discussion paper

Ruggero Schleicher-Tappeser

Ecological Regional Development in Rural Areas

The discussion in West Germany and Experiences in the "Bergisches Land"

EURES discussion paper dp-2
ISSN 0938-1805

1990
2. Auflage Mai 1991

EURES - Institut für Regionale Studien in Europa

Basler Str. 19
D-79100 FREIBURG i.Br.
Tel. 0761 - 70 44 1-0

Ecological Regional Development in Rural Areas

The discussion in West Germany and Experiences in the "Bergisches Land"

Ruggero Schleicher-Tappeser

1990

2. Auflage Mai 1991

EURES - Institut für regionale Studien in Europa e.V.
Dreikönigstr. 19, D-7800 Freiburg i.Br., Tel. 0761 - 7 59 55

Contents

1 Introduction

The social and economic decline of many rural communities and the severe ecological deterioration of rural areas call for a fundamental rethinking of current policies and development concepts. The countryside today has no independent perspective, and is increasingly functionalized for the needs of the urban agglomerations. To overcome this situation, major changes in the organization and technology of material production and a shift in the distribution of roles between cities and rural areas may be necessary. For some years there has been a discussion about a "paradigm shift" in regional development strategies toward more self-reliance oriented concepts (see e.g. Stöhr 1986). It seems promising to combine these ideas with the arguments that have been raised in the technology debate by critics of centralized and hard technologies, and with new trends in the actual development of flexible production technologies. In order to open new perspectives for rural areas, it may be of foremost importance to take a close look at the interrelationships between rural economy and the landscape, i.e. between humans and non-human nature. Moreover it seems necessary to enlarge the to which such concepts are addressed. Since fundamental problems are currently leading to a basic questioning of established ideas about development, the search for a new consensus among a large variety of regional decisionmakers about common goals and desirable perspectives seems to be more important than any short-sighted discussions about governmental policies and programmes.

This paper will begin by shortly summarizing the regional policy discussion in West Germany. It will then present three regional development projects which have attempted to find new development paths for rural areas using integrative, instead of sectoral approaches. Basic requirements and some ideas for a new concept of development will subsequently be outlined and appropriate methods for the elaboration of integrative regional perspectives will be briefly presented[1]. The last part will include some concrete proposals which have been elaborated for the "Bergisch Land", a small region in the center of West Germany. These will illustrate that with an approach as outlined previously, a new kind of regional perspectives can be developed, which could hopefully lay the ground for a broad and motivating public debate about the future of the region.[2]

---

[1] Substantial parts of these concepts have been developed together with Arnim v. Gleich and Rainer Lucas in a two-year research project called "Chances and Risks of a Need Oriented Regional Technology Policy", funded by the federal State of Nordrhein-Westfalen and directed by Otto Ullrich (Berlin) (see Gleich/Lucas/Schleicher/Ullrich 1988a,b; Schleicher/Gleich/Lucas 1988). Especially Arnim von Gleich collaborated in developing the ideas concerning rural areas (see Schleicher/Gleich 1988).

[2] These proposals have been elaborated in the research project mentioned in footnote 2, which however did not only deal with rural areas. The exemplary perspectives "Flax" and "Water" have been developed by Arnim v. Gleich.

2 Rural areas and regional policy in West Germany

2 . 1 Rural areas - heterogeneous, disadvantaged and difficult to define

The settlement structure in the Federal Republic of Germany is more decentralized than in other large european countries. Nevertheless the disparities between living standards in rural and urban areas are a serious problem which has not been tackled by the regional development policies.

With the homogenization of lifestyles and settlement structures in the course of industrialization, it has become difficult to clearly define the notion of rural areas. So it is even more difficult to conceive a convincing development concept for this fuzzy category of areas which, if characterized at all, have been negatively defined as not being part of agglomerations, not being objects of detailed planning and usually being areas of difficult economic conditions. Structural differences between various rural areas are important. It is therefore necessary to distinguish between different types. A threefold distinction has proved to be useful (Irmen/Runge 1988, Gatzweiler 1986):

- *Rural areas in the surroundings of large urban agglomerations*
  The population of these areas has access to the infrastructure and the labour market of large cities, although usually with long commuter distances. The economic conditions are therefore not too bad. However there is typically a considerable and growing dependence of such rural areas upon these large urban centers. Rural social and economic structures are gradually destroyed. Relatively good environmental and living conditions compared to the large cities lead to a continuous settlement pressure from the urban population moving out, jeopardizing the originally attractive conditions. Ecological deterioration and hazards caused by the nearby large cities may also be significant and can be due to such factors as road traffic, waste dumping, air pollution, water supply systems, energy supply systems, and recreational activities.

- *Rural areas in regions with smaller urban centers and beginnings of agglomeration*
  These areas usually have relatively good economic development conditions. Ecological conditions and economic structures vary considerably.

- *Peripheral, sparsely populated areas distant from the economic centers*
  These regions are usually characterized by a narrow labour market, weak infrastructure, and rather bad economic perspectives in traditional terms.

Distinguishing between these three types of rural areas can give only a very rough image, especially because of the heavily differing future perspectives of various agglomerations, e.g. old industrialized areas have run into critical problems that often are more serious than those of the traditionally less favoured peripheral regions.

As in earlier years also in the eighties the disparities of living conditions between different categories of regions have not diminished in West Germany in terms of a number of important indicators, such as the population structure, the labour market, the municipal revenues and educational services (Böltken/Irmen/Runge 1988). The disparities have even become more acute between the large urban centers and the peripheral rural areas.

Additionally the usual global statistical indicators lead to an underestimate of the role of agriculture and hence of the problems in rural areas. Even in peripheral regions of West Germany farmwork very seldom accounts for more than 20 percent of the total number of jobs (Struff 1988). But agriculture-related activities, usually not separately appearing in statistics, are of a much greater economic importance. Furthermore, agriculture still and inevitably plays a central role for the social fabric, the state of the environment and the cultural identity of rural areas. For many years agriculture has been in a deep crisis. Whereas at the beginning of the seventies the average income in agriculture has been comparable to that for similarly qualified work in industry, ten years later it had fallen about 30% below that value (Struff 1988). The foreseeable effects of the plans for a european internal market and for further concentration and industrialization of the agrarian sector will aggravate the economic, social, cultural and ecological problems of rural areas.

The crisis of rural lifestyles and rural living conditions is intrinsically linked to change over time in agriculture, land use and production patterns. Such a crisis is characterized, on one hand by the dissolution of old living circumstances and, on the other hand, by the creation of new ones. It does not only lead to devitalization, resignation, exodus and misery but sometimes also to new productive tensions, constructive protest and the development of self-determined productive ways of life (Schmals/Voigt 1986).

2.2 Regional planning and regional development - concepts and reality

Not only the settlement patterns but also the political structures in West Germany are more decentralized than in other large european countries. That may be one reason why there have not been virulent regionalist demands as in France or Spain. Nevertheless regional policy making and especially regional economic policy is rather centrally organized. A flood of alternative concepts in regional policy aiming at an increase of responsibility at the regional level is the consequence of the

fact that regional problems have not been solved (Stiens 1986). Not accidentally, with the formation of the large nation states, the regional level, which historically always played an important role, has especially been weakened and deprived of its power (Blaschke 1986). In spite of the legal requirements that the organization of German territory must take account of regional conditions and demands "regional policy is a regionalized version of the national economic policy and is thereby aimed at maximizing the contribution of individual regions to GNP" (Stiens 1986).

In the postwar decades of economic growth regional planning was based on central place theory. This concept was an instrument for the distribution of resources: it determined boundaries of functional areas and strengthened the functional hierarchy. The result was an increase in social costs. The district reform in the early seventies combined with the "functional reform" of the local administration was based on the same concept and produced a highly visible degree of concentration. Later the central place concept and the corresponding goal of "equivalent living conditions" was modified into the concept of "development centers" stressing more the goal of economic growth (Stiens 1986, 1987). The official aim of the federal regional policy has been called thereafter "balanced functional areas".

The unsuccessfulness of this policy became undeniable at the beginning of the eighties. Two kinds of reactions were the consequence: On one hand regional planning concentrated more and more on the control of unwanted use of space, abandoning the original developmental intention and thus concentrating more and more on the densely populated areas. On the other hand there has been a growing number of concepts which lay on stronger decentralization, especially those characterized by the catchphrase "endogenous development".

