The social dimension of regional sustainable development planning

Dr. Frans H.J.M. Coenen
Centre for clean technology and environmental policy (CSTM)
Faculty Business, Public administration and Technology (BBT)
University of Twente, email: F.H.J.M.Coenen@utwente.nl
Phone ++31 53 4893216 /fax number ++31 53 4894850

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Summary
The Lisbon strategy has prioritized socio-economic issues in the European development. Through the Lisbon strategy together with the Gothenburg strategy Europe is striving for a balance between the social, economic and ecological dimension of sustainable development. In research the social dimension did only get limited attention because it is difficult to conceptualize. Politicians have difficulties with the social dimension of sustainable development because they think it relates sustainable development with everything. Here we use a capitals approach to sustainable development were regional development is more sustainable as it maintains or increases the total stock of natural, economic, social and human capital in a region. We define human capital as the knowledge, skills, competencies, and attributes, embodied in individuals, that facilitate the creation of personal, social and economic well-being. We will argue that the stock of human capital and changes in this stock (brain drain and brain gain) are central for the goals of the Lisbon strategy on knowledge economy, employment, sustainability and social cohesion. We illustrate the unbalance between different capitals in one region and compare the level of human capital between regions. Sustainable development is the balancing of the various types of capital so that they do not hold back each other. We will suggest in this paper that an investment in human capital compared with investments in other forms of capital, gives us the most economic return if we are able to find the right measures. The paper gives illustration of measures to stop brain drain and foster brain gain through regional planning in (peripheral) European regions. The examples are taken from an INTERREG IIIb project.

Introduction
At the Lisbon meeting, the European Council set a new strategic goal for the Union: “to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion”. The Stockholm European Council then decided that the EU sustainable development strategy should complete and build on this political commitment by including an environmental dimension. This recognizes that in the long term, economic growth, social cohesion and environmental protection must go hand in hand. Here the EU is in line with a now common way to describe sustainable development as a combination of three dimensions or ‘pillars’, namely the environmental (ecological), economic, and social dimension, although the original definition by the Brundtland Commission does not make such a distinction. Until now the social dimension is the pillar that received the least attention in academic research. This is largely due to the fact that there is no commonly accepted conceptualization how this social dimension should be understood. Politicians have difficulties with the social dimension of sustainable development because they think it relates sustainable development with everything. In this paper we take the valuing of stocks of capital, notably of social and human capital, as a framework to conceptualize the social dimension of sustainable regional development and it’s relations with the other two dimensions. In this conceptualization regional development is more sustainable as it maintains or increases the total stock of social and human capital in a region. Differences between these stocks of social and human capital in different regions lead to an unbalanced development and inequity between regions, which can also be seen as an important conceptualization of socially sustainable regional development. We discuss here (physical) planning measures that could increase the stock of human capital. Brain drain does not only have many territorial consequences but also many factors that influence the average level of human capital in a region are territorial. One factor is the geographical position of the region. Peripheral regions may have less attractive residence potential for (young) higher educated people than central or metropolitan areas. A second factor is the presence of an infrastructure for higher education. Many measures to fight brain drain are
spatial instruments that aim to raise the attractiveness of a region for settlement of people and business in need of high skilled labor force and to overcome settlement problems. The material is based on the NWE INTERREG IIb-project ‘Human capital in peripheral European regions; brain drain and brain gain’¹. This project analyses brain drain in three peripheral regions; the region Twente in the Netherlands; region Central Switzerland Kantons Lucerne and Uri and the region West Palentine in Germany.

Our main questions in this paper are:
- how is the stock of human capital related to sustainable regional development;
- in how far can the stock of human capital be used as a factor to balance sustainable regional development;
- how can we increase the level of human capital in a region.

**The three pillars of sustainable development**

According to the EU sustainable development offers the European Union a positive long-term vision of a society that is more prosperous and more just, and which promises a cleaner, safer, healthier environment – a society which delivers a better quality of life for us, for our children, and for our grandchildren. This relates to the general goals for the three pillars described in literature:
- ensuring economic development;
- improving the rational use of natural resources;
- enhancing social well being.

