

Sustainable development in a transition economy: example of Poland

Jakub Kronenberg
University of Lodz, Poland

Tomasz Bergier
AGH University of Science and Technology, Krakow, Poland

Abstract

When making reference to good practice in sustainable development, the examples from developed countries are most often used. Our aim was to analyse case studies from Poland and to identify and assess the drivers and barriers to sustainable development in the country. Demonstrating that good practice is available nationally might better motivate other stakeholders to follow this rather than constantly using the same case studies from other countries. The 23 case studies selected here demonstrate both the problems encountered in each situation and the positive forces that make sustainable solution possible. This review complements other studies carried out in reference to sustainable development in Poland to date, indicating the lessons that may be used to promote sustainable development in those countries still in the process of their economic, political and social transition.

Keywords

Sustainable development; drivers of sustainability; barriers to sustainability; transition economy; Poland

Introduction

Poland is widely perceived as a country that performs poorly with regards to sustainable development or environmental protection, in a way similar to other transition economies. Irrespective of other potential motivations, at the time when sustainable development has become an overarching principle of most international and also national documents, each country has to strive to perform better in this area. The situation in Poland is improving due to a number of factors that have already been identified in the literature. We attempted to assess the situation by focusing on various case studies before deriving more general conclusions.

The objective of this research was to assess the state of sustainable development in a country that has undergone a transition from a centrally planned to a market economy and to draw recommendations for other countries that are still in this transition process. Accelerating certain aspects of the transition might lead to improvement in the state of sustainable development, and the avoidance of excessive environmental impacts.

Literature review

The countries of Central and Eastern Europe (CEE) have received a great deal of attention in the last 20 years illustrating well the process of economic and social transition (e.g. Barr, 1994; Gros and Steinherr, 1995; Columbus, 1998). However, comparatively little attention has been paid to the environmental dimension of the transformation that would be informative from the sustainable development perspective (e.g. Juergensmeyer et al., 1990; Alcamo, 1992; Carter and Turnock, 1993; Vari and Tamas, 1993; Klarer and Moldan, 1997; Tickle and Welsh, 1998; Pavlínek and Pickles, 2000; Oldfield and Tickle, 2002; Scricieiu and Stringer, 2008). Within the publications cited above, the initial focus has principally been on the severity

of environmental problems and how they might be solved. Much less focus was made on sustainable development itself (e.g. Bolan and Bochniarz, 1994; Bochniarz and Toft, 1995; OECD, 2004).

Although there is a rich literature on sustainable development in Poland, it remains restricted to the Polish language. The most notable areas of research include sustainability indicators (e.g. Borys, 2005) and the general discussions on what sustainable development is and what are its requirements (e.g. Kozłowski, 2000). Frequently, the discussions remain on a relatively elementary level, e.g. with regards to which term best represents the ideas of ‘sustainability’. The two terms that are used most commonly are: *zrównoważony rozwój* which was used in the Polish constitution, emphasizing a balanced approach to economic, social and natural systems; and *trwały rozwój* which emphasises long-term approach and durability. A third term, *ekorozwój* (ecodevelopment), is also sometimes included in these discussions. Polish discussions on the subject are well represented by a number of articles in the special issue of *Sustainable Development* (Review of Research on Sustainable Development in Poland, 16(2), e.g. Pawłowski, 2008).

For the convenience of the international readership, we have restricted this literature review to English language publications, keeping in mind the multitude of other relevant publications, available in Polish and other national languages. In doing so, we attempted to isolate the most important aspects and drivers of sustainable development in Poland and other transition economies that we are later able to contrast with the case studies.

Although since its accession to the European Union (EU) in 2004 Poland is no longer classified as a transition economy, it used to serve as a prime example of this type of economy because of its size and the related range of economic, social and environmental problems that were experienced. Today, the experience of Poland is often presented as potentially useful for other countries still on their path to transition, such as the South and East European (SEE) countries or those in the Commonwealth of Independent States (CIS). Moreover, the potential to learn from Polish experience has also been cited in relation to sustainable development (e.g. Kozłowski and Haładaj, 2006).

