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**SUSTAINABLE DEVELOPMENT OF EUROPEAN
CITIES AND REGIONS:
A CONCEPT FOR LOCAL AND REGIONAL ACTORS
(SUDECIR)**

SUMMARY FINAL REPORT

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I. OBJECTIVES

Derived from scientific theory and refined by practical experience, the SUDECIR project aimed to develop and test an approach for assessing the sustainability of a given region, for identifying those sectors that are most important for sustainable development, for ensuring the public education and participation necessary for the development of appropriate action, for setting priorities and tracking progress toward sustainable development, and, crucially, for the periodic review and revision of appropriate strategic action plans.

The primary objective of the SUDECIR project was to develop a (bottom-up) analytical concept, a model of participation and an associated set of instruments which, when applied to a well-defined region containing one or more population centres, would produce for that region a clear and concrete planning methodology for sustainable development.

The research concept envisioned by this project has provided urban and regional planners, other experts and stakeholders involved, with an analytical tool with which to identify, for their own region, the potential benefits, likely problems and sectors most suitable to become driving forces for the sustainable development of that region.

Case studies have been carried out in three regions in order to test and refine the SUDECIR approach, and a manual has been prepared which other regions can use to identify priority sectors and develop a sustainability plan, following the same procedure developed under the SUDECIR project.

II. METHODOLOGY

Here one must differentiate between: 1) the methodology of the project that permitted the research team to achieve the project objectives, and 2) the methodology or process that was developed by the research team as a tool that can be used by regional authorities to elaborate regional sustainable development plans. The latter methodology will be presented below under "Results".

II.1. Project methodology

In the first case, the scientific methodology of SUDECIR is a multi-disciplinary approach based upon an integrated concept for regional sustainable development - a region comprising one or more urban areas and the surrounding rural area:

- A region consists of both urban and rural areas which are interrelated by economic transfers, matter-energy flows, and reciprocal social and political functions.
Considered as a geographical unit, a "region" may include one or more population centres, but does not exceed the boundaries of a state in a federal system.

An assessment of different of theoretical approaches led the team to a working definition of regional sustainable development which consists of the following aspects:

- Sustainable development is a global, political answer to the global problems of environment, (under)development and threats to peace.
"In essence, sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations".

The SUDECIR methodology addresses technology, structure and culture or, in other words, scientific and technical, economic and socio-cultural issues simultaneously, against this background. Regional initiatives alone cannot solve the global problems, but their contribution can be of crucial importance.

- Regional sustainability can be achieved ecologically if a region flourishes within its ecological carrying capacity.

- With regard to the social and political dimension, the support of bottom-up approaches according to the subsidiarity principle is a key feature of regional sustainable development.
- Regarding all three of the above dimensions, a reference system of some sort must be put in place to measure progress and improvements.
- Regional sustainability planning should be an ongoing process towards a common 'vision' and not a once only exercise that ends with an over all regional sustainable development plan.

II.2. Specific research phases

Note: The main products of the SUDECIR project are a scientific Resource Book (RB) and a practice-oriented Development Manual (DM). In addition, several internal Background Documents (BD) were produced. In this report, a reference such as RB9 refers to Chapter 9 of the Resource Book). These are available on request to the co-ordinator.

The specific research carried out during the project period May 1996 - October 1998 included the following steps:

II.2.1. *Evaluation of existing theoretical approaches and real-life projects*

Starting with the above working definition of regional sustainable development, the project team selected and analysed 12 ongoing or recently completed regional or urban projects in Europe, Canada and USA, that included at least some of the aspects of sustainable development (RB12; BD). Each project was evaluated through a standard process to facilitate comparison, and to draw lessons for our integrated approach. The evaluation of each project was structured in three main parts:

- the region-focus on the characteristics of the regional setting for the project;
- the project-focus on the characteristics of the project itself; if possible, again, in terms of its economic, social and ecological dimensions; and
- project sustainability-if it is far enough advanced, focus on the success of the project as concerns sustainability

II.2.2. *Developing the concept of regional sustainable development*

The most critical task of this work programme was the concept development. The proposed SUDECIR concept is novel from the viewpoint of its theoretical background of regional sustainable development, its comprehensiveness (ecological, economic and socio-cultural dimensions), its target groups (local and regional stakeholders as well as planning experts) and its strong focus on consensus seeking.