The proposals of regional researchers for endogenous development strategies have ranged from the earlier "development from below" concepts - stemming mainly from the third world development debate - (foreign representatives are Friedmann 1979, 1986, Friedmann/Weaver 1979, Stöhr 1981, 1986, in Germany: Martens 1980, Mettler-Meibom 1980, Hahne 1984), to 'compromise paradigms' stressing the necessity for allocating responsibility to the regional level (Beirat für Raumordnung 1984). All of those have met much scepticism among politicians and the planning bureaucracy to whom they were mainly addressed. Nevertheless in the last years there has been a growing interest in these concepts - also from those who hope to lower the requirements of public assistance either by mobilizing the last regional resources in order to compete for national and international markets or by just abandoning disadvantaged regions to themselves.

The traditional strategy of regional development is mainly based on the idea of industrialization by means of attracting mobile capital investments from outside of the region. It has failed in diminishing the disparities, especially since such mobility of investment has decreased from the mid-seventies. Although the importance of helping the enterprises already in place has meanwhile been largely

acknowledged, regional economic policy is still strongly favouring industrialization and orientation toward extraregional markets. Hence the main instrument of regional policy, a funding program for structurally weak regions jointly run by the single states and the federal administration[3], allows only the funding of enterprises which aim at national or international markets. one example of the consequences of this rule can be seen in the disadvantaged regions of Bavaria: There craft accounts for about the same number of working places as industry, but gets only two percent of the funding that industry acquires[4].

"Regional policy" in West Germany - at least at the federal level - is usually understood as a policy for "structurally weak", "less developed" regions, mostly peripheral rural areas and since some years also old industrialized ones. Rural areas are usually seen in terms of the functions they perform for the cities or as underdeveloped, uninteresting peripheral leftovers. Endogenous development concepts have nearly exclusively been conceived for peripheral regions, stressing the importance of a regional identity and placing rural regions in opposition to urban areas. There are no important attempts to redefine the roles of both cities and rural areas in order to achieve a more balanced complementary development.

[3] "Gemeinschaftsaufgabe Verbesserung der regionalen Wirtschaftsstruktur" see also Beckenbach 1988.

[4] Own caculations based on Bayerische Staatsregierung 1987

3 Interesting examples of integrative regional projects

Only few innovative practical attempts have been made to achieve a truly integrated endogenous regional development including rural areas[5]. Of course there has been a long series of single projects or sectoral achievements that would make sense within such an integrated framework and which are based on ideas along a similar line (especially in the agricultural sector), but they lack an integrative view and a common perspective.

In the following sections three typical integrative approaches will be presented.

3 . 1 The VER in northern Hesse - a project-oriented activists initiative

Swiss and especially Austrian models and achievements have had an important influence on local activists in west German rural areas. There have been endeavours in different federal states, which still continue, to set up activities according to the model of the ÖAR (Österreichische Arbeitsgemeinschaft für Regionalentwicklung) whose member organizations provide very successful regional project advising and organize public funding since the end of the seventies (see the paper of G. Scheer in this volume).

The most important of these attempts has been the "Verein zur Förderung der eigenständigen Regionalentwicklung in Hessen, VER" (Association for the Promotion of Self-Reliant Regional Development) (VER 1987a, 1987b). In the negotiations that led to the red-green coalition government in Hessen in 1984, under the influence of farmer organizations that were in opposition to the more established, the Social-Democratic and the Green Party agreed to subsidize small development projects that met criteria for regional, ecological and social orientation in rural areas. This subsidizing program started in 1984. A year later, as a result of conflicts between regional activists and the agricultural department, there were also funds made available for regional project advising. The VER was established as the responsible body for this function, with the support of local initiatives, environmental organizations, biological farmer associations, church representatives and university experts. Five regional advisors were working with this association until 1988, when the new Christian-Democratic government in Hesse stopped all funding for the subsidizing and for the advisory program.

[5] For a research perspective of the range of such endeavours see Tjaden 1988.

The work of the VER in this short period of somewhat more than two years was very successful. More than 70 new working places could be created and more than another 130 could be secured. The projects initiated included for example the following: direct marketing of farmers products from a mobile store, the production of wooden shingles, a cooperative butchery for the direct marketing of biologically grown meat from five farmers, the production of simple millboard products for offices manufactured out of used packing material, the production of biological apple juice from ecologically desirable scattered trees in cooperation with a town administration and an environmental organisation, and soft tourism projects.

The state of Hesse includes the very prosperous booming area of Frankfurt and its surroundings, but also extended peripheral rural regions in its northern part and along the border to the GDR. The population totals 5.6 million and the average population density is 264 per square km. Each of the five advisors was in principle appointed to an own specific region, but as each had different areas of expertise, in practice all of them were involved in projects all over state of Hessen. Hence personal responsibility and commitment for a specific region of which it is possible to easily keep track, became increasingly difficult.

The very limited advising manpower compared to the large area and population of Hessen is one of the reasons why more detailed concepts and visions for a regional economy and systematic networking never have been developed. Another reason is the strictly project-oriented approach itself. The strategy of this unique model in the European Community, which was adopted from Austria, proved to be very efficient in creating working places and developing new single perspectives in rural areas. But it was not sufficient for developing broader long-term perspectives for specific regions. After the withdrawal of public funding the VER had to stop its main activities, but it continues to promote the basic ideas, to organize regional and international exchange of experiences.

In some other states similar associations have also recently been founded, but until now have received no public support. In Schleswig-Holstein, early hopes of the establishing groups have been destroyed by conflicts with local initiatives. In Baden-Württemberg, a new organization of this kind has roots in the alternative agrarian movement and meets growing interest.

3.2 The "Coastal program" - an occupation-oriented trade union proposal

Quite another approach has been elaborated by the trade unions of Hamburg and Schleswig-Holstein - the most northern states of the FRG (DGB Nordmark 1988, DGB Nordmark 1987). The "Coastal Program" of the regional federation of trade unions starts from the alarming fact that disoccupation and loss of working places in this coastal region are among the highest in West

Germany[6]. Besides a generally depressed shipbuilding industry this region is not characterized by an especially unfavorable sectoral structure. However it suffers from an increasingly disadvantaged geographical location, from large inflexible industrial units and possibly from an unfortunate division into political and administrative units compared to economic interrelationships. By 1979/80 the trade unions had already elaborated a structural program for the coastal region which gained considerable public attention. After the DGB (Federation of German Trade Unions) at the federal level had demanded a "50 billion program of public investments for the creation of jobs and the improvement of the living quality", the "Coastal Program" has been revised to fit into this environmentally oriented framework.

Hence in this most important regional policy proposal of the German trade unions the main means to overcome the situation in the labour market has been a massive public investment program in environmental improvement. Yearly spending of 2.6 billion DM for five years should give work to 70,000 people. A rather cursory examination of the environmental problems in the city of Hamburg and the predominantly rural areas of Schleswig-Holstein has led to requests among the trade unions for investments in cleaner energy supply systems, public transport, sewerage, waste management, urban and village renewal, and also for some contributions to investments into pollution reduction equipment in private industry. Neither the single projects nor the intervention methods are very innovative (a short list of more tangible single projects that could fit into such a strategy is contained in DGB Nordmark 1987). These requests, which essentially represent an environmental repair program, mainly for the densely populated areas, in the unions' "Coastal Program" are combined with some very general guidelines for an active structural policy. One major point is that the different states in the whole coastal region (Schleswig-Holstein, Niedersachsen and the city-states of Hamburg and Bremen) should elaborate a common development concept avoiding useless public investments and overcapacities in new port facilities and industrial infrastructures.

Innovative ideas for the future role and for development of the production structure of the region are missing in this program. The concrete proposals usually do not go beyond the traditional sectoral approach. Nevertheless, compared to other trade union documents, first steps toward a more integrative view of regional development, toward giving a very high priority to environmental problems, and toward an interest also for rural areas, make this program interesting. The realization of certain aspects of it has become more realistic since a Social-Democratic government took over in Schleswig-Holstein in 1988.

[6]Unemployment in 1987: FRG 8,4%, Hamburg 13,5%, Schleswig-Holstein 9,2%. Changes of the number of employed in main sectors 1980-1986: FRG -0,2%, Hamburg -6,0, Schleswig-Holstein -0,9.

