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"Territorial Planning and Economic Development of Rural Areas"

Booklet of Didactic Material

Module 10

Project design, preparation and evaluation

Part 1

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1.1 - How to develop social acceptability within a project, definition, process and tools

1.1.1 - Introduction

Without always objectifying it, we are confronted daily with the concept of acceptability social in our opinions, our ideas, our compromises, our decisions, and our reactions. In the context of development and conservation, the notion of social acceptability can intervene at the level of a project, a marketing proposal or evaluation, a survey opinion on political options, etc.

In this module, we will limit ourselves to social acceptability in the context of a project development (socio-economic) or conservation. We will take examples in developed countries and in developing countries, in companies traditional and "modernized" or more "acculturated" societies whose parameters acceptability are different.

In the modules, you have already been introduced to the concept of project cycle, project feasibility, implementation, monitoring and evaluation. Social acceptability is a component of these projects, both in terms of feasibility (identification of the project) and of its implementation. At the end of a project, the evaluation allows to know to what extent the project has been accepted socially and by whom. We often have big surprises, because the concept of acceptability social is still often ignored or underestimated (intentionally or not) during the project formulation, or even setting aside during its implementation (because we favor often the results on the process, even if it means bypassing the participatory mechanisms). It is during the evaluation that we see the social impact, but it is often too late to catch up on mistakes.

In the area of socio-economic development, concerns are very changed in the last twenty years. More and more, especially in societies industrialized, the social acceptability of projects is a concept we hear about commonly today and which reflects the new ways of managing territorial space and economical. This new reality influences project management and is well present at various stages in the development of a project during its definition (Carrier, 2004; Villeneuve, 2007; Bolivar, 2008). It should be understood that social acceptability therefore becomes today an essential condition for ensuring the survival of a project.

1.1.2 - Definition

In the scientific literature, there are few definitions that relate to the concept of "social acceptability". For N. Normandeau "social acceptability is the acceptance of a project by the majority of citizens, whether directly or indirectly concerned by the benefits and impacts of the project".

For other specialists, the notion of social acceptability is directly linked to perception of a threat that a project may pose to the life or quality of life of an environment, therefore on the use of goods and human activities in this environment. Acceptability social is "the early acceptance of a short and long-term risk that accompanies, either a project, or a situation ". For them, a cost-benefit analysis is generally a prior to the assessment of willingness to pay. It helps to find the balance between the fears of some and the benefits of others.

In this course, we will retain the following definition of the social acceptability of a project:

"**Voluntary assents of a population or an individual vis-à-vis the objectives, activities and mechanisms for consultation and implementation of a project that may have an impact on its social structure, its uses and its values** ". (Adaptation from several definitions).

In this definition, the concepts of adherence to the process and compatibility with regard to uses and values are particularly important.

1.1.3 - Different dimensions of social acceptability throughout examples

Consider four examples in North America, Europe, Asia and Africa.

1.13.1 - Landfill project for waste management activities in Saint Sophie Canada

Elements of chronology:

- 1964: beginning of landfill activities operated by Intersan: the waste is buried. The Sainte Sophie site is located in north Montréal, approximately 50 kilometers north of Montreal, Quebec.
- 1997: the site is bought by Waste Management. It collects approximately 850,000 metric tonnes (937,000 tons) of waste annually. The bioreactor landfill is located on a 30-acre (120,000 m^2), double-lined corner of the permitted landfill site.
- In 2003, Waste Management implemented a bioreactor operation at the Sainte Sophie landfill - a method of increasing the moisture content of the landfill waste to speed up decomposition and thus produce gas more quickly - to test the environmental and economic benefits of the technology.
- In 2005, The Government of Quebec approved the expansion of the Sainte Sophie landfill, giving it an annual capacity of one million tonnes.
- 2003 : Implementation of the environmental security plan
- 2003 : pre consultation
- 2004 : creation of the vigilance committee
- 2005 : start of biogas capture and recovery

- 2008 : decree obtained

Neighborhood profile: forestry and agriculture; residents at more than 2 kilometers.

Short description of the case:

Technology: landfill capture and recovery of biogas

Location : Sainte Sophie (laurentides)

Clients : Laurentides, Lanaudiere, CMM, Outaouais and Monteregie

Type of project: private

Intrants: one million tons of residual material per year

Population served: 4.1 million

Start-Up: 1964: landfilling; 2005 : capture and recovery of biogas.

Valuation rate: N/ A

Hours of operation :

- Normal hours: no more than 11 pm
- Construction and development : no more than 9 pm.

Social acceptability factors

Technical : rapid technical responses to issues or regulations

Social :

- implementation of a pre-consultation process in the context of expansion projects
- creation of monitoring committees
- community liaison through several communication mechanisms
- community involvement
- creation of a website on the expansion project

Environmental :

- adoption of an environmental policy and commitment
- application of an environmental management program
- social management of nuisances

Economical :

- socio-economic contribution to the region and compensatory measures for local stakeholders
- partnership with a private company to promote biogas

Of governance :

- sustained presence of company executives and involvement in the work of the vigilance committee
- support from regional and local elected officials

Relocation : visual attenuation of the landfill site and integration into the landscape

1.3.1.2 – Europe : public infrastructure projects

Public infrastructure projects and the importance of compensation: everyone is aware that we need energy for operation of cars, trains, for the production of electricity, for cooking food etc. However, when it comes to building dams, wind turbines, power lines, high voltage, nuclear complexes, airports, it is often always better when projects are built outside our territories.

Indeed, the establishment of such infrastructures generates negative impacts on landscape, agriculture, resident common life, in terms of noise, in terms of pollution (thermal, light, chemical, etc.), road traffic, ecological integrity, etc.

In Europe, social acceptability is measured and discussed during the feasibility study, by a public consultation, through bilateral discussions with different levels of actors, round tables, opinion polls and barometers, etc. In case of opposition, the acceptability social is often favored during negotiations by "non-social" benefits which moves the cursor towards a positive overall perception of the project: compensatory measures (related development projects, environmental measures, funds made available for research, etc. ;), land repurchases at market price (or above) (passage of train lines), attractive land rentals (wind turbines) and local jobs that the project will generate.

1.3.1.3 - Asia: Lifestyle Modification Project in Laos

Ethnic Minority Village Poussang in Laos: the "spiritual" fear of the change of territory and of their cultural identity.

Political context 1900-2000: it is a time when there is a political strategy for changing the agricultural production system and to foster the migration from the mountain (forestry and clearing burns systems) to the plain (more intensive agriculture). The aim is to stop the practice of clearing burns in cycle of fallow, which will be replaced by sedentary cultivation in the plains. This system change production involves profound changes that go far beyond the techniques of production for animist minority ethnic groups in the mountains of northern Laos.

Here are the main dimensions of the risks taken into account by the Poussang community in that give information on the social acceptability of the change of territory from the mountain to the plain:

- Loss of agrarian and religious values linked to the tradition of land clearing;
- Loss of the protection of the forest geniuses who protected them;
- Loss of their identity and recognition (the cultural specificity of the Poussang is recognized in their traditional territory only);

- Loss of decision-making and movement autonomy (the administrative control is more developed in the plains);
- Change of varieties of rice and forest products, with nutritional change and problems of palatability of new products;
- Vulnerability to lowland diseases and in particular to malaria;
- Gradual loss of their ethnolinguistic identity: need for a certain level of assimilation, syncretism and adaptation, experienced, at least initially, as a loss of identity;
- Changes in power relationship at different levels: traditional chief and administrative / political chief, traditional / modern medicine, non-educational formal / formal, spirituality related to goods and Buddhist attitude / context and more materialist in the plain, etc.

The winners are in case of acceptance of the project of change of territory and system of production:

- none in the short term, except temporarily for healers and sorcerers anxious to preserve their profession and their profit.
- In the medium and long term, those which are fully integrated into the new dynamic without losing their identity.

The losers: those who want to maintain their traditional system of life acquired in mountain (contextual inconsistency leading to waste of time, conflicts, social exclusion, etc.) and those who are unwilling or unable to adapt.

1.3.1.4 - Africa: Governance project, change of local planning process in Algeria

In Algeria, development planning involves three major systems: sectoral planning by the different sectors (health, education, agriculture, fishing, etc.) called SDP (Sectorial Development Planning), community planning through local authorities, which one calls Community Planning for Development (CPD), and transversal planning like the fund for steppe and the fund for the highlands.

In reality, despite the economic wealth of the country which is rich in gas and oil, there is a "bad life" of young people who cannot find a job and who have no motivation for their future. This results in regular conflicts and riots and by spontaneous migrations to Europe, called the "Haraga" phenomenon. In reality, the planning systems are not suitable for local populations, who claim this "social non-acceptance" of development projects generated by planning systems.

A specific development project, funded by the European Commission, has introduced a new concept of "participatory local development" and was implemented between 2000 and 2011 in the north-east of Algeria, within 50 municipalities. This project aimed at training the authorities and local communities on how to plan their development and to develop land use planning in a medium-term perspective. The participatory mechanisms introduced by the project (livelihood approach, survey at the level of municipalities, hamlets (douars) and households (intra-household surveys) have enabled diagnoses and analyzes that are much more precise than the existing planning systems in place, and therefore that generate more appropriate and shared solutions.

When this project was evaluated, the assessment revealed that there had been a total social acceptance of these new mechanisms of planning by these beneficiaries, based on the following perceptions:

- For the mayor and his team:
  - 1. if the projects are accepted by the population, there will be no opposition or riot to their implementation;
  - 2. The Mayor has a list of socially accepted projects for the coming years, which saves time.
- For the sectors:
  - 1. The sectors have a list of sectoral projects for their future programming
  - 2. The elaborated projects are part of a whole decided by the population, which in principle ensures better community participation.
- For the populations:
  - 1. they are the designers of the projects, with a strong interest in their realization and maintenance;
  - 2 the appropriation of projects is guaranteed at the level of lineages (hamlet) and households;
  - 3. Development is considered as more equitable because solutions have been identified for each group.

Since 2011, the government has not institutionalized this new planning system based on local resources and needs participatory diagnosis and on local development path elaboration. Poor life and illegal migration continue.

1.2 - Social acceptability of change without external support

Why talk about social acceptability without help from outside a project? We talk about social acceptability with or without external help because the human being has often many projects, some of which do not relate to any external support. Social acceptability is a component, conscious or not, of his choices. We will see that without external help, populations also take into account several criteria before engaging in a project. We will also see that in some cases, without external help, there will be no engagement in a project that is close to their hearts.

1.2.1 – Social acceptability: a multicriteria assessment

Without external aid (public, private, religious, social network, etc.) for development, each society, community and person operates according to its own achievements, mechanisms of choices and responses to the opportunities, present risks and vulnerabilities. Decisions are also made on the basis of external forces to the society, whether human (other societies), political, economic, natural, etc.

The achievements of societies can be human (level of education, of experience), financial (money available for development), natural (free access to natural resources), social (social network, solidarity group,

association, etc.) and physical (inherited and accumulated capital). They are managed and controlled according to an:

- Individual social framework individual (linear system, functioning of households, distribution of tasks, etc.),
- Community social framework (what is socially expected or tolerated by the group)
- And a legal social framework (what is legally permitted).

Several parameters define these frameworks: history, specificity ethnic and linguistic, economy, religion, politics, environment, vulnerability, risks, etc.

In some cases, the rules of social acceptance may be temporarily modified, for example:

- On wedding days, on Féria days, we tolerate horns and a certain noise nocturnal.
- On the day of the election of a president, he can decide to cancel the motor vehicle fines, to release prisoners or to cancel death sentences.
- In case of a natural disaster, moral standards dictate that we go and rescue people entering houses without asking permission (considered an offense in normal period)

Local decision-making, consultation and exchange mechanisms exist in every society, whether traditional, influenced by other groups better organized or more powerful or taken over politically by the territorial administration. If those mechanisms formalized in the governance of countries (legal texts, directives, circulars, protocols, etc.) are generally well known and written, those that are informal are less well known.

Informal systems often exist to varying degrees, especially in traditional societies:

- The council of elders (social role and transmission of knowledge);
- Traditional water management groups (regulatory role);
- The sorcerer, the healer, the shaman (role of behavior control)
- Solidarity production groups (maintaining community cohesion and food security mechanisms);
- Religious groups (maintenance and transmission of knowledge and beliefs);
- Tribal and clan organizations (transmission of history, genealogies, cultural heritages, identity elements, etc.);
- Informal neighborhood associations (new solidarity mechanisms);
- Traditional writings (transmission of traditional knowledge)

In some societies, these decision-making mechanisms may vary depending on the period considered ordinary or extraordinary, depending on the stage of the life cycle (birth, marriage, and funeral) and on beliefs.

- In the ethnic villages of Laos, Cambodia or Thailand, in the event of cholera, the traditional animist healer manages the people behavior in the village, which is normally the responsibility of the official village chief.
- Among certain ethnic groups in Southeast Asia, during funerals and weddings (life cycle), the management of the village space, of the houses space and of the use of some cooking instruments, etc. becomes different. This specific management during these periods of time is a hinge between the human world and the spiritual world.