Based upon the prior experience of the research partners, the underlying theoretical approaches, the evaluations of real-life projects, and various background papers (notably a key paper produced by the research team on sustainability and its translation from global imperatives to regional realities; RB2-4), an intensive discussion among the project partners and their scientific peer reviewers revealed some fresh and innovative ideas concerning the next project phase-the development of an analytical concept for the empirical analysis of regional sustainability.

II.2.3. *Case studies*

Case studies were carried out in three different Member States of the European Union (EU) (Feldbach Region in Austria, Trier Region in Germany, and the Island of Rhodes in Greece; RB7-9;BD) in order to:

1. apply the analytical concept and test its usefulness for different kinds of regions where different sectors of the economy are the dominant ones. It should be noted that several different analytical modules were developed within this concept, although it was not intended that all modules be applied in each of the three case studies. Modules were selected, as appropriate, and applied with flexibility in support of the core effort of fully developing the analytical concept, consistent with SUDECIR research objectives;
2. develop concrete options for action in close co-operation with the regional actors, and suggest an implementation process;
3. indicate to what extent policies of the European Community, national or regional authorities establish incentives for, or erect barriers against, regional initiatives towards sustainable development (regional policy, environmental policy, international trade agreements, *etc.*; RB11);
4. provide empirical support for a SUDECIR workshop including an interdisciplinary discussion of the results of the three different case studies, to feed into the framework below.

II.2.4. *Elaborating the SUDECIR Framework for Sustainable Regional Planning*

Based on case study results of the application of different modules of the SUDECIR concept, as well as the Rhodes and Brussels workshops and other peer review, the project's framework for sustainable regional planning was finalised. This has been extensively described and motivated in the Resource Book (RB6) and compiled as the Development Manual: a guidebook and toolbox for local and regional authorities, planning experts, and others, and covers the following aspects:

1. it provides theoretical and practical support for regional and local authorities, proposes regional sustainability criteria, and demonstrates why regional sustainable planning projects are not only necessary but beneficial for the community;
2. it discusses the importance and various methods of stakeholder participation;
3. it describes the SUDECIR concept for the analysis of the sustainability of regions, identification of key sectors, setting development priorities, *etc.*;
4. it provides information resources for sustainable project development at the regional level.

III. MAIN RESULTS

In this section, the main results and/or outputs of the SUDECIR research project are listed. Whereas SUDECIR is a scientific research project and the results have been formulated accordingly, they may look rather 'theoretical' at first sight. However, the ultimate goal of the work was a methodology of high practical applicability and the case study have proven its value. To illustrate the latter, indications of practical applications follow several results in italic print and preceded by an arrow. In addition, we refer to section 8.

The results include:

1. Evaluation of the most promising theoretical approaches, as well as actual projects, concerning urban and regional sustainable development, and description of key elements (RB2 and 12; BD).
→ *useful suggestions to improve initiatives and programmes at various levels;*
2. Development of a concept for the analysis and improvement of regions under the holistic perspective of sustainable development, including:
 - development of a theoretical framework for regional and urban sustainable development (RB3 and 4);
→ *an innovative approach, departing from a 'strong' definition, integrating environmental, economic and socio-cultural concerns and presenting concrete criteria and indicators. A simplified and accessible description for local and regional stakeholders is provided. (DM2);*
 - identification and examination of problems and opportunities in different sectors of the regional economy;
→ *the methodology is easily applicable with help of data sources and questionnaires in Development Manual; it is also suitable for project and funding evaluations and is already applied as such by a regional authority outside the case study areas. Efforts will be made to develop a manual for this application;*
 - options for action towards sustainability under actual supra-regional conditions;
→ *sustainability planning is less complicated than usual and results in a more continuous, monitored development process;*
 - initiation of steps towards implementation of recommendations for key sectors in each case study region.
→ *the key-sector approach is cost effective and leads relatively quickly to encouraging results, whereas it focuses on the most promising sectors. Several case study regions have expressed their intention to continue the SUDECIR process on their own. Other regions have expressed interest or have already embarked on similar approaches. Several suggestions for wider application were received from the scientific community;*

