## PROBLEMY EKOROZWOJU PROBLEMS OF Sustainable Development

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# PROBLEMY EKOROZWOJU

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## INFORMATION INFORMACJE

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Number of recent articles	50	

EDITORIAL/OD REDAKCJI

## Do the Liberal Capitalism and Globalization Enable the Implementation of Sustainable Development Strategy?

## Czy liberalny kapitalizm i globalizacja umożliwiają realizację strategii zrównoważonego rozwoju?

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#### Abstract

One of paradigms of sustainable development is intra-generational justice, which requires the active role of the state to balance the power of international corporations with the interests of paid workers. The changes initiated by Ronald Reagan and Margaret Thatcher, which led to the weakening of trade unions and the controlling role of the state, resulted in an escalation of inequality. Globalisation is applied to this, in an age where the influences of large multinational corporations, geared primarily for profit, do not have a strong partner who could effectively control them. Consequently, in spite of an increase in worker productivity, regions of poverty on a global scale do not diminish. Instead, vast concentrations of capital accrue in the hands of narrow groups of people. In particular, the liberalisation of the financial markets should be regarded as dangerous which, as a result of speculations, appropriate vast resources without contributing to the creation of added value. It is necessary to return to the concept of the welfare state to significantly improve the quality of life for most citizens. Nowadays, liberal capitalism represents a considerable threat to the realisation of the sustainable development idea.

Key words: sustainable development, globalisation, intra-generational justice

#### Streszczenie

Jednym z paradygmatów zrównoważonego rozwoju jest sprawiedliwość wśród-generacyjna, która wymaga aktywnej roli państwa równoważącej potęgę korporacji i interesów pracowników najemnych. Zmiany zapoczątkowane przez Ronalda Regana i Margaret Thatcher, które doprowadziły do osłabienia związków zawodowych i kontrolującej roli państwa skutkują narastaniem nierówności. Na to nakłada się globalizacja, w dobie której wpływy wielkich międzynarodowych korporacji, które są nastawione przede wszystkim na zysk, nie mają silnego partnera, który by je skutecznie kontrolował. W konsekwencji pomimo wzrostu wydajności pracy, obszary biedy w skali świata nie maleją. Następuje natomiast ogromna koncentracja kapitału w rękach wąskich grup ludzi. W szczególności za groźne należy uznać zliberalizowane rynki finansowe, które w wyniku spekulacji zawłaszczają ogromne środki, nie przyczyniając się do powstania żadnej wartości dodanej. Koniecznym jest powrót do koncepcji państwa opiekuńczego w istotny sposób poprawiającego jakość życia większości obywateli. Liberalny kapitalizm w obecnej postaci stanowi istotne zagrożenie dla realizacji idei zrównoważonego rozwoju.

Słowa kluczowe: rozwój zrównoważony, globalizacja, sprawiedliwość wśródgeneracyjna

#### Introduction

In recent years sustainable development has become one of the key ideas reflecting civilisation's many theoretical courses of development. The sustainable development concept was first formulated

#### Wprowadzenie

Zrównoważony rozwój w ostatnich latach jest jedną z kluczowych idei wytyczających teoretyczne kierunki rozwoju cywilizacji ludzkiej. Koncepcja zrównoważonego rozwoju została po raz pierwszy

in the famous Brundtland report (1987), which, generally speaking, requires such actions to be taken, so as to ensure the needs of the current generation without depriving future generations of their ability to meet their own needs. In subsequent years the idea of sustainable development was further developed and refined. As a result, it became multidimensional (Pawłowski, 2006), with recommendations for implementing sustainable development, initially focusing on the protection of the environment, but quickly engulfing other areas of human activity starting with the management of Earth's resources and ending with the ethical aspects. Consequently, the transformation of the functioning of civilisation, in accordance with the sustainable development postulates, have become recognised as the beginning of a new revolution in the development of civilisation (Pawłowski, 2011).

From a practical point of view the quality of life is determined by the availability of basic goods necessary for life, the quality of the natural environment, and human relationships determined by the sociopolitical system. The problem is that, since President Ronald Reagan, there has been a gradual deterioration of socio-economic relations, whilst the difference in living standards and incomes, since that time, have risen sharply. Undoubtedly, the rise of capitalism caused an accelerated development of production. Initially, an enormous diversity in society was observed. Employees, particularly manual workers were deprived of any rights, even the right to a guaranteed minimum living wage. In response to this, movements arose, calling for a fairer distribution of wealth. The encyclical Rerum Novarum, issued by Pope Leo XIII was a notable voice, due to the importance of the institution. At the same time, socialist movements also arose calling for equality and social justice. Consequently, this led to the rise of trade unions in the first half of the nineteenth century which, with their increasing power, significantly influenced the transformation of the state's role in the direction of a national welfare state, towards the end of the first half of the twentieth century.