1.2.2 - The increase of the influence of external forces on social acceptability and the decreasing weight of internal forces.

Without external help, we often hear that internal development processes developed by these "traditional" societies are more adapted and progressive than those coming from outside and that in this case, their self-development is more harmonious. In reality, the situation is much more complex. It can be also useful to distinguish the specific context of each period of history.

For example, in terms of international development in developing countries, we can distinguish the period before the last industrial era (1950) and after this period. Before 1950, when we describe the course of many traditional societies, their history is most often characterized by regular breaking points such as famines, wars, looting, migrations, etc., as main consequences of great internal and external forces acting on choices.

Their usual references and main needs are most often food sufficiency resistance to diseases and epidemics, access to land, and mutual aid through social solidarity. The major external forces are climatic events, natural disasters, insecurity, and the supremacy of more powerful society and wild animals. The social mechanisms that were put into place, even if they were often empirical and perfectible, were generally efficient to address these sources of pressure.

Minority groups have often retained only extraordinary events from their history, and mostly negative ones anchored in oral memory because of the emotion they have provoked, and which have often been the vectors of change in their society. The native character of these groups and societies has often been modified over the course of history: the ethnolinguistic research shows how the evolution of these native societies happens when they start to be in contact with other societies. The least organized groups have, at worst, disappeared, and at best, they have been forced to adapt according to several mechanisms: syncretism (fusion of two types of religion / believes or ethnolinguistic specificities giving rise to a new hybrid type), assimilation - or integration, or insertion (from the point of view of cultural anthropology, assimilation constitutes the latest phase of the acculturation process. Assimilation means then the disappearance of the original culture, as the group fully accepts the values of the hosting society), adoption (adoption of elements from another group because they are considered more efficient), acculturation, (acculturation refers to the process by which an individual learns and internalizes the values and norms of the new environment in which he lives, an environment which therefore influences his ways of thinking and acting), alienation (loss of cultural and religious references,

without acquiring other values at least as much effective - creation of psychological poverty when one does not integrate a new system of values).

These developments, voluntary or forced, are also part of social acceptability.

After 1950, which generally corresponds to the end of colonization, but also to the rise of some social achievements such as the paid holidays, such as the development of the market economy and the private sector, such as the demographic growth and the decrease of infant mortality, the health progress etc., other external forces appeared or were reinforced.

In terms of social acceptability, they are forces at least as strong as development aid: **demographic pressure, market forces, policies, legal framework, national and international governance, reduction of natural resources, education.**

At the same time, the weight of some new external forces like a certain standardization of formal education, like national and international governance policies, and like globalization have proportionately lessens the weight of internal forces.

Example: the case of Sek communities, center of Laos

The Sek communities, around 500 people, are spread over three villages in the center of Laos, near the Vietnamese border. The villages are located in forests, at about 600 meters altitude, with wooden and bamboo houses and stilts.

In the 18th century, they were undoubtedly under Buddhist influence, and had developed the technique of irrigated rice cultivation.

Their main objectives were: food security and independent living.

The main external forces: insecurity, tigers, diseases, epidemics (leprosy, cholera);

In the 19th century:

Their main objective: food security and independent living.

The main external forces: the same as before plus the impact of slavery and deportation in Siam;

Consequences: escape into the deep forest (hiding, exclusion from neighborhood networks, fear, suspicion, etc.), loss of solidarity and social degradation, gradual shift from Buddhism to forest animism, illegal appropriation of land, development of internal inequity within the community (party influenced by the system of slavery).

In the middle of the 20th century:

The main objective: food security and independent living.

The main external forces: food security, independent living, safety plus the influence of the French protectorate plus forced reunification of villages.

Consequences: Progressive social exclusion in the forest and protective reactions, reinforcement of inequalities, negative religious practices (white magic), reduction of their autonomy of life.

Between 1975 and 1995:

The main objective: food security, autonomy of life, maintenance of life in their original territory (forest).

External forces: national policy of production aiming at the sedentarization of villages and of their agriculture, ethnic control, forced reunification of villages, Vietnamese intrusions for timber and forest products (market economy) and military presence for the commercial timber cutting and the sale of forest products.

Consequences: unequal economic development due to economic opportunities (sale of timber and forest products) enabled by household governance and the social structure of communities.

Between 1995 and 2020:

Main objective: food security, economic development, maintenance of life in their original territory.

External forces: Nam Theun project as a huge hydroelectric dam, ethnic control, market forces, Vietnamese intrusions, development projects for the Sek funded by the World Bank.

Consequences: better access to health care, new mechanisms for equitable assistance to households, modification of production systems, loss of life autonomy, modification of power relations within the communities

Box : the Nam Theun project

The Nam Theun multipurpose development project is one of Lao People Democratic Republic's largest and most complex hydropower projects. First commercial operations started in 2010 after two decades of construction. It is jointly financed by 27 parties, including the World Bank Group (WBG) and the Asian Development Bank (ADB). The power generated is exported to Thailand (1000 MW) and used domestically (70 MW).

Over $170 million in revenues were received by the Lao treasury in income from the project between 2010 and 2017. In keeping with the project's legal agreements, these were all allocated to projects and programs contributing to poverty reduction or environmental management. Education and health sectors received the largest shares of revenues, with 39% and 14% of total revenues disbursed. Some examples of programs that have benefited include School Block Grants and the Health Equity Fund. Revenues also contributed to road construction, repair, and maintenance, as well as rural electrification.

The project required the resettlement of around 6,300 people in 15 villages on the Nakai Plateau in Khammouane Province in Lao PDR. In consultation with project developers, resettlers were provided housing and community infrastructure and the project instituted livelihoods programs in fisheries, agriculture and livestock, forestry and small enterprises (off-farm activities) to upgrade incomes and living standards. Some results of the resettlement process include:

- Living standards have improved, particularly in the areas of health and education. Primary school enrolment is now 94%, compared to 31%, and stunting has dropped by 9 percentage points. 98% of people surveyed say that their lives are as good as or better than before.
- 97% of households have doubled their pre-project monetary incomes, meeting the target set in the Government's Concession Agreement with the company. Support (such as food supplements) is in place for those vulnerable households who have not yet reached this level. 99.6% of households now report having savings, compared to 21% in 2006.
- Access to markets and travel has improved with paved roads cutting the amount of time it takes to travel from Nakai district to Thakhek, the provincial capital, from half a day, to only one hour.
- Development of commercial forestry in the resettled area did not meet expectations and yielded negligible dividends to resettlers. Recent consultations with villagers redirected management of these resources to grazing, non-timber forest products, and conservation.

Support was also provided to villages downstream of the power station, and upstream of the Nakai Reservoir to compensate for impacts related to changes in river flows on fishing incomes, river gardens and other assets, and consequent changes in income and protein intake. The formal downstream program concluded in 2012. However, a strengthened Adaptive Management Committee is in place to monitor fish levels and erosion, and the local government continues to support the most affected households through village development planning.

$1.3 million from the project is allocated each year to protection of the watershed and the Nakai Nam Theun National Protected Area, which is scheduled to become one of Lao PDR's first national parks. Managing the 4000 km^2 area has been challenging, as the whole country experienced increasing pressure to its biodiversity, with conservation experience and institutions not yet well developed in Lao PDR. However, renewed involvement of the Ministry of Agriculture and Forestry, and a Consortium of Technical Experts from Lao and international NGOs are helping to reinvigorate the watershed protection authority to ramp up conservation activities and support communities.

The Nam Theun 2 project now moves into a new phase. Recognizing that adaptation and sustainability can take a generation, support to project areas continues.

Source: the World Bank website

https://www.worldbank.org/en/country/lao/brief/nam-theun-2-project-overview-and-update

1.2.3 - When a societal project is not implemented due to lack of external support

Without external assistance, many individual or community projects corresponding to real needs (social acceptability of a change perceived as necessary by the population) do not take place, because they (individuals or communities) see too many risks in implementing the project.

Indeed, individuals and communities consider various criteria to be taken into account before deciding on the project: if they feel that the project that is able to solve their problem can also create new other problems, the pragmatism and the calculation of the social cost will lead to the cancelation of the initiative. In this case, this lack of implementation can be valued as the cost of public inaction. This translates sometimes through dramatic situations of poverty, marginalization, frustration, and of social deviation. Some of these projects nevertheless can happen, for example thanks to the services banking, the microcredit and the microfinance.

Example of poverty and inequitable access to resources and opportunities maintained by the caste system in India and Nepal

Hinduism includes the caste system and the jobs associated with them. There are highs castes (e.g. Brahmin, Chetri), middle castes (Newari) and low castes (Dalit, untouchables). The system is complex, but basically the caste position conditions human relations, levels of negotiations, neighborhood boundaries, social and economic opportunities, access to land, etc. This system worked internally before the industrial period and the globalization, and there were no other references. Today, without any state intervention (constitution, political will, policies and decrees), this system continues in India and Nepal. Dalits are still seen like untouchables (at physical level and regarding water exchange) by others castes. They are excluded from almost everything: confinement in their neighborhood, no access to land, to public service, to markets, they cannot sell any aqueous products (such as agricultural products), no meetings, no trips, no trades outside their castes, etc.). They are therefore marginalized from society, socially excluded, and more vulnerable economically as the jobs and products they are allowed to do in the caste system are no longer competitive compared to industrial or imported products (such as ironwork, leatherwork, musical instruments, etc.) and therefore less demanded by medium and high castes.

This vulnerability results in: an exodus to urban areas or in India not to be recognized as a low caste, a change of religion with the sole purpose of no longer being linked to the Hindu-caste system, a culture of poverty to stay alive thanks to social dependence, the sale of children and organs, the sale of young girls for arranged marriages, etc. They cannot reverse this trend on their own, as decision-makers and the powerful are high castes. To change this trend, in India, policies and civil society have implemented various actions such as changes in the constitution, countryside information, affirmative action for employment, control of discrimination, development of NGOs, etc.

Example of poverty "programmed" by land customary inheritance systems

In some countries, inheritance traditions in rural areas are strongly linked to the kinship system of local societies, to religion and to social norms. The inheritance can be in capital (land, livestock, house, others), in power (linear transmission of certain powers and jobs), and in knowledge (religious, belief, history, etc.). In a patrilineal system, the land was generally transferred to the eldest son or was shared between the sons, and the daughters could only get married to benefit from their husband's land (without owning it). These inheritance traditions have often been formulated in an agricultural economic context and before the industrial period, in a situation of low geographic density and when access to land was relatively easy. Today with the demographic pressure, the pressure on the land, the urbanization and the

multiplication of jobs types, more than 50% of children go to non-agricultural activities. So, this traditional inheritance system (although the formal constitution indicates an equitable inheritance between children) more and more favors one child and does not help the others for a start in life. This criterion is considered as one of the key causes of poverty in countries like Nepal, India, but also to a lesser extent in Laos, Algeria and many other countries. The underprivileged cannot do anything on their own, as questioning this situation can make them more excluded, and they therefore spontaneously exclude themselves from development (self-exclusion). To combat this trend, some countries (Philippines, Sri Lanka, India, etc.) have set up a system of mobile teams that inform children and in particular women on their rights about inheritance and on the formal procedures that they can follow.

1.2.4 – Main internal forces

Social forces are often difficult to grasp and compromises and decisions often have to take into account important individual differences in the field of social acceptability. In traditional communities, the following internal strengths can be identified:

- Customs (ethnic groups, tribes, clans) and territorial influences (boundaries recognition; history of the place specificity);
- Social organization (household, clan, community) and networks;
- Inheritance systems and places of residence at marriage;
- Beliefs, prohibitions and taboos;
- Traditional social (and religious) safety nets;
- Social alternatives.

In urbanized, or modern, dissocialized communities, we note:

- The benchmark linked to the level of education and wealth;
- The moral sense;
- The opinions of the family and of others persons involved in the project.

The phenomenon of globalization tends to modify the weight of these internal forces. Overall, they lose weight compared to external forces. Their weight remains more important in traditional societies, especially when they are isolated and little affected by the market economy forces and by urbanization. On the contrary, they lose weight in easily accessible settings and in urban areas, where many external forces (push and pull factors) impact on decision-making mechanisms. They can nevertheless come back in the event of development failure, of consequent poverty and marginalization, as a security and traditional survival mechanism. Some of these regressions are badly received and may result - due to frustration and the perception of failure - to some "extremism" (Maoist movement in Nepal, Tamil Tiger in Sri Lanka, Al Quaida, etc.).

1.2.5 – Some external forces

- Climatic variations;
- Natural disasters, epidemics;
- Market forces;
- Insecurity;
- Demographic pressure;
- External social forces (phenomenon of acculturation, syncretism, assimilation, loss of identity, etc.);
- The political context and strategic choices;
- National and local governance;
- Development projects.

Development projects are just one external force among others. When one speaks of the social acceptability of a development project, it is important to remember that this acceptability must be analyzed within the considered period and the framework of external forces for this period. In 1980, a development project in a traditional African community was most often integrated in a context of food security, natural disaster and disease. In 2019, a project taking place in this same community has more chance to be integrated into the logic of market force, of governance, of demographic pressure and of strategic and political choices.