3. Development of participation models, depending on cultural aspects of the region in question (RB6).
→ *the models are widely applicable and are well suited for several 'Actions' mentioned in "Sustainable Urban Development in the European Union: A Framework for Action";*
4. Introduction of the concept of "Regional Management Systems" for sustainable development, having the aim to implement the vision and programmes within a specific time horizon and to establish a process of continuous improvement (RB6).
→ *the concept integrates and extends existing initiatives and instruments (Local Agenda 21, EMAS, etc.) and is already successfully applied by a regional authority;*
5. Completion of three case studies in order to test the SUDECIR concepts (RB7-9; BD).
→ *the methodology proved its value and viability as such, but was also enthusiastically received by the local stakeholders. In most regions the process will be continued by local actors and the suggestions will be partly implemented. As stated, several suggestions and requests for similar activities in other regions were made; some of them are in progress or preparation. The experience obtained in the tourism dominated island of Rhodes is now applied by the Mediterranean Commission for tourism;*
6. Presentation of an initial analysis of the city-hinterland relationship and allocation of responsibilities (RB5).
→ *the novel SUDECIR view that a city and its 'hinterland' are inseparable, and should be considered as such in sustainable development planning, has recently been adopted by the EU Group of Urban Experts;*
7. Preparation of a Resource Book (RB) and Development (guidance) Manual (DM) for local authorities and interested individuals to be able to understand and implement the SUDECIR approach.
→ *the preliminary editions are currently under review of external experts. First reactions are positive.*

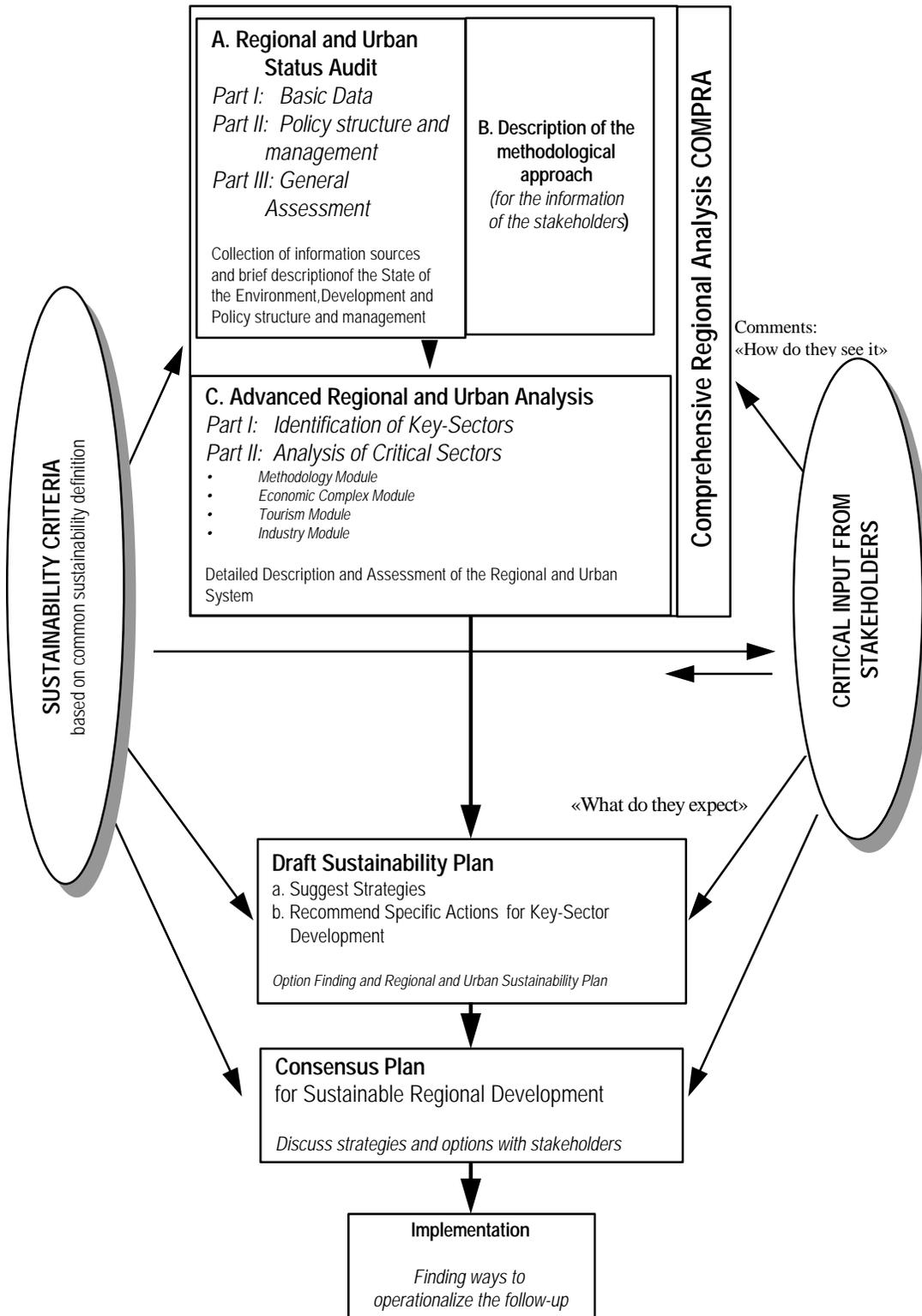
III.1. Evaluations of other projects and approaches

