CHAPTER V: A FLEXIBLE TOOL FOR VALUATING AND EVALUATING THE SUSTAINABLE DEVELOPMENT

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Quality Management

Quality is a philosophical concept related to how persons, things, facts, activities, conditions and so on are. Quality is not absolute since it depends on values, both individual and shared among groups, communities and societies. Quality is relative since it depends on culture, ethics and civilisation, being linked to time, space and quantity dimensions.

Definition of culture, civilisation, value and ethics

As a general meaning, culture manifests itself as cohesion, a complex pattern of ideas, values, beliefs, norms and ways of acting shared by the members of organisational systems and communities. Therefore (Morin E., 1994), culture relates to all that is singular, original, local and expresses the sense and the rationale (ethos) of a community, an ethnic group, a nation, etc. (cultural identity). In this sense, culture includes the distinctive characteristics of a particular society or sub-group within that society. This means that culture is relative (being strongly determined by and in societal contexts and societies) and, even though different cultures may be described and compared, it is worthless to rank them. Culture is the basic ingredient of social interaction as a process, which includes the relationships between actors, actions, generations, time, space and place. Culture has a pervasive influence over the behaviour of actors, their actions, traditions, morals, attitudes (thinking, feeling, behaving), rites, rituals, patterns of communication, organisation, perceptions, art, law, customs, policies, etc.

To **civilisation** is attributed a meaning which is more universal than that of culture. For instance values coming from a community or country can become universal. The values of 'Liberté, Egalité, Fraternité' originated as cultural expression of a specific society during a specific historical period, but they have acquired universal meaning as civilisation.

Values are the patterns of moral principles and thoughts (philosophy of life). Values refer to the autonomous responsibility of the individual and his morality. Values (and morality) are and remain irrational; they concern the individual sphere, which combines autonomy and responsibility. It is this moral capacity of human beings that make it possible to form society as a social structure composed of "systems of social relations and system meanings" (Hays S., 1994). Thus, morality becomes a practice "negotiated between learning agents capable of growth on the one hand and a culture capable of change on the other" (Wolfe A., 1989).

Ethics is the moral code as a set of mutually coherent precepts that ought to be obeyed by any moral person. Ethics, as a framework of rules of conduct, is based on negotiated and shared values within and by societal structures (the individual as well as larger entities) and influence individual and collective behaviours. In this sense, "Ethics is a cultural phenomenon; culture is relative; therefore ethics is relative" (Edel A., 1995). The conclusion is that the social management of ethics is complex. In fact, ethics is a combination of partness and wholeness; it is reciprocal and cyclical; it is cause and effect at the same time. A paradox emerges which implies socio-cultural risks. If ethics is utilised as a way to foster rationality and universalisation of social order, it creates only the destruction of societies and cultures. There are historical examples (the Holocaust and other types of genocide) which show how ethics can substitute morality, to the extent that a code substitutes the moral self, and heteronomy substitutes autonomy.

Values and **ethics** are visible in social action, underline the key role of the actors and of the relationships between them. Paraphrasing Edel, only men create and grow values, use their knowledge to broaden, refine, and achieve their human aims and to distinguish increasingly the spurious from the genuine; they see themselves at every point as active creators out of the past and into the future.

Therefore, quality is something difficult to grasp. It should improve, but for every situation to which it is related (persons, products, social communities, etc.) different aspects appear with several combinations.

Today there are many approaches to quality and important good practices arise within the mainstream of Total Quality Management (TQM). TQM:

• is a comprehensive approach which involves an organisation to continuously improve its performance over the long term, being customer-focused and meeting the needs of all stakeholders;

• concerns the system as a an undivided "whole", an organisational complex based on interdependent components (e.g. suppliers, inputs, processes, resources, people, outputs, customers, etc.);

• develops a climate of trust and co-operation among the stakeholders;

• considers the effects of changes on the entire system, not just the individual elements.

For instance, it is known that the "Baldrige model" (George S., Weimerskirch A, 1994) "focuses on the customer; aligns internal processes with customer satisfaction; puts everybody in the company to work on a shared vision and goals; facilitates a long-term approach to continuous improvement; demands management by fact; promotes prevention rather than reaction; seeks ways to be faster and more flexible throughout the organisation; looks outside the company for opportunities to form partnerships with customers, suppliers, and other companies, to benchmark, and to fulfil the company's responsibilities as a corporate citizen; values results."

Strategic thinking and innovation of corporate culture

A meaningful change has happened in corporate strategy. Nowadays it is fully recognised that planning requires strategic thinking, as the way of "knowing what needs to happen" (Senge *et al.*, 1994), "accepting the intellectual challenge of creating the future" (Smith N. I., 1994). This way of thinking and acting represents an evident shift from linear thinking to systems thinking: things are no longer seen as structures but as processes.

Strategic change is at the basis of corporate planning by means of the combination of vision and missions.

According to this innovative approach (Senge *et al.*, 1994; Smith N. I., 1994; Hammer M., Champy J., 1994; Gouillart F. J., Kelly J. N., 1995; Elkington J., 1997), a clear image (vision) of what the future should look like ('where we want to go', 'what we will be like when we get there') drives strategic planning:

• providing clarity of purpose to the organisation's missions ('why it exists?, 'what it is meant to be involved in and with', 'how we operate, on a day-by-day basis, to pursue our vision')

• giving a sense of commitment to all its members ('what are we here to do together');

• empowering people to be flexible in setting goals and expected results in order to take the organisation closer and to revise instantaneously plans in such a way as to tightly meet the missions;

• being the way to communicate a sense of the kind of organisation the company needs to become, how it is going to operate, what results it must achieve.