1.3 - Social acceptability in development and conservation projects supported or influenced by external assistance

1.3.1 - A project, a vector of change in local dynamics

A development project aims most often at implementing a new dynamic in the field of economics, social and / or environment in response to an identified problem: poverty, unemployment, lack of access to drinking water, health, environmental degradation, decline in biodiversity, etc. It can work at different levels: the community level (hamlet, village), the individual level (household), the common interest groups level (producers group, CUMA, associations, NGOs), the national level (farmers, small entrepreneurs), or the local level (municipality), the regional level (Europe, Maghreb Union) and the global level (SDGs).

A project will therefore inevitably modify the local social and economic and / or environmental dynamics. It is different from a project without external aid, because other actors will invest in the project with other interests and other mechanisms. This project therefore becomes a multi-stakeholders initiative in which the interested party can remain in control of decisions, but also may become a simple actor or a beneficiary.

For the populations targeted by these development projects, investing in this new dynamic supported by external actors to the concerned territory inevitably generates adaptations or "social" compromises:

- Confrontation with new planning and implementation mechanisms (participatory methods, calendar of activities, management method, etc.);
- Working alongside other actors with different lifestyles;
- Confrontation with new ideas, with technological innovation, with new logics;
- Different management of timetables/ program to incorporate the project component.

1.3.2 - The criteria that are taken into account by the populations to assess the social acceptability of a project

Apart from the internal and external criteria described above, specific factors related to the project are taken into account: they are those on which the negotiations will be based, and on which will be based on the conditions of social acceptability. They can address economic considerations (economic benefits, employment, profit, etc.), social aspects (standard of living, health, education, public services, etc.), environmental issues (natural hazards, pollution, agricultural and health impact, etc.), technical considerations (reliability, options, level of monitoring, etc.) and governance aspects (trust between actors, information system, level of transparency, legislative framework, etc.). They also concern the location of the project implementation (the risk of proximity, the level of discomfort, the neighborhood relationships, etc.), and the local beliefs (religions, taboos), the levels of natural vulnerability (risks) some identity issues (recognition in the field of ethnicity linguistics, clothing, crafts, etc.), and the historical references (etymology of the place, respect of historical choices), etc.

Example (virtual) for the installation of wind turbines

A project to install wind turbines for electricity production is discussed with the concerned village community. We can find many cases of social acceptability:

Those who are a priori against the project for a dominant criterion: 1. the painter who wants to keep the aesthetic aspect of the landscape. 2. The one who fears the waves and the sound pollution generated by the blades. 3. The one who is afraid of falling blades after seeing a documentary. 4. The ecologist, against nuclear power, however concerned by the passage of raptors (birds) that will be beheaded by the blades. 5. Those who feel that their land and house will be strongly depreciated in the event of sale; 6.Those who are against the mayor for political or personal reasons. 7. Those who think that the economic benefits generated by the project will not be sufficient. 8. Those who refuse to sell their fields to give the project an access to the site. 9. Those who are not concerned by the rental of their fields for the installation of wind turbines. 10. The one who works in the nuclear industry and who defends his opinion, etc.

Those who are a priori for the project: 1. Those who will be able to rent their field for more than 3000 euros per year. 2. Those who live behind the mountain and who will not see the wind turbines. 3. The one who considers that the economic benefits and jobs generated by the project will be useful for the village.

4. Those who are convinced that the development of renewable energies requires some sacrifices. 5. The one who is deaf and blind. 6. Those who are ready to accept the project with the condition that the Mayor will accept another project. 7. Those that have direct interests in terms of employment or contracting out, etc.

1.3.3 - The tendency to underestimate social acceptability in the planning and implementing of projects in developing countries.

Social acceptability factors, particularly in developing countries, are still too often ignored or underestimated, for voluntary or involuntary reasons. It is very rare that the terms of reference for the project formulation mission, that the project implementation and evaluation reports do mention the dimension of "social acceptability". However, this social acceptability issue is partly taken into account in the "livelihood" approaches, in the monitoring and evaluation of effects and impacts, and in needs identification studies.

The lack of assessment of social acceptability is voluntary in two major cases:

1. Centralized decision-making and planning system in which social acceptability is not included in the feasibility of the project (physical and technological approach).
2. Limited level of consultation during the project preparation, when the decision-maker / project funder know that social opposition will be strong and may lead to questioning the project relevance. The project then often passes in force. These types of projects are fully managed by the administration and their ownership and appropriation by the populations remain low.

This lack of assessment is most often involuntary because it is assumed that the populations have a system of thought, a logical frame of reference and a value system comparable to ours, and that the globalization has already had its effect. We then forget to identify this level of social acceptability during the feasibility of projects.

When the social dimension is ignored or underestimated, we should not be under any illusions: experience shows - especially in traditional societies - that the project is not sustainable, that many deviations have taken place or will take place, that the beneficiaries are not those expected and that the project social cost can be high. We tend to charge the beneficiaries for the failure of the project, by talking about their negative attitude towards the development, their archaic system of thought, their lack of motivation, even their idleness. In fact, they have mostly waited patiently and diplomatically for the end of the project so as to go back to their original system, as they were never convinced of the social benefit they could get from its implementation. In some cases, non-ownership or non-appropriation of a project is a matter of survival.

Example of the seeds project in Nepal, western Nepal, 1995-2005

The English bilateral cooperation, in order to fight against poverty, had developed and financed a project of commercial seeds production for Nepal, based on the following criteria: 1. the seeds were bought in India and Nepal could produce them, which would allow a better trade balance; 2.the seeds sector could provide many skilled and unskilled jobs; 3.the work for seed production is labor intensive and therefore was adapted to the rural world of the country.

During the end-of-project evaluation, it was noted that a large proportion of young people involved in the project had migrated to India, Malaysia, and Indonesia and to the Gulf countries. The project was therefore not sustainable. The causes of this emigration, which could have been known when the project was formulated, had been ignored: as a matter of fact, the major young people wish for their development was to go for a period of expatriation as unqualified staff in those countries with which a quota existed with Nepal. This expatriation of them allowed labor productivity 3 to 7 times higher than the local one. And their only problem was to find the money and financial resources for the trip. This was made possible by the benefits generated from the project. If this wish had been taken into account as an option in the fight against poverty, the project would have been formulated differently and much time would have been saved: for example, the project could have included a preparation for departure and the semi-qualification of these young people to increase the benefits of their expatriation.

Example of the rice mill project in Laos National Project, 1982-1992

In the early 1980s, during the communist period of Laos, the United Nations had formulated a project to introduce rice mills at village and city level in order to limit the arduousness of women's work (village), to improve the yield of husking (in villages and towns) and to increase the paddy husking service from cooperatives (in towns). In the countryside, this innovation would save time for women who could find their way towards more productive and rewarding activities.

During the assessment, it was found that the majority of small village mills was no longer working or had been sold, while those located in the cities were still functioning. In rural areas, the project had not been socially accepted, as these advantages had been thwarted by too many disadvantages:

1. The mechanical motors being the business of men in the rural tradition, the women had been dispossessed of the husking, and relegated to the rank of rice bag conveyors;

2. The time they saved in husking mechanically was not that much better valued because in the communist system of this period, there was no market economy and no economic and social opportunities in the villages;

3. Consequently, the cost of husking was not compensated by other new income, and therefore was seen as a loss of purchasing power;

4. Traditional hand husking was usually taking place early in the morning among women, which allowed them to discuss about the activities of the community, about mutual aid needs, which the new system no longer allowed (queue in the presence of men with an engine noise that does not allow discussions); 5.

They were not interested either in the better husking efficiency, as the residues were used to feed poultry and pigs, whereas in the new system, the residues remained at the mills (loss of livestock feed)

All these social components had been ignored by the assessment mission, and had been partly hidden by national decision-makers, more concerned about their urban safety above all.

1.3.4 - Evaluating the level of social acceptability by measuring response capacity from populations to development projects.

Social acceptability can be measured indirectly, by the populations' response capacity to an identified development project. If well conducted and targeted, this method allows the increase of the populations' response capacities through additional measures or support beyond the identification of the criteria of their participation in the project.

In other words, this method makes it possible to identify the different levels of risk and vulnerability of populations to get involved into a project. The volume and intensity of these risks will define the response capacity of populations:

- The time factor / their resources and their achievements
- The vulnerability factor
- Confidence in new players
- The "package" and the development method proposed by the project (sharing of responsibilities and risks, critical mass of support) deemed sufficient or not
- Fear of failure
- Fear of debt (pride);
- Self-esteem ;
- The modification of the power forces in place (household and community);
- Modification of the distribution of responsibilities and work schedules;
- The negative social indirect effect of the innovation introduction;
- The inflationary effect of a project (increase of local costs, switch from barter to monetization, increase in the price of land, etc.);
- The modification of the balance of forces, of the solidarity mechanisms and of the social safety nets in the society, of the supply / demand, of the different economic sectors;
- The social context of the territory (castes, ethnic groups, territorial monopolies).

To improve the response capacity, which works in favor of the social acceptability of a project that will generate changes, means therefore to reduce the perception of the risks associated to the project implementation.

Poor populations, without a high level of experience, take more risks with changes implementation, and it is therefore important to plan additional activities and sufficient support (development package) to ensure their real interest, and therefore to foster their participation in a project designed to improve their living conditions. Without this kind of approach, there are still a significant number of projects that can only benefit to well-off and medium-wealth groups, that is to say, to those who have a response capacity adapted to the mechanisms implemented by the project.

Example of a water supply project in Sidi Fredj, Algeria (2008)

Project: water supply

Recognized advantages: less wasted time in accessing water; less sanitary risk.

Risks identified: despite the need for water, young people give priority to the economic migration; the project is not attractive enough to stay in the village; there is no community solidarity for works; there is no clear perception of economic benefit;

Package and support are provided, in addition to the water supply, in order to motivate the maintenance young people:

1. Some works with high labor intensity (short-term cash);

2. The incorporation of one of the two basins for irrigation and livestock watering (water for economic activities);

3. Microcredit for the purchase of seeds, fencing, tools and livestock (motivation for investment);

4. Training for women in community management of commercial irrigated garden (to increase the efficiency of the workforce);

5. Land planning for the creation of gardens (support to the installation of young farmers);

6. Assistance and monitoring of microcredit financing plans;

7. Training and follow-up in agricultural extension.

1.3.5 - The consequences of failing to take social considerations into account

The consequences:

- The social cost of the initiative;
- The decapitalizing factor of a project;
- Social or psychological poverty;
- The culture of poverty;
- Development dependence;

- Increasing inequity between rich and poor;
- The increase of exclusion and marginalization;
- Social conflicts linked to new projects' dynamics.

Example: project to combat desertification Mali 2000-2008

The project was initiated by a national NGO and funded by an international donor. The idea was to restore some collective degraded land by developing economic reforestation on one hand and community gardens for women on the other hand.

The project feasibility did not consider the usual rights on these lands, nor the availability and cost of water for gardening together with the water transportation to the gardens. It appeared that the beneficiaries on the project documents were not the only ones to have the rights on these lands. The project implementation generated social conflicts and failed.

Example : project to combat desertification, Mindif-Moulvoudaye, Northern Cameroon, 1978-1984

The project targeted collective pasture managed by local customary authorities and proposed a new type of pasture management based on livestock rotation between various plots of pastures.

Nomadic herders were used to come to this place and to settle in during the wet season together with their families. They brought with them new types of economic activities on local markets, some economic transactions with sedentary people. They were managed by the local customary authority they referred to for their temporary settlement, for their condition of staying etc.

The project did not consider this nomadic community and their specific socio economic role nor the institutional realities of the pastures management.

As an immediate consequence, no local herder accepted to join in the project. All the project experimentations in the collective pastures were destroyed. Nomadic herders went southern for the wet season. Local transactions decreased on the market and there were less economic activities.

1.3.6 - The positive consequences of taking social considerations into account

- Decrease in the inequality of access to resources and increase of opportunities through the legal framework;
- Progress towards modernism without major social cost thanks to an adapted participatory approach;
- Increase in community solidarity by setting up adapted mechanisms
- Sustainability and ownership / appropriation of project activities and results through the involvement of influential informal actors (religious, healers, local personalities, ethnic networks etc.);

Examples:

The Milk project in Nepal: the indirect unblocking of the marketing of milk by untouchable by market forces: creation of private urban dairies.

https://www.fondation-raja-marcovici.com/projet/creation-dune-ferme-de-vaches-laitieres-et-dune-societe-de-production-et-de-vente-de-lait.html

In the village of Matur, a community of 200 "Untouchable" caste families lives in poverty. In this difficult social and economic situation, women are the most vulnerable. To get out sustainably from this situation which does not allow them access to basic necessities, such as milk, families must create an activity providing them with a regular and significant salary.

A microcredit program has been first set up to help 5 groups of 20 women to create a "milk society", made up of a farm of 20 dairy cows and a company producing and selling bulk milk. Currently 4 farms have already been created and provide a stable income to 80 women. On a daily basis, the women take care of the cows and are helped by the village NGO to set up and develop a system for collecting and selling milk. With the income from their activity, the NGO repays the initial loan, which is used to cover the purchase of cows and maintenance costs.