The SUDECIR team selected and evaluated 12 existing "sustainability" projects according to consistent evaluation criteria established by the team, in order to better understand the methodologies used, and to take advantage of the experience of these projects to contribute to the SUDECIR approach (RB12, BD).

III.2. Developing the SUDECIR analytical concept

The development of the SUDECIR concept proved to be complex, eventually including all of the elements shown in the following diagram, which are described in detail in the Resource Book (RB6):

SUDECIR PROCESS DIAGRAM



III.2.1. *Elaborating criteria and parameters of regional sustainable development*

The SUDECIR team produced a sustainable development document that supplements the theoretical background to the project by identifying sustainable development objectives at the global level, and translating them to the regional level. (BD; RB2-4)

III.2.2. *Developing the analytical concept-analysis of cities and regions*

Status Audit-the SUDECIR team developed a methodology for a “preliminary regional and urban audit” for a region being analysed, which provides a general overview of the current situation of the region, and especially identifies those areas where further detailed analysis is required in order to carry out a proper sustainability analysis of the region. The team also arrived at a consensus on the framework for the advanced regional and urban analysis, which leads directly to the identification of key sectors for attention in the subsequent regional sustainable development strategy.

Identification of Key-Sectors-as resources are limited, it makes sense to reflect where you can use them most efficiently. In regional sustainable development, this implies the identification of those critical sectors in which available means will likely contribute most to regional sustainability and thus have the greatest potential to motivate the stakeholders. The SUDECIR project developed a methodology for identification of key-sectors (material flow analysis for industry; sustainability indices, *etc.*) and tested it, whereby it proved to be directly relevant and valuable for regional and urban analysis.

Analysis of Key-Sectors-having selected the regional sector(s) that have the highest potential to be developed in a sustainable way, the next step is to analyse them more precisely to identify strategies and paths towards their sustainable development. The SUDECIR team elaborated a method of carrying out this analysis. Three different modules for the analysis of different kinds of key-sectors were developed and applied in the case studies. Furthermore, the method compared the present state of development of the sector with the sustainable one, *e.g.* by determining the carrying capacity of the region for the activities of the sector in question.

III.3. **Integrating partnership and public participation aspects**

A well developed method of participation of all stakeholders in the sustainability debate (development of a “**Leitbild**” or **vision**) and the subsequent strategic planning (**programme development**) is an element *sine qua non* of the SUDECIR process. At the same time, public participation or stakeholder dialogue is a dynamic process, that simultaneously informs and empowers all key actors.