A clear demonstration of the meaning of this approach comes from the Japanese school of entrepreneurial and management culture: "A company is not a machine but a living organism, and, much like an individual, it can have a collective sense of identity and fundamental purpose. This is the organisational equivalent of self-knowledge - a shared understanding of what the company stands for, where it's going, what kind of world it wants to live in, and, most importantly, how it intends to make that world a reality" (Nonaka I., 1991).

Collective sense of identity, self-knowledge, shared understanding and so on, all these properties come together when a company is more and more seen as a *learning organisation*; a concept nowadays fully recognised in organisation theories and world-famous (Garrat B., 1994).

TQM itself, as a container of concepts aimed at pursuing quality, changes in relation to corporate and community culture. Three basic Japanese terms clearly represent the above assumption:

• *Kaizen* as a process of continuous, slow, day-by-day change;

• *Kairyo* as fast, unpredictable modifications and improvement;

• *Kyosei*, as an emphasis on social and environmental responsibilities for the present and future generations, as well as equity within world-wide and between local economies.

More recently the concept of total quality environmental management (TQEM) appeared. TQEM "is a system of dealing with quality at every stage of the production process, both internally and externally ... The TQM system requires that every single part of the organisation is integrated and must be able to work together. This is exactly the ethos which is needed for an environmental system to be successful ... For firms with a total quality management system in place or considering one, the next steps towards an integrated and effective environmental management system are not hard to make" (Welford R., 1995). TQEM pursues a holistic approach to understand the links between an organisation and its natural environment and to foster, especially by adopting life-cycle analysis, ecological performance and clean manufacturing processes which eliminate pollution at the source rather than end-of-pipe.

ISO 9000 was created for TQM and ISO 14001 for TQEM, as well as EMAS. Their ways to improve quality underline how corporate strategic visions are necessary in order to promote the principles of sustainable development as a set of core values guiding the firm's decision-making processes at all levels (Welford R., 1995; Elkington J., 1997; Clarke T. & Clegg S., 1998) and fields of activity (e.g. marketing, training, auditing, life cycle of products and processes, etc.).

The quality management approach therefore starts on a meta-level and does not prescribe fixed standards. It deals with the methods and procedures with which quality targets that have been set can be attained or exceeded. The commitment is to ensure optimal and transparent management in the fulfilment of very complex objectives.

Sustainable Quality Management

In a similar sense, *Sustainable Quality Management (SQM)* can be understood as a management framework for improving the quality of local and regional development in the direction of sustainability. With this aim, SRS and EURES elaborated a software specifically called *SQM*, following the results of INSURED (*Instruments for sustainable regional development*), a research project funded by the EU Commission and carried out by EURES (co-ordination - DE), ÖAR (AT), SIASR (CH), SICA (IRL), SRS (IT).

The headings of the *SQM* three columns show the purpose on which a good management of sustainable local and regional development should be based and a database collects descriptions of good practices which can increasingly be enhanced by the analysis of case studies all over Europe and abroad.
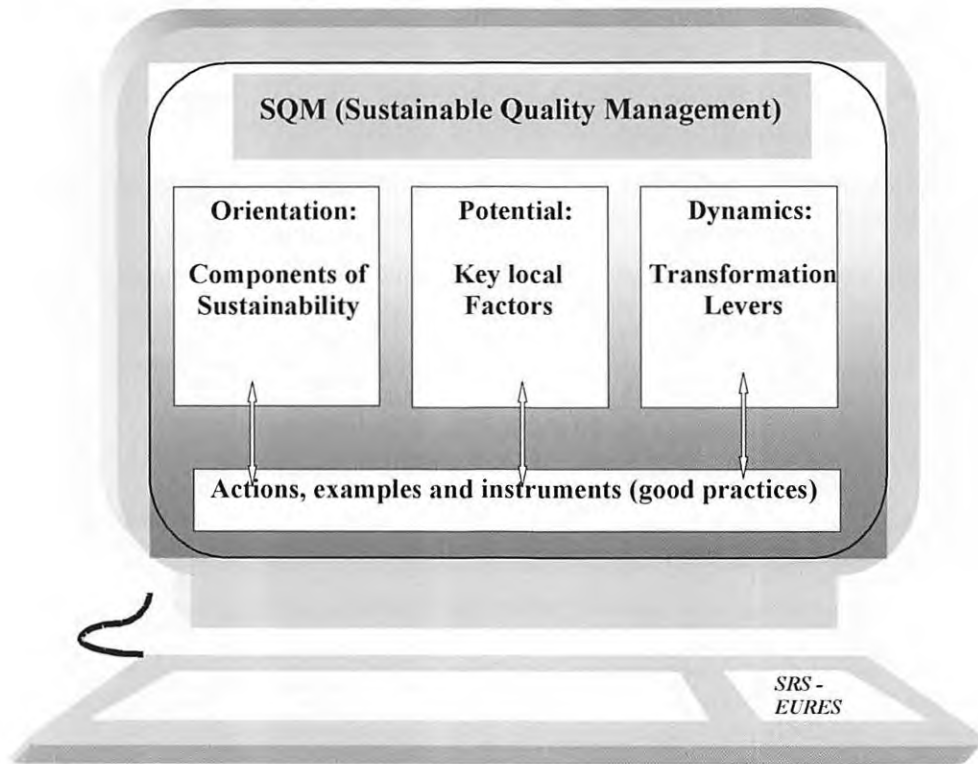
Orientation / 10 Components of Sustainability

Sustainability is a very huge concept and, like many other concepts, it is both new and old, representing the historical development of thinking within different cultures and along the stages of civilisation of the human world.