3.3 The ESSEK-studies - a resource-oriented regional scientists concept

A detailed regional analysis and integrated concept for structural and energy policy have been elaborated for a 180,000 people rural district in northern Hesse by member of the University of Kassel in 85/86 (for a short version see Düe/Strutynski/Tjaden 1987). The red-green state government, then in charge, financed regional scientists and an interdisciplinary working group for appropriate technologies to carry out this study on the Schwalm-Eder district because it wanted to prevent a large public utility company from building a nuclear power plant near the small city of Borken.

The study starts from the idea that a much better use of regional potentials would be possible if an integrated strategy for energy policy, resource policy, economic policy and social policy would be enacted to counterbalance the effects of the "structural crisis of the capitalistic system". The development potential of a region is regarded as a complex of two kinds of resources:

- the labour potential, the working population and the production instruments,
- the natural resources, which comprise energy and all kinds of substances.

The analysis of regional potentials showed the following: 16% of the working population was unemployed or underemployed; there were considerable overcapacities and possibilities to change products or processes in industry; considerable potentials for the production of renewable energy were unused, mainly waste from agriculture and forestry; more than 55% of the consumed heating energy could be saved; no use was made of the large amounts of liquid and solid waste; and a series of natural products from forestry, agriculture and mining industries left the region without being processed.

The proposed strategy of "reconstruction" was described by "contrast" scenarios put in opposition to assumed trend scenarios. Four goals guided the elaboration of concrete proposals: 1) better use of natural resources and materials within the region, including their reproduction; 2) better use of the productive capacities or their conversion for the production of useful goods and services; 3) switch to a soft energy system; 4) introduction of ecologically and socially acceptable technologies for the treatment of waste. Among the tangible proposals in the agriculture/forestry domain were the following: reforestation of at least 5% of the agricultural surface; soil improvement, e.g. with the use of locally produced groud basalt; enhancement of the processing of wood and extension of wood use in construction with the help of new technologies; reduction of ground-independent meat production and the establishment of a meat processing plant. In the energy domain, mainly the enhancement of energy-saving technologies has been proposed, surveys among local enterprises showed that a considerable occupational effect can be expected. For the treatment of waste, a new low-temperature conversion technique has been proposed which avoids the production of noxious effluents and delivers storable fuel.

This concept has the advantage of providing a really integrative view of the regional material production and of its human and natural conditions and potentials. But it remains a very technocratic, materialistic concept which does not treat the political and societal conditions for its realization and which exhibits very little interest for the cultural, aesthetic, and communicational aspects of regional development.

4 Toward a new concept of development

4 . 1 Fading industrialist visions - the need for a new perspective

The new discussion around regional development, the crisis of regional planning and the worry about the destiny of rural and old industrialized areas concern not just questions about the most efficient policy but are symptomatic of a deep crisis regarding our ideas about progress and future (Stöhr 1986, Friedmann 1986, Sachs et al. 1981).

For more than a century, industrialist, essentially social democratic visions formed the basis of development of our societies: the idea of progress by industrialization was generally shared. Technological progress was thought to be something autonomous (unfolding of the productive forces), which at most could be retarded or accelerated, and which was automatically associated with social progress, provided that certain boundary conditions were guaranteed. Mass production and a sophisticated division of labour were central concepts in this industrialistic paradigm, and therefore a mass society based in growing cities represented the corresponding way of life. With the growth of life-threatening ecological problems, with growing disparities in living standards on national and international levels, and with the systematic neglect of important human needs recently underlined by the new social movements, this materialistic vision has begun to fade away in the last twenty years. The idea of progress, once so strong, has become brittle. There is a growing lack of consensus concerning a desirable future. Even worse: there is a poverty of new elaborated visions powerful enough to elicit an adequate response to the threatening problems of human survival. A structural and technology policy relying mainly on the orientation toward world markets and high technology blindly follows international trends without considering the quality of life, and does so in the hope that a strong position in the international economy allows for considerable material freedom at the expense of others.

The crisis of structural and regional policy is not a question of instruments, but a question of goals. This is particularly true for rural areas. Rural areas do not have an independent perspective. There is no shared idea what a "good life" in the countryside could be, and how we could achieve it. The guiding images for the rural population and the ideas of lifestyle are strongly urban. That is even the case when policies for rural areas are conceived by centralized planning bureacracies in the large cities. Industrialization and urbanization concepts have been the inevitable consequence. Policies based on old-fashioned visions which are no longer supported by a sufficient consensus can produce uncalculable instabilities with high economical and political costs. Some of the most well-known

examples in rural areas in West Germany include a series of nuclear power plants, the recently rejected nuclear reprocessing plant in Bavaria, and an extended Mercedes car testing facility.

We still maintain two prevailing ways of speaking about the future according to the declining industrialist paradigm. One is technology-oriented, with questions such as: "How will the new communication technologies benefit us," or "What are consequences of gene technology for agriculture?". The other kind of questions is sectorally oriented: "What are the prospects of the automotive industry", or "Which effects will demographic change have on the public health system?". Such questions do of course make sense, but it seems likely that discussions about our future would be more fruitful for solving problems if they were more directly oriented toward the ecological living conditions on the one hand, and toward human needs and desires, on the other.

Therefore speaking about development - whether in general or concretely for a specific region - we propose to follow two interwoven lines of discussion: The "red thread" of the argumentation concerns how to deal with human needs. Its starting point are the unfulfilled human and social needs put forward by various social movements, examines a broad range of possible needs that can be grouped in 'domains of need' and analyzes different possibilities to fulfill the largest variety of them. The "green thread" treats how to deal with non-human nature. This perspective posits that non-human nature has its own right to exist and that we humans are a rather late product of evolution. The green thread explores the state of the 'environment', is aimed at roughly formulating ecological boundary conditions for human action and is poised to discuss technology, in terms of the way in which we deal with nature.

4.2 Learning from the energy debate

The technology debate of the last twenty years has very much changed the idea of progress. Especially, discussion concerning energy policy has led to very deep political conflicts - with different intensity and different accents in the various industrialized countries. As a consequence the most advanced alternative concepts and realizations have been elaborated. A great deal could be learned from this discussion for other technology debates and for the development discussion in general. In the different stages of the energy conflict, four main paradigmatic changes of view can be distinguished (Schleicher 1987):

- *From an emergent environmental consciousness toward the claim for an economy in compliance with nature*
  This was the underlying change in the attitude toward nature among a sizeable segment of the population, which has been the basis of fundamental criticism, primarily of atomic energy.

- *From a technology oriented to a need oriented approach*

  As long as the debate turned around the question of which sources should be used for energy consumption, the discussion was rather unproductive. Only at the moment when the question was asked, for which detailed needs and uses - heating, illumination, movement, transport - energy was required, could interesting alternative concepts be elaborated leading to a strong reduction in energy consumption (Lovins 1977, Leach et al. 1979, Stobaugh/Yergin 1979, Krause/Bossel/Müller-Reissmann 1980, Schleicher 1984).

- *From centralistic problem solutions toward local and regional differentiation*

  From the standpoint of a users side approach instead of a supply side one, it has become more obvious that centralistic standard solutions have led to a waste of energy and money, to unflexible long-term investment in polluting central supply systems, to the use of technologies unadjusted to the local conditions and opportunities, and to a very inefficient use of local resources (renewable energy and labour skills). More integrated systems for the use and supply of energy, adapted to specific conditions, could drastically lower consumption and pollution, raise flexibility and save money using modern technology. Centralistic technical structures imply central decisional power and therefore political and economic dependence of smaller units. In the energy sector it has been proved that more independent small-scale energy management in combination with appropriate energy systems (for buildings, neighborhoods, factories, cites etc.) often performs much better. Therefore strategies had to be devised for decentralizing not only technical, but also organizational structures[7]. This leads us to the last point:

- *From technocratic concepts toward an integrated consideration of technical and social organizational patterns*

  Detailed economic and technical concepts for 'soft energy paths' exist already for several years. Some of their advocates had previously thought that once the advantages would be shown, realization would be rather easy. But is has become increasingly evident that a more integrated consideration of technical and social patterns is necessary. Not only are the proposed organizational patterns often rather alien to dominating hierarchical political and industrial structures, but also behaviour patterns of the users would have to change. Hence it has become obvious that when our society requires to learn to deal with energy in another way, this implies not only a change of view of responsible technocrats but also a paradigm shift within the whole society.