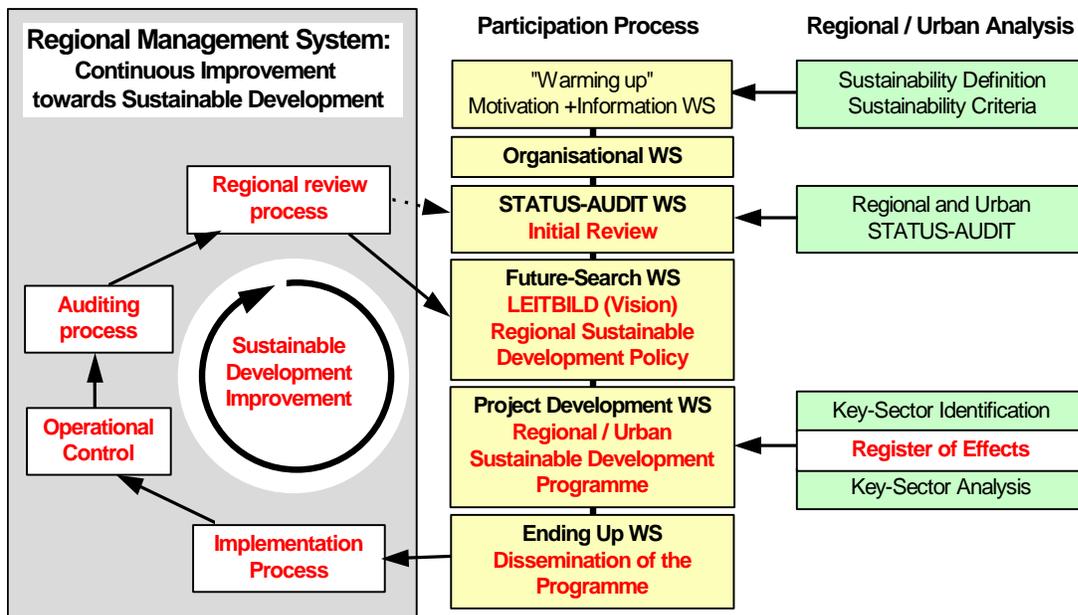
After an extensive assessment of alternative participation processes, several of which were tested in the case studies, the SUDECIR team determined that the type of process is not nearly so important as, that it is adapted to the character and culture of the region and individuals involved.

III.4. **A Regional Management System for sustainable development**

The three SUDECIR case studies permitted different methodologies to be tested and, in the end, sustainability projects (still ongoing) were initiated. However, the SUDECIR team cannot be expected to accompany the regional actors during the entire development process, which is necessarily long-term. We therefore conceived of an additional element that would make the SUDECIR process self-sustaining and at the same time ensure continuous improvement. It is designed to be built on, integrate and complete any previously elaborated sustainable development or similar strategy (*e.g.*, Local Agenda 21, Integrated Coastal Zone Management (ICZM), *etc.*), and may be implemented in any region/city that has developed such a programme. We refer to this additional element or module as a Regional Management System for sustainable development (RMS; RB6).

The idea of the RMS is based on the well known and successful Environmental Management System for companies (EMAS or ISO 14001), and adapted in this case to the regional/urban level.¹ Despite the fact that there are substantial differences between a *region* system and a *company* system, the basic idea remains the same. The following figure describes the structure and the implementation process.

¹ Interestingly, the “EMAS II” version of the European Commission’s *Draft Proposal for a Council Regulation Allowing Voluntary Participation by Organisations in a Community Eco-Management and Audit Scheme* (November 1998) strongly encourages municipal and regional authorities to apply EMAS to their regions of responsibility.



SUDECIR Regional Management System for Sustainable Development (RMS)

III.5. Testing the SUDECIR concept through concrete case studies

The SUDECIR team carried out three case studies in order to test the principles and concepts and refine the methodology developed above.

III.5.1. The industrial complex of the Feldbach region (RB7; BD)

The selection of this case study region is justified by the fact that the region of Feldbach has the near-term goal to become an 'Ecological Model Region' in Austria, as well as in Europe over the longer term. Various initiatives of the local administration, regional planners and an 'ECOFIT-Project team' have been the basis for several projects concentrating on the topics of sustainable development in this region, (co-)funded by DG XII of the European Commission. In other projects the region is involved as part of a larger study area.

The Feldbach region case study tested two important parts of the SUDECIR process:

1. some important elements of the Status Audit of the Feldbach region and
2. the selection of its Key Sectors by a variety of analytical methods, and comparison of the results.