During the INSURED project, a very intensive debate was carried out on those topics. Through the theoretical reconstruction of the concepts involved in the meaning of (and the debate on) sustainability, their interrelationships were analysed and 10 components distilled. They are "value-orientated" and designated as an integrated focal point of observation and action (Schleicher Tappeser R. *et al.*, 1997). They outline an approach to sustainable development that can be described from three aspects:

1. Development dimensions: a) the respect for the environment both natural and man-made (*environment*); b) satisfaction of human needs through efficient use of resources (*economy*); c) maintenance and development of human capital (*socio-culture*);

2. Equity dimensions between: a) individuals (*inter-personal equity*); b) localities, regions, States (*spatial equity*); c) generations (*intertemporal equity*);

3. Systemic principles: a) *diversity*, as a prerequisite of environmental, economic and cultural vitality and survival; b) *subsidiarity*, as a way to empower individuals and communities; c) *networking and partnership*, which emphasise trust and mutual respect between individuals, communities and institutions; d) *participation*, so that individuals and communities are involved to the maximum extent at all stages of diagnosis, planning and implementation.

The integrated utilisation of the 10 components gives development an orientation towards sustainability in order to conceive and implement regional policies and local initiatives. Each of them has a meaning of a value that should be conserved or striven for. At the same time each component represents a more methodological dimension, a way of looking at things.

Social potential / 16 key local factors

The study of "social systems" underlines "the structured interaction of individuals. This structuring takes the form of a concrete number of alternatives ordering the way the individual may relate to his social environment" (Gintis, quoted in Anderson R. E. & Carter I., 1984) and to the natural environment, given that "nature is society and society is also nature" (Beck U., 1992).

Structured interaction of individuals means "social interaction" as a process of learning and negotiation of meaning that goes between actors, through their reciprocal actions, patterns of behaviour, of thought, perception, values and beliefs which are culturally determined.

In analysing social systems, it is not useful to think of linear cause-effect relationships between factors. They are closely linked to human behaviour and action, which cannot be explained through the use of an over-simplistic casual chain. These social factors interact in complex loops. In fact, there is a continuous interdependent sequence (sociologically called *process*) of individual and collective factors, which underline how the individual and the community carry out their ways of life to deal with problems in order to solve them by creating change.

During the INSURED project, information was obtained from the analysis of regional and local case studies (as a combination of top-down and bottom-up approaches).

Combining the relevant features of (regional and local) contexts and the "good practices" stemming from the case studies, about 60 key local factors were identified and 16 selected, because of their capacity to represent all the others.

These factors are not "neutral". Nothing is neutral. They are "objective" to extent that they are validated by the learning process and negotiation of meaning between actors, their actions, culture (values and ethics), contexts, observers and phenomena observed.

They are "real" and interacting factors which, at a certain period of time and within different spatial dimensions, seem to favour sustainable regional development and a common understanding of the process.

They are simultaneously *common, diverse* and *original*. Common, because they are relevant in each local context examined; *diverse*, because they act in different ways depending on the specific context; *original*, because the local actors combine them in different ways.

P1. Perception of a variety of development approaches
P2. Creativity and innovation in an entrepreneurial culture which emphasises responsibility towards the community
P3. Capacity to cope with complexity and ambiguity and to anticipate change
P4. Openness to enrich one's own culture and enhance multicultural cohesion
P5. Discovery and re-encoding of territorial specificities and local knowledge
P6. Ability of each to reach their optimum level of attainment and fulfilment

P7. Fractal distribution of competence using the counterflow principle
P8. Autonomy of strategic decision-making within a facilitating infrastructure
P9. Primary reliance on one's own resources without compromising those of others
P10. Shared value system taking into account environmental, socio-cultural and economic interdependencies
P11. Social cohesion
P12. Opportunities and room for equitable interaction
P13. Capacity for creating shared visions
P14. Integration of social and technical skills into the innovation process
P15. Access to information and to the arena of dialogue and debate
P16. Multiplicity of interactions, enhanced by local animators

The utilisation of the 16 key local (regional) factors makes it possible to perceive and enhance capabilities and potentials of social communities in favour of sustainable development.

They should be considered to conceive and implement regional policies and local initiatives. The role of the 16 key factors is, to some extent, similar to that of qualitative variables adopted in a market analysis. Focusing on the 16 key factors, context analysis appears to be more comprehensive and dynamic than traditional market analysis.

Dynamics / 6 Transformation levers

Dynamics is change, determined by the interaction of conservation, revolution, resistance (Morin E., 1994). They are not dichotomies but interactive components (parts) of human life (as a whole).

Conservation is not conservatism even though it can feed the latter. Conservatism is the practice of opposing change in established institutions, methods, traditions, behaviours, habits, rules, roles, etc. On the other hand, conservation is the act of preserving, protecting, maintaining resources, values, ethics, lifestyles, etc. All these actions imply innovation, creativity, intuition and imagination.

Without protection there is not improvement and vice versa. Maintenance implies also substitution and replacement. Improvement, substitution, replacement etc. are based on change.

Change is innovation, creativity, intuition and fantasy. Changes occur continuously. They can be slow, gradual, almost imperceptible or fast, shocking, upending and unpredictable, unrelenting and ubiquitous.

They can be very broad in range and intensity. They include short-term and long-term, large-scale and small-scale effects, operating at local and global levels. Change may be positive and/or negative, regressive and/or progressive, constructive and/or destructive.

Change is always revolutionary. Every transformation is simultaneously dis-organising and re-organising. It is deviance and rupture of traditional rules and roles. But, at the same time, it is reconstruction of new rules and roles to maintain a fabric, which can nurture further innovation.