The concept of sustainable development tries to comprise environmental, economical and social interests. It advocates a well-balanced equilibrium between the environmental, economic and social dimension. In words of the EU achieving this in practice requires that economic growth supports social progress and respects the environment, that social policy underpins economic performance, and that environmental policy is cost-effective. The concept of sustainable development is also widely applied as a basis for empirical models to conceptualize the causality of the relationship between the environmental, economic and social dimension. The roots of the basic model lie forty years back in Firey’s (1960) theory of resource use that acknowledges a close relationship between environmental, economic and social development. Economists, environmental scientists and sociologists developed later more sophisticated models. Hodge (1997) published an overview of 29 variants on Firey’s “three-part-model”. In the Brundtland interpretation the three-parts-model depicts environment, economy and social wellbeing as mutual dependent dimensions of sustainable development. Variants add three elements to this model (Coenen and Van der Peppel, 2000). In the first place the three dimensions of sustainable development are revealed. For example a distinction is made between the societal reality and government policies or policy targets for each of the three dimensions. Secondly, intersections between the three dimensions are denominated. Thirdly, the dimensions of sustainable development are used, in normative sense, as criteria for decision making and assessment of interests. This can lead to the claim that public decision-making should take into account the effects of decisions on all three dimensions.

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¹ Of which the author is project leader
Until now unsustainable development was mostly defined as economic development damaging the ecological dimension. In this paper we focus on a (relative) lack of human as an indicator for unsustainable (social) development. Brain drain is a decrease in the stock of human capital in a region. This paper starts from the preposition that a direct impact of a sizeable brain drain is not only economically but also socially.

- Because human capital assets are an important tool for economic growth brain drain processes directly influences the economic dimension of regional sustainable development because it will be a slow down of the economic development in a region. The availability of a higher-educated working force is a settlement factor for business. Not only directly but also in terms of the knowledge infrastructure available for particular SME’s. This means that in the end the loss of the more educated also influences job availability for low-skilled workers, increases poverty and widens inequality between regions.

- Brain drain has also an influence on the social dimension of sustainable development. High-educated people contribute to many social functions in NGO’s, schools, sports and culture associations and local politics. They are important for the service level in a region through their consumption pattern (economically and cultural) and fulfill crucial functions like doctors and teachers. An unbalance between regions in human and social capital not only influences regional social economic and social functions, it also relates to social problems. The balance in demographic development relates to problems of aging of the population that will hit certain regions harder. The balance in educational and job opportunities, particular for young people relates to problems of unemployment.

- Finally an unbalance in regions also has physical consequences (more business area, roads, etc.) for the overdeveloped regions. The type of economic activities that correlate with an undereducated regional population often lead to more ecological damaging activities.

- Unbalance leads to inequality between regions, which is unsustainable regional development in itself.

The capitals approach to sustainable development

The capitals approach takes as a starting point the idea that sustainable development can be defined by reference to changes in the stock of different forms of capital. Here we distinguish four different forms of capital:

- economic (manufactured or human made) capital;
- human capital (individual skills and resources);
- social capital (relating to norms and social relationships);
- natural (or environmental) capital.

A way of looking on sustainable development is that the sum of these four capitals, per capita, should not decline over time. This is than seen in terms of the total stock, so the decline of one form of capital can be compensated for by an increase in another, such that total stock per capita is maintained. Substitution would only be acceptable for the maintenance of sustainable development as long as the loss of capital doesn’t represent a critical threshold beyond which the level of capital stock is deemed to be unacceptable. These acceptance would than be based on costs or social norms. For natural capital it is easy to image the type of threshold. For human and social capital it is much more difficult to image such a threshold. The concept human capital is frequently used in contemporary sociology and economics. It has numerous definitions. In economics the roots of the concept can be traced back to Adam Smith. In socio-economic sciences it was introduced in the sixties. Human capital was defined as the resources at the disposal of individuals and social communities. A relation was made with economic development. Baker emphasized the role of healthy and well-educated people who work actively and thus make decisions on human capital and economic development (Baker 1964). More recently Richard Florida popularized the human capital factor in economic development. According to Florida economic growth appears where well-educated people are present, as they are advocates of creative capital (Florida 2004).

The OECD (1998) defines human capital as the knowledge, abilities, competencies and other attributes embodied in individuals who are suitable for the economic activity required of them. This is a broad definition of human capital which does not include formal education received in the course of their learning but includes other skills learned by the individual during training courses (life-long learning: job training) and at work (learning by doing). These concepts play an important role in the Lisbon strategy.