[7] As an illustration, the PURPA act in the US aims at introducing more competition in the monopolized electricity market. Strategies for the recommunalization of public utilities have been developed, for example by Hennicke et al. (1985).

4.3 The spatial dimension - a key to the regulation of development

An important feature of the development of industrial societies is an increasing "despatialization". Early forms of trading capitalism and later of industrialization have already broken the boundaries of traditional economic spaces and ecological systems and had led to an increasing homogenization and far-orientation (Braudel 1979). Damage and benefit of human activities are often separated by long distances. Formalized regulatory mechanisms such as market mechanisms represented by money and prices, and bureaucratic regulations - which mostly lag behind the problems they are supposed to solve - have progressively gained influence, whereas immediate perception and experience, personal responsibility, commitments and acquaintances have become less important. Perception has partly narrowed in a dangerous way, functional differentiation has replaced spatial differentiation, and ecological cycles have been broken up. Without doubt this development has also brought new dimensions of freedom and an increase of knowledge. But it seems that many of today's and social problems are due to narrow formalization and functional specialization: On one side important feedback information about the effects of human actions has been reduced or eliminated. Personal experience being the prerequisite for personal responsibility, its loss of importance has serious consequences. On the other side long-established cyclical ecological relationships have been disrupted causing resource depletion and accumulation of waste.

In search of a new concept of development, the often discussed alternative "free market or planned economy" is misleading. Formalized mechanisms alone will not be able to solve our ecological or social problems. There is a need for a more integrative approach embedding the highly specialized functions characteristic of today's world, more direct responsibility based on immediate experience is required, as is more respect for the territoriality of ecological, material relationships. Achieving these ends seems to be possible only by strengthening the capacities of self-regulation also at small-scale levels. Whereas communication between humans is less bound to spatial narrowness, the material side of our existence, i.e. ecological relationships, are strongly linked to the spatial dimension. It seems therefore necessary to reconceptualize our ideas about space, borders and distances, to rethink the allocation of different functions at different levels, and to appreciate in a new way the spatial dimension. In this regard the regional level will need especially major attention.

4.4 Technology and organization - new opportunities for self-reliance

Such a rethinking is increasingly occurring (Kohr 1957, Schumacher 1973, Coates 1981, Sale 1985). The most interesting yet contradictory process in this context is the accelerated integration of the European Community. An increasing long-distance-orientation is combined with the slow but actual dissolution of sovereignties, responsibilities and identifications at the level of the nation states, which

had previously completely dominated the concept of territory for more than a century. This elimination of national borders, this shift of competences and the barely predictable change of spatial structures will possibly lead to a growing importance of the regional level: Huge shifts and concentrations of economic activities will be necessary in order for the putative economic benefits of the internal market (see Cecchini 1988) actually to materialize. Traditional balances and distribution of roles among regions are likely to become invalid. On the one hand this may provoke attempts among single regions to strengthen their internal economic interrelationships and to protect themselves against external dependence. On the other hand, central european authorities could become interested in fostering endogenous regional potentials in order to avoid exorbitant transfer payments which would otherwise be necessary to prevent intolerable disparities in living standards between european regions.

Perhaps the most promising new opportunities for a stronger small-scale orientation and increasing regional self-reliance, however may lie in the concrete possibilities of material production. Since the early seventies, perspectives and trends of the world economy have become much more unstable, and new flexible small-scale economic structures have grown in many, especially european, regions. Sometimes based on old craft traditions, they often use modern flexible technology for a craft-like production style (Bagnasco 1977, Piore/Sabel 1984). In various economic sectors new flexible production technologies (mainly based on the increased self-regulation capacities of computerized machinery), quickly market changing trends, and specialised requests from customers, are increasingly leading to the abandonment of two main principles of industrialism, mass production and enhanced division of labour within the factory.

There have been a number of interesting discussions in the last years about what that could mean in terms of new possibilities for another organization of labour and for a stronger societal embedding of the economic development. But there has been very little attention upon the fact that a craft-like manner of production could also allow for another way of dealing with materials and nature. The industrial purification and transformation of natural raw materials to produce preferably homogeneous substances - such as steel, glass, concrete or plastics - that can be further treated in continuous processes, causes considerable ecological damage. With new technologies and another organization of labour, these procedures could partly be replaced by a more flexible and careful treatment of natural materials. As a matter of fact, the latest rise in the use of natural wood for construction and furniture and of natural fibers for clothing, show a tendency in this direction.

The manner in which human working power is dealt with, is intrinsically linked to how nature is being treated. New technological and organizational opportunities are emerging in this respect. Nevertheless, there are contradictory tendencies: It does not seem exaggerated to say that we have arrived at a "second industrial divide" (Piore/Sabel 1984) where long-range decisions about the dominant style of production are being taken. Whether a trend toward a control-oriented

superindustrialism or a trend toward more convivial craft-like forms of production will prevail, is not least a question of societal visions.

Not only are there novel flexible technologies at hand today, but new organizational concepts, experiences and capabilities are also available. Within the general frame of an increasingly fundamental democratic attitude, the new cooperative movement has recently most radically experimented with new forms of self-organization at the border between formal and informal economy (Schwendter 1986, Schleicher 1989). In the theory and practice of industrial management, it appears that decentralization, job enrichment, distributed responsibility and limited autonomy seem to be playing an increasing role (for an interesting approach see Beer 1981) and it is not clear how far this tendency may eventually reach.

4.5 Rural areas and cities - hope for a more balanced relationship

From the foregoing considerations the idea emerges that the diffusion of a more convivial craft-like style of production could be linked to a structural change, also affecting the relationship between rural areas and cities (see Schleicher/Gleich 1988). The great expectations and hopes that often are put into a "tertiarization" of the economy are exaggerated because they tend to underestimate the extent to which we depend upon material production - or they just count on a dislocation of polluting industries into less developed countries. Fostering another style of production could lead to a structural change in which many functions, at present performed by mass-producing industry, would be taken over not only by the service sector but also by modern craft-like production structures and the primary sector (mainly agriculture, forestry and related activities). Undoubtedly also within a superindustrialist perspective, renewable resources from the primary sector will play an increasing role. However the exploitation methods in agriculture too would then be fully industrialized with hard, centrally controlled technologies. On the other hand, within a softer perspective, careful processing of natural raw materials in small and flexible units could be located much more easily in direct vicinity of primary production. This could create jobs in rural areas (which would also be ideal for part-time farmers), and might reduce the external dependence of the local economy, broaden productive functions and contribute to new and stronger identities of rural regions.

Obviously such a shift in orientation could also imply a slight shift in the function of cities. Small and medium centers could receive impulses stemming from new activities in their rural surroundings; formation, sustaining and coordination functions for a new kind of production would be needed; new urban jobs could be created for fulfilling needs of the city in a way that would do less harm to the environment of the rural areas (e.g. energy conservation or water recycling). On the other hand, some centralized industrial activities could possibly become abandoned. There might also be a shift from formal economy to household and cooperative economies, which more directly respond to

individual needs. The opportunities for these self-organized forms of economy - which are estimated to deliver up to one half of the overall production even in industrialized countries - differ considerably between rural and urban areas and according to the type of activity.

Because of these interrelationships it does not seem to be useful to discuss rural development separately from urban development. Cities and the countryside need each other, and a more balanced development will change the role of both. If the guiding images for the economy and for lifestyles are urban and mass-oriented, rural areas will always be disadvantaged. Unfortunately, a further elaboration upon the importance of cultural aspects, lifestyle expectations, formation and education is beyond the scope of this paper.

4.6 Politics - searching consensus about common visions

A development concept, as has been roughly sketched, cannot simply be decided upon and implemented by public authorities. Policy is usually understood as the administration of constraints, as the state's answer to urgent problems. This would take the form of regulations, interventions and subsidies, however in the frame of democratic control. Given the present situation, this is not sufficient. A conscious and creative shaping of our future has become necessary as the old patterns and guiding images are causing increasing problems and become less and less attractive. If we understand society as a complex self-organizing system, we cannot mechanistically rely on 'laws of history' or central authorities to steer development. We must acknowledge that a very large number of different actors contribute to the shaping of the common future with their daily decisions. If we take a close look, we see that, in practical terms, their range of possibilities is considerable. But their actions are more or less coordinated by common value systems and visions.