Conflicts are not merely accidental and unfortunate. They are inherent, legitimate, and often unavoidable through the combination of conservation and revolution. Conflicts can arise from conservation and from revolution. There can be resistance to revolution and resistance to conservation. Resistance can originate revolution and conservation. There are a concrete number of options, and the struggle, the negotiations and the agreements between values and ethics (as they are perceived and expressed by human beings in a certain situation of time and space) determine alternatives.

In this period of transition from the modern (and industrial) to the post-modern (and post-industrial) age, sustainable development represents the most important process of innovation and learning, based on the above-mentioned dynamics, determined by interaction between conservation, revolution and resistance.

During the case studies, examined by INSURED, it emerged that it was not only necessary to look at static "preconditions" for successful sustainable regional development, but also to consider the dynamics of transformation which often occurred in several phases. Good strategies should be focused on a few driving forces and key aspects of transformation:

| D1. Enhancing problem understanding |
| D2. Open collective learning |
| D3. Negotiation and co-decision |
| D4. Creation of a shared vision |
| D5. Client orientation |
| D6. Result orientation |

The role of the 6 transformation levers is, to some extent, similar to that of the marketing-mix levers. Focusing on the 6 levers, sustainable development strategies appear to be more comprehensive and dynamic than the traditional market strategy.

In fact a good strategy is determined by: *i)* discovering what principal transformation levers have been utilised in a local context; *ii)* and deciding what mix of levers to utilise in order to orientate the social potential (key factors) towards sustainable development.

Who can utilise SQM and how?

SQM can be utilised by very different actors in different situations and for different tasks, e.g.:

• public officers (at the EU, national, regional or local levels) who are designing programmes for supporting SMEs;

• consultants and development agents who are evaluating the best way to orientate innovation in specific fields (agriculture, tourism, transport, industry, etc.) and how to utilise financial support instruments for environmentally friendly products and processes;

• entrepreneurs who want to diversify their activities, looking for new market segments where the demand for new products and services could increase by means of a very distinctive and innovative quality improvement.

SQM: to prevent errors

A very clever minister of the environment wants to promote the reclamation of a local ecosystem in a maritime area. With the collaboration of scientists and experts, she/he elaborates the guidelines for creating a sea park. But what about the economic fabric of the area concerned which may be based on intensive sea activities (tourism, industry, fishing, etc.)? What about a socio-cultural system, which may be based on employment, related to the above activities, and may have a very low awareness and knowledge of environmental problems and opportunities? Looking at the 10 orientation components, she/he can identify ways:

• to help the start-up of new economic activities;

• to improve and disseminate know-how and skills;

• to favour social equity (stressing the role of a sea park as new source of employment and revenue), spatial equity (focusing the role of co-ordinated planning between the communities of the area), inter-temporal equity (highlighting the expected results in the medium and long term for the sake of the youngest and the future generations);

• to focus attention on the opportunity determined by biological, social and economic diversity within the area concerned;

• to develop a strategy which respects the role of the local authorities, involves local communities, adopts effective ways to improve public participation and promotes networking and partnerships among the economic and social actors (both public and private).

In order to define the factual aspects of the above strategy, she/he needs to analyse the social potential of the community concerned, as well as the dynamics, which characterises its current way of life. But, what is ot important to look at? SQM can help her/him to orientate the analysis providing the basic foci (the 16 key local factors and the 6 transformation levers). Creating a round table (forum) which involves her/his collaborators and the local actors, the minister can prepare the ultimate strategy orientated at the 10 sustainable development components and present it in an understandable manner underlining:

• the levers - mix adopted; e.g. co-decision + result orientation;

• the social potentials which will be exploited e.g. multiplicity of interactions, enhanced by local actors + entrepreneurial creativity and innovation + autonomy of strategic decision-making + social cohesion + integration of social and technical skills.

They should all consider a general orientation towards sustainability, they will have to take into account the local communities, which are concerned by their actions, and they will have to respect essential aspects of transformation and learning processes. They could all make use of SQM which helps them to investigate these aspects in more detail and which gives some hints about which options for action or support which have worked well in similar situations.

SQM: to assess situations and measures

An EU officer in the Directorate-General for Regional Policies has to check the draft of the Operational Programme for the Regional Fund in a specific region before approving it. He could use SQM in the following way. He would require that preparatory assessment studies have analysed the present situation in this region in terms of the 10 sustainable development components and would check what the main findings are. Similarly he would have a look at the regional social potential (16 key factors) and would compare the results with other regions with which he has been dealing recently. He would then have a close look at the proposed development strategy and check whether all six levers of transformation have been seriously considered. Finally, he would look at the measures proposed and assess their adequacy to the problems identified before and check whether they will fit into the social potential encountered. Having identified the main strengths, weaknesses, opportunities and threats (SWOT analysis) according to the assessment grid, the "good practices database" structured along these items could help him to make quick comparisons.

SQM makes it possible: to formulate different interpretations; to know different situations; to look at an issue from different points of view; to prevent errors which often cause resistance and conflicts against a very innovative strategy in respect of the prevalent local culture.

SQM offers the opportunity to understand the different roles and positions of different actors in one situation - an essential condition for good negotiations and "sustainable" solutions.

The examples can be many and the different actors in their specific situations need to develop more specific questions out of the different components and factors. Hundreds of such specific questions are conceivable and cannot be listed in advance. The assessment grid gives a systematic starting point. The "good practices database" supports each actor providing specific experiences and approaches and examples. All users could themselves contribute to this database, collecting and entering new examples of good practices, as well as ideas and projects.