The literature on the subject demonstrates that although countries of CEE have many similarities with regard to sustainability issues, they also differ, for example in terms of their environmental impacts, with some notorious examples, such as Belarus and the CIS countries in general (e.g. Costi, 1998; Ichikawa et al., 2002; Kluvánková-Oravská et al., 2009). These differences among the transition economies were partly a result of their different histories and different approaches to their transformation. Indeed, it could even be argued that some of the latter are not examples of transition economies as the transition they have undergone has not led to the creation of a market economy and democratic political structures, in particular the case of Belarus. In the following, we focus our attention on Poland, keeping in mind that many features of the described transition period have been shared by other countries of the region.

Abuse of the environment during the communist era (e.g. Scricciu and Stringer, 2008) and massive neglect during the transformation led to severe environmental problems. A good example was the so-called Black Triangle, once a heavily polluted area on the Polish-German-Czech border (Markert et al., 1996; Ladysz, 2006). This negative heritage extended in addition to poor institutions and their need to be reformed to realise sustainable development (Żylicz, 1992; Cummings, 1993b; Bochniarz and Toft, 1995; Slocock and Sowinski, 1996). In a sign of an institutional improvement, in 1997, the principle of sustainable development was incorporated into the Polish Constitution (art. 5) and in 2000 the government adopted its Sustainable Development Strategy ‘Poland 2025’. However, in 2007 the document was repealed with the aim to replace the strategy with a new one fully compatible with the EU requirements which however is yet to be created. This situation represents well the many other problems concerning sustainable development in Poland – although the problems are being solved, at least partially, new problems emerge whilst the old ones often recur as many had not been solved in a comprehensive manner.

Positive issues

Many of the old environmental problems were partly solved by the economic transformation itself, somehow ‘involuntarily’, as the decline in industrial activity reduced pollution and the need to withstand competition forced an increase of resource and energy efficiency (Ichikawa et al., 2002; Scricciu and Stringer, 2008).

The transition process was facilitated by the perspective of EU membership, and the related pre-accession funding and pressure to comply with EU regulations (e.g. Tickle and Clarke, 2000; Ichikawa et al., 2002; Carmin and VanDeveer, 2005; Kluvánková-Oravská et al., 2009; Tews, 2009). Indeed, already when EU accession negotiations for Poland and several other CEE countries started in 1997, the European Commission suggested that the environment was an area where a special effort was required to adopt the

acquis communautaire (Costi, 1998). On the other hand, it was occasionally noted that the EU itself might learn from the experiences of its new member states, for example with the use of certain financial instruments for environmental protection (Jehlička and Tickle, 2005).¹

Indeed, new financial instruments for environmental protection were developed during the transition period in Poland (Żylicz, 1995; Peszko and Żylicz, 1998, Żylicz, 1999), some of which have experienced spectacular success, such as the Polish EcoFund (OECD, 1998; Nowicki and Sitnicki, 2007; OECD, 2007). The EcoFund managed the Polish debt-for-nature swaps and has managed to raise over half a billion USD, more than all other debt-for-nature swaps in the world put together. Other sources of external funding were also available to ease the transition period (Costi, 1998), including those from the UN system and private donors. Economic openness in the country resulted in foreign direct investment which often led to replicating good practice developed in foreign markets in Poland and helped to further restructure Polish companies. With this regard attention needed to be paid to the environmental aspects of privatisation of Polish state-owned companies (Cummings, 1993a; Kristiansen, 1996).

On the social side, it is also important to note that during the communist period the protests against environmental problems were often closely related to protests against the old political system (Matczak, 1999). In the 1990s, in Poland, society was active in protesting against municipal facilities, such as landfills or roads (Matczak, 1999), however rather than relating to their environmental awareness, this related more to the 'not-in-my-backyard' (NIMBY) syndrome. Attempts have been made to involve local stakeholders in the development planning processes (e.g. Magnuszewski et al., 2005; Gorzelak et al., 2008) and in general, regional and local sustainable development planning has gradually become relatively more common (e.g. Grochowalska, 1998; Gorzelak et al., 2008). An important role in the transition to sustainability has also been played by NGOs (Cent et al., 2007).