III.5.2. The Trier Region (RB8, BD)

The region around the German city of Trier, is not dominated by one economic sector. As revealed by the Comprehensive Regional Analysis, no single sector is responsible for even 10 percent of regional GDP. Two of the regional key-sectors in terms of economic and ecological problems and potential are forestry and timber processing and for agriculture and food production. Subsequently, on the basis of the Key Sector Analysis, it was decided that the in-depth study of the timber sector, already identified as a key sector, would be supplemented by an exploration of the potential for sustainable development of two smaller initiatives from the agriculture and food processing sector:

regional marketing in the community shop in Berglangenbach, and the project "Short Ways for Large-Scale Kitchens".

III.5.3. Tourism on the Island of Rhodes (RB9, BD)

For the Island of Rhodes, the sector of tourism is the most important source of income for the entire region. As in the whole Mediterranean region, the importance of tourism in Rhodes shows up the serious conflict between its expansion and overwhelming economic importance, and the preservation of the often fragile natural and cultural capital on which tourism relies for its success.

Important elements of the SUDECIR methodology tested in Rhodes

- the identification and optimisation of the basic and specific data sources (e.g., the Coastal Area Management Programme CAMP) of the Mediterranean Action Programme of the United Nations' Environment Programme MAP/UNEP, 1996);

- the use of these data in the regional audit and the Advanced Analysis, including the analysis of the key sector (tourism and related activities comprise more than 70% of the GDP of the region);
- the carrying out of an extensive survey among stakeholders and other inhabitants to define their assessment of the present development modes and their expectations and vision;
- the elaboration and use of the carrying capacity approach as a guiding tool for determining the future desirable potential of the region;
- the carrying out of a series of meetings and consultations with all stakeholders in order to identify future steps and actions, including the setting up of a Steering Committee.

III.6. Developing the city-hinterland relationship

The term *sustainable city*, in a narrow sense, cannot be defined in any realistic way and should therefore be understood as a metaphor. A city is but a subsystem embedded within the larger regional system. Sustainable development of a city is therefore not possible without taking the realities of the whole region into account, in other words **the city and its hinterland**.

Likewise, in the larger context, when one considers only a subsystem of the anthroposphere, it is of crucial importance to study the interactions between the subsystem and larger systems that include the subsystem. *E.g.*, when we work on sustainability concepts for urban areas, it is necessary to distinguish between the responsibilities of the city-hinterland system as well as those of larger systems such as the nation-state. This relationship was developed in a ground-breaking paper by the SUDECIR team in order to help define the limits of the SUDECIR analysis (RB5)

III.7. Producing a Resource Book and a Development Manual

Two documents of particular appeal to scientists and planners, regional authorities and interested members of the public have been produced during the SUDECIR research project. A Resource Book (~250 pages) explains in detail for the specialist reader all aspects of the research carried out, and its application to regional sustainable development. A Development Manual (~150 pages) describes in less detail for more general public consumption the relevance of the team's work to regional sustainable development. More important, however, is that it presents all the tools for practical application of the methodology in great detail (data sources, questionnaires, *etc.*).

IV. SCIENTIFIC INTEREST AND NOVELTY

The **novelty** of the SUDECIR approach can best be illustrated by a comparison to other locally-oriented projects on sustainable development:

In spite of their names, many existing projects are in fact focused on environment protection rather than sustainable development. They concentrate from the very beginning on single sectors of the economy (*e.g.*, energy use, transport, tourism), or on specific aspects of (the environmental component of) sustainable development (*e.g.*, indicators for resource use, technological efficiency increases, *etc.*), generally failing to pay adequate attention to the development and societal stability dimension, as well as the social and political aspects which strongly influence the implementation process. SUDECIR integrates all of these different aspects (and even the subjective assessments of the prevailing situation by various stakeholders of the region) into a coherent framework for comprehensive regional analysis, starting with a consideration of the regional economy as a whole.

Existing projects on regional (sustainable) development concentrate largely on local options for action, but usually leave out the question of exchange transfers between an urban area and its surrounding rural area.

As mentioned above, our work on the city-hinterland relationship explores uncharted territory. Although the EU Group of Urban Experts, in their 1998 response to the 1997 Communication of the European Commission, '*Towards an urban agenda in the European Union*' (RB11), now seems to share the teams' view that the hinterland is relevant, it is still not commonly accepted, and even less commonly explored. The question of the allocation of responsibilities between an urban area and its hinterland, where SUDECIR has made a significant contribution to the scientific debate, is a topic of increasing interest to expert groups.