Significant questions arise about the way in which people want to live, that correspond to the fundamental problems with which we are confronted today. There is a need to discuss and make concrete new comprehensive perspectives within human communities which could mobilize creativity and give a new coherence to actions and decisions of a great variety of community members. Nevertheless it appears difficult to start and to structure such a discussion. That is what politics should be about: to search for consensus concerning common visions and goals and not just concerning public authorities actions. A bottom-up understanding of politics that addresses itself to various groups (e.g. consumers, industrial associations, workers, trade unions, environmentalists, planners, car drivers, farmers, traders, and engineers) needs new methods of discussion. Instead of clear cut programmes and strategies assuming the existence of a central actor, scenarios describing possible results of complex interactions would be more useful. In such a view the concept of community gains importance, as a network where sharing communication , decision-making and the responsibility about shaping a common future takes place.

A variety of policy concepts aiming in similar directions have been elaborated elsewhere, involving public participation, assessment procedures, participation of voluntary organizations, public-private partnership and mediation. However most of these policy concepts are thought to be instruments for improving the implementation of public programmes and strategies. Furthermore, an understanding of politics as mediating and balancing different interests - as favoured by large elements within the trade unions - is also broader than a policy concept limited to governmental actions. Nevertheless such a concept it is intrinsically immobile and does not encourage change and creativity.

4.7 Appropriate methods

New and appropriate methods are needed for translating such a development concept into action. These can be divided into at least the two following categories:

- methods for the elaboration of regional development paths by expert groups in order to provide a motivating and reliable basis for public discussion and action,
- methods for organizing a public debate about the future of a region.

In the following sections I will concentrate on the first kind of methods, which obviously will also imply a certain understanding of how the results should be submitted to public discussion.

Methods for formulating goals and boundary conditions for development

In the sense of the "green thread" of the argumentation previously presented, it is desirable to formulate boundary conditions and criteria for human intervention into non-human nature. This is however a difficult task. An interesting framework for general criteria has been proposed by Müller-Reißmann, Bohmann and Schaffner (1988). In the framework of the "research project on regional technology policy" mentioned above[8], the attempt was made to formulate general criteria for the assessment and choice of technologies. The main criteria ('domination', 'efficiency', 'tool character', 'depth of intervention', 'conproductivity') have been very useful to provide general indications. In the sense of the "red thread", development goals should be formulated in order to have a transparent and criticizable starting point for the elaboration of desirable perspectives. Although these goals are inevitably normative in function, they can be structured in such a way that a relatively large variety of options can be systematically discussed and possibly included. In order to orient the development discussion toward human needs, it is useful to formulate general goals separately for different 'domains of need' (see below).

Regional analysis methods

[8] see footnote no. 1.

In the already mentioned research project a three-fold regional analysis method has been proposed and partly realised, which largely matches the requirements of the concept developed above. The first part of the analysis consists of a rather conventional description of political, cultural and economic structures and particularities of the region. Then a nature-oriented analysis - in the sense of the "green thread" of the above argumentation - follows, and finally a need-oriented analysis - corresponding to the "red thread" - is treated. The third part should be the most detailed and may become an important tool for structuring the public discussion. This analysis is structured into so-called domains of need for which an integrative view of is presented all activities related to these domains (e.g. nourishment, clothing, housing, energy transport, and education). This presentation follows a schema employing different dimensions, including the steps of the product line (primary production, processing, transport and trading, consumption)(see Öko-Institut 1987) and different forms of economy (profit economy, public economy and proper economy).

Long-term scenario methods

A special two-step scenario method has been designed to provide the following:

- Integration of more detailed single perspectives (e.g. for different domains of need) into a broader view of possible futures.
- Testing of the general orientation of regional development endeavours in the case of different surrounding conditions
- Exploration of the leeway of regional self-reliance.

Differing from scenario methods used in military or industrial strategy development, which assume a central decision-making power, this approach addresses itself to a collective of actors who play very different roles, such as the inhabitants of a region. In a first step, a set of (two) 'frame scenarios' is written to describe possible developments of the general conditions which can not or only very little be influenced by the regional actors (exploratory scenarios). In a second step, for each of the 'frame scenarios' a set of 'shaping scenarios' is traced, describing different ways in which the actors could interact in shaping the future of the region. Such scenarios could be very useful for stimulating public discussion about regional perspectives and would need to be continuously modified in the course of such debates.

These methods, which are currently being further improved, have in large parts been applied within the already mentioned research project for the development of concrete regional perspectives. Interesting and innovative results have thereby been obtained. This may be illustrated by the examples in the next chapter.

5 Perspectives for the "Bergisch Land"

Regional perspectives have been characterized for an area in the center of West Germany using such a theoretical and methodological approach as that outlined above (Gleich/Lucas/Schleicher/Ullrich 1988b). This region is rather densely populated and includes rural areas as well as small and medium size urban centers. In the following sections certain aspects of the study specifically dealing with the possibilities of developing new relationships between rural and urban structures will be shortly presented.

5 . 1 Regional analysis

"Das Bergische Land" is a historical region including the three cities of Wuppertal, Solingen and Remscheid. It lies just south of the large and densely industrialized agglomeration of the Ruhrgebiet. The northern part has been characterized as having been the cradle of German industry, known for early iron mining, the still famous cutting tool industry of Solingen, and the prominent textile industries of Wuppertal (today including Barmen, the native town of Friedrich Engels) from which later developed an important chemical industry. The southern part of this region is hilly and mainly rural. The population of nearly 2 million is rather high for the surface of 2500 square km (an average density of 784 people per square km). A rather large proportion of the region is forested, 32%, while agriculture lands account for another 43%. Politically, this region today has no common structure, different parts even belonging to different much larger districts. The historical unity and identity, which is still alive for many inhabitants and which has various cultural and economic roots, is slowly being eroded by the influences of the surrounding large cities of Cologne, Düsseldorf, Essen, Bochum and Dortmund.

The 9.7% unemployment rate (1987) is rather high, but would still be higher if there were not a significant exodus of working-age people. Manufacturing accounts for 42,5% of total employment. The main sectors are machine building, metal wares, electric equipment, plastics and textile industries. At least in the northern, industrialized parts of the region, the service sector is significantly weaker than in other regions. Manufacturing in the Bergisch Land is strongly characterized by small and medium enterprises which show a considerable flexibility but which suffer from undercapitalization. This traditional small-scale structure (quite different from the nearby heavy-industry area of the Ruhrgebiet), with a wide variety of specializations and the associated organizational and craft skills, provides many of the prerequisites for a self-reliance oriented structural change. A considerable risk to the present orientation of manufacturing in the region appears to be

the strong dependence upon the auto industry in the surrounding large urban centers (Opel (GM) at Bochum and Ford at Cologne).

The landscape of the area is rather hilly and largely characterized by narrow valleys. Soil is typically poor, except in the northwestern plain. Precipitation is among the highest of all West Germany. Water has always been one of the main resources of the region, especially as a source of energy and also for different uses in the textile and chemical industry. Hence surface water pollution is a very serious problem and has been since the early days of the dye industry. Ground water is widely polluted by innumerable old industrial dumps which contaminate soils. In large parts of the region the air quality is among the worst in all of West Germany, partly due to the emissions of the heavy industry and the dense traffic of the surrounding agglomerations, and partly due to sources within the area such as important highways crossing the region, local industries and traffic. This situation is reflected by the continued increase in forest damage that is occurring.

This cursory description is hopefully sufficient as background. Certain elements of the more detailed need-oriented analyses may appear in the discussion of single perspectives that follow.

5.2 Flax

Examining the histories of the regional textile industry and of the regional agriculture, we discovered that the cultivation and especially the processing of flax (linen) played an important role until flax fibers were successively replaced by cotton. For a number of different reasons, the various stages of production and the manifold uses of flax products began to interest us and led to a regional perspective that may be worth to be further followed (Gleich 1988).

Flax is an extremely versatile plant. It furnishes long fibers for clothing and home textiles (linen), and short fibers for textile as well as for technical uses (e.g. as substitute for asbestos in fiber-reinforced cement, brake and clutch linings, special papers, geotextiles). Additionally, linseed-oil, made from flax, is used for the production of dyes, colours and lacquers, for natural wood protection, for producing more natural detergents and linoleum. Finally it also provides a wax that is employed healing and cosmetic purposes. Flax products can therefore serve as substitutes for many polluting and noxious substances.