Much change has occurred thanks to the following of good practice from developed countries, sometimes through international support programmes and sometimes thanks to the involvement of individuals who had gained experience in other countries. This took place especially in business, in reference to concepts such as cleaner production or corporate social responsibility (CSR) (Nowak, 1994, 1996; Klos, 1999, 2000; Doniec et al., 2002; Kronenberg J. and Clift, 2004; Lewandowska et al., 2004; Gasparski, 2005; Lewicka-Strzalecka, 2006; Kowalski et al., 2007; Mielechow and Piskalski, 2009; Anam, 2010), but also in reference to consumption patterns (Mróz, 2010). With regards to the latter, imitating consumption patterns from the West brought both excessive consumption and but also to some extent a more responsible consumption.

It is worth noting that some of the solutions developed during the communist time and in the early stages of transition were also successful, notably with reference to nature protection (Scrieci and Stringer, 2008; Kluvánková-Oravská et al., 2009). Therefore, it would be a mistake to completely reject the developments that took place during the previous political system.

Potential unresolved problems

In spite of the positive factors above, some spectacular problems related to sustainable development keep occurring in Poland. Most notably those that refer to nature protection and the so-called 'environment or development' dilemma, such as the Augustów bypass that was planned to cut through the Rospuda river valley or the general discussion regarding the selection of Natura 2000 sites in Poland. In the case of the latter, the then Polish Prime Minister Jarosław Kaczyński suggested that 'Natura 2000 has expanded so much that it is practically impossible to build anything' (interviewed by BBC on 11 August 2006). This was declared in spite of the fact that Poland was among those EU countries that had the lowest share of areas designated for protection within this scheme. Various problems of this kind have been reported in the literature along with the attempts made to solve them (e.g. Żylicz, 2000; Królikowska et al., 2007; Kluvánková-Oravská et al., 2009). Other notorious problems emerged with regards to the quota for cod fishing in the Baltic Sea, that were being disobeyed by Polish fishermen, and to the division of emission permits within the EU. With such an approach to sustainable development and environmental policy, Poland has often only undertaken these activities only after being forced to by EU rules (e.g. Kronenberg J. and Maliszewska, 2004; Kronenberg J., 2007).

¹ Conversely, EU pressure has also been accused of not being accustomed to the particular conditions and possibilities of various countries, constituting a new centralized regime (e.g. Scrieci and Stringer, 2008) and it has not taken into consideration the opportunities to learn from and adapt the solutions developed in the candidate countries (Christiansen and Tangen, 2002).

These have been blamed on an insufficient level of awareness of the rationale for and possibilities offered by sustainable development among Poles and Polish decision makers. A poor use of information instruments as part of environmental or sustainable development policy has been sometimes explained by a lack of demand for information which has resulted in poor environmental awareness by citizens. As explained by Banas (2010, p. 52): ‘ignorance of the value of information is the most likely factor influencing the information flow’ on both sides.

Structural changes during the transition period have also led to serious social consequences, in particular those related to unemployment and social exclusion of marginalized groups within society. These issues were also related to the poor quality of social capital in Poland. Deterioration of social capital that took place during the communist period, and of trust in particular (Danchev, 2005; Bielski, 2010), has been another barrier to sustainable development. For example, this makes it difficult for NGOs to become involved in solving various problems as state agencies avoid dialogue and citizens often do not trust either the authorities or other NGOs (Klůvankova-Oravska et al., 2009; Tews, 2009; Bielski, 2010). Similar problems, including poor institutions, social problems resulting in a difficult situation in the job market and the relative weakness of NGOs have also created barriers to the development of CSR in Poland (Lewicka-Strzalecka, 2006). With these problems in place, even external support might not have brought about the desired change. Greater openness of the policy and the decision making process is necessary, as is a willingness to cooperate on both sides, i.e. between the decision makers and those who are subject to their decisions.

