities may be conducted in parallel, depending on the resources available.

Chart 7: Development of activities

ACTIVITY	EXECUTION	TIME (months)	YEAR N°
Incorporation of the Consortium By-laws Rules of Procedures for Steering Committee, Secretariat and National Focal Points	Governments/ International Agencies	3-4	1
Appointment of representatives Steering Committee	Governments/ International Agencies	1-2	1
Appointment of focal points	Government	2-3	1
Meeting of Steering Committee	Governments/ International Agencies		1
Selection of the Secretariat Director	Steering Committee		1
Organization of the Secretariat and selection of staff	Secretariat Director	2-3	1
Creation of the Task Force/ First meeting/ Negotiation of rules of the game	Secretariat/ Focal Points		1
Analysis of the communications infrastructures and endowment of capacities, if required,	Secretariat/ Task Force	3-4	1
Development of working	Secretariat/ Task Force	4	1-2

methodologies and preparation of a four-year working plan			
Communications Plan	Secretariat	1	1-2
Meeting of the Steering Committee/ Approval of working plan and communications plan	Steering Committee/ Secretariat		1-2
Design and implementation of the <i>Knowledge Inventory Data System</i>	Secretariat/ Task Force	10-12	2
Maintenance and management of <i>Knowledge Inventory</i>	Secretariat	Permanent	2-3 on
Baseline studies on each country's Natural Conditions	Focal Points	6	2
National Diagnoses: energy needs, regulation, financing, etc...	Focal Points	3-4	2-3
National or regional training actions	Secretariat/ Focal Points/ Task Force	Variable	2-3 on
Proposals for changing the regulatory framework at the national governments' request	Secretariat/Focal Points	Variable	2-3 on
Promotion of implementation projects. At least one project should be approached in each country in the four-year plan. Feasibility studies, selection of technologies and suppliers, adaptation and validation of technologies , and advise during implementation	Focal Points/Secretariat	12-36	3 on
International meeting (annual)	Secretariat	(preparation	2 on
Meeting of Steering Committee (same date as the International Meeting)	Steering Committee / Secretariat		2 on
Task Force meetings (one at the same time with the International Meeting and another intermediate annual meeting)	Task Force/ Secretariat		2 on

12.3 Resources

The activities programmed in the first four years of operations will determine the resources needed, both at the focal points and at the Secretariat's central organization. In turn, availability of resources will condition the activities to be developed. The minimal personnel structure to make it operational would be the following:

Secretariat's Central Organization

- Director, with leadership capacity, experience in management and technical knowledge on the energy sector.
- Director or technical coordinator, with a strong technological expertise in the energy field and very good at networking and negotiating.
- Two/three technicians with good qualifications in the field of energy technologies, project management and communications
- Administrative support, with intermediate qualifications in economics.
- Administrative assistant.

Focal Points

- Person responsible for the node, also member of the Task Force. It must be a highly qualified technician with experience in project management. Full-time dedication is not necessarily required, and the person may stay in charge of responsibility functions at his/her entity at the same time. However, his/her availability for the Observatory tasks must prevail at all times. At any rate, full-time dedication is preferred, and it will become more or less necessary depending on the unfolding of the Observatory's activities.
- The person responsible for the node will be supported, as required at different instances, by the technical and administrative resources available at his/her entity. In principle this flexibility is preferred over the fixed allocation of permanent resources. Nevertheless, such a scheme requires a strong implication by the entity's management.

13. CONCLUSIONS & RECOMMENDATIONS

1.- The project rests on a firm political commitment by the countries and the international agencies involved. The touchstone for this commitment is guaranteeing the continuity of these activities and the very existence of the Observatory, together with the provision of enough resources to ensure it. The proposal is to create an international consortium, with participants that may commit themselves formally, through adequate legal instruments, to provide the resources necessary to sustain the Observatory's activities throughout time. Participants of the consortium will be selected to incorporate the Steering Committee, the Observatory's top management body.

2.- The Network's executive management and its coordination are key functions to ensure the Network's proper development and operations. The central organization responsible for these functions receives the name of General Secretariat. Apart from these functions, the Secretariat must have a certain capacity, which will very likely have to increase with time, for directly executing work subsidiarily for focal points.

3.- Focal points are located in entities that already have their own objectives, which not necessarily match the Observatory's. It is essential to achieve compatibility and consistency between both types of objectives, integration of the Observatory's interests into the host entity's, and consistent motivation of the entity as such, as well as the entity's payroll staff that integrates the focal point. All the Network participants (people and entities) must feel that playing an active role in the project is beneficial for them.