In conclusion, SQM helps different kinds and levels of actors:

• to assess situations

• to develop strategies

• to assess programmes, measures and actions *ex ante*

• to monitor and to support programs and actions

• to evaluate programmes and actions *ex post*

• to transfer experiences from one context to another

SQM: to conceive strategies and initiatives

The head of a local professional training institution wants to set up a special initiative for unemployed young people using public funding. She has some initial ideas for core activities and checks them using the list of sustainable development components, each time asking herself what the local community really could need in this respect. She then analyses the political and social context of her initiative using the key local factors: Where will resistance come from? Who needs to be convinced? Which elements will be most important? How can the local community support her? Then she will try to identify the most important dynamics, which she will have to address in order to get the project off the ground. Raising awareness about the youth unemployment problem? Initiating a negotiation with local companies?

Creating a common vision about youth employment in her area? At the same time she will sort out her basic options for action, look for support and funding and try to learn from the experiences of others. Here the best practices database will be useful.

SQM is a methodological tool to improve a holistic innovative learning process

New theories on social system analysis, complexity, chaos etc. introduced new factors which modify the traditional way of thinking, interpreting, codifying and expressing societies through the identification of social "laws" and the elaboration of models.

Models constitute a formally theoretical perspective; an intellectual order of an empirical reality based on its analysis and verifications. Models are useful to maintain a circular integration between theory and research.

Definition of ideal type

An ideal type is not an average type of the most commonly found features of the observed phenomenon, nor is an ideal type a simple description of the phenomenon itself. An ideal type is worked out according to the conceptualisation made to interpret a social phenomenon. An ideal type is utilised to learn from the real world. The ideal type represents only a kind of hypothetical model to be tested analysing real "social facts". More recently (Gasparini A., Strassoldo R., 1996), ideal types were defined as systems of interpretation and re-organisation of reality (actual phenomena). Ideal typology can be considered as a methodological instrument of models based on integrated (or correlated) concepts in order to comprehend and explain reality through the identification of (simple) relationships between concepts and social facts. The ideal types:

• belong to the ambit of theory and always have a cultural connotation since they are the result of cultural and normative aspects (they correspond, to some extent, to some human-logically conceived social law);

• are based on contingent and historical elements;

• are a mix of deductive and inductive approaches, a mix of conceptualised relationships (abstract) and data (information) which are contingent;

• are based on a comparison between concepts, refusing a "totality" interpretation (the whole as an absolute meaning) and referring to what is observed;

• try to identify a diverse gradation within a continuity and an ongoing relationship between the theoretically defined concepts;

• are not exhaustive since they are the result of a theoretical (conceptual) choice and construction.

According to the "ideal type" approach, a model can be considered as a symbolic representation of a real (empirical) process observed according to a theoretical elaboration of concepts. Therefore a model can be conceived as a lens. It is useful to identify convergence and distance between the conceptualisation and the actual reality, to improve the theoretical elaboration and to proceed with confrontation and comparison between different circumstances (e.g. local socio-cultural contexts).

The above considerations help to understand the meaning and the role of SQM:

• it is not a tool of modelling in the traditional sense of giving standardised certainty to uncertain and complex phenomena;

• it is a methodology to understand the phenomena, in a holistic way, discovering their basic interrelations;

• it is an integrated tool to continuously learn from the dynamics of the phenomena in order to construct a grounded theory which can help to change the current scientific paradigms;

• it is a methodology which opens the doors and windows of the human brain to discover that what is considered as chaotic in a certain time and dimension can be understood as an expression of the limits of previously formulated concepts;

• it is a way of thinking which strategically assumes the hypothesis that actually a natural order could exist which embeds what seems to be an expression of chaos, opening new paths in order to understand and manage complexity;

• it is a methodology to discover that complexity is based on the tri-dimensional flows of mutual relationships; the first between different actors; the second between their actions; the third between actors and actions;

• it is a way to fully recognise that human beings are neither the nor the principal typology of actors; other stakeholders exist who are unable to speak for themselves and who do not think and behave according to human normative codes; generally speaking, they are the natural environment, future generations and non-human species (Wheeler D., Sillanpää M., 1997; Clarke T. & Clegg S., 1998);

• it is a way to admit that humanity is a an important component of ecosystems and that nature is society and *vice versa*;

• it is a methodology to understand that human actions are interrelated to non-human actions expressing the degree of natural cohesion within and between different ecosystems.

All is interconnected: the One and the Many

The relationship between individuals and social organisations has always been at the basis of the concept of civil society and understood as divergence and/or confluence between the One and the Many, that is the individual and the collective, the person and the institutions, the *private* and *public* spheres of life and action (Seligman A., 1993).

The relations between the One and the Many constitute largely the problem of how many parts can be opposite each other and simultaneously constitute a unified whole, how dichotomies are interactive parts of cohesion. This is one of the main issues of philosophy, religions, social and political thinking (in the Eastern world, since the discovering of Yin and Yan - believed approximately 3,000 BC; in the Western world, since the ancient Greek period - i.e. Heraclitus and Plato about 400 BC).

These relationships were based, according to different historical periods, on universal laws (natural providence, divinity), social contracts, the Reason, human conventions and morality, regulative principles, ethical solidarity, human emancipation, etc.

The problem was and is that of the integration of differentiated parts, of harmony in diversity. It seems that the *sine qua non* issue of the human knowledge and existence is to be found in the idea of reconciliation of differences, the reconciliation of the individual with the group, the organisation, and the integration of parts into a whole. This concerns individual and social structure and all societal dimensions (small or large: a marriage, a family, a group, a community, a firm, a nation, etc.).