Flax seems to be ideal for the agriculture in the Bergisch Land and has been cultivated there for a long time. It grows on low quality soils and needs much water. It does not support exceeding mobile nitrogen, and must therefore be cultivated without nitrate fertilizing and very little phosphate. It is consequently ideal for cultivation in watershed protection zones which are very extended in this region. However farming of flax is not easy and requires a lot of experience.

Flax is, furthermore not only interesting for agriculture. The first steps of processing take place in rather small machinery units, produce waste products that can be recycled as fertilizer (possibly combined with biogas production). Such processing could very well be carried out decentrally in rural areas. A strong centralization of the first processing steps is unlikely due to the fact that large monocultures are impossible: Flax can grow only every seventh year on the same ground. The further industrial processing of the various flax products in the textile, colour, chemical and pharmaceutical industry of the region would be an example of a new, more balanced cooperation between rural areas and cities.

Linen manufacturing also provides an interesting example for new possibilities of processing inhomogeneous natural material with new flexible technologies. Two centuries ago, cotton began to displace linen because its simple smooth fiber plucked from the cotton flowers could be processed mechanically. At the time this was not the case for the compound fiber extracted from the flax stalk. Mechanical spinning of flax also became possible much later in fact. The complex structure of the flax fiber, which one hand causes difficulties in processing, on the other hand is responsible for the appreciated special heat and humidity storing capacities of linen.

A very special link with regard to refining of flax can be established with the textile machine industry in this region: the only German respectively European producer of the two machines used for the first stages of flax processing happens to be located in the Bergisch Land. Another interesting coincidence is that two producers of brake and clutch linings in this region are experimenting with flax as an asbestos substitute.

A first estimate shows that the growing and processing of flax could stabilize about 1000 working places in the Bergisch Land and also create additional ones (respectively, one third in agriculture/rural areas, industrial processing and machine building industry). The market for flax products does not need to be created: Alone substituting local production of flax fiber for the present level of imports for textile use in West Germany, 20,000 hectares of flax cultures would be needed every year. Additionally the FRG is, with 200,000 tons/year, the worlds greatest importer of linseed oil.

In order to initiate and promote the production and processing of flax in the Bergisch Land, we have proposed to establish a flax research and development center supported by various institutions and companies. This institute would deal with the whole product line from cultivation to the end product, providing technical, organizational and marketing assistance. The idea has encountered significant interest among concerned industrial enterprises, farmers and trade unions, but it is necessary for realization to proceed more quickly than at present. Considerable activity concerning flax is going on in southern Germany; therefore within some years, the opportunity for the Bergisch land to play an

important role in flax technology development and building of flax-processing machines could be lost if action is not soon taken.

5.3 Water

With about 200 days of rain and over 1000 mm of precipitation per year, the Bergisch Land is one of the rainiest regions in West Germany, a consequence of wet air from the sea encountering mountains up to 500 m high. The abundance in this water, which is low in lime content, was the reason for the establishment of the early textile industry (linen bleaching) and a variety of mills, grinderies and forge shops in the narrow valleys. Later, industries requiring a high water consumption also concentrated here, such as textile finishing, chemical, paper and food industry. At present, region's prosperity still depends considerably on the use of water, but only little effort has been made to take care of this important resource. As clean water is increasingly becoming a scarce resource in Europe, especially also in the large urban agglomerations along the Rhine, possession of bountiful supplies of water could play a key role for the future of the Bergisch Land.

The water supply system of the region relies on four sources: a series of large barrages in the mountains, filtered water from the banks of the Ruhr and Rhine rivers, and ground water. Summing up the manyfold exchanges with the surrounding regions results in a net export rate of only 15% of the regional water delivery. Households are nearly completely supplied by public water systems, whereas industry is increasingly concentrating on the cheaper private sources which deliver roughly one-and-a-half times as much as the public system. Prognoses foresee a further increase in water consumption in the years ahead. Nonetheless ground water, which for geological reasons can be acquired only decentrally in most parts of the region, is increasingly being polluted by old industrial dumps and agriculture. A considerable number of decentralized ground water exploitations has, therefore, been shut down in the last years. Additionally utilizing Rhine water gets also more and more problematic because of new chemical pollutants that cannot be eliminated by conventional methods. From the sanitary point of view, barrage water is the least problematic, but construction of new dams would be ecologically harmful and would encounter strong resistance by local populations.

Water is a good example of how cities have exploited the resources of rural areas in a colonialist way. After having sealed off large parts of urban area surfaces, having lowered the water table and polluted their traditional water sources, cities began to drain ground water from rural areas and to build large reservoirs. The city of Wuppertal completely dominates the powerful water management agency of the Wupper river system. The city of Cologne has already a strong position and other far-reaching interests in the reservoir system management in the southern Bergisch Land.

Although water protection regulations are enforced only in a small part of the areas in which they would be necessary (up to 60% of the region's surface), in terms of conventional development patterns, they represent a serious limitation to the economic development of rural areas for the benefit of the cities. Alternatives and technologies for a development which would not be in contradiction with water protection have not been provided.

One alternative would consist in declaring as a major goal of regional development the protection, conservation and export of clean water, the development and the selling of appropriate technologies, and the acquisition of the full control over the regional water resources.

Serious water protection would imply the introduction of less chemically supported cultivation methods for agriculture, the accelerated introduction of production technologies for industry, which would produce less harmful effluents and waste, and the reduction of road vehicle emissions (engine exhausts and tire abrasion) and of sealed traffic surface for the transport system. A strict limitation of the use of synthetic detergents and solvents alien to nature and the development of more natural alternatives could reduce the problem of waste water purification. Decentralized purification plants would allow to locate and to treat separately problematic effluents instead of diluting them as is now common. Water conservation, another main goal, also requires new production technologies as well as higher industrial recycling rates. Although rising water prices have led to some improvements in the past years, a series of indicators suggests in this regard that regional industrial equipment presently lags behind the state of technology. Very substantial water savings are furthermore also possible in households, where until now increasing costs have had little effects on consumption: recycling systems, water saving fittings and fixtures, compost toilets and other innovations could drastically reduce consumption but are still rather costly at the present state of the art.

Given this broad range of desirable and possible improvements, the potential within the regional industrial structure, and the research and development capacities available (one of which is the "Bergische Universität" in Wuppertal), there are interesting and imaginable perspectives for joint effort. It seems especially possible that the regional chemical and machine-building industries as well as the water-fittings-and-fixtures industry in Remscheid could contribute to a promising regional specialization in water technologies. Such an effort could. for example , take into account the following goals:

- the long-range possibility of selling high quality water to the surrounding agglomerations at a good price,
- the aim of developing important specialist competences for water conservation and purification technologies,
- the goal of developing a rural and urban productive structure which is not in contradiction with the necessities of water protection.

This approach would then hopefully preserve the rural areas from being ever more colonized for the environmental needs of the large cities, would improve the living conditions in the region, and could be the foundation of a long-term "export" perspective. In fact, such a perspective is necessary for such a densely populated region. "Water" could be the bracket for a consistent set of products and services which do no harm to the region's ecology. It could be the basis for a marketing image of the region, the basis for self-identification, and it could represent the beginning of another relationship between rural and urban areas.

5.4 Communication

Communication in a developmental and technological context, today most often is spoken of in terms of microelectronic communication technologies and networks. As in other domains of need, the project being described here started from the underlying needs of communication in the Bergisch Land, and concentrated on two linked subjects, 'communication about the future of the region' and 'communication relevant to the regional economy'.

The dominant small-scale structure of enterprises in the Bergisch Land partly has its roots in the tradition of religious sects, which, especially in the northern part, are numerous and strong. The spirit of tenuous independence has led to considerable flexibility, but communication between different companies, different parties, and different organizations is often difficult. For example it is harder in this region than elsewhere to bring together official representatives of municipalities, trade unions, and Chambers of Industry and Commerce for discussion (a regional development research project of the University having failed in this attempt).

In order to avoid the obstacle of old, well-known institutional conflicts, we have proposed the foundation of an association dealing with long-term regional perspectives. We believed, at least at the beginning, it ought not be composed of formal representatives, but of interested and influential individuals reflecting the multitude of actors in the region. First results with this concept have been quite good. Within a few months, a promising group has formed and decided to carry on the ideas coming out of the research project.