Moreover, while the old environmental problems were being solved, new problems appeared, such as increased consumption levels and the related pressure on the environment, including waste and increased car traffic (Pavlinek and Pickles, 2004; Scricciu and Stringer, 2008). Clearly, basic needs had to be satisfied before people were able to start thinking about other issues, such as the environment (Costi, 1998). Alternatively, perhaps it might have been possible to place more emphasis on the issues related to sustainable development at the very beginning of the transformation process?

Many attempts have been undertaken in assessing sustainable development in transition economies, including that of Poland (e.g. Borys and Rogala, 2008; Gorzelak et al., 2008) and other CEE countries (e.g. Blazek et al., 2008; Bochniarz et al., 2009; Kobus, 2009). The assessments focussed on various issues and concepts related to sustainable development, such as the institutional setting (e.g. Ichikawa et al., 2002), the environmental Kuznets curve (Archibald et al., 2009), the ‘resource curse’ (Kronenberg T., 2004), industrial metabolism (Welfens et al., 1999; Anderberg et al., 2000), the potential development of ecotourism (Nowaczek and Fennell, 2002) and motivations for organic farming (Kubala et al., 2008). In Poland, an Index of Sustainable Economic Welfare was calculated (Gil and Sleszynski, 2003), and the potential of introducing ecological tax reform was explored (Kiuila and Sleszynski, 2003).

The above drivers and barriers to sustainability in Poland are summarised in Table 1. Clearly, they differed across time. The sudden collapse of the previous system and a focus on economic transition and use of market and consumption made it difficult to focus on the other issues. Only gradually were the other issues emerging, such as improving institutional governance and focussing on post-material values within society. However, as can be seen in the next section, based on the analysis of our case studies, many important issues remain to be solved whilst others are still only at preliminary stages of implementation.

Table 1. Drivers and barriers to sustainability in Poland as identified in the literature

Drivers	Barriers
Structural change Restructuring of companies Competition New institutions in environmental policy, including new economic instruments EU institutional pressure External funding Foreign direct investment External technical support (including sharing of good practice) Imitating good practice from abroad Activity of NGOs Development of mechanisms and institutions during the communist era and the transition period in particular that might support sustainable development	Poor institutions Low environmental and social awareness of citizens and decision makers (‘environment or development’ dilemma) Low levels of social capital and trust New problems related to consumption (e.g. waste, traffic)

Case studies and lessons learnt

In order to assess the actual state of sustainable development in Poland and to make policy recommendations for this country and other countries still on the transition path, we attempted to analyse a number of Polish case studies that reflect various sustainability-related issues. We made a call for recent case studies that illustrated the various aspects of sustainable development in different sectors. Of about 30 proposals we selected 23 that we judged most representative or particularly interesting and asked the authors to describe them for use both in research and teaching. An additional benefit of this project was the first Polish textbook on sustainable development which was based entirely on Polish case studies (also published in English: Kronenberg J. and Bergier, 2010). The book shows that during the 20 years since the fall of communism, we have already collected substantial material that can be used for teaching and further promoting the principles of sustainable development in Poland and in other countries.

Overviews of 23 case studies selected for this project are presented in Tables 2–5. They are divided into four groups:

1. general case studies related to resource management, for the elementary aspects of sustainable development (Table 2);
2. business case studies (on sustainability management; production; construction; sustainable supply chain management; replacing products with services; Table 3);
3. case studies related to the activity of local authorities (sustainable development planning; spatial planning; transport; municipal services; public-private partnerships; Table 4); and
4. case studies related to individuals acting as consumers and citizens (Table 5).

The tables contain short descriptions of each case study, including the problem to which each refers, the solution developed, the driving force for the solution, and the trend that it represents from the list of trends identified in the previous section. A note has also been made on the replication factor of each example, i.e. whether such a situation is or can become common and under what circumstances.