In conclusion, all is interconnected (orientation, potential and dynamics) and the 32 SQM elements help to understand mutual relationships i) as the ways in which actors behave and feel towards each other, and ii) as the patterns of action which distinguish different (social) structures.

According to systemic thinking (Anderson R. E. & Carter I., 1984), the one cannot exist without the many and *vice versa*. Each human and social entity exists and thrives as both whole and part. The (socially determined) interdependence is constituted by the melding of opposite twins (one might say dichotomies) such isolation and participation, dependence and autonomy.

Social interaction: networks and webs

Social interaction is reciprocal and cyclical; it qualifies how interdependence is socially managed or, better, how is based on the quality of mutuality. Since everyone (every organisation, part, etc.) is affected by the others and *vice versa*, mutuality implies the recognition and the respect of and between all the components of a social system. Trust becomes one of the key elements of the quality of mutuality and conflicts, negotiations and agreements determine it. Nothing is determined forever.

Society can be considered as an organism based on autonomies which are connected and interrelated; in other words it can be understood as a holistic, fractal, holonic etc. organism. Thus there must be simultaneous attention to the whole and the part. Each social entity, whether large or small, complex or simple, is a "holon", that means that each entity is simultaneously a part and a whole. A family is a clear example (Anderson R. E. & Carter I., 1984). There is an intensive network among the members (each of them as a whole), the family (the member as a part and the family as a whole), other families (each of them as a whole), a larger social system like a local community (the family as a part, the community as a whole), and so on. The network (as a whole) can be understood as a complex loop between different webs (each of them as a part) created and continuously transformed and changed by each spider (as a whole). This network does not imply one-way causation, but multiple and multidirectional trajectories. A change in any part affects other parts; together the spiders determine the dynamics of the network; changes within the network determine the dynamics of each web. And so on, given that each part of the network, each spider, creates its own web with other parts in other networks...

The combination of confluence and opposition among the different entities determines network behaviour and cohesion by means of: a continuous negotiation between autonomy and integration; conflict and agreement; individual freedom and respect of reciprocal rules; partness and wholeness; diversity and homogeneity; etc.

SQM helps to improve governance towards subsidiarity

SQM can also be understood as a methodology to deal with the changeable patterns of a complex society, to improve and sustain a process of subsidiarity, by which all organisational systems are concerned: formal and informal; social and institutional; individuals, families, local communities, businesses, local authorities and those at a higher level, etc.

Subsidiarity involves societal and individual roles as they are performed in space and time dimensions, by institutions and populations aimed at mediating differences, rights, obligations and interests.

To take care of themselves

Plato in "The Republic" and other writings stressed the importance of direct participation of citizens to governance through the "polis". In his opinion, laws and mores developed by citizens themselves are more likely to be understood and followed.

Even though Plato introduced this concept, he distinguished between those who should take part in all decisions (the impartial and wise philosophers etc.) and those who should not participate (ordinary people who have intellectual limitations and are influenced by their personal interests; women, at that time, were considered less than ordinary people).

Many centuries later, Alexis De Tocqueville (1835-1840) observed that citizens respect laws which they themselves help to create and administer. He argued against "the partisans of centralisation" who "are wont to maintain that the Government directs the affairs of each locality better than the citizens could do it for themselves; this may be true when the central power is enlightened, and when the local districts are ignorant; when it is as alert as they are slow; when it is accustomed to act, and they to obey"... "But I deny that such is the case when the people is as enlightened, as awake to its interests, and as accustomed to reflect on them".... "I am persuaded, on the contrary, that in this case the collective strength of the citizens will always conduce more efficaciously to the public welfare than the authority of the Government. It is difficult to point out with certainty the means of arousing a sleeping population, and of giving it passions and knowledge which it does not possess; it is, I am well aware, an arduous task to persuade men to busy themselves about their own affairs; and it would frequently be easier to interest them in the punctilios of court etiquette than in the repairs of their common dwelling".

More or less thirty years later, the Bishop of Mainz (Ketteler, W.E., 1924) wrote about the subsidiarity right as a simple principle, according to which each individual must be allowed to personally exercise his own rights when he is able to exercise them; he acts freely within his sphere and has the right of the most free self-determination and self-governance.

Pope Pius XI (1931) declared, as one of the most important principle of the social philosophy, that it is illicit to take away from the individuals what they can do with their own forces and their activities and to devolve this power to the community.

According to Mahatma Gandhi (Fisher L., 1982), "No society can possibly be built on a denial of individual freedom", while reason and openness are at the basis of the mutual social relationship. Indeed, he wrote "We shut the door of reason when we refuse to listen to our opponents or, having listened, make fun of them", and he admonished "Always keep an open mind". Following Hindu philosophy and tradition, he thought that self-government could be not obtained without self-control for the individual. In his opinion, personal morals and (individual and collective) ethics were the roots of change. He wrote, "swaraj is a sacred word, meaning self-rule and self-restraint, not freedom from all restraint which 'independence' often means"; thus he stressed the need for individual commitment, action and personal change (Ranchor P., 1994; Gandhi M. K., 1982).

In fact, subsidiarity is a general concept which refers to the relationships between actors (the One and the Many) revealing different styles of governance.

Even though subsidiarity seems to be a word conceived by the Western civilisations, its basic principles are present in other philosophies and mysticism (e.g., Buddhism, Hinduism, Gandhism): self-government, self-improvement, individual responsibility for oneself and for society, compassion and individual commitment, societal and individual action and change, etc.