The main goal of this "association for self-reliant regional development in the Bergisch Land" (GERBEL) would be to organize a public discussion process about future perspectives of the region. Individuals coming from trade unions, churches, the industry, environmental organizations, municipal administration, agriculture, crafts and other interest groups would elaborate and publicly propose elements of long-term regional perspectives, if possible with the help of professional advisors. Out of this originally rather loose association could slowly grow a more tight collaboration of public, voluntary and private regional institutions.

For more concrete tasks, especially for 'communication relevant to the regional economy' the association would soon help to establish new, more formal institutions, which should have a larger base of institutional supporters. They should help to foster intraregional economic interrelationships and various forms of collaboration, they should help to transfer useful knowledge for an ecologically oriented regional economy and they should lay the ground for a certain regional autonomy.

One of these institutions could be the already mentioned 'flax research and development center'. Other concepts have been elaborated more in detail: A regional leasing company could combine equipment leasing and counseling of small and medium industries, concentrating subsequently on different domains of ecologically sound technologies, making costly new equipment available for multiple use and fostering the collaboration between different companies. An 'association for the promotion of the Bergisch building crafts' could establish technology transfer and development centers for energy technologies, water technologies and soft renovation technologies in different locations of the region. A regional railroad company could economically maintain and restore the once excellent regional railway system neglected and destroyed by the national railway organization. Further ideas would be a regional economic data bank, regional "quality circles" for discussing distinct problems and needs, or training centers for new ecological technologies.

5.5 Integrative scenarios

Long-term integrative scenarios projecting 20 and 40 years ahead show that the quality of life and environmental in the region will be much better, if an ecologically oriented selective self-reliant development would soon be envisaged, rather than maintaining the general trends of the past. This holds as well for a hardline superindustrialist frame scenario with the label 'polarization' as well as for a 'compromise' scenario, where a combination of social solidarity, more care for the environment, heavy commitment to new industrial technologies and a strong world market orientation is attempted. The main and increasingly oppressing problems will be environmental ones: key issues will be climatic change, energy conservation, water pollution and soil erosion. The Bergisch Land will need to develop and follow a common perspective in order not to be completely subordinated and exploited by the interests of the surrounding large cities which, depending on the scenario, will at least partly witness dramatic decline and social conflicts.

The leeway for an alternative development at the regional level is greater than is usually acknowledged. However, this freedom depends strongly on the frame scenario: in the 'polarization' case, the general climate, air pollution, economic and political conditions make it improbable that out of the originally more far-reaching regional aspirations, more than a loose cooperation concerning a small area around Wuppertal, Remscheid and Solingen, will survive. Alternative regional perspectives which are supported and followed by a substantial number of regional actors could open

the way for considerable economic, societal and political developments which seem impossible from the usual point of view of single municipalities.

5.6 Outlook

Although the proposed methods derive from long-term and fundamental considerations, and are far from being fully developed, they have already proven to yield some practical results and short-term orientations.

Nevertheless the second phase that we believe to be necessary to expand upon such an analysis and first draft of new regional development perspectives has still to be initiated, organized and structured, i.e. the broad public debate about regional futures. Initial attempts have been made in the Bergisch Land in the course of the reported research project, and encouraging reactions have resulted[9]. However particularly in rural areas, patience, a long-term perspective and special structures are necessary.

[9] See especially Westhoff et al. 1988, a 30-page brochure for the general public.

6 Concluding remarks

The above examples have shown that a close look at the material aspects of development may open innovative perspectives. It allows for a more direct approach to environmental problems, and it can be especially useful for finding new roles for rural areas.

The problems of rural development are not just marginal problems which concern only a small part of the population of industrialized countries. They raise fundamental questions about the sustainability of our industrialist civilization, which is dominated by an urban perspective. Inevitably, problems in rural areas point out that we heavily depend on non-human nature, and that we are a part of ecological relationships. They reflect the extent to which cities have sent off their ecological problems to the countryside. Hence rural and urban problems cannot be solved separately.

The approach which has been outlined here, tries to tackle these interrelationships. It will need much more elaboration and development. The methods are currently being improved in the context of other applications[10].

[10] Especially the newly established "Institute for Regional Studies in Europe" (EURES) is following this line, developing regional perspectives for re region of Southern Baden around Freiburg i.Br..

Literature

Bagnasco, Arnaldo (1977): Tre Italie. La problematica territoriale dello sviluppo italiano. Bologna: Il Mulino.

Bayerische Staatsregierung (1987): Grenzlandbericht 1986. München.

Beckenbach, Frank (1988): Die regionale Wirtschaftsförderung - Bestandsaufnahme und Alternativen. Eine Untersuchung am Beispiel Niedersachsens. Schriftenreihe des IÖW 10/88. Institut für ökologische Wirtschaftsforschung, Berlin.

Beer, Stafford (1981): Brain of the Firm. The Managerial Cybernetics of Organization. John Wiley & Sons, Chichester, New York, Brisbane, Toronto.

Beirat für Raumordnung (1984): Sebstverantwortete regionale Entwicklung im Rahmen der Raumordnung. Empfehlungen des Beirats für Raumordnung vom 18. März 1983. In: Informationen zur Raumentwicklung 1984 H. 1/2, S.184-194.

Blaschke, J. (1986): Nationalstaatsbildung und interner Kolonialismus aus Entwicklungsimpulse regionaler Bewegungen in Westeuropa. In: Schmals/Voigt (1986): Krise ländlicher Lebenswelten. Frankfurt / New York: Campus.

Böltken, Ferdinand / Irmen, Eleonore / Runge, Ludwig (1988): Ausgewählte Trends in der räumlichen Entwicklung. Die räumliche Entwicklung in der Mitte der 80er Jahre. Informationen zur Raumentwicklung Heft 11/12.1988, S.711. Bonn: BfLR.

Braudel, Fernand (1979): Civilisation matérielle, économie et capitalisme. XV-XVIII siècle. Paris.

Cecchini, Paolo (1988): Europa '92. Der Vorteil des Binnenmarkts. Nomos, Baden-Baden.

Coates, G. (ed.) (1981): Resettling America. Energy, Ecology and Community. Brick House, Andover, Mass..

DGB Nordmark (1987): Strukturprogramm Küste, Teil Nordmark - Projektvorschläge. DGB, Landesbezirk Nordmark, Hamburg.

DGB-Landesbezirk Nordmark (1988): DGB Strukturprogramm Küste. Teil Nordmark. DGB, Landesbeirk Nordmark, Hamburg.

Düe, Dietmar / Strutynski, Peter / Tjaden, Karl Hermann (1987): Die ESSEK-Studien: Energie- und Ressourcenpolitik in einer Strategie regionaler Entwicklung für den Schwalm-Eder-Kreis. In: Edgar Gärtner (Hrsg.): Grünbuch Ökologie V. Pahl-Rugenstein, Köln.

Friedmann, J. (1979): On the contradictions between city and countryside. In: Folmer, H. / Osterhaven, J. (eds): Spatial inequalities and Regional development. Martinus Nijhoff, The Hague.

Friedmann, J. / Weaver, C. (1979): Territory and Function. The Evolution of Regional Planning. London.

Friedmann, John (1986): Regional Development in Industrialised Countries: Endogenous or Self-Reliant? In: Bassand, Brugger et al.: Self-reliant development in Europe. Theory, problems, action. Aldershot: Gower.

Gatzweiler, H.P. (1986): Entwicklung des ländlichen Raumes im Bundesgebiet. Probleme, Ziele und Strategien aus raumordnungspolitischer Sicht. In: Schmals/Voigt (1986): Krise ländlicher Lebenswelten. Frankfurt / New York: Campus.

Gleich, A. / Lucas, R. / Schleicher, R. / Ullrich O. (1988a): Technologiepolitische Weichenstellungen für das Bergische Land. Weltmarkt- und high-tech-orientierte oder regional- und bedürfnisorientierte Technologiepolitik. in: Fricke, W. u.a. (Hrsg.): Jahrbuch Arbeit und Technik in NRW 1988. Bonn: Verlag Neue Gesellschaft.