Social capital is a related concept and often discussed together with human capital. Putnam (2000: 19) writes ‘whereas physical capital refers to physical objects and human capital refers to the properties of individuals, social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them. And ‘interaction enables people to build communities, to commit themselves to each other, and to knit the social fabric. A sense of belonging and the concrete experience of social networks (and the relationships of trust and tolerance that can be involved) can, it is argued, bring great benefits to people’. Both human and social capitals are supposed to shape the level of economic development of countries and regions.
Increasing the stock of the four capitals

There is much literature on how to attain regional economic growth and how this is related to the other forms of capital. There are options to let natural capital grow, for instance by creating nature areas, but this would go on the expenses of economic capital. There has been a lot of discussion if we simultaneously could let the stock of economic and natural capital grow. This is the discussion about decoupling economic growth and environmental pressure, which is mostly about having economic growth without additional degradation of the environment. There is an increasing interest among academics and policy makers in the concept of social capital especially in social capital as an important factor in explaining economic success. Although the concept may be highly appealing it is hard to measure empirically. As a consequence empirically the question is still not answered if social capital in terms of generalised trust and association activity influences economic growth (Beugelsdijk and Van Schaik, 2003). If this relation is unclear it offers little possibilities for developing policies to stimulate social capital in a way that it would have a positive impact on economic growth.

Our focus here is human capital. We define human capital as the knowledge, skills, competencies, and attributes, embodied in individuals, that facilitate the creation of personal, social and economic well-being (OECD, 2002). We consider it as a form of ‘capital’, which can accumulate over time, were we can invest in and which can depreciate. Not everybody agrees about the use of human capital in relation to human development. The objections are that human (and social) capital are not a form of material, energy or money, it is not a good. In Germany last year the word was chosen as the so-called ‘unwort’, most terrible word of the year. The argument of the jury was that human capital degrades people to only economic production factors. And indeed one way of looking on human capital is as a production factor to produce economic output. Human capital can not only be seen as a means for economic development were education makes people more productive in economy. Education (and other individual attributes like health) leads to the individual ability to lead a joyful, fulfilling life (Meadows, 1998). The end of a raise of human capital is than social well being (of individuals); the goal of the social dimension of sustainable development. As human capital is higher, especially if we operationalise it as a higher the level of education of the population, it can be more productive for both the economic and the social dimension of sustainable development. Sustainable development is the balancing of the various types of capital so that they do not hold back each other. We will suggest in the following that an investment in human capital compared with investments in other forms of capital, gives us the most economic return if we are able to find the right measures.

The stock of human capital as an indicator of sustainable development

There is already a large body of literature on sustainability indicators. The Lisbon strategy relates very different policy domains: employment, innovation, economic reform and social cohesion. To monitor the progress or the implementation of the strategy socio-economic indicators are developed that cover the four mentioned policy domains. At the Nice summit 26 so-called structural indicators were formulated to monitor the progress of the Lisbon strategy. Although the work on the structural indicators is still ongoing the stock of human capital is only indirectly measured in these structural indicators:

- under the theme employment we find life long learning (share of the population 25-64 years in education or training)
- under the theme II Innovation and research we find ‘Public expenditure on education’ (% of GDP; ISCED definition)
- finally under Theme IV Social Cohesion we find the indicator ‘early school leavers not in further education or training’ (% of population 18-24 years with only secondary education and not in education or training).

For the stock of natural capital we find indicators under the general economic background indicators (domestic oil equivalent consumption/GDP).

To monitor the implementation of the EU Sustainable development strategy a separate set of indicators under 10 themes is developed. In these indicators bridges have been made to the themes of the Lisbon strategy in a wide range of socio-economic and environmental issues, but there are no relations with human capital in these indicators. Here we take as an indicator for the stock of human capital the percentage of people in the workforce with a tertiary education.