The program contributes to the economic empowerment of poor women - from low caste or from untouchable caste - through social and solidarity entrepreneurship associated with qualitative microcredit and accompaniment.

The school project among the Maya of Guatemala (1995-2000): the acceptance of the spiritual customary blessing (sacrifice of animals) of educational infrastructure for social acceptance of the formal education (to send the children to these schools).

1.4 - Mechanisms to increase response capacity and acceptability social projects

Example of the main pro-poor mechanisms for an equitable response to development projects / programs –

- **The labor-intensive mechanism** aims at redistributing the financial contribution linked to infrastructure, maintenance and cleaning sites using layers disadvantaged local people. This mechanism is interesting for the poor at different levels: rapid financial impact without waiting for the end of the project or even the end of the construction of the infrastructure; construction work adapted to poor populations often unqualified; direct remuneration system in cash or in food, often daily or weekly, adapted to the living and survival conditions of these populations; proximity work that solves transport problems and allows men and women to participate. Increasingly, this mechanism is associated with savings programs, with access to credit and with skills training.
- **Financial services and micro-finance**. Microfinance, including microcredit and non-financial accompaniment, is an effective way to increase the value the financial gains of economically poor populations while mobilizing them around their development project. Well-guided

microfinance support is enough sometimes to go from a chronic survival situation to an accumulation situation achievements. This mechanism is interesting for the poor and the vulnerable to different levels: local service without (or limited) social, gender and political interference; minimum guarantee in capital and finance, sometimes replaced by the moral guarantee or solidarity; generally quick access to funds; support for training beneficiaries to better management of their activities.

- **Training**. Vocational training, formal or informal, linked to a development process, is useful for poorly educated and trained populations, the largest proportion of which is found among the poor and vulnerable. It permits to be immediately useful to better manage and use the opportunities generated by the project. Practical training allows workers to switch from unskilled work to semi-skilled work, which most often results in a better remuneration of their work. It is interesting for the poor and the vulnerable because they directly generate human assets and indirectly social assets and financial.
- **The grant.** A large part of development aid is distributed through grants. If they tend to decrease overall in the current context of the empowerment and sustainability of development programs, they remain often a good start-up as aid or support for the adoption of innovations. However, subsidized aid is most often maintained for communities projects, while the priority needs of disadvantaged groups that are in a state of survival are most often of individual nature (food, clothing, shelter, utensils basic, mosquito net, firewood, debts to be repaid, etc.). A grant from the beginning of a project, in kind or in money, is useful for the vulnerable and marginalized, for the following reasons: it helps building or restoring trust at the start of a development process; it leads to the rehabilitation of self-esteem by obtaining minimum subsistence of the family; it generates better availability to listen to and participate in development programs once the survival priorities have been met; a little fund can be used as a guarantee for easier access to microcredit; completed with a grant or subsidy, the development process begins beyond the initial stage of survival and is likely to go further in terms of autonomy.
- **The time-saving strategy**. A high proportion of the poor and vulnerable are confined to activities, such as informal economic alternatives and daily chores of low productivity that requires them to work long days for little results. A new productive or income-generating activity introduced by a program, even if more remunerative, only increases this phenomenon if some time is not previously released before the project implementation. Thus, in more and more situations, the criteria for choosing a development take this time-saving criterion into account. For example, for improving small family market gardening, a water supply for domestic use and irrigation becomes a good entry point because it reduces the daily chores of water by releasing hours of labor power while providing water to the market gardeners garden. Improved stoves, solar ovens, the introduction of cooking gas, small mechanization, and the tools for processing agricultural products are also mechanisms that save time and therefore increase the availability of labor for more profitable activities. This mechanism is not suitable everywhere, especially when the time saved is not valued and can socially devalue the performance of someone. It is important to know when, why, for whom and how to earn time will be useful.

The campaign for facilitating access to health and education. The poor and the vulnerable often do not have the financial and sometimes human means to access services basic social services, particularly primary education and health. For them, it is therefore not a problem of lack of service but of access to services. The frustration generated by a situation characterized by the availability of services and the impossibility to use them can also cause psychological poverty and a form of exclusion. This exclusion generally concerns more women (maternal health) and girls (education priority is given to boys in some countries). In more and more situations, some programs promote (temporary) access to these services for poor and vulnerable populations, both as a campaign and to help their start-up, which translate into actions such as : subsidizing them, financing food for schoolchildren going to school (WFP and national programs) and even by financially empowering girls going to school (India, national). This mechanism is useful on several levels: reduction of some forms of exclusion regarding the access to primary services, reduction of mortality, increase of the labor force by reducing the number of lost working days due to diseases and accidents, reduction of illiteracy, better education for a wider choice for the future. However, this support mechanism must be well explained (in its objective) and well controlled (need to target the population) to avoid dependency and passivity behaviors specific to the effect of subsidies.

Production and entrepreneurial groups for a better efficiency of labor force and production costs. A high proportion of poor and vulnerable population combines low labor productivity and high dependency family. In this situation, households have little chance of breaking out of the vicious cycle of poverty and escape from the state of survival. The grouping mechanism around a project can rely on formal existing groups (association, cooperative, GIE, CUMA, credit association, production group, association of water users, group for the use of agricultural machinery, etc.); this enhances the consolidation of the working force and the efficiency improvement in terms of community organization and action. Increasingly, groups are becoming an entry point, a mechanism to mobilize disadvantaged populations around a common project with the following advantages: better social cohesion, security of the workforce, solidarity and moral guarantee for loans, the reduction of production costs through common purchases, common sales and common transports, etc.

Specific mechanism for the integration of disadvantaged groups, of young people and of women. There are several mechanisms for integrating disadvantaged groups. Since the international commitment to alleviate poverty and the Millennium Goals, many actions are taken for a more equitable development. These actions are institutionalized through reforms, decrees, policies, revisions or amendments to constitutions, strategies, legal frameworks, directives, plans guidelines and national development plans. These actions aim, for example, at an equal access to education, to public service, to employment, to political office, to inheritance, to speaking, etc. The strategies, sometimes using affirmative action can correct gradually the history of certain populations or of certain territories with planning for equitable outcomes and for reducing exclusion and marginalization. These strategies sometimes combat local customs or behaviors which were globally positive in the past and could generate positive returns, but which by today, appear more as factors of exclusion than of integration into modernism.

1.5 - Methodological approach to address the social acceptability of a project

Some basic principles:

The process of social acceptability is more efficient and better experienced if it starts at the beginning of the planning phase with the targeted populations;

This level of acceptability is the one that most directly ensures human development (attitude and behavior change), particularly important among the underprivileged;

Social feasibility is a process that can be long and requires not only patience and listening, but also the management of the process towards an effective implementation decision;

This process should not be bypassed by considerations of results, of cycle of projects, of construction contract, if one wants a real adhesion to the planned activities: "the administration of projects must serve the populations, not the other way around ";

Transparency and free access to information related to a project allow building trust for the elaboration of a compromise or best shared decision;

The ignorance or underestimation of social acceptability is most likely to translate into a loss of the project efficiency, a lower valorization, higher costs maintenance and higher risks of unsustainability through time.

Main steps:

- Information and communication on the idea, the objectives and the results of the project;
- Identification of the main actors who influence the decision;
- Perception, consultation, participation;
- During the programing of the feasibility phase, establishment of a social feasibility grid adapted to the situation;
- Establishment of participation mechanisms;
- Analysis and discussion of the results of the feasibility, of the criteria and of conditions for implementation / rejection of the project;
- Participatory project formulation, targeting, support and compensation mechanisms, information, restitution and monitoring modalities in accordance with the social acceptability criteria that have been co constructed / identified;
- Implementation with regular monitoring and feedback, intermediary evaluation and eventual strategic adjustment;
- Evaluation of the effectiveness and impact of the project (by taking into account the social criteria used);
- Lessons learned communication and restitutions.

Case study: social feasibility study of the Edough Park, Algeria

The social feasibility study of the Edough Park contributes to the idea of creating a park in the area of Annaba region. This idea was taken over by the General Directorate of Forests (DGF, 2013). The study was carried on between September 2013 and June 2014, and aimed at better understanding the dynamics, the livelihoods and the social functioning of people in the area, at better understanding their relationship with nature and natural resources, their level of perception of the natural environment, as well as to know their position and expectations vis-à-vis a potential park.

The work focused on the households and *mechta* (social decision unit) of two communes, Seraïdi and Oued el Aneb. It unfortunately could not cover the five *mechta* of Annaba commune that were undergoing rapid urbanization, nor the Chetaibi commune that features attractive coastal landscape, specific history and interesting fishing sector.

The methodology included the bibliography and surveys at mechta and households scales, with a sampling of households based on selection criteria mainly taking into account socio-economic levels.

Qualitative and semi-open structured questionnaires were privileged, as they are well suited to social studies and to the analysis of human dynamics. As a result, fifteen mechta and thirty eight households were surveyed and analyzed to answer the main question: could a park be socially feasible and under what conditions?

The answers at mechta and households levels are most often : “yes, we are in favor of the creation of a park”.

The results show then that the current situation is favorable for the creation of a park for the following reasons:

- A strong agreement for this project: 13 mechta out of 15 are positive and one is against (in the commune of Oued el Aneb) and all households are positive about the idea.
- The population, mostly native from the area, has a strong attachment to the territory and keep close and active relationship with nature. This natural environment is part of their identity and residents especially appreciate the quietness, the fresh air and the attractive landscape.
- For them, the mountain forests, the coastal panoramas and Fetzara Lake provide aesthetic and appreciated landscapes within which they appreciate in particular wild birds, mammals and trees.
- Beyond relaxing in the natural environment, households are looking for certain products such as berries, mushrooms, medicinal herbs, spring water, chestnuts, acorns and mint for their personal use and sometimes for sale, without overexploiting these resources.
- The trends in the natural forest habitats and their biodiversity are generally seen as improving.
- The livelihoods of households are not degrading the natural environment and land pressure is still low, both in terms of use and conversion of natural land to building and to agriculture.
- The main wishes of household investment in the short and medium terms are mainly towards social development, without significant impact to the environment.
- The public social investment efforts are already well advanced (electricity, water, gas, access, and education), giving the area a more residential and holiday vocation than an economic basin.

However, four major challenges are to be considered for the creation of the park:

- The urbanization of Annaba and its new town which currently pose the most serious threats to the natural environment surrounding Edough, including Fetzara Lake.
- The high expectations about the economic development and the generation of jobs directly or indirectly created by the park : appropriate responses are keys to ensure the sustainable appropriation of the Park by the population, especially the households with temporary jobs.

- The interest of some households to develop the agricultural investment, especially in Oued el Aneb, that requires attention and monitoring as well as integrated planning consistent to the park conservation mandate, in order to avoid conflicting situation and risks such as overgrazing and pollution.
- The full opening of the area, currently controlled by the army, which might cause the return of displaced families combined with possible unsustainable initiatives on the protected territory, if development planning and zoning are not prepared seriously.

Beyond these major challenges, some more specific current tendencies or practices, legal or illegal, seem rather negative for the natural environment and are deplored by some: wood cutting for charcoal production, capture of goldfinches and canaries for trade purpose, extraction of cork, and mismanagement of water sources.
With the closure of some habitats by the forest, but also because of hunting, it seems that some species of open habitats such as hare, partridge and goldfinch decrease. Finally, we could record that there is a higher rate of commercial harvesting of natural resources by the poor categories of households, which are also those who do not have a permanent job.
If local people are sincerely in favor of the Park creation and express their willingness to participate in the preparation and the decision process, as verified at different levels of the study, their level of commitment, participation and interest will nonetheless depend of the answers given to their expectations, in particular:

- Maintaining their right to use over their land, including agriculture, livestock and gathering.
- The generation of income and employment, directly and indirectly through the park with a priority for the residents of the area concerned by the park.
- An improvement of public and private facilities, roads and public transport.
- The development of a "sustainable tourist entry point" that is compatible to their values and customs.
- A process for preparing the park that is consensual and participatory, and which does not undermine the cohesion and social harmony of the population or inflame tensions between them. It is a component not to underestimate in the future process of future discussion.

Exercice: Build the questionnaire that allows to get to such conclusions.