Although the examples selected represent good practice and issues particularly relevant to the principles of view of sustainable development, they mostly replicate good practices developed in other countries. This is related to the introduction of EU policies, popularisation of corporate social responsibility (including the introduction of practices followed by international corporations to their Polish subsidiaries), and the slowly increasing level of environmental and social awareness amongst the Poles themselves. These examples confirm that the membership in the EU (since 2004) has helped to implement sustainable development in Poland both financially and institutionally (e.g. Baltic cod fishery, CS2) and that the previous assistance of international donors has also proved helpful in this regard (e.g. in promoting local sustainable development strategies, CS12 and CS13).

Although the examples are not particularly sophisticated, compared to their counterparts in the most advanced countries, they demonstrate that the principles of sustainable development and related ideas are indeed increasingly being followed in Poland. Simple activities in this area have spread to large state-owned companies (such as the Polish Gas and Oil Mining company, a state-owned monopoly and one of the largest companies in Poland, CS6).

With their different sectoral backgrounds, the case studies are interrelated and demonstrate the various aspects of sustainable development from different perspectives. For example old urban structures in most Polish cities are often steadily falling apart, both literally (in terms of their construction) and in a social and economic sense. In fact, this also affects other countries in the region (e.g. Zavadskas and Antucheviciene, 2006). Clearly, innovative strategies for urban renewal are needed, combining different dimensions of renovation, such as the one followed in the case of the Turzyn Quarter in Szczecin (CS8). Such activities can be supported by NGOs, for example the Group of Certain People from Lodz (CS22). Facilitating the activity of citizens' networks has a great potential for sustainable development, particularly significant now when post-material values emerge after the material needs have been satisfied. Had active citizens received greater support earlier in the transition period, maybe the post-material values may have emerged earlier and some of the problems might have been resolved hitherto (e.g. in the case of the wood processing company described in CS3).

Table 2. General case studies related to sustainable resource management

Number and name	Geographical coverage	Problem	Solution	Driving force for the solution	More general trends illustrated	Replication factor (actual and potential)
1. How much is Białowieża Forest worth?	Białowieża National Park	Long-lasting debate on the extension of the Białowieża National Park which currently covers only 16% of the Polish part of this forest. The remainder is partly used for forestry (logging). How can the authorities and local population be convinced that extending the park would not harm their economic interests? Mismanagement of natural resources and ecosystem services.	Valuation of non-market ecosystem services demonstrates that compared to the value of the timber that the forest provides, the forest is worth 2.5 times more if the travel cost method is used and 200 times more based on the choice experiment method (Czajkowski et al., 2009).	Demand for protection of the forest from NGOs, tourists (including foreign tourists), and the intellectual elite of the country	Use of economic reasoning for solving environmental problems Use of tools developed in Western countries (following good practice from other countries).	Few valuation studies have been undertaken so far in Poland (see Zyllicz, 2000) but the understanding of ecosystem services has increased at least among researchers and some decision makers
2. Fishing the Baltic cod	Baltic Sea	Overfishing of the Baltic cod and the attitude of Polish fishermen and decision makers to this Institutional failures leading to widespread illegal fishing Mismanagement of natural resources and ecosystem services	Strengthening institutions by putting right people in the right places Penalizing those who cause problems	EU pressure	EU pressure	A similar situation occurs with respect to other resources and ecosystem services
3. Wood processing company and the environment and local community	Undisclosed	A wood processing company owned by an international corporation located in a picturesque town at a tourist attractive lake is polluting the environment and causing other nuisances for the local population, whilst being at the same time the most important employer	Strengthening local institutions Cooperation with the local community Broader transparency	Disillusionment by the local population	EU pressure Social empowerment	A very common example of how environmental protection and community relations have been changing since the 1960s until the present
4. Sustainable development in the Barycz valley	Barycz valley (south-west of Poland)	Local population feeling threatened by environmental protection measures ('environment or development dilemma')	Using systems thinking (causal loop diagrams) and stakeholder involvement (participatory process) to prepare a local sustainable development plan (Magnuszewski et al., 2005)	Involvement of external stakeholders Important role played by NGOs as intermediaries	External funding Knowledge from abroad adapted to local conditions Social empowerment	A very common problem, increasingly being solved through new economic opportunities being offered to populations living in places of natural interest