These principles are present in both the ancient and recent past, in texts related to the relationships between individuals and their social organisations. Aristotle, Thomas Aquinas, Locke, Tocqueville, Proudhon, Jellinek and others discussed and wrote on these topics.

One of the most recent and well known definitions of subsidiarity comes from the catholic social doctrine (Pope Pius XI "Quadrigesimo Anno" encyclical - 1931), but its etymological origin can be found in the Latin military language: "subsidium" which indicated the reserves (the supporting troops). Their support to the front lines is temporary. If reserves substitute definitely the front lines, it means that the security of a country is deeply endangered. Pius XI used specifically the terms "subsidium afferre" and "subsidiarii officii" to characterise the temporary role of support which a larger and higher society (or body) should have to not destroy and absorb those which are smaller and lower.

Subsidiarity is nowadays gaining ground as a common understanding and a process orientated towards some basic principles (Pastori G., 1997; Attanasio R. M. *et al.*, 1997; Papa E. R., 1995):

• the responsibility of individuals and/or smaller social groups to take care of themselves should not be hampered;

• higher or bigger organisations can intervene only when and where the lower or smaller scales do not have this capability;

Levels and scales

Scales, territorial scales, have always been of critical relevance. The Greeks were aware that if the polis becomes large, participation and involvement of citizens become too difficult to be assured.

De Tocqueville (1835-1840) explained the reasons why "the town, or tithing, as the smallest division of a community, must necessarily exist in all nations, whatever their laws and customs may be" ... since ... "the activity of the township is continually perceptible; it is daily manifested in the fulfilment of a duty or the exercise of a right".

Mahatma Gandhi believed that "village republics" were the basis of democracy. In 1924 he started his movement in favour of ideal system of village, declaring that "India lives in her villages, not in her cities". According to his point of view, independence should have begun from the bottom upwards and the role of the village was crucial (Ranchor P., 1994).

• the subsidiary role of higher or bigger organisations must be temporary in nature; their basic commitment must be to allow individuals and/or minority groups to provide for themselves, to attend to their needs; that is to develop self-management, self-administration and self-governance, by means of empowerment and capacity-building;

Empowerment

As De Tocqueville (1835-1840) wrote, small scale constitutes a whole in itself and a part of larger organisms. If small scale, e.g. a town, is fully recognised as basic unit of power, it is independent and free, citizens are fully attached to it, and they practise "the art of government in the small sphere within his reach", whilst "However enlightened and however skilful a central power may be, it cannot of itself embrace all the details of the existence of a great nation. Such vigilance exceeds the powers of man".

Pius XI (1931) recognised that historical circumstances made it necessary that many affairs can no longer be managed by small associations, but he underlined the role of individual and collective self-governance, writing that the natural object of any intervention of the "society itself" is to help individuals and communities in a supplementary manner ("the assemblies of the social body") and not indeed to destroy them and absorb them.

• all levels of society should improve the relationships between the private and public sides, giving to individuals and their communities scope to organise and manage public functions by themselves;

Private and public

De Tocqueville (1835-1840) underlined that "When a private individual meditates an undertaking, however directly connected it may be with the welfare of society, he never thinks of soliciting the co-operation of the Government, but he publishes his plan, offers to execute it himself, courts the assistance of other individuals, and struggles manfully against all obstacles. Undoubtedly he is often less successful than the State might have been in his position; but in the end the sum of these private undertakings far exceeds all that the Government could have done"... "the duties of the private citizens are not supposed to have lapsed because the State assists in their fulfilment, but every one is ready, on the contrary, to guide and to support it. This action of individual exertions, joined to that of the public authorities, frequently performs what the most energetic central administration would be unable to execute".

Pius XI (1931) stated that it is necessary that a State devolves to smaller and lower associations the responsibility for affairs and social cares, concentrating its role on strategic tasks.

Ghandi (Ranchor P., 1994) wrote on life as a whole constituted by the combination of outward and inward change, external and internal transformation, private and public interrelationships (e.g. groups could behave non-violently only if individuals do).

• organisational systems should provide and assure flexibility and adaptability, in both vertical and horizontal directions, in order to give cohesion between their members; this means adopting a style of "multi-level governance", where vertical relationships between higher and lower levels, larger and smaller dimensions, are conceived and managed in a horizontal way, respecting authoritative roles according to a value added scale.

Multi-level governance

Small dimensions with their power are useful to deal with local problems and to co-operate with larger dimensions in managing overall affairs. The different role of the dimensions should not be determined by hierarchical reasons but by effectiveness and functional transparent allocation of powers. ·

In this sense can be understood what Pius XI (1931) pinpointed writing that it is unjust to entrust a larger and higher society with what smaller or lower communities can do themselves. For this reasons, it is necessary that the State entrusts minor and lower associations with their own affairs and cares while the State's duties relate to those that only it can manage in conformity with the principle of supplementary function of the social activity.

A similar orientation can be discovered in the Bishop of Mainz (Ketteler, W.E., 1924), who wrote that, in his opinion, the State is not a machine but a living organism with living limbs, in which each member has his own right, function and unfolds his own free life. Only when the lower member of this organism is no able to meet his own aims himself or to face by himself danger that jeopardises his development, can the higher member intervene in favour of the lower one.

De Tocqueville (1835-1840) recognising that the township has in itself an indestructible element of independence, underlined how "all the townships united have but one representation, which is the State, the centre of the national authority: beyond the action of the township and that of the nation, nothing can be said to exist but the influence of individual exertion. The township and the county are therefore bound to take care of their special interests: the State governs, but it does not interfere with their administration. Exceptions to this rule may be met with, but not a contrary principle".