The SUDECIR regional sustainable development process insists on the prior establishment of a direct link between sustainability theory and practice, and between global sustainability criteria and regional strategies. This

connection is not made in Local Agenda 21 projects, for example. Moreover, in cases where the theory is better developed, adequate efforts have not been made to adapt it to real-life applications.

SUDECIR includes an assessment of how policies at the supra-regional (Federal, European Community, *etc.*) levels promote or inhibit regional efforts towards sustainability, since these higher-level policies play a crucial role in determining whether the implementation process will succeed (RB11).

SUDECIR provides a framework for identifying the *key sectors* which should be priority focuses of attention as they are critical in promoting the needed practical “changes”. This is in accordance with the rather unorthodox SUDECIR idea that sustainable development must be an ongoing process in which concrete activities and public education go hand in hand. Such a process is better served by a first step, that produces results in a relatively short time and is then followed by further steps, than by an attempt to draft a once-only, all encompassing Regional Sustainability Plan.

SUDECIR provides an innovative combination of a participation process and expert planning. The concept indicates how expert analysis of regional systems can accompany a public participation process, the development of a vision and the elaboration of an implementation programme toward sustainable development.

SUDECIR provides a method for assessing projects and development options in the perspective of sustainable development (Interactive Sustainability Assessment, or ISA; RB8).

SUDECIR demonstrates the importance of integrating into the development process a Regional Management System (RMS) for sustainable development, which draws from the draft EMAS Recommendation of the European Commission. An RMS will ensure that the vision and the programme developed in the region can become a process of implementation and of continuous improvement (RB6).

Innovative methods of public participation and consensus building have emerged from the extensive work of the partners on their case studies, *e.g.*, surveys, roundtable, public discussions, assisted consultations, *etc.* (RB6), which are also highlighted in a comparative analysis of the three case studies (RB10). Innovative elements are also introduced in conjunction with, *e.g.*, the Rhodes carrying capacity model and assessments (RB9).

V.. POLICY RELEVANCE

V.1. Implications with policy relevance

The important implications of the above research for policy-makers seem evident to those working in the field. However, the team has encountered many regional authorities for whom these points are not so evident, and still more for whom their integration into the planning process is not at all clear. SUDECIR research will bring the following areas, among others, to the direct attention of policy-makers:

- the need for a long-term (sustainable) perspective and/or objectives at the regional level; such objectives must either be fixed or strongly encouraged by policy-makers;
- the common lack of understanding, resources and support from policy-makers for the bottom-up approach, which has been demonstrated to be critical;
- the plethora of barriers and constraints of all sorts at all levels that play such a crucial role in determining whether the implementation process will succeed;
- the realisation that any integrated regional development plan worthy of the name must necessarily be a *sustainable* regional development plan;
- an appreciation of the enormous importance of the social, cultural and political factors surrounding sustainable development, together with a novel framework for addressing them.

Because of the special influence of *EU-level* programmes, legislation and activities on the development of *European* cities and regions, an entire chapter of the Resource Book (RB11) is devoted to the potential role of the EU in the sustainable development of cities and regions. The most relevant EU policies and trends are discussed, both in the areas of legislation and funding, and a critical assessment and recommendations are made.

During the project, the team confirmed that the flexibility and modular character of the SUDECIR methodology has not only been successful in the case study areas (all of the partners wish to continue the process), but that it also has (potential) relevance to:

- many of the problems of integrated coastal zone management, ICZM;
- the importance and applicability of an EMAS type of auditing and control system for regions, which is specifically promoted in the Commission's recently proposed *EMAS II2*;
- the crucial role of regional surroundings to any urban conglomeration;
- the special problems of islands;
- key issues on public awareness and participation raised during the December 1997 UNESCO Conference on Education for Sustainable Development (Thessaloniki, Greece) and the framework of the Mediterranean Commission for Sustainable Development (MCSD), where several relevant aspects of SUDECIR have been presented;
- planning and decision making in countries with a relatively limited experience in public participation (Southern Mediterranean, Central Europe);
- establishment and management of EU funding programmes

An extensive presentation of these and other findings, combined with recommendations for different policy areas and institutions, is given in the Resource Book (RB12).