Table 3. Business case studies

Number and name	Geographical coverage	Problem	Solution	Driving force for the solution	More general trends illustrated	Replication factor (actual and potential)
5. Implementing GRI guidelines in the BRE Bank	Company with headquarters in Warsaw	Financial problems related to the global crisis Need to increase transparency and inform about responsible practice	Using GRI guidelines to prepare a sustainability report Updating the CSR management structure	Market pressure External advisor	Following good practice from developed countries	Increasingly large Polish companies undertake CSR activities
6. SD and CSR strategy in the Polish Oil and Gas Mining company	Company with headquarters in Warsaw	Large state-owned company, widely perceived as not particularly responsible because of its monopolist position in the gas market and politically-dependent	Interactive and iterative process involving managers at different levels through workshops, consultations and a new management structure	Market pressure External advisor	Imitating good practice from developed countries	Common problem in large state-owned companies Increasingly they undertake CSR activities
7. LCA as a tool supporting eco-design – example of a fridge	Undisclosed	To be competitive in foreign markets, Polish companies have to adopt standards and management methods used in those markets	LCA partly based on the producer-specific data, prepared using internationally-developed software Eco-design based on LCA results	Demand from foreign markets	Exporting companies are exposed to pressure from the markets on which they operate Knowledge from abroad adapted to local conditions	Increasingly common
8. Turzyn Quarter in Szczecin – sustainable renovation.	Szczecin	Derelict urban spaces Lack of adequate housing conditions Urban sprawl	Renovation of a district in Szczecin in an environmentally friendly way and preserving the previous social structure of inhabitants (see also Świątek, 2000)	Availability of funding for this type of renovation Need of developing urban spaces	External funding (pilot project)	Problem present in all Polish towns and cities Solution followed rarely as other renovation methods are easier and less expensive
9. The straw bale house	Przelomka (north-east Poland)	High environmental impacts of widely used construction materials Another face of sustainable construction (low-tech buildings as opposed to high-tech passive buildings)	A building made of straw bale, clay and earth	Availability of local building materials Linking to tradition Expert knowledge	'Eco fashion' Looking for alternatives to most widely spread solutions	Potentially replicable because of availability of building materials, low cost and tradition Obstacle: distrust, social perceptions
10. IKEA – 'Low prices, but not at any price'	Global; Polish headquarters in Warsaw	Company accused of irresponsible practices in some markets Note that in Poland such accusations were not made, the response was part of the global policy of the company	IKEA system of codes IWAY – the IKEA Way on Purchasing Home Furnishing Products Sustainable product chain management tools	Consumer pressure Other stakeholders' pressure	International corporation introducing its sustainability practice into a new market Maintaining the same standards globally	Potential wide application In reality almost non-existent among Polish companies
11. Public libraries in Poland	Nationwide	Falling number of libraries, of borrowers and of rentals despite modernisation of the libraries and the important social functions they provide	Improving the 'competitiveness' of libraries through additional services	Global trends related to getting access to information and culture	General illustration of problems incurred by the approach of replacing products with services	Problems related to replacing products with services – consumers' conviction that it is a solution for the poor