1.6 - Some references

- Bramley G., Brown C., Dempsey N., Power S., Watkins D. (2010). Social acceptability. In: Jenks M., Jones C. *Dimensions of the sustainable city*. Dordrecht: Springer Netherlands. p. 105-128. https://doi.org/10.1007/978-1-4020-8647-2_5
- Brunson M.W., Kruger L.E., Tyler C.B., Schroeder S.A. (1996). *Defining social acceptability in ecosystem management: a workshop proceedings*. Portland (USA): United States Department of Agriculture. 149 p. (Technical Report, n. PNW-369). https://digitalcommons.usu.edu/envs_facpub/197/

- Fast S. (2013). Social acceptance of renewable energy: trends, concepts, and geographies. *Geography Compass*, vol. 7, n. 12, p. 853-866. https://doi.org/10.1111/gec3.12086

- Fortin M.-J., Fournis Y. (2014). Dossier « Territoires en transition environnementale » – Vers une définition ascendante de l'acceptabilité sociale : les dynamiques territoriales face aux projets énergétiques au Québec1. *Natures Sciences Sociétés*, vol. 22, n. 3, p. 231-239. https://doi.org/10.1051/nss/2014037

- Fournis Y., Fortin M.-J. (2015). Une définition territoriale de l'acceptabilité sociale : pièges et défis conceptuels. *VertigO*, vol. 15, n. 3, https://id.erudit.org/iderudit/1035869ar

- Gendron C. (2014). Penser l'acceptabilité sociale : au-delà de l'intérêt, les valeurs. *Communiquer*, n. 11, p. 117-129. https://doi.org/10.4000/communiquer.584

- Jones N., Gleridou C., Dimitrakopoulos P.G., Evangelinos K.I. (2012). Investigating social acceptability for public forest management policies as a function of social factors. *Forest Policy and Economics*, 2012/01/01, vol. 14, n. 1, p. 148-155. https://doi.org/10.1016/j.forpol.2011.07.015

- Shindler B., Brunson M.W., Cheek K.A. (2004). Social acceptability in forest and range management. In: Manfredo M., Vaske J., Bruyere B., Field D., Brown P. *Society and natural resources: a summary of knowledge*. Jefferson: Modern Litho Press. p. 1-17. https://www.researchgate.net/profile/Mark_Brunson/publication/228531871_Social_acceptability_in_forest_and_range_management/links/5419b1c00cf2218008bf9c32.pdf

2 – Environmental impact assessment (EIA)

2.1 Introduction

At the Rio 1992 Summit, countries have committed themselves to carry on environmental impact assessment when elaborating development projects so as to take the environment into account as a condition for reaching sustainable development.

The principle 17 of the Rio declaration deals with this specific issue: "An impact assessment as a national instrument should be undertaken for planned activities in the field of development that are likely to have significant adverse effects on the environment. This impact assessment depends on the decision of a competent national authority".

The chapter 8.3 of the Agenda21 reassesses the importance of carrying on environmental impact assessments as an instrument integrated in the legal national procedures: "The overall objective is to restructure the decision-making process in order to fully integrate socio-economic considerations and environmental issues and to obtain wider public participation."

Therefore, EIA is not only a tool to address the natural resources dimension of sustainable development but it also include its social dimension ; moreover, participatory approach is essential to the EIA methodology.

Environmental impact Assessment (EIA): Procedure which makes it possible to examine the consequences, both beneficial and harmful, that a proposed development project or program will have on the environment and to ensure that its consequences are duly taken into account in the design of the project or program (OECD, 1992).

The study of the impacts encompasses biophysical impacts and human impacts.

The EIA belongs to the field of environmental assessment regulatory procedure: the overall process has to follow certain rules, methods and steps; it has to mobilize different types of actors and of tools and instruments for identifying and assessing impacts.

2.2 Definition of the environment and characterization

2.2.1 The environment in the EIA, an integrative concept

Environment: Set of natural (physical, chemical and biological) and cultural (sociological) conditions likely to act on living organisms and human activities at a given time and in a defined geographical area (Dictionary Grand Robert).

This EIA definition is gathering two different scientific communities of thoughts:

- There is the vision of the Human and Social Sciences: to them, social environment is what surrounds and influences human activities;
- Whereas according to the vision of Natural Sciences, natural ecosystems are independent of human beings and they surround living organisms like the plants or the animals.

For the EIA, the environment is an organized, dynamic and evolving system which includes natural, physical, chemical and biological factors together with human, economic, political, social and cultural factors and addresses their interactions.

2.2.2 How to characterize the environment?

We are talking about the environment where a development project is planned to take place. It is essential to start an EIA by a sound description of this environment: specific tools can be used to develop this description in the most precise way.

First it is important to specify the scales of the environment to be studied, which is linked to the size of the project and to define the size of reference system i.e. of the social group that impacted by the project.

Table: The scales of the environment

Scale	Reference system	Examples of projects
Micro-environment • The living environment • The daily • The residence • The neighborhood	• An individual • A small group	• The construction of a motorway interchange • The development of a park
Méso-environment • The extended living environment • The city • The region • The state	A broad group of common interest (cultural, social, economic)	• The construction of a dam for the purpose of energy production resulting in the creation of huge reservoirs • Establishment of a national park
Macro-environment • The conditions of human life • The continent • Earth	• The society • The humankind	• The fight against desertification • Protecting the ozone layer • Climate changes

Source : André P., et al, 2010.

Second, the relationship of humans to their environment is decisive: indeed, it is in their emotional and functional relationships to the environment that the individual and groups construct their representation and their knowledge of the environment and finally assess it.

These relationships are different and vary from one place to another according to geographic and cultural contexts

These contexts modify the components of the environment (1) and the relationships between the human and their environment (2).

(1) The components are biophysical, structural, of activities and general to the community:

- The biophysical component refers to the biophysical characteristics of the environment such as : the quality of water, of the air, the biodiversity and the ecosystems, the quality of the soil etc. and every other biophysical element of the environment
- The structural component refers to the landscape, the networks, the habitats, to all the other elements that are structuring the environment
- The components of activities refer to the set of functional places and places of social interaction, such as the schools, the markets, the working places, the leisure places etc.
- The general components of the community refer to the elements that make it possible to consider the community as a coherent entity, and that are able to provide certain goods and services and demonstrating certain qualities : such as facilities, spiritual and public institutions and degree of environmental protection. It also includes all the goods, services and comfort that contribute to the functional and spiritual cohesion of the community.

In order to analyse the relationship between the human and their environment, it is necessary to distinguish between the individual sensory / affective links between both the individuals and group and their environment, and the functional links.

As a matter of fact, if the environment is radically changed, how the community can survive the same way as before the change?

For the individuals, they can be characterize by information such as the age, the state of physical and mental health, the education level, the income, the socio-cultural features, the marginality, their location, the duration of their livings in the place etc., and their specific links to the environment.

Affective and sensory links refer to the subjective values the individuals give to their environment, to the way this environment contribute to their financial, material, physical and spiritual well-being. For example, a farmer well-being will rely on the natural resources of the environment such as: land to be cultivated, the quality of this land (fertility), the availability f water, the specific landscape linked to his agricultural activities (vineyard landscape for a winegrower) and to his other activities, such as places to hunt… it will also include the quality of the air, of the water, of all the environment that surrounds his farm, which is understood in his mind as his territory of life.

Functional links refer to:

- on one hand, the way the environment contributes to local development, and how the community get historically access to this environment

- on another hand, all the cultural services that the environment bring in to the community
- On the last hand, all the pressure that human activity generate on the environment, and on the way human activities translate into naturel resources withdrawal and pollution.

(see table 2)

Table : Conceptual diagram of human-environment relations

Components of the environment	*Biophysical*	*Structural*	*Of activities*	*Of the community*
Relations to the environment according to individual characteristics	*Affectives – sensory* : attachment, tranquility, security (physical, material, financial), sociability, aesthetics ➔ SUBJECTIVES		*Functional:* abstraction, pollution, development, access, nuisance, cultural function, creative function ➔ PRESSURES	
Environmental assessment according to main environmental issues	Personal or community situation and requirements in terms of satisfaction of needs and standard of living Attitude, experience and attachment to space Extent of investments made by individuals and groups to achieve this level of environmental quality Knowledge, assessment or comparisons carried out by affected individuals or groups Historical and cultural relationship to the environment			

Source : André P., et al., 2010.

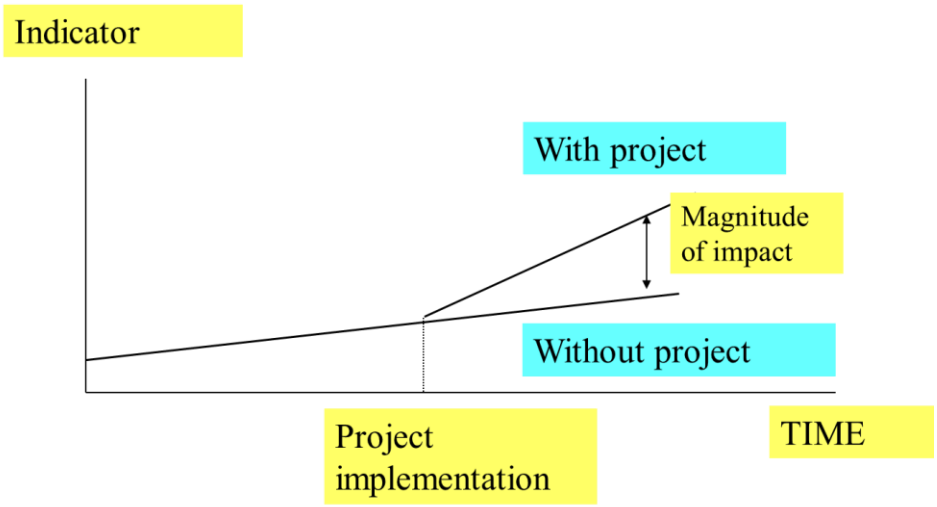
2.3 – The notion of impact

2.3.1 - Definition

Definition. An impact is an effect during a given time and a defined space of human activity on a component of the environment taken in the broad sense (biophysical and human aspects). An impact (or several impacts) is generally associated to the implementation of a development projects, or to the development of new economic activities, or to certain accidents (nuclear plant explosion like Fukushima; dam collapse, forest fires etc.); some major impacts can also be generated by natural activities (like volcanic eruption)

See figure below.

Figure: broad representation of an impact (in case of a development project)



2.3.2 – How to characterize an impact

2.3.2.1 – The size, importance and significance of an impact

It is essential to differentiate between the size (or the magnitude) of the impact, the significance of the impact and the importance of the impact:

- The ***size*** or magnitude of the impact refers to the measurement:
  - Ex post as the area of a forest that is flooded by the impoundment of a dam
  - Predictive as an increase in noise level following the construction of a road project
- The ***significance*** of an impact is the experts' opinion, that can be delivered according to several criteria such as official / international / national objectives and standards. For example the maximum acceptable levels of noise are fixed by the World Health Organization (WHO). The WHO has established guideline values for the specific effects of noise on health: outside, nuisances are considered annoying from 50 dB (A) and risky from 55 dB; in homes annoying from 35 dB and risky from 45 dB, in bedrooms from 30 dB. The safe level of intensity that it is recommended not to exceed, regardless of the noise, is less than 85 dB for a maximum listening time of 8 hours per day. The table low provides some criteria to assess the significance of an impact.
- The ***importance*** or meaning of an impact refers to the social acceptability of the impact. It is the value given by the actors to the impact (tolerable / intolerable) that reflects the uses and the users own set of values.

Table: Criteria for assessing the significance of an impact on environmental components

Biophysical components	• **Permanence of the effect and its cumulative potential** • **Rarity or uniqueness** • **Sensitivity of the environment with regard to resilience** • **Reversibility of impacts** • **Time of manifestation of the effect**
Human components	• Vulnerability of affected human groups • Reversibility of impacts • Value given to the resource that is impacted • Time of manifestation of the effect • Economic consequences

Source : André P., et al., 2010.

2.3.2.2 - Direct, indirect, cumulative and residual impacts

A **direct impact** is when there is a cause and effect relationship

An **indirect impact** results from a direct impact; it is (they are) the effect(s) that is (are) generated by the direct impact. The green tides are indirect effect from heavy inputs agriculture that happens in the maritime bays. Some dust winds are indirect effect of wind erosion on agricultural lands ….

Cumulative impacts are the result of the combination of impacts generated by the same project or by different projects and action through time on the same space.

Residual impacts are the impacts that remain after the application of a mitigation measure.

This typology is useful to describe a projects impact in a holistic way.

Example: the case of the conversion of forests into agricultural land and hedging.

- Direct impact : the soil is bare, no more trees
- Indirect impact : soil erosion, the loss of biodiversity, the water cycle is affected, loss of fertility and the declining yields
- Cumulative impacts : the soil becomes sterile
- Residual impacts: hedges have been introduced around the fields to mitigate the adverse effect of bare soils ; still some biodiversity linked to forest ecosystems,

and some forest products (timber, fruits, mushrooms) and services (recreative and cultural) are not available anymore.

2.3.2.3 – A typology of cumulative impacts

The table below shows different types of cumulative impacts with their definition and it gives some examples for each one of them.

Some cumulative impacts can be qualified in a multiple way, such as acid rains (combined, remote, and indirect) or green tides (concentrate, with threshold effect, indirect).