Sustainable development in a region

In the following figure we illustrate the capitals approach in one region, the Twente region in the Netherlands. We confront with each other:

- Natural capital with the indicator green space (percentage of land used by agriculture plus forestry and nature area)²
- Natural capital with the indicator nature (percentage forestry and nature area)³

² Green space in Twente 86% and Netherlands 77%
- Economic capital (regional and economic growth percentage)\(^4\)
- Social capital (1) with indicator member of a social cultural association\(^5\)
- Social capital (2) with indicator trust in the fellow human being\(^6\)
- Human capital with as indicator the number of people in the working population with tertiary education

What the examples show is that in the Twente region an exceptional high level of social capital goes together with a relative low level of human capital. Economic capital is below national average but natural capital is above national average.

![Diagram showing the development of percentage human capital in 7 Dutch regions. The diagram includes data for Arnhem/Nijmegen, Groot Amsterdam, Groot Rijnmond, Overig Groningen, Twente, Utrecht, and Zuidoost Noord-Brabant.](image)

**Figure 3: Development of the percentage human capital in 7 Dutch regions**\(^7\)

\(^1\) Nature area and forest in Twente 15% and in the Netherlands 12%

\(^2\) Economic growth in the Netherlands was in 2003 –0.5 and in Twente –1.4

\(^3\) 89% is member of a social cultural association, average in Europe is 26%

\(^4\) 65% of the people in Twente has trust in the fellow human being, the European average is 35%

\(^5\) Source: Statistics Netherlands. One may notice a remarkable increase in Twente in the year 2000. This increase is found in other sources as well. However, related to the total amount of human capital in Twente in 1999, this is an increase of more then 17 percent. Such an increase is most probably caused by wrong measurements.
What this example illustrates is the crucial role of human capital. In figure 3 we compare the percentage of people with higher education in the region Twente with six Dutch comparable regions. Twente scores the lowest of all comparable regions. Related to the level of education of the population is that Twente has much more industry than average in the Netherlands but less service business activities.

Measures to increase human capital

Planning measures to fight brain drain or to foster brain gain have to be developed and implemented in close cooperation with stakeholders like firms, public authorities, schools, universities but also the inhabitants of the regions. Many policies are related to the problem of brain drain and brain gain. In the first place every policy that makes a region more attractive to live in, will make a region a more attractive settlement place for the highly educated. This can in theory be everything, ranging from infrastructure measures that increase mobility to other regions, improving cultural, health and school facilities and better housing. Settlement factors for high-educated persons and settlement factors for organizations that need higher educated employees are strongly interrelated.

Secondly, all economic measures are relevant that try to stimulate the economy in a way that the need for higher educated persons grows. This will keep people in the region.

We are not going to give examples of all measures that would contribute to the quality of life in a region or to it’s economic prosperity, although it is clear that many policy measures would have an impact. We restrict ourselves in here to a set of examples this project to measures that have as an explicit aim or secondary goal to attract or keep human capital in the region. The criterion is if the designers of a measure explicitly introduced it with the aim to contribute as an intended effect or side effect to the production and attraction of human capital in the region.

As the figure shows the total stock of human capital can grow through brain gain and the production of human capital in the region, and decrease through the process of brain drain. The production of human capital only leads to a larger stock of human capital if (1) there are vacancies in the region and (2) graduates are prepared to stay in the region. Brain gain will only happen if there are vacancies.

We make in the following an overlapping categorization of measures that stimulate the production of human capital, measures to attract human capital for open vacancies given an existing level of high educated jobs needed or stimulate the level of human capital either entrepreneurial or infrastructural stimulate by the funding or moving into the region of knowledge-intensive business. Key word are settlement factors; push and pull factors that influence the staying or coming of higher educated and of business in need of higher educated.

Examples of measures to stimulate the production of human capital in the region

To stimulate the production of human capital in a region the founding of institutes of higher education will not be enough. In all three regions under study brain drain an institute for higher education was the first attempt to stimulate the economic development of a region. This only works if graduates stay in the region and/or there are jobs available for these graduates. Some examples of measures are:

Platform Enschede student city. This is an initiative of the municipality of Enschede together with the institutes for higher education (university, schools for higher professional education) to stimulate initiatives to promote Enschede as a place to study. This is done by proving information on all aspects of student life in Enschede and subsidizing (student) initiatives to make Enschede more known as a student city.

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8 These regions are comparable in the sense that they either roughly have the same number or inhabitants or have comparable educational facilities, in casu a university and colleges for advanced education. It can also be because they are mentioned in the same policy documents.
Regional part-time MBA Masterclass. An initiative for young executive professionals to participate in a regional course. In this MBA course students learn to know other interesting organizations in the region, with the hope that they consider to take there next career step within the region.