Table 4. Local authorities case studies

Number and name	Geographical coverage	Problem	Solution	Driving force for the solution	More general trend that it illustrates	Replication factor (actual and potential)
12. Local Agenda 21 in Poland	Nationwide	Few local authorities in Poland have developed a local sustainable development strategy and few were aware that they were obliged to do so (Grochowalska, 1998)	Information campaign Several programmes supporting local authorities in developing LA-21	External requirements (EU, UN)	External support.	Still many local authorities do not have a LA-21.
13. UNDP Umbrella Project standards	Warsaw	Problems incurred by Polish local authorities in creating local sustainable development strategies	Developing Polish standards on the elaboration of local sustainable development strategies and on auditing them	External funding External requirements (EU, UN)	External funding and requirements Locally developed knowledge	Potential replication in other local authorities in Poland and abroad
14. 'Old' Nowa Huta	District in Krakow	Nowa Huta is often used as an example of socialist urban planning – but if studied better from the perspective of 60 years of its existence it turns out to be a successful planning undertaking	New approach to old urban structure	Need for revalorisation of old resources	Contrary to a popular belief, not everything that was created during the communist time was unsustainable	Although this is a unique case, other previously underappreciated projects exist
15. Eco-town Siewierz	Katowice	New town planned in Siewierz, on the rail way from Katowice to Katowice Airport, by a lake The area was planned for industrial development but it was replanned as an eco-town – the first such undertaking in Poland	New ideas for space management.	Idea to create a unique living space Customer pressure	Knowledge from abroad (New Urbanism) adapted to local conditions Imitating good practice from developed countries	Pressure for housing estates ensuring high quality of life makes way for similar projects
16. Communication system in Krakow	Krakow	External costs caused by private transportation in the centre of Krakow (pollution, congestion, accidents etc.)	Introducing the ideas of sustainable mobility (priority given to public transport; restricting car traffic; promotion of walking and cycling)	Participation in an international project (Civitas Caravel)	Imitating good practice from developed countries	Similar solutions are urgently needed in other cities in Poland and small steps are made towards their introduction
17. Śląsko-Dąbrowski bridge in Warsaw.	Warsaw	While traffic jams on this bridge affected not only private cars but also public transport, the city authorities were not able to force creating separate lanes for buses and trams used to be jammed for most of the day	A renovation of the bridge was used as an opportunity to test this solution (separate lanes for public transport)	Problems caused by congestion Opportunity to test a new solution	Imitating good practice from developed countries	Need to change the mental models of decision makers and city travellers Same problems exist in other cities
18. Constructed wetland for Dziejwin	Dziejwin (south west Poland)	In 2007, only 24% of inhabitants of rural areas in Poland were served by wastewater treatment plants In most cases centralised wastewater treatment infrastructure is promoted and funded	Participatory process of choosing the right solution Decentralised solution selected (constructed wetland)	External support Need to solve the problem of wastewater	EU funding available (although giving preference to large-scale solutions)	In many rural locations wastewater is not treated and it is not economically efficient to create centralised systems
19. Warmia-Mazury Spa	Lidzbark Warmiński (north east Poland)	Discovery of geothermal sources that might potentially be used to create a spa in a region without sufficient funds to develop them	Public-private partnership (PPP)	The project won 1 st prize in a national competition on the best-prepared PPP	Institutional improvement (new act on PPP introduced in 2008)	Potential use of PPP for sustainable development is high

Table 5. Sustainable consumption and civic society case studies

Number and name	Geographical coverage	Problem	Solution	Driving force for the solution	More general trend that it illustrates	Replication factor (actual and potential)
20. Consumer education programmes run by NGOs in Poland	Nationwide	Low awareness in the Polish society of sustainable development problems Low awareness of the role of individual consumption decisions in sustainable development	Educational programmes run by NGOs, with a particular focus on the most prominent examples of the Polish Green Network (Polska Zielona Sieć) and WWF Poland	Translating resources and activities available abroad into relevant resources and activities directed at Polish consumers	Following good practice from developed countries Knowledge from abroad	Need to complement current activities with material developed specifically for Polish conditions
21. Fair trade in Poland	Nationwide	Consumers in Poland are increasingly affluent and can afford to make responsible purchases that influence societies in other parts of the world	Development of the market for fair trade products in Poland	Consumer demand NGOs activity	Following good practice from developed countries	A possibility to include some nationally-made products that fulfil the same criteria to solve problems in Poland
22. Group of Certain People (Grupa Pewnych Osób, GPO)	Lodz	Old buildings falling into ruin, car dominance, destroyed green spaces, and other urban problems of an old industrial city Insufficient involvement of local authorities in solving the above problems	Informal network of people who met over the internet and have started to run activities aiming to improve the quality of life in Lodz, in terms of culture, society, environment and even economy	Post-material values of a group of people who initiated GPO	After solving the most elementary problems, new problems emerged	High potential for replication, however limited by low social involvement of the Poles
23. Thematic villages in Poland	Northern Poland	Lack of traditional development factors (natural or social), leading to economic and social exclusion of certain areas Lack of ideas that would change this situation	Establishing thematic villages (such as Hobbits' Village and Village of the End of the World), a tourist magnet and an engine of local development	External support (a social entrepreneur and an NGO)	Knowledge from abroad adapted to local conditions	How to make people act, how to generate interesting ideas for thematic villages, what exactly happens in the two villages described