Table: A typology of cumulative effects

Iterative	Infrequent and repetitive impact on the same environment	Industrial waste dumped in rivers
Delayed	Long term impact	Carcinogenic effects
Concentrates	High density impact on a place	Green tides
Remote	Incidence from a distant source	Acid rain
Of fragmentation	Fractionation of ecosystems	Forest felling, Development of ports in marshy areas
Combined	Synergistic effects from multiple sources acting on the same place	Gaseous emissions into the atmosphere; aquatic pollution
Indirect	Secondary impact resulting from a primary activity	Construction of roads for the exploitation of new areas; green tides
Threshold effect	Process that fundamentally changes the behavior of ecosystems or that exceeds established standards (health, safety, etc.)	Greenhouse effect, increase in the level of CO2 on the global climate

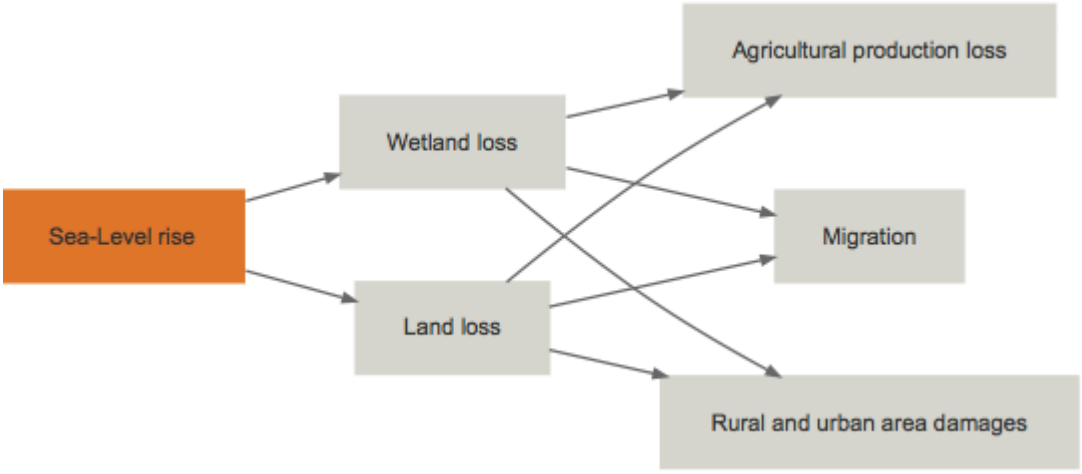
Source : André P., et al., 2010.

2.3.2.4 – Chain of impacts

The description of a project impacts can also be organised and elaborated by differentiating, based on the original sources of pressure due to the project implementation and activities: the physical impacts, the impacts on ecosystems and natural resources, and lastly the impacts on societies.

Example: Climate change in the Mediterranean

One physical impact is the sea-level rise which translates into land loss and wetland loss as shown in the figure below.



2.3.3 - Describing the environment in order to assess the impacts

2.3.3.1 – The valued elements of the environment

The environment is a set of biophysical, structural, of activities and of general components that integrate natural and human aspects (Cf. supra)

Identifying the valued elements of this environment means making an analysis of the meaning of the different components of the environment **from a legal, public and professional political point of view**.

For each one of the environmental components, it is necessary to check the:

- Legal regulations: laws, policies, directives etc.
- Political and public recognition that informs on the conflicts of use or the dynamics of resources (availability of supply) in relation with the users communities. This recognition varies according to time and place depending also on the perception and expectations of the actors.

- Professional recognition: professional judgment of an element valued in the literature through articles and various scientific reports.

In the end, each selected element is subject to an impact assessment.

Examples:

Sound environment: OMS international norms such as the ceiling of 55 DB during the day and of 45 dB at night ➔ legal regulations

Air quality: the dust related to road traffic; the is a danger for at-risk groups suffering from respiratory disease ➔ professional recognition

Groundwater: the case of a motorway project in a region where the water reach the soil surface ; there is a risk of contamination ➔ political and public recognition

Employment: creating jobs in a region heavily affected by unemployment can become a valued element of the environment ➔ political and public recognition

Others: swamp, historic building, landscape etc.

2.3.3.2 – Environmental issues

An issue is a major concern weighing on the decision to implement a project. It tilts the balance in favor or against the project. To carry on an EIA before the decision to implement a development project, it is then necessary to identify all the relevant environmental issues.

The approach consists in answering the following main questions:

- What are the concerns of the different types of public with regard to the project, the affected public, the experts etc.?
- What concerns can be grouped together, by cause, by relationship of interdependence, relating to the same global theme?

It requires a complete set of qualitative interviews with the different actors concerned by the project or experts with regards to the actions, the techniques and technologies that the project intends to implement, as well as a technical review (based on scientific documentation) and a benchmark of similar project. All this material has to be analyzed to find out about the causes and effects on the natural and human environment related to the project implementation. This leads to the identification of the main environmental issues.

Examples of environmental issues:

- Health and public safety

- Economic development
- Quality of life
- Exploitation or protection of exceptional, protected, exploited or exploitable resources and territories
- Traditional lifestyles
- Displacement of populations

2.3.3.3 – PER and DPSIR framework to assess the environment

OECD has developed the "Pressure State Response, PER" framework for the Rio Summit in 1992 in order to provide the States with a methodology to follow up the state of their main national environment components. This framework has been applied to many situations at different scales. It is useful to characterize the linkages between human activities such as a development projects and environment, mostly in terms of natural resources.

The table below gives an example of an application if this framework for dealing with biodiversity environmental issue, which consists in the identification of relevant indicators for each of the three fields.

Table: Different indicators of pressure, state and response in the case of biodiversity environmental issue

pressure	**Annual habitat loss** **Fauna and flora sampling** **Pollutant emission rate**
state	Number of threatened or vulnerable animal populations Evolution of an animal or plant population
response	Conservation measures for animal or plant species Evolution of the surface of the territory having a protection status

Source : André P., et al., 2010.

In this PER example, the environmental indicators are indeed expressing both the baseline situation (without the project i.e. before the project) and the measurement of the project impacts (with the project). They are the one to be considered during the implementation of the Environmental Impact Assessment for the biodiversity environmental issue.

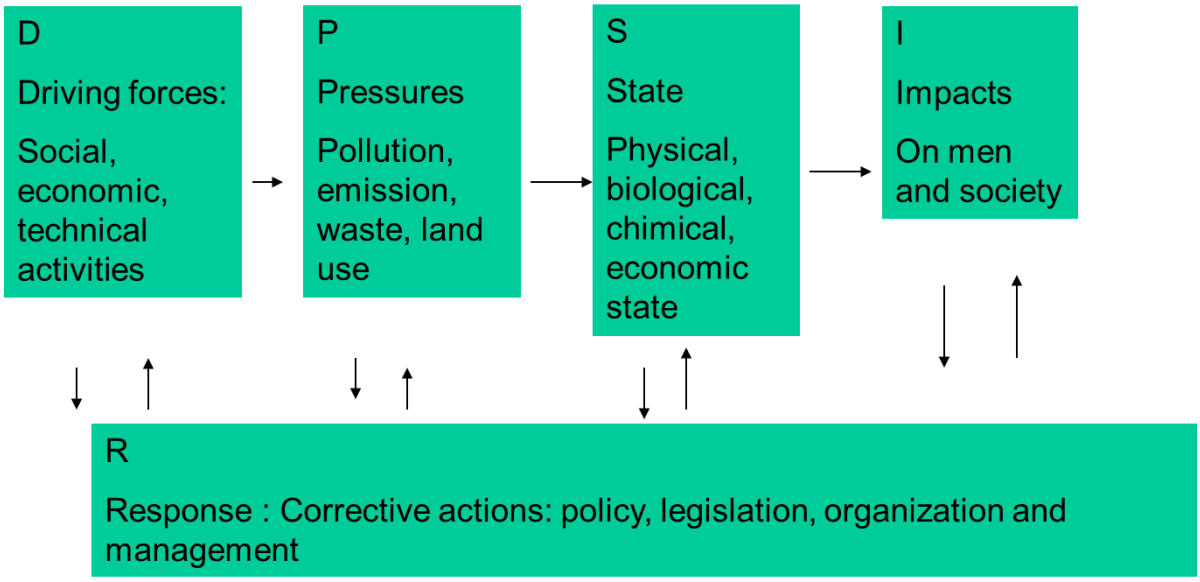
Still, this PER framework has been criticized because of confusion between the State and the Impact dimensions: as a matter of fact, if the state measurement results from the human pressure, it has to be considered as an impact. In the OECD publication it is sometimes referred to Conditions instead of State: for example considering the question of the water quality, the PER framework states (2004):

- For Pressure: releases of nitrogen and phosphorus into water
- For State or Conditions: concentration of nitrogen and phosphorus in water
- For Response: populations connected to secondary or tertiary treatment plants

This framework has been reviewed and précised by the European Environmental Agency (EEA) at the beginning of the millennium with two contributions: the Driving Force dimensions and the Impacts dimensions (see figure below).

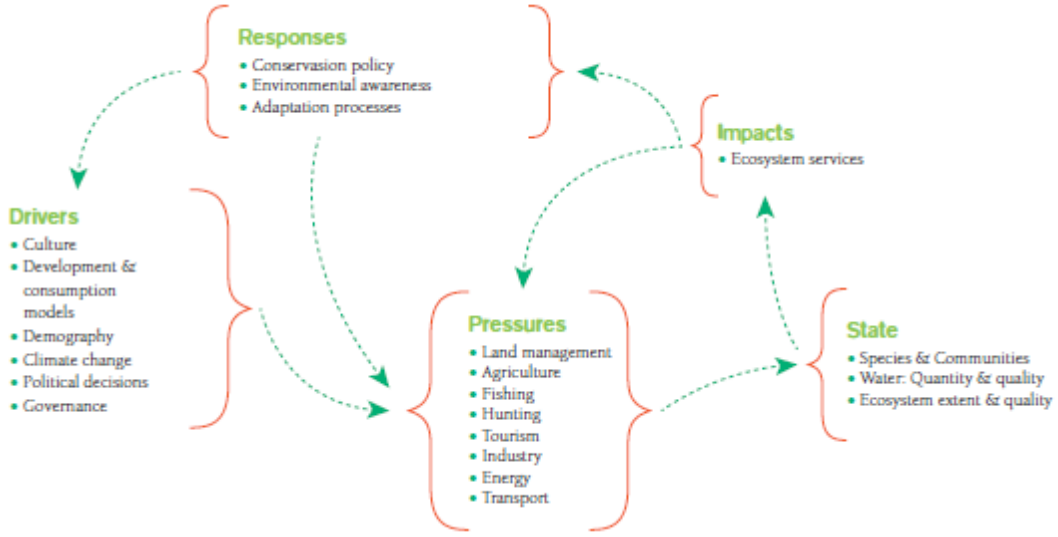
Such a framework allows defining causal loops between the pressures generated by a project and the impacts: Actions (DF) generate pressures (P) on a medium whose state (S) is changed (I). In response(R), stakeholders react by intervening to modify the pressures on the environment.

Figure: The DPSIR framework



This model has many fields of application: it can be applied locally to analyse the environmental changes due to the building a highway (Pressure) nearby a protected area and to define some mitigation measures (Responses). It has also been developed specifically by the Mediterranean Wetland Observatory to ensure the follow-up of the all the Mediterranean Wetlands at regional scale (see diagram below).

Figure: Simplified DPSIR model for the Mediterranean Wetland Observatory monitoring framework



Source : https://tourduvalat.org/en/media/brochures/

2.3.4 - Synthesis

EIA is compulsory for many development projects, according to national and donors regulations. It implies to consider both the natural and the human environment impacted y a development project.

To do so, it is essential to describe in a appropriate way the components of the environment and the potential types of impacts of the planned development project, over a precise period of time and in a specified place. We have seen that there are many ways to describe the environment and the potential impacts of a development project on the environment.

EIA is also a **process** that obeys formal and legislative rules: it implies the participation of various types of public. This participation is also formally organized.