Gleich, A.v. / Lucas, R. / Schleicher, R. / Ullrich, O. (1988b): Forschungsprojekt "Chancen und Risiken einer auf regionale Bedürfnisse ausgerichteten Technologiepolitik", Abschlußbericht. Ein Projekt im Rahmen des Programms "Mensch und Technik - sozialverträgliche Technikgestaltung des Landes Nordrhein-Westfalen. 660 S. Wuppertal: Unveröffentlicht.

Gleich, Arnim von (1988): Flachanbau und Leinenverarbeitung. Neue Perspektiven f.e. alte Kulturpflanze u. Industrie im Rhamen einer Konzeption eigenständiger Regionalentwicklung f.d. Bergische Land. Internes Diskussionspapier. Wuppertal: Forschungsprojekt Regionale Technologiepolitik.

Hahne, Ulf (1984): Ökologische Regionalentwicklung. Anmerkungen zu einer endogenen Entwicklung aus regionalökonomischer Sicht. Informationen zur Raumentwicklung 1/2. Bonn: BfLR.

Hahne, Ulf (1985): Regionalentwicklung durch Aktivierung intraregionaler Potentiale:. Zu den Chancen "endogener" Entwicklungsstrategien. Schriften des Instituts für Regionalforschung der Universität Kiel, Bd. 8. München: Verlag V. Florentz.

Hennicke, P. / Johnson, J.P. / Kohler, S. / Seifried, D. (1985): Die Energiewende ist möglich. Für eine neue Energiepolitik der Kommunen. Eine Publikation des Öko-Instituts Freiburg/Br.. S.Fischer, Frankfurt.

Irmen, Eleonore / Runge, Ludwig (1988): Aktuelle Informationen zur Situation und Entwicklung ländlicher Räume. In: Stand und Perspektiven der Forschungen über den ländlichen Raum, Schriftenreihe Forschung, Heft 464. Der Bundesminister für Raumordnung, Bauwesen und Städtebau, Bonn.

Müller-Reissmann, K.F. / Bohmann, K. / Schaffner J. (1988): Kriterien der Sozialverträglichkeit. Teil A: Theoretische Grundlagen. Studie im Auftrag des Ministers für Arbeit, Gesundheit und Soziales. NRW. Hannover: ISP, Institut für angewandte Systemforschung und Prognose e.V.

Öko-Institut / Projektgruppe Ökologische Wirtschaft (Hg.) (1987): Produktlinienanalyse. Bedürfnisse, Produkte und ihre Folgen. 180 S.. Köln: Kölner Volksblatt Verlag.

Kohr, Leopold (1957): The breakdown of nations. London.

Krause, F./ Bossel, H./ Müller-Reissmann, K.-F. (1980): Energie-Wende. Wachstum und Wohlstand ohne Erdöl und Uran. S.Fischer, Frankfurt.

Leach, Gerald et al. (1979): A Low Energy Strategy for the United Kingdom. The International Institute for Environment and Development. Science Reviews Ltd., London.

Lovins, Amory (1977): Soft Energy Paths. Towards a durable peace. Penguin Books, Hammondsworth.

Martens, D. (1980): Grundsätze und Voraussetzungen einer regionalen Regionalpolitik. Informationen zur Raumentwicklung, Heft 5, 263-272. Bonn: BfLR.

Mettler-Meibom, Barbara (1980): Grundzüge einer regionalen Regionalpolitik. Erfordernisse bei zunehmender Interregionalisierung ind Internationalisierung der Produktion. Informationen zur Raumentwicklung Heft 5, 1980, S.273.

Piore, Michael J. / Sabel, Charles F. (1984): The Second Industrial Divide. Possibilities for Prosperity. New York.

Sachs, Ignacy et al. (1981): Initiation à l'écodéveloppement. Toulouse: Privat.

Sale, Kirkpatrick (1985): Dwellers in the Land. Sierra Club Books, San Francisco.

Schleicher, R./ v. Gleich, A./ Lucas, R. (1989): Regional- statt Weltmarktorientierung. Notwendiger Perspektivwechsel für eine menschen- und naturgerechte Technologiepolitik. in: Hucke/Wollmann: Dezentrale Technologiepolitik? Basel: Birkhäuser.

Schleicher, Ruggero (1984): Atomenergie - die grosse Pleite. Die wirtschaftlichen Aspekte der Atomenergie und ihrer Alternativen. SES-Report Nr.14, 196 S.. Schweizerische Energie-Stiftung, Zürich.

Schleicher, Ruggero (1987): Was können wir aus der Energiedebatte lernen? Referat an der VÖW-Tagung "Weltmarktkrise und neue Technologien als Chance der Regionen", Bremen, Januar 1987. Publ. in Vorbereitung, .

Schleicher, Ruggero (1989): Contributi delle esperienze di economia alternativa nella RFT alla costruzione di un modello endogeno di sviluppo. Relazione al seminario di Bracchio 1988, progetto di ricerca coordinata (M.P.I.40%): "Lo sviluppo locale come alternativa strategica". Freiburg: manoscritto.

Schleicher, Ruggero / Gleich, Arnim von (1988): Regional- und bedürfnisorientierte Technologiepolitik im ländlichen Raum. Studie im Auftrag der Grünen im Landtag Baden-Württemberg. Freiburg / Bremen.

Schmals, Klaus M. / Voigt, Rüdiger (Hrsg.) (1986): Krise ländlicher Lebenswelten. Analysen, Erklärungsansätze und Lösungsperspektiven. Campus, Frankfurt / New York.

Schumacher, E.F. (1973): Small il beatiful. A Study of Economics as if people mattered. Blond & Briggs, London.

Schwendter, Rolf (Hg.) (1986): Die Mühen der Berge. Grundlegungen zur Alternativen Ökonomie - Teil 1. AG SPAK M 72. München: AG SPAK Publikationen.

Schwendter, Rolf (Hg.) (1986): Die Mühen der Ebenen. Grundlegungen zur alternativen Ökonomie - Teil 2. AG SPAK M 73. München: AG SPAK Publikationen.

Stiens, Gerhard (1986): The Strategy of Endogenous Development in the Light of German History. In: Bassand, Michel a.o. (ed.): Self-Reliant development in Europe. Theory, Problems, Actions. Aldershot: Gower.

Stiens, Gerhard (1987): Auf dem Wege zu einer regionalistischen Raumorganisation? Über Dezentralisierungstendenzen in der Bundesrepublik Deutschland unter räumlichen Aspekten. Geographische Rundschau 39 (1987), Heft 10.

Stobaugh, Robert / Yergin, Daniel (1979): Energy Future. Report of the Energy Project at the Harvard Business School. Random House, New York.

Stöhr, W. (1981): Development from below: the bottom-up and periphery-inward development paradigm. In: Stöhr, W. / Taylor, D.R.F (ed.): Development from above or below? John Wiley, Chichester.

Stöhr, Walter B. (1986): Changing external conditions and a paradigm shift in regional development strategies? In: Bassand, Brugger et al.: Self-reliant development in Europe. Theory, problems, action. Aldershot: Gower.

Struff, Richard (1988): Zur Forschung im Bereich "Wirtschaftliche Entwicklung und Landwirtschaft". In: Stand und Perspektiven der Forschungen über den ländlichen Raum, Schriftenreihe Forschung, Heft 464. Der Bundesminister für Raumordnung, Bauwesen und Städtebau, Bonn.

Tjaden, Karl Hermann (1988): Sachstandsbericht zum Forschungsbereich "Wirtschaftliche eigenständige Entwicklung ländlicher Räume". In: Stand und Perspektiven der Forschungen über den ländlichen Raum, Schriftenreihe Forschung, Heft 464. Der Bundesminister für Raumordnung, Bauwesen und Städtebau, Bonn.

VER (1987): Neue Wege braucht das Land. 48 S.. Verein zur Förderung der Eigenständigen Regionalentwicklung in Hessen, Melsungen.

VER (Hg.) (1987): Ansätze einer eigenständigen Regionalentwicklung, Tagungsbericht. Beiträge aus Österreich, der Schweiz, England, Schottland und Hessen. Verein zur Förderung der Eigenständigen Regionalentwicklung in Hessen, Melsungen.

Westhoff, Dieter et al. (1988): Blickwende für das Bergische Land. Vorschläge für die Zukunft der Region. Öffentlichkeitsbroschüre des "Forschungsprojekts Regionale Technologiepolitik" (finanziert vom Land NRW im Rahmen des 'Sotech-Programms'). Wuppertal: Projektbüro, Oberbergische Str. 4.