4.- The Network is more than the summation of a set of national focal points, working in the context of their own country, and periodically receiving and providing data multilaterally. The true value of the project is attained when everybody is involved in the definition of objectives and the execution of joint actions. A Task Force is created for that purpose, as an element that increases the Network's cohesion. The Task Force's operations are instrumental enabling the Network to really achieve its full potential.

5.- The Network lies on a communications infrastructure that will probably have to be complemented in some cases (for example, providing videoconference capacity to some of the focal points), but the significance of physical personal relations cannot be overestimated. Planning events where the people responsible for the focal points may coincide is of paramount importance. That should be made compatible with an efficient management of economic resources.

6.- The Network has dynamics of its own, determining the relations between the central organization and the focal points, and among the various focal points; the roles of the various components of the system will be altered accordingly. All management levels must be fully aware of such changes and they must be capable of adapting to them. This is one of the key factors that impinge on the Network's sustainability.

7.- The procedures to be applied for running the Observatory have to be very well defined and expressly accepted by everybody. Especially delicate issues include everything concerning task assignment and allocation of resources, accountability and economic relations among the Network's components in general.

ANNEX I

Information on Some of the Existing Observatories

European Information Technology Observatory (EITO)

<http://www.eito.com/>

The European Information Technology Observatory (EITO) is a broad and unique European initiative and publishes the established yearbook for the information and communications technology (ICT) industry in Europe. It provides the most essential and up-to-date analyses of the Western and Eastern European IT and telecommunications markets, including detailed statistics by country and by market segment. In addition to these market studies, EITO presents special studies on topics of particular interest and, last but not least, an extensive overview of the latest technological developments.

Up-to-date and valid information plays an increasingly important role in business and political decision-making. The objective of EITO is to render services for all fields of public life: economy, science, politics and media. EITO improves the knowledge of the information and communications technology, the industry that will decide about the role Europe will play on the global electronic market-place in the 21st century.

ESTO Network <http://esto.jrc.es/welcome.html>

The European Science and Technology Observatory, ESTO, is a network that works under the auspices and funding of the Joint Research Center's (JRC's) Institute for Prospective Technological Studies (IPTS).

The ESTO network's core competence lies in trans-national prospective S&T analysis, in producing novel work and advising in changes in S&T, which are potentially relevant to EU society, economy and policy.

The objective of the network is to detect at an early stage and to analyze scientific or technological breakthroughs, trends and events, develop knowledge and supply original information of potential EU policy importance.

Because science and technology is in continuous and rapid evolution, and its knowledge is often fragmented and dispersed, JRC-IPTS created a European-wide network. The ESTO network can, in fact, supply JRC-IPTS with up-to-date and high quality scientific and technological information drawn from all over the world, facilitated by the network's broad presence and linkages, and therefore enabling to formulate proper analyses and advice to EU policy makers.

In practical terms, through ESTO the Institute has access to the best expertise for an extremely large variety of specialized S&T issues, and makes use of it according to specific needs. This means that, concerning only the ESTO full member organizations, JRC-IPTS has access to a total of 21,000 staff who has different S&T specialization, of which 4,300 scientists are fully dedicated to prospective S&T analysis. In addition to that, there is the knowledge held by Associated and Affiliated Members, which are joining the network.

In this context, it is important to underline that the JRC-IPTS involvement in the elaboration and guidance of the ESTO tasks secures input (the Institute's staff is specialized in prospective & cross-sectorial S&T analysis and EU policy advice), impartiality, quality and independence both to the process and its output.

As a matter of fact, JRC-IPTS products that have had a considerable impact on the European Union decision-making process, especially in the last few years, have benefited from the ESTO network's input.

Currently, ESTO is engaged in the following main activities:

- Specific Studies that are targeted at European decision-making processes. These studies usually consist in comparing the situation, practices and/or experiences in various member states. The studies could be of different types:
 1. Anticipation/Prospective analysis, intended to act as a trigger for in-depth studies of European foresight nature, aiming at the identification and description of trends rather than static situations;
 2. Direct support of policies in preparation (ex-ante analysis); and
 3. Direct support of policies in action (ex-post analysis, anticipating future developments).
- Fast-Track actions to provide quick responses to specific S&T assessment queries. On the other hand, they can precede or complement the above mentioned Specific Studies.
- Monitoring Prospective S&T Activities in EU 25+ that serve as a basis of knowledge to proficiently respond to JRC-IPTS' customer' demands.
- S&T Alert/Early Warning function linked to a Research Road Mapping activity, for the identification of new relevant technological trends and their prospective developments and possible policy implications.