VI. LIST OF PUBLICATIONS

In addition to the many working papers produced by SUDECIR team members, we present additional detail of three categories of SUDECIR publication below. Further publications are foreseen.

1) In preparation

Publications

Wallner, H.P., and P.A. Maxson, 1998, "Sustainable Production Systems for Industry: Can We Get There from Here?", submitted for publication to the *Journal of Industrial Ecology*.

Wallner, H.P., and P. Eder, "Regionen auf dem Weg zu 'Inseln der Nachhaltigkeit': Eine Analyse" (prepared for the *Austrian Journal of Regional Planning*).

2) In press (accepted for publication)

Publications

Wallner, H. P., 1998, "Towards Sustainable Development of Industry: Networking, Complexity and Eco-Clusters", accepted for publication, *Journal of Cleaner Production*

"Concepts and Applications of Tourist Sustainable Development of Rhodes Island", *Sustainable Mediterranean No 11: Concepts and Brief Results of the SUDECIR project. (International Journal of Sustainable Development)*

Conference proceedings

MIO-ECSDE, "Formulating Sustainable Development Plans for the Tourism Sector: The MIO-ECSDE Methodology for Rhodes island, Greece" (International Conference: *Sustainable Development in the Islands and the Roles of Research and Higher Education*, Rhodes, Greece, 30/4 - 4/5/1998).

Sauerborn, K., M. Tischer (1998) "Environmental relief through sustainable economic use of wood", contribution to the conference: *Sustainable Development in the Islands and the Role of Research and Higher Education*, Rhodes 30/04-04/05/1998.

Sauerborn, K. (1998) „Regionale Nachhaltigkeit – Chancen der Kooperation“, contribution to the conference: *Regionale Nachhaltigkeit – Konkurrenz oder Kooperation*, Münster 13/1/1998.

MIO-ECSDE, "Attempting a Sustainable Development for Tourism in Rhodes Island, Greece-The SUDECIR project", (Conference: *Vth International Sustainable Development Research Conference*, Devonshire Hall, University of Leeds, UK, 25-26/3/1999).

2 This document, made public by the European Commission in November 1998, is formally known as the *Draft Proposal for a Council Regulation Allowing Voluntary Participation by Organisations in a Community Eco-Management and Audit Scheme*.

- MIO-ECSDE, "An Integrated Management Approach for Rhodes Island, Greece" (Proceedings of the Conference: *Education and Training in Integrated Coastal Area Management. The Mediterranean Prospect*, Genoa, Italy, 25-29/5/1998, abstract)
- Dr. Gerrit H. Vonkeman. "SUDECIR - Sustainable Development of European Cities and Regions". Presented at the international inauguration seminar of the Urban Research Centre of Utrecht University (URU): 'Cities on the Threshold of the 21st Century' (7-8 April 1998).
- Dr. Gerrit H. Vonkeman and Ir. Peter A. Maxson MBA . "SUDECIR - Sustainable Development of European Cities and regions". Presented at the Rhodes Congress *Sustainable Development of Islands and the Roles of Research and Education*, Rhodes, Greece (30 April – 4 May 1998).

3) Published

Publications

- Wallner H. P., Eder, P., 1998, Regionen auf dem Weg zu „Inseln“ der Nachhaltigkeit: Eine Analyse, *RAUM*, März 98, v29, p40-45.
- Wallner H. P., 1997, "Industrielle Ökologie - Mit Netzwerken zur nachhaltigen Entwicklung?", in: Strebel, H. und Schwarz, E. (Hrsg.), *Kreislauforientierte Unternehmenskooperationen - Stoffstrommanagement durch innovative Verwertungsnetze*, R. Oldenbourg Verlag, München, Wien.
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- Sauerborn, K. (1996) "Die Regionalisierung der Wirtschaft als Beitrag zu einer nachhaltigen Entwicklung", in *Raumforschung und Raumordnung* 54, 2/3 (March-June): 148-154, Bundesforschungsanstalt für Landeskunde und Raumordnung/Akademie für Raumforschung und Landesplanung, Bonn, Hannover.
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