Assessing sustainable development requires multi-criteria analyses, taking into consideration the whole socio-ecological systems. This has become most evident in the case studies related to natural resource management (CS1 on the valuation of Białowieża Forest, CS2 on cod fishing, and CS4 on sustainable development planning in the Barycz Valley). Promoting the systems approach to sustainable development might improve the level of understanding of economy–society–environment interactions and again prevent some of the problems before they have reached their severity.

The tables confirm the importance of the driving factors and barriers to sustainability indicated in the previous section. They also suggest that there are other driving factors, such as:

- participation in international projects, in the case of which transfer of good practices from other countries is accelerated (CS16);
- using local knowledge and traditions (as in the case of low-tech architecture, CS9);
- pressure from foreign markets (for exporting companies, CS7); and
- haphazard opportunity to test new solutions (CS17).

Although the case studies have also confirmed that not everything that was created during the communist era was unsustainable, as the example of Nowa Huta demonstrates (CS14), they also revealed new ideas on what kind of heritage from the communist period might now inhibit sustainable development. Apart from the well-known examples of low levels of trust and social activity, there includes the aversion to shared ownership which negatively affects the potential to spread innovative solutions, such as product–service systems in Poland (CS11). The same problem might affect the potential to spread more simple solutions, such as low-tech architecture (CS9) because they have been perceived as ‘for the poor’.

Education programmes run by NGOs (CS20) can help to alleviate these problems above. However these, in addition to the use of foreign examples, should also make reference to local knowledge and traditions, and in their examples refer directly to Polish conditions. Such communications would also be more convincing for a Polish audience. Indeed, using these national case studies demonstrates that sustainable development is possible in a given social and economic setting, and it can help promote sustainability more than broadly used perfected examples from abroad. Eventually, around these initial examples a network of sustainability professionals emerges who exchange opinions and share them with others. Such a network has indeed already emerged in Poland.

Conclusions

Our aim was to collate case studies from Poland to evaluate what is happening in the various areas of sustainable development in the country and, based on this, to assess the drivers and barriers to sustainability. Showing that good case studies are already available nationally might better motivate other stakeholders to follow them rather than constantly using the same case studies from other countries, which are sometimes out of date.

Sustainable development poses different problems and requires different perspectives in developed, developing and transition economies. The latter two replicate good practice from the former one but they have different conditions that need to be taken into consideration when devising solutions specific to these countries. Although such activities can be supported with foreign resources, they have to incorporate local knowledge.

A great deal has been written on issues related to sustainable development in Poland, including quite a broad literature in English. However, this is still fragmentary knowledge that illustrates the various aspects of sustainable development separately. In future, these different aspects need to be synthesized and used as the foundations for formulating a vision and a new strategy for sustainable development of the country.

This paper’s case studies highlight the drivers of and barriers to sustainability identified so far with reference to Poland and other transition economies. Additionally, they indicate a number of other issues that have not been discussed so far and that also need to be taken into consideration when planning further activities in relation to sustainable development. These include participation in international projects, use of local knowledge and traditions, pressure from foreign markets with regards to exporters, and even haphazard opportunities. However, the key to sustainability are: awareness, involvement and citizen activity, factors that can be shaped with relevant policies.

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