- Support the production of "The IPTS Report", a monthly journal on S&T issues that will emerge on the EU policy-makers' agenda.
- Ad hoc meetings, workshops and conferences on specific and highly policy relevant topics that bring together experts from all over the world.

PASCAL Observatory <http://www.obs-pascal.com/>

The PASCAL International Observatory provides an international strategic information tracking and sharing service on Place Management, Social Capital and Learning Regions in support of sustainable development based in experience and evidence of what works.

It is an international research and policy development alliance of RMIT University, Victoria, the University of Stirling, Scotland, the State Government of Victoria, the Scottish Executive Scottish Communities and Kent County Council, UK. Pascal aims to develop, communicate and explain new and emerging ideas about place management, social capital and learning regions.

PASCAL offers a single, online portal which brings together relevant documents, analysis, news, events and research, providing easy, cost effective and efficient access to relevant and useful information. The central purpose of PASCAL is to enable the effective delivery of policies that improve the quality of living and working circumstances at local and regional levels, recognizing the importance of learning, social capital and the necessity of partnership for the successful implementation of policy.

The aim of the products and services is to bring to our clients the latest international initiatives that focus on place management, social capital and learning regions. PASCAL will be an efficient and cost effective way for organizations to keep up-to-date with current developments.

Pascal provides the following products and services:

- substantial monthly reports on hot topics, prepared by international experts,
- regular briefings on emerging issues, prepared by staff within the Observatory,
- an electronic library providing details of relevant policy, research and programs associated with successful interventions of various kinds notes on current demonstration projects which demonstrate the

potential and achieved benefits from public/private partnership initiatives,

- a news clipping service of news stories from around the world,
- notices of forthcoming conferences and seminars,
- notices of new and forthcoming books,
- a monthly newsletter by email which notifies users of recently published papers, reports, research, books and forthcoming conferences,
- seminars and conferences on topics of interest to stakeholders.

Innovation Projects Observatory

<http://www.observ.cf.ac.uk/index.html>

The Observatory of Innovation is a research unit that specializes in innovation and economic development policy.

The scope of its work is wide, reflecting the diversity of factors affecting regional policy. Most of the work undertaken by the Observatory is collaborative and a number of strategic relationships have been established with partners across the EU.

The NPD - NET project is one of the most important developments this Observatory is currently undertaking. It is an interregional cooperation project aiming to support New Product Development through the establishment of intra- and inter- regional networks of specialized service providers. In the project participate the regions of Central Macedonia and Attica (Greece), the LEIA Development Centre (Basque Country, Spain), Cardiff Business School (University of Wales, Cardiff), Institute Jozef Stefan (Slovenia), Tartu Science Park (Estonia) and the Regional Development Agency of South West Oltenia (Romania).

New product development (NPD) is about the renewal of products which because of technological and socio-economic conditions became obsolete and the gain of new markets for existing products. While in many regions technological innovation may reduce employment, mainly because of the introduction of ICT and automation, in the case of product-based innovation, regional wealth increases in parallel with employment. However, it is quite difficult for many EU regions to develop product innovation skills because NPD covers a wide range of expertise from consulting (product conception, market analysis, competition analysis, marketing etc.) to product design and prototyping.

The philosophy of NPD-NET is to address the regional gap in terms of NPD services and practice, especially in the Least Favored countries (LFRs), by developing inter- and intra- regional networks providing relevant services, while sustaining the awareness of business about the importance of NPD.

NPD-NET will be based on the integration, regional adaptation and implementation of a digital stepwise guide (NPD roadmap) developed by URENIO research Unit, Aristotle University of Thessaloniki under the ERDF Innovative Action Programme 2000-2006. The roadmap provides a continuous support to users in the NPD process, following a level-assessment methodology approach. Each level consists of distinct actions that need to be taken by the user. At the end the user conducts the assessments that will provide directions either for forwarding to the next level or postpone or discontinue the NPD process. Each level of the roadmap is supported by a set of tools, documents, web links and organizations that help the user of the roadmap to accomplish it successfully.

Innovation and Technology Observatory

<http://www.bham.ac.uk/page.asp?section=000100010006000600>

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The Innovation & Technology Observatory was created by the School of Public Policy and is provided through the Centre for Urban and Regional Studies (both institutions from the University of Birmingham)

The Observatory is a key regional resource, analyzing innovation in different industrial sectors across the region, examining technology trends and the take-up of new technologies. These results enable a regional innovation strategy to be implemented.