According to Gandhi, the village should have been a republic with full power; life should have been an oceanic circle with at its centre the individual, while the village was at the centre of the circle of villages. He described the ideal Indian village (1942) as follows: "It is a complete republic, independent of its neighbours for its vital wants, and yet interdependent for many other wants in which dependence is a necessity" (Fisher L., 1982).

SQM represents a management philosophy of change

A two-century civilisation started from the Western cultures based on rationality and on "an instrumental orientation towards the domination of physical nature" (O'Neill J., 1995) and nowadays a new process of civilisation seems to have appeared based on a multidimensional integration between cultures (both current, from the past and for the future) and also upon the universal meaning of the reconciliation between humanity and nature (Morin E., 1994).

Sustainability can be considered both as a new vision (of development and civilisation) and as a methodological way to affirm that vision. This vision is embedded in the above reconciliation, the methodological way in the related ethical points of views (missions).

An ethics of sustainability will clearly be constituted by means of a fusion of universal principles and local moralities; and, given that ethics depends on culture, it can be evaluated for its contribution to the growth of knowledge of humankind in its adherence to the other living organisms and the nature as a whole.

Sustainability seems to contribute to paradigmatic shifts in respect of the unity of three different basic values which have constituted the prevalent civilisation of the modern and industrial age: freedom, equality and brotherhood. They were different because, freedom can act against equality

and brotherhood as each of them can act against the others. They were united to act as a dialectic combination.

Sustainability seems to progressively move towards the unity of the other three basic values: from equality to equity; from freedom to subsidiarity; from brotherhood to solidarity.

These principles open up new paths for a global civilisation based on human wisdom and basic values, which can determine a new constitutional pact within various social dimensions and levels. This constitutional pact depends on the actors, on their perception of the new values, on their culture, on the degree in which these values are shared among and within the international, national, regional and local social communities.

Considering the main elements of the above transition, SQM could be an instrument which helps strategic thinking and a new management philosophy of change. In fact, with its 10 orientation components, 16 local key factors of social potential and 6 transformation levers of dynamics, SQM contributes to discover:

• a new kind of "solidarity" between human beings and all the other living beings and the nature as a whole; the tasks are "to conserve the greatest possible number of ways of interacting with the environment if we are to maximise the chances of survival, both of our own species and those with which we share the planet" (Milton K., 1996);

• how to qualify "equity"; the tasks are to open and assure equal opportunities between different conditions, times and spaces;

• how to qualify "subsidiarity"; the tasks are to open and assure freedom and autonomy within a process of participatory democracy and social cohesion.

European Commission

FROM ECOSYSTEM RESEARCH TO SUSTAINABLE DEVELOPMENT

Towards a new paradigm for ecosystem research

Edited by
Mario Catizzone

Directorate-General
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Cataloguing data can be found at the end of this publication.

Printed in Belgium

PRINTED ON WHITE CHLORINE-FREE PAPER

Preface

In 1992 the Rio Conference focused the world's attention on the environmental risks for the Planet, in order to provide a better perspective for future generations. This human concern was synthesised in two words: "Sustainable Development". These words provide a unique aim to researchers, decision-makers, professionals and the public. Regretfully only in the event of huge natural catastrophes does public opinion become more aware of the importance of ecological research. Floods (last year in Algarve, Oder, China, ...), fires (South East Asia), hurricanes and typhoon storms (Central America) have aroused the attention of the public more than the resolutions of international symposia. Words such as El Niño, ozone layer, greenhouse effect, acid rain, reduction of CO_2 in the atmosphere, etc. have become household names. Very few people appreciate that these words are the results of the impressive endeavours of researchers through their unsung activities.

The European Union after Rio acted to integrate the concept of "Sustainability" in its policies. Also the EU "Environment and Climate" research programme incorporated this principle in its activities and consequently joined the international effort aimed at solving the environmental problems linked to Global Change. European researchers were thus encouraged to focus their activities on research into technologies and social issues relating to the environment. The impressive European research effort produced significant results and raised Europe's international profile, allowing it in some cases to assume world scientific leadership. Moreover the European Commission attempted to facilitate dialogue with a view to establishing bridges within disciplines and between the players concerned. EU researchers dealing with biophysical elements of the ecosystem stated the importance of reporting their data and analysis to identify users. This same recommendation was made by the socio-economic researchers. The main issue is that the environment, ecosystems, natural resources and biological diversity are the basis and also the limits of economic and social development. They need to be managed in a sustainable way, and the conceptual scientific framework has to link human, natural and management sciences.

Capitalising on the scientific results and on this embryonic dialogue, new research dimensions have to be identified and a new scientific challenge emerges: how to solve the gaps existing between disciplines and sectors to create a common "platform" for understanding environmental issues. Further research activities are also needed to transform public awareness into actions able to promote sustainability and sustainable development.

The time has come to make a further effort to create a common context in which research activities may find their place and constructive role. The Fifth Framework Programme of the European Commission constitutes the basis for this effort. It can be affirmed that the attempt to link research and policy has found an opportunity for success in this new Framework Programme. The EU specific research programme "Energy, Environment and Sustainable Development" will facilitate the creation of an integrated holistic paradigm. It will permit a convergence and an evolution of the ecosystem research approach towards its incorporation in the international effort for sustainable development.

The task of building a new opportunity for ecosystem research to implement pragmatically the concept and principles of sustainable development is not an easy one. The present book is one way of widening the existing debate. I start from the assumption that the authors wish their articles to be openly discussed and criticised and not merely read. These articles should facilitate the understanding of emerging ideas and concepts and at the same time focus attention on doubts, questions and possible paths of convergence.

Bruxelles, February 1999

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