It is important to remember that valuating is a subjective act that consists in making a value judgment on:

- the degree of influence that an activity will have on a (or several) component of the environment
- the importance of the consequences of the entire project on the environment

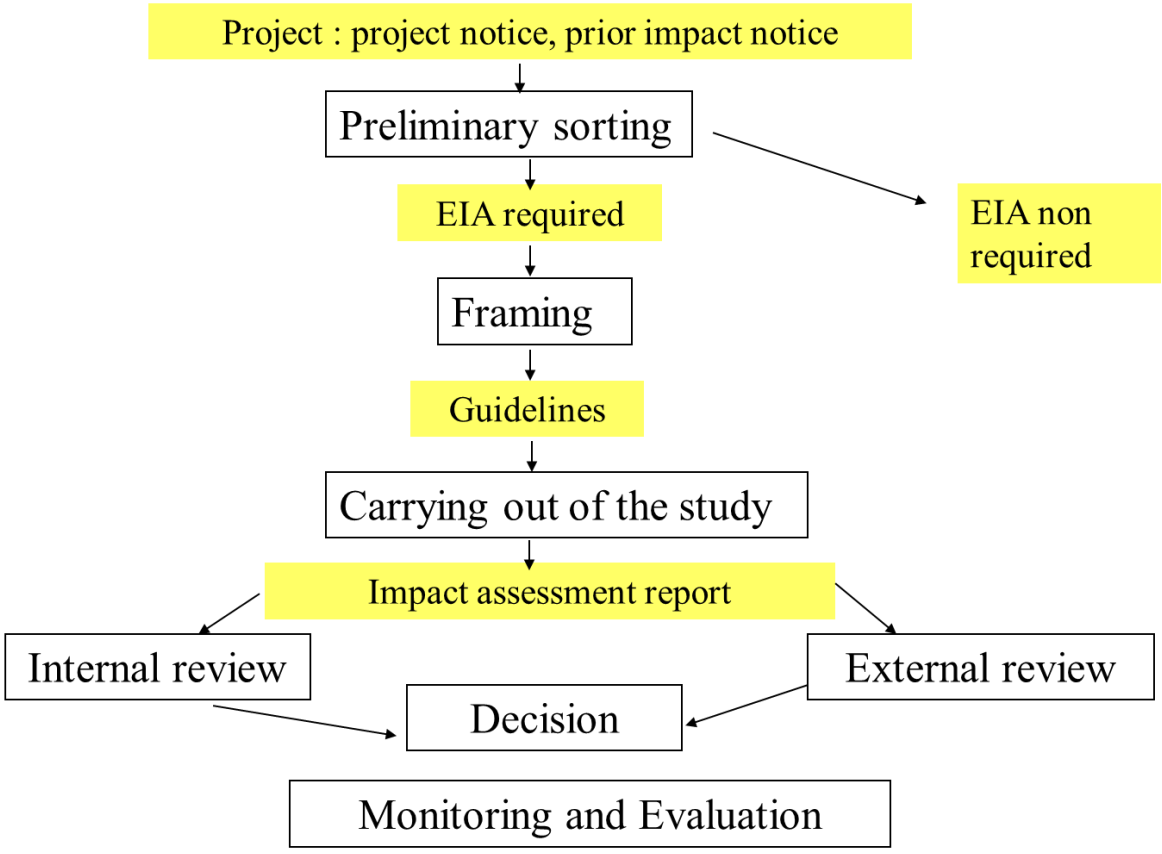
This judgment must be based on specific and sound knowledge of the environment, both scientific (measurements, techniques) and traditional (local knowledge). There are **specific tools** to help the EIA process.

2.4 – The process of an Environmental Impact Assessment

2.4.1 – Global overview of an EIA process

An EIA obeys a formal process: this process can be different from one country to another but it is following more less the same stages, as stated in the figure below.

Figure: The process of an Environmental Impact Assessment



Source : André P., et al., 2010.

Preliminary sorting:

This stage is the initial analysis of the project which leads to the following decision: is there a need for an EIA? The project description is usually compared with a list of typical projects indicating the corresponding EIA requirements (the level of details that is required by the EIA). This list is elaborated by each country and overseas development aid organization. See box below on the Canadian regulation.

Generally, a detailed EIA is required for all the projects with major effects on human and natural environments.

Box: the type of projects for which an EIA is required according to the Canadian Environmental Assessment Act, 2012

An environmental assessment can take place when a company or organization (referred to as "the proponent") seeks to carry out a certain type of project. More specifically, under CEAA 2012, environmental assessments may be required for "**designated projects**": projects involving a physical activity listed in the *Regulations Designating Physical Activities* (also known as the Project List). A designated project is one that has the potential to cause significant adverse effects on the environment.

Examples of such projects include:

- the construction of a mine
- the development of a large new marine terminal
- the extension of a highway
- the construction of new waterways
- the development of a liquefied natural gas (LNG) facility

All projects designated in the Project List are subject to CEAA 2012. The Minister of the Environment and Climate Change (the Minister) may also designate a project that is not described in the regulations, based on factors set out in the legislation. A project may be designated by the Minister if the Minister thinks the project may cause adverse environmental effects, or believes that public concerns related to those effects warrant the designation.

When required, environmental assessments analyze the project's potential adverse environmental effects and whether they are likely to be significant or not.

For more information : https://www.canada.ca/en/impact-assessment-agency/services/environmental-assessments/basics-environmental-assessment.html

Source : https://www.canada.ca/en/impact-assessment-agency/services/environmental-assessments/basics-environmental-assessment.html

Framing:

The first framing permits to get an idea of the main environmental issues raised by the project and to define the study perimeters and analysis scales.

It provides the guidelines for the EIA realization, in particular the terms of reference for carrying out the EIA which contains the minimum content of the impact study to be produced.

This stage is essential because if an important element of the project potential impact on the environment is omitted, it will not appear anymore in the EIA final report.

To provide such guidelines, it can be useful to organize a meeting with the project owner, some experts, and some associations' leaders that are concerned with the project implementation, together with the representative of the Ministry of the Environment. The more concerned people are invited to join the EIA process since the beginning, the more acceptable will be the results coming out of the EIA report.

The realization of the EIA (carrying out of the EIA)

The realization of an EIA is the responsibility of the contracting authority: if the contracting authority (project owner) does not have the competency in his organization he can mobilize an experts' office.

As a matter of fact, the realization of an EIA implies the mobilization of a pool of experts from different fields and disciplines: it is the basic conditions for taking into account both the biophysical and human environment.

The chief of the experts also has a very diplomatic task as he / she is responsible for the interviews of all the stakeholders, and has to explain the project to them. She /he has to report on the various points of views in the report, to respect their diversity while trying to conciliate them through the proposition of mitigation measures.

The EIA gives a description of the project impacts together with some elements to measure their magnitude, and to assess both their importance and their significance. The participation of the public is essential as it is allows understanding better the significance of the impacts and eventually, getting some ideas about possible mitigation and compensation measures.

An EIA takes place in a context of exchanges and negotiations.

The EIA report lastly proposes measures to mitigate the negative impacts and maximize the positive impacts.

The reviews

Internal review: it refers to the admissibility of the report with regards to the compliance between the framework directive and the impact study report (notice of compliance); it encompasses the scientific quality and the public participation process of the report. The internal review is made by the administrative services of the decision-maker who provide a technical analysis report over the EIA report.

- ***External review***: it refers to the judgment made by independent people on the quality of the report (field visits, public participation process, etc.). It leads to the production of an external examination report, which is a tool that guarantees the quality and completeness of the EIA study.

The external review usually implies the participation of the stakeholders according to specific limited timing and process. Décision

Decision, monitoring and evaluation

A decision is made on the implementation or not of the project, with or without modifications, depending on the conclusions of the previous phases. The ministry of the environment is involved in the decision process which can lead to a specific decree. The project and its implementation are then formally legalized.

The monitoring phase encompasses both the monitoring of work in progress and the monitoring of the anticipated environmental effects of the project in order to guarantee a good environmental management: a monitoring report and an environmental monitoring report are regularly produced by the contracting authority and submitted to the decision-maker. They include the monitoring and evaluation of mitigation measures and of their impacts.

The example of Quebec

A Project notice is submitted by the contracting authority to the Ministry of the Environment (standard notice)

The Ministry of the Environment makes a comparison of the project to the list of projects subject to an EIA and specified in the regulation. If there is a need for an EIA, the Ministry develops the guidelines in consultation with the relevant ministries.

The Ministry enhances the participation and the consultation of the public through public hearing to complete the guidelines for the realization of the EIA. A delay of 30 days is left to this public participation so as to enrich the guidelines.

The EIA is carried out by the contracting authority and / or an experts' office.

The contracting authority has the opportunity to interact with the environmental assessment department (technical part of the Ministry of the environment) throughout the process.

The internal review is made by the Ministry of the Environment: it means the technical analysis of the impact study both by the environmental assessment department and the departments of the concerned ministries. The quality of the participation in particular is assessed.

External (public) examination is organized by the office of public hearings on the environment (BAPE) The BAPE organizes public information sessions; the public has 45 days to review the documents and to request a hearing; the written request is submitted to the Minister. If the Minister accepts it, the BAPE has four months to proceed to a public hearing or mediation and to submit a report. The public hearing report, the impact study and the technical analysis form the complete file that is submitted to the Minister.

A draft ministerial decree based on the complete file examination is then submitted to the Council of Ministers.

The result of an EIA can be :

- The acceptance of the project without modifications
- The aacceptance of the project under certain conditions: for example a conditional acceptance of the project subject to modifying certain elements of the EIA, or to introducing specific mitigation measures (environmental and human)
- The need to submit an additional document or a new impact assessment report which will allow identifying certain mitigation measures
- The rejection of the project

2.4.2 – Examples of mitigation measures

Engineering measures:

- Reduction of contaminant production : choice of less polluting equipment / fuel
- Reduction of pollutant emissions : more efficient sanitation techniques, impact compensation

Planning measures:

- Integration of infrastructures into the landscape like aesthetic pylons
- Landscaping like the revegetation of borrow pits or more plant-friendly pruning
- Bypass or avoidance like the development of a wildlife corridor
- Planning like the development of buffer zones
- Substitution like the commitment to create protected areas outside the limits of the project

Sociopolitical measures:

- Securing through the participation of local authorities like the establishment of a monitoring or follow-up committee
- Improvement of well-being like social compensation program
- Regional economic benefits like the maximization of local labor

Economic measures:

- Financial compensation like the payment of removal costs from residences
- Investment like the payment of a percentage of the cost of the project for environmental purposes

Time-bound measures: choice of periods of least impact like the limitation of operations to certain times of the day or to certain periods of the year.

2.4.3 – The public participation to an EIA

2.4.3.1 – The decision maker

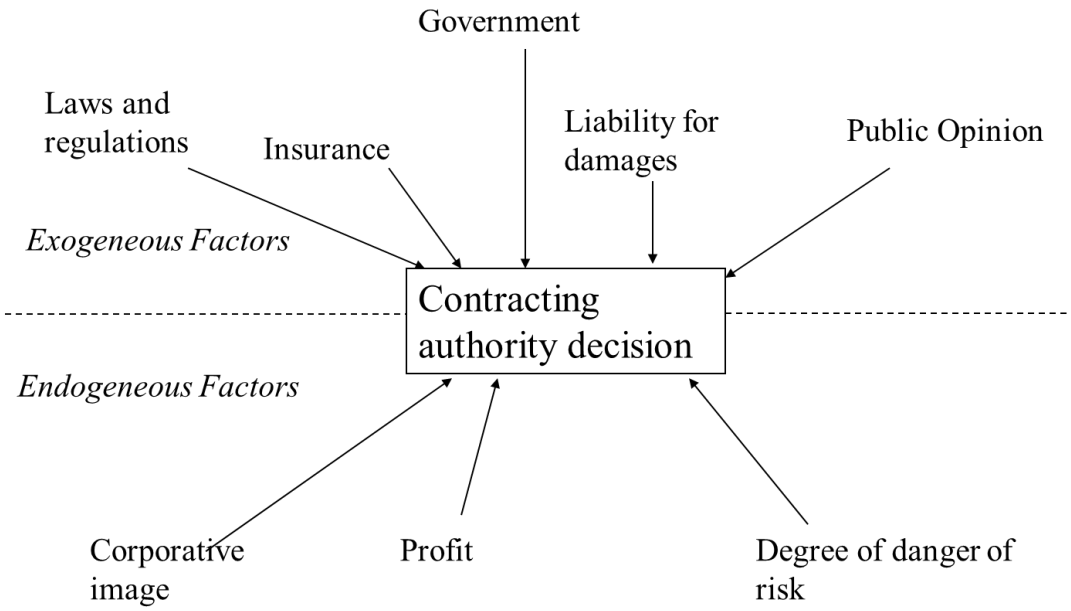
A decision-maker is a person or an organization who has the authority and who is responsible for making decisions about a project. The role of the EIA is to provide it with the data necessary for decision-making. Usually, it is the ministry of the Environment and the council of the ministries according to the country regulations.

2.4.3.2 - The contracting authority (or project owner)

It is a person, natural or legal, who designs a project, requests authorization to implement it and provides funding. The contracting authority can be private companies, central administrations, municipal organizations, state or provincial organizations (decreasing order of importance).

It is responsible for the realization of the EIA and for its conclusions. The quality and outputs of the EIA reports will depend on many factors that are underlined in the diagram below.

The factors that influence the contracting authority decision



Source : André et al., 2010

The contracting authority is often responsible for carrying out the EIA. It can use specialized services if it does not have the necessary human resources: it can call on an experts' office. An experts or study office is a firm of environmental professionals which is responsible for carrying out the studies and producing the impact study report or related documents. Multidisciplinarity is required to address both human and natural resources aspects. The practical knowledge of participatory approach is a must.

The EIA can bring some advantages to the contracting authority such as:

- Saving time for project approval
- Improving corporate image
- Reducing conflict situations
- The "Marketing" of the economic, human and biophysical advantages of taking the environment into account in decisions.

2.4.3.3 - The public:

The public means any individual, group or organization that:

- 1 - supports or benefits from a project;
- 2 - suffers drawbacks related to the project,
- 3 - defends values in conflict with the proposal and works to resolve them.

There are:

- the latent (concerned), informed (aware) and active (action) publics,
- the affected people versus the interested people.

Public participation in the various stages of the EIA process is essential for the protection of the environment:

- The affected public has specific knowledge of the space (biophysical and human systems) in which the project fits.
- The concerns of both affected and interested audiences reflect the values of society give to the environment.
- It is possible to differentiate several groups of actors depending on their specific interests.