Student mobility pass. An initiative to provide a job database to students and a graduate’s database to employers in combination with possibilities for internships. Underlying idea is to point out to students the possibilities of relevant work in the universities region.

Examples of measures to attract human capital in a region
Either creating jobs for high skilled jobs or trying to fill vacancies with people from other regions can realise attracting human capital. To attract people to the region can be done by either making the region more attractive for highly educated or facilitate people who want to move to the region.

Temporary Entrepreneurial Positions (TOP) The TOP-program was initiated by the University of Twente in 1984. TOP gives support to employees, graduates and students in setting up their own companies: it is done by offering an interest-free loan, technical facilities, housing, advices and courses. The arrangement’s goal is the transfer of scientific knowledge towards society and the strengthening of the regional economy of Twente. Each year about 15 to 20 people take part in the TOP-program. In 2000 219 companies had emerged from the TOP-program. It was estimated that these 219 TOP-companies offered employment to a total of 3134 employees. Over 78% of the companies were still based in the Twente Region, offering employment to a substantial number of employees.

Career centre Twente This is a cooperation between the larger employers in the region. The centre compiled through their national brain gain actions like national radio commercials and advertisement) a database of more than 600 cv’s of highly educated people who showed serious interest in coming to work in the region Twente. People who actual want to move are facilitated by house brokers, insurance companies, painters, child care, etc, to make a move to a job in the region as attractive as possible. The centre also tries to find a job for the partner in the region.

Rovaal wonen The realization and selling of high-quality housing facilities in areas all over Enschede.

Examples to facilitating business or people entrepreneurial or infrastructural
There are many traditional economic and infrastructural measures to stimulate the founding or attraction of business reaching from offering venture capital and advice to building business parks. In the brain project particular knowledge-intensive business are interesting. Many regions already try to profit from the university through business and science parks.

Business and technology centre Twente (BTC-Twente). BTC-Twente was founded in 1981 and is situated at the Business and Science Park Enschede near the University of Twente. The purpose of BTC-Twente is to strengthen and support the high-tech enterprise in the Twente region. To obtain that goals, it tries to function more or less as an ‘incubation centre’ at the Business and Science Park, next to the University. It offers housing and support to young knowledge-intensive business. For that reason, it actively supports the start-up and growth of these innovative enterprises by creating an ‘entrepreneur-friendly’ environment. About 70% of the companies are active in the technology sector.

Business angles In the West Palz a network is created of experienced managers, sometimes already retired, that can help starting business as senior coaches.
Conclusions

Our first question was how the stock of human capital is related to sustainable regional development. The stock of human capital has a clear relation with all three pillars of sustainable development. A decrease or relative lack of human capital in a region influences:
- the economic dimension; less human capital leads to less regional economic growth;
- the environmental dimension; less human capital is related with economic activities that are more environmentally damaging;
- the social dimension, human capital relates to individual well-being, the functioning of social networks in a region and the service level in a region.

Our second question was in how far could the stock of human capital be used as a factor to balance sustainable regional development. We argue that there has been a one-sided emphasis on the relation between economic growth and environmental pressure. The thesis is if regional economy grows without damaging the environment this will lead to social well being and quality of life in the region. Here we argued that we have to balance all four distinguished forms of capital. It will be difficult to raise the level of natural capital, this depends strongly on the type of economic activity will be very important

Trying to raise the level of human capital is an interesting option. If we take the level of education in a region as indicator of human capital, it relates to creative capital, innovative capacity, social networks and individual social well-being. And a higher educated workforce goes together with less environmentally damaging economic activities. For social capital we could have followed a similar way of reasoning. Social capital is more difficult to measure and the relations with the three dimensions of sustainable development are less obvious.

Our final question is how can we increase the level of human capital in a region. Raising the level of human capital is not just a matter of creating an institute for higher education. The regions mentioned in this paper have such an institute but score below national average of tertiary education in the working force. Producing human capital does not mean that graduates stay in the region or that there is an adequate match between those educated in the region and vacancies. A balanced design of measures to produce the right graduates, keep them in the region, fulfill vacancies and create jobs for higher educated. Key word is settlement factors.

Literature