The Observatory allows to:

- Produce in-depth analysis of innovation and innovation processes across different industrial sectors.
- Examine technological trends, sector by sector - and the take-up of new technologies.
- Examine the process of networking and cluster development in the region:
 - By mapping out existing clusters and their nature (supply chain, industry groups, or wider clusters involving services, finance and research organizations).
 - By looking at how new clusters might form by spin-out or by evolution.
 - By examining how new and sustainable cluster development might best be supported by the providers of innovation, including the higher education sector.
 - By relating cluster development to inward investment actions taking best practice examples from other regions.

Medical Technology Watch Canada

<http://www.medtechwatch.ca/>

Medical Technology Watch Canada closes the knowledge gap by providing Canadian SMEs with exposure to sources of business, market, patent, regulatory, and scientific information they can use in their decision making and strategic planning processes. The newsletter keeps readers informed of upcoming events in the industry and provides a forum for SMEs and research organizations to exchange ideas and develop collaborations. The targeted audience consists of individuals and organizations, both public and private, involved in the biomedical technology community in Canada, including:

- Canadian biomedical technology industry.
- Small and medium-sized enterprises (SMEs).
- Government/research organizations.
- Universities.
- Canadian investment community.

For the past year, the very successful Medical Technology Watch Canada newsletter has been providing Canadian companies, researchers, and investors with timely information on the medical technology industry in Canada. The publication is the source of unique and original content, highlighting research and innovation coming out of Canadian research organizations and small and medium-sized enterprises (SMEs).

The newsletter, published 6 times a year, is the result of an ambitious collaboration between the NRC Information Centre in Winnipeg, the NRC Industrial Research Assistance Program (NRC-IRAP), the Institute for Bodiagnosics (NRC-IBD), and other NRC institutes. In partnership with several Canadian medical industry associations, it is electronically distributed to more than 1800 individuals and organizations across Canada and internationally.

Helio International

<http://www.helio-international.org/>

HELIO International is an independent, international network of leading energy analysts whose objective is to identify, assess, measure and publicize the contribution of energy systems and policies to a sustainable and equitable development. These experts carry out independent evaluations of national energy policies and inform decision- and policy-makers about their value and effectiveness. They also analyze and advise on eco-development and climate stabilization.

HELIO's core activities are:

- Publishing periodic report series on current energy developments (Sustainable Energy Watch Report).
- Providing independent input to the design and implementation of eco-development projects.
- Developing and promoting the use of indicators for national energy policies, the Clean Development Mechanism (CDM) and Joint Implementation (JI) under the Kyoto Protocol.

HELIO International has undertaken to assess and monitor the contribution of energy systems to an improved quality of life and to check the implementation of environmental Conventions and principles. To ensure accurate, unbiased information on energy development, HELIO created the Sustainable Energy Watch, (SEW). SEW is a worldwide network of energy experts and grassroots leaders. Their combined analysis of in-country energy production and evaluation of daily life provides a comprehensive assessment of energy developments and their impacts on society.

Aimed at policy-makers, business people and concerned citizens, the SEW reports are based on eight indicators selected for their relevance, clarity, balance and timeliness; using these as benchmarks, the country-level analysts impart their experience and provide an independent view of the energy scene in their own country. Their reports can then be used by

governments and other stakeholders to better promote eco-development via comprehensive energy policies.

Technology & Standards Watch (TechWatch, TSW)

<http://www.jisc.ac.uk/techwatch>

Technology and Standards Watch was launched in 2000 as an activity overseen by the then JCIEL subcommittee of JISC (Joint Information Systems Committee). Following the restructuring of JISC subcommittees and their responsibilities in 2002 Technology and Standards Watch is now part of the JISC Development Groups' program.

The JISC TechWatch (Technology and Standards Watch - TSW) exercise identifies and tracks developments in Information and Communications Technology (ICT) that might be expected to have significant impact on the core business of tertiary education institutes in a few years time. This exercise does not provide a manned support or advisory service. Instead, it maintains a web site containing commissioned reports, and descriptions of (and links to) detailed information sources.

The Technology and Standards Watch activity will:

- Identify and track developments in Communications and Information Technology and in Standards which are critical to Higher and Further Education.
- Commission work from experts from the community or beyond in the form of reports, briefings and other materials, on these technologies and standards, their development and the implications for HE/FE.
- Disseminate information to the community on technologies and standards and their developments and implications.
- With the Technology Development Programme Coordinator assist the JISC to ensure that it is aware of and makes the most effective use of information on emerging technologies and standards.
- Work closely with the Technology Centre to ensure that the community is informed about the likely implications of emerging technologies so that it benefits from these technologies.