The main advantages of the public participation for the contracting authority are:

- Avoiding possible conflicts with the public
- Gathering information known to the public and unknown to the other actors
- Bringing out new creative solutions (mitigation measures etc.)
- Increasing public confidence in the contracting authority
- Highlighting current or future conflicting environmental values
- Increasing community commitment to the project

- Demonstrating the transparency and the will for openness and collaboration of other EIA actors

The public participation fosters the sustainability (appropriation) of the projects and increases the social acceptability of the projects

2.4.4 – The limits of an EIA

2.4.4.1 - The limits due to the project

The complete evaluation of a project is costly in means and time. Quite often, a single component of the project only is evaluated. A separate evaluation of each segment (element) of the project does not allow the analysis of the project as a whole. Some key elements can be missed.

2.4.4.2 - The limits due to an insufficient knowledge of natural systems

Lack of scientific knowledge: our knowledge regarding the ecological processes is not complete and it is generally fragmented and does not always allow identifying and measuring the potential impacts of a project implementation. For example, we do not know about all the ecosystems' services furniture and value. The precaution principle should then be applied the case of uncertainties.

Spatial aspects: the case of open or boundless natural systems (oceans, atmosphere); as these systems are open it is quite difficult to define the perimeter of the impacts in an appropriate way and to measure all the impacts.

Temporal aspects: intensity and periodicity, ecological schedule versus development schedule; the time required for ecological changes to influence the functioning of the environment is much longer than the time of a development project; it is the same for the period for the disrupted system to recover. In that sense, it is for example difficult to assess the efficiency of the mitigation measures as compensating the damages due to the project implementation.

2.4.4.3 - The limits due to human systems

There are the main human limits:

- Regarding the public participation, it is important to clearly define the target audience, affected and concerned (risk of conflicts, delays, etc.).
- The representativeness of spokespersons during the EIA realization must be confirmed and recognized by all communities.
- The limits of social space must be stated and defined: it means to determine the dissemination of information, the concerned social networks, etc.
- The political and institutional structure defines the access to information and the level of participation.
- The participation level and quality is connected to the degree of development (poverty) and therefore of education.

- Some constraints to participation related to gender, language, democracy and environmental awareness can exist and decrease the quality of participation.

2.5 – Some usual tools to carry out an EIA

2.5.1 – The lists of control

A list of control is a checklist of key points. A list of control includes all the items that need to be dealt with during the EIA. There are descriptive and easy to use.

The general lists that can be used for different purposes in an EIA, such as :

- 1 – to identify the main components of the environment,
- 2 – to identify the characteristics of the project,
- 3 – to list the main potential impacts,
- 4 – to list some mitigation measures.

Then, the general lists of control can be used in all the different phases of the EIA, so as to:

- Determine the projects and actions to be the subject of an EIA during the preliminary screening
- Identify the potential impacts of a project when framing the study
- Assess the importance and significance of impacts during impact assessment
- Checks during the examination whether the issues / potential impacts defined during the screening and the framing have been taken into account
- Proposes mitigation measures

The lists of control have also many limits : a list of control is easy to modify but can generate the omission of important elements in specific cases as it is limited to first degree impacts and does not allow the recognition of project activities that generate impacts. A list is not taking into account the complexity of the systems.

Example of the construction of a highway, questionnaire list, specific theme: impacts on air

<u>Construction phase</u>

- What emissions result from transport (especially by truck)
- What emissions result from construction work (dust)? What impacts result from other activities (landfills, deconstruction of other roads, redevelopment of plots)
- What assessment can be made of the construction phase?
- Have all preventive emission limits been implemented?
- Are additional measures needed?

<u>Operational phase</u>

- What effects do transport have (emissions etc.)
- What impacts do ancillary facilities (rest areas, gas station) have?
- What measures are planned or possible? Etc.

Example of a descriptive checklist for the construction phase of urban telephone distribution (extract)

General Impact	Causes of impact	Mitigation measures
Poor location of equipment	posts	Remove the non-operational network
	anchors	Avoid installing in busy places and passageways
Damage to vegetation	Excessive pruning	Reduce pruning
	Damaged roots	Protect exposed roots
Water contamination	Wood treatment	Install the post in another location
	Obstruction of the flow surface	Install the post in another location
Caused to humans	Noise	Work regular hours

Source: André et al. 2010

2.5.2 – The matrices

A matrix integrates and crosses the different components of the environment and of the project activities. It is a table of interactions that allow determining cause and effect links.

Matrices are descriptive; they express direct and immediate causalities.

There are simple matrices, numerical matrices and symbolic matrices (see examples below).

Example: Simple matrix (extract), construction of a marina

Site operations Main impacts	Hydraulic dredging	Backfilling and earthworks	Cleaning and emptying of construction machinery
Marine environment			
Quality of water and aquatic populations			
- Increased turbidity	●	●	
- Chemical pollution	●	●	
- Accidental pollution			●

Source: André et al. 2010

In the matrix below you can place two figures in each box, one expressing the significance of the impact and the other the importance of the impact on a scale from 1 to 10.

Example: numerical matrix, potash mine Significance / importance

Project activities **Environment components**	**Highways and bridge** **A**	**Surface excavation** **B**	**Ore processing** **C**	**Tailings location** **D**
1 – Water quality		2 2	1 1	2 2
2 – Erosion	2 2	1 1		2 2
3 – Deposition and sedimentation	2 2	2 2		2 3
4 – Rare or threatened species	2 5	2 4	5 10	

It is possible to replace the figures by symbols expressing the significance or the importance of the impacts.

Example: symbolical matrix, the case of potash mine

Project activities **Environment components**	**Highways and bridge A**	**Surface excavation** **B**	**Ore processing** **C**	**Tailings location** **D**
1 – Water quality		**+**	**+**	**+**
2 – Erosion	**+**	**+**		**+**
3 – Deposition and sedimentation	**+**	**+**		**++**
4 – Rare or threatened species	**++**	**++**	**+++**	

To conclude, the matrices are widely used in the EIA process as they give a visual synthesis of the impact of a project's activities. This visual synthesis can be useful to organize participatory debates and meetings.

Still, quite often, little importance is given to the human elements and impacts in the matrices, whereas it is possible to include these elements in a matrix conception (by adding the human components to the natural resources components).

There is also a high degree of subjectivity in determining the significance and the importance of the impacts. The matrix does not include either the question of the weighting between the different components of the environment. Moreover, the matrix is limited to the first-order or the direct and short-term impacts (it cannot consider the chain of impacts). Last, there is no consideration of the interdependencies between certain activities or components.

It is then impossible to take into account the complexity of the systems and the time dimension through the use of a matrix. It is also difficult to use a matrix to compare different options.

Finally, the matrix is well suited mostly for small to medium localized projects.

2.5.3 – Superposition method

The superposition methods rely on the geographical information systems use.

Superposition of layers of **geo-referenced information** (of various kinds) can be very useful in order to qualify a space according to its suitability or its environmental resistance:

For example in order to best localize a wastes dump, different layers will allow the production of:

- Geological layers (underground water, types of soils) to delimitate the places to avoid
- Water surface layers to delimitate the places to avoid
- Land use (urbanization, agriculture and forests) layers to delimitate the places to avoid
- Territorial topography layers to delimitate the places to avoid
- Other layers (biological layers, ecosystems layers, protected areas for biodiversity etc.) to delimitate to delimitate the places to avoid

By superposing all these layers, we will obtain an impact map, with the localization of the less exposed place where to localize the dump. The impact map crosses for each level of information the low, medium and high risk areas.

Examples: urbanization, hydrology, topography, flood zones, infrastructure (roads etc.), natural spaces etc. for the localization of a specific site such as an ecological corridor

2.5.6 - Decision support methods

Decision support methods refer to situations that propose several alternatives for the localization of a development project. They help choosing the best area to implement it.

It is first necessary to define the criteria that guide the decision. These criteria may rely on:

- Environmental considerations (biophysical and human)
- Technical considerations
- Economic considerations

The value of the criteria for each option must be estimated either through an ordinal approach (ranking of variants with respect to each other), or in a aggregative way (absolute measurement of the selected variables). In case of aggregation, it is important to avoid redundancy and correlation between criteria to avoid double counting.

One option is to compare for each criterion the two localization option and to note the best one. The option that cumulates more advantages can be chosen. Each criterion related to a specific environmental impact.

In the example below, only criteria associated to the project once implemented are developed and there are no criteria regarding the realization of the construction work (such as noise dust etc.)

Example: Comparison by criterion, location of the extension basin of a marina

Comparison criteria	Advantage to variant
Exposure to swells	B
Hold on the foreshore (tide)	A
Hold on the terrestrial environment	B
Landscape and scenery	B
Compatibility with aquaculture activities	B
Access	B
Development possibilities	B

Source: André et al., 2010

This methodology does not allow taking into account the question of the weight of the various criteria. This weight can differ according to the magnitude, the importance and the significance associated to each impact/criteria.

For taking into consideration the weight of the various criteria, other methods can be used: see the example below.

Example: Multi-criteria decision support, planning a landfill

Criteria	Weight (%)	Suitability of the site			Weighted suitability of the site		
		A	B	C	A	B	C
1	40	4	3	4	1.60	1.20	1.60
2	25	3	3	2	0.75	0.75	0.50
3	25	2	4	3	0.50	1.00	0.75
4	10	2	3	1	0.20	0.30	0.10
Sum	100				3.05	3.25	2.95
Rank					2	1	3

Source: André et al., 2010

2.5.7 - Synthesis

The following table presents the tools that are relevant and appropriated for each specific phase of an EIA.

	List	Matrix	Superposition	Decision support
Preliminary sorting	+	+		
Framing	+	+	+	
EIA study				
Environment description	+	+	+	
Impacts description	+	+		
Impacts evaluation			+	
Mitigation measures definition	+			
Monitoring and evaluation designing				+
Decision				+
Follow up	+	+		+

For evaluation the impacts other tools such as modelling, expert modelling in particular and **geographical information systems** can also be mobilised.

A GIS is an environment designed for the analysis and spatial distribution of phenomena. The use of a GIS for an EIA allows in particular:

- Describing the geographic conditions of natural resources and places of interest
- Determining the nature, the sources, the size and the location of the environmental stresses present in an ecosystem or inside the study area
- Describing the current and potential levels of exposure to a given stress in an ecosystem
- Helping with the comparison of variants
- Assessing the current response of an ecosystem to existing or potential stress
- Helping to assess the likelihood of an impact occurring.

2.6 - Conclusion

An EIA is a process defined a by specific regulation; the identification of both human and natural resources impacts of a potential development project is at the heart of an EIA.

The concept of Ecosystem services can also be mobilized to identify the project impacts.

Characterizing the many impacts of a project both from spatial and temporal perspective is core to the achievement of an EIA.

A literature review on similar projects impacts can be very useful, to complete the interview process with the experts, and before the investigation with the different publics of the concerned project territory.

An EIA required ex ante measurement which is very complicated to achieve. Benchmarking together with experts opinion can be quite helpful in order to assess the magnitude, and the importance of a foreseen impact.

Expertise is necessary to mobilize in order to estimate the importance of foreseen impacts. International standards in environment are also strong references for evaluating the importance of the impacts.

The public participation to an EIA is central to the project social acceptability, both to the impacts identification and to the definition of appropriate mitigation measures.

Several tools can be used at each stage of an EIA to make it more robust, trustable and participatory.

2.7 – Some references

- André P., Delisle C, Reveret J-P, (2010). *L'évaluation des impacts sur l'environnement*, presses internationales polytechnique, troisième édition, Canada, 519 p.
- Anjaneyulu Y., Manickam V. (2007). *Environmental impact assessment methodologies*. 2 ed. Hyderabad (Inde): BS Publications. 437 p.
- Craik N. (2019). The assessment of environmental impact. In: Lees E., Viñuales J.E. *The Oxford handbook of comparative environmental law*. Oxford (UK): Oxford University Press. p. 1209-1238. http://doi.org/10.1093/law/9780198790952.003.0039
- Glasson J., Therivel R. (2019). *Introduction to environmental impact assessment*. 5 ed. Oxon (UK): Taylor and Francis. 682 p. (Natural and Built Environment Series).
- Mehdic A., Gunton T., Rutherford M. (2020). Assessing the role of subjective judgment and science in environmental impact assessment: implications and options for reform. *Journal of Environmental Planning and Management*, Aug, vol. 63, n. 10, p. 1771-1790. https://doi.org/10.1080/09640568.2019.1688650
- Morgan R.K. (2012). Environmental impact assessment: the state of the art. *Impact Assessment and Project Appraisal*, 2012/03/01, vol. 30, n. 1, p. 5-14. https://doi.org/10.1080/14615517.2012.661557
- Sousa P., Gomes D., Formigo N. (2020). Ecosystem services in environmental impact assessment. *Energy Reports*, 2020/02/01, vol. 6, p. 466-471. https://doi.org/10.1016/j.egyr.2019.09.009