These changes, because it is difficult to call them reforms (because reforms have a positive connotation), whose creators were President Ronald Reagan and Prime Minister Margaret Thatcher reduced the role of traditional unions, which led to a recurrence of unjustified inequalities, and to a direct rise in large groups of people thrown onto the side-line. As intra-generational justice is one of the basic paradigms of sustainable development, it is worth looking at modern civilization of liberal capitalism from this viewpoint. This issue has been repeatedly raised in the journal entitled Problemy Ekorozwoju/Problems of Sustainable Development. The cause of this state of affairs was seen as the inadequate development of social sciences and humanities (Keitsch, 2011; Udo et al., 2011; Gawor,

Sformułowana w sławnym raporcie Brundtland (1987), który najogólniej mówiąc nakazuje takie postępowanie, aby zapewniając potrzeby obecnie żyjącej generacji nie pozbawiać przyszłych pokoleń możliwości zaspokajania ich własnych potrzeb. Idea ta w kolejnych latach była rozwijana i uszczegółowiana. W konsekwencji stała się wielowymiarowa (Pawłowski, 2006) tak, że zalecenia realizacji zrównoważonego rozwoju, poczatkowo koncentrujące się na aspektach ochrony środowiska, szybko objęły inne dziedziny działalności ludzkiej od gospodarki zasobami Ziemi poczynając a na aspektach etycznych kończąc. W konsekwencji przekształcanie funkcjonowania cywilizacji ludzkiej zgodnie z postulatami zrównoważonego rozwoju zostały uznane za początek nowej rewolucji w rozwoju cywilizacji ludzkiej (Pawłowski, 2011).

Z praktycznego punktu widzenia o jakości życia decyduja: dostępność podstawowych, niezbędnych do życia dóbr, jakość środowiska naturalnego i relacie międzyludzkie determinowane przez system społeczno-polityczny. Problem w tym, że od czasów prezydenta Ronalda Regana następuje postępująca degradacja stosunków społeczno-gospodarczych, a różnice w poziomie życia i dochodach od tego czasu gwałtownie rosną. Niewątpliwie powstanie kapitalizmu spowodowało przyśpieszony rozwój produkcji. W początkowym okresie obserwowane były ogromne zróżnicowania społeczne. Pracownicy, w szczególności pracownicy fizyczni pozbawieni byli jakichkolwiek praw, nawet prawa do minimalnej, gwarantującej egzystencję płacy. W odpowiedzi na to, powstały ruchy nawołujące do bardziej sprawiedliwego podziału dóbr. Znaczącym głosem, z uwagi na powagę instytucji, była encyklika Leona XIII Rerum Novarum. W tym samym czasie powstały także ruchy socjalistyczne odwołujące się do równości i sprawiedliwości społecznej. W konsekwencji doprowadziło to do powstania w pierwszej połowie XIX wieku związków zawodowych, które w miarę wzrostu ich siły wpłyneły w istotny sposób na przekształcenie roli państwa, pod koniec pierwszej połowy XX wieku w kierunku narodowych państw opiekuńczych.

Zmiany, bo trudno to nazwać reformami (bo reformy mają konotację pozytywną), których twórcami byli prezydent Ronald Regan i premier Margaret Thatcher obniżające rolę związków zawodowych, doprowadziły do ponownego wytworzenia się, niczym nie usprawiedliwionych nierówności, wręcz do powstania dużych grup ludzi wyrzucanych poza margines. Ponieważ jednym z podstawowych paradygmatów zrównoważonego rozwoju jest sprawiedliwość wśród-generacyjna, warto spojrzeć na współczesną cywilizację liberalnego kapitalizmu z tego punktu widzenia. Problem ten był wielokrotnie podnoszony na łamach *Problemów Ekorozwoju/Problems of Sustainable Development*.

Przyczyn takiego stanu rzeczy dopatrywano się w niedostatecznym rozwoju nauk społecznych i hu-

2010; Tuziak, 2010; Liszewski, 2007; Tyburski, 2007; Pawłowski, 2008; Ikerd, 2008; Hull, 2008; Dołęga, 2007; Ciążela, 2007). The cited authors point to a lack of ethics in modern liberal capitalism as the main cause of the observed crisis, whilst at the same time formulating proposals for changes in this regard. In other words, the currently observed crisis is primarily a crisis due to a lack of ethical behaviour of which there is insufficient awareness. In my assessment, today's (rising inequalities) and future threats (the over-exploitation of the rapidly depleting natural resources, progressive degradation of the environment) indicate that modern civilization is developing in an unsustainable way. In the next section I will attempt to point out the causes.

#### Causes of unsustainability

The paradigm of modern liberal capitalism is the immense greed of the elite to amass wealth at all cost, through the principle of *grow or die*. Capital can be accumulated by using the Earth's resources and human labour. I have already mentioned the trade unions which, by the mid twentieth century, led to a balance in society between capital and the world of work on the one hand, and also, through the strong role of the state high standards of environmental protection were imposed on the other. This was possible because the power of the capital was offset by the power of the state where trade unions represented the paid workers.

The state began its withdrawal, from the time of Ronald Reagan and Margaret Thatcher, in line with the less state slogan, which was also propagated in Poland. The weakened trade unions were not able to oppose this trend in many countries. Big transnational corporations grew from this foundation, with available assets sometimes exceeding national budgets. The withdrawal of the state and the rise of multinational corporations has meant, not only the loss of the element protecting paid workers, but also of such issues as environmental protection, protection of working rights, the rationalised consumption of the Earth's non-renewable resources. Basically, a sufficiently powerful partner has not been lined up who could play a regulatory role in relation to the international corporations, whose sole purpose is profit. That is why production is so easily transferred, from countries with greater social and environmental safeguards, to countries where these regulations are more liberal. Consequently, despite huge increases in productivity, poverty in the world has not been reduced, whilst the number of excluded people continues to grow. It thus follows, that for a global economy there is also a need for a powerful transnational partner, who would have the instruments to control and enforce pro-social and pro-environmental behaviours in accordance with the principle of sustainamanistycznych (Keitsch 2011, Udo et al. 2011, Gawor 2010, Tuziak 2010, Liszewski 2007, Tyburski 2007, Pawłowski 2008, Ikerd 2008, Hull 2008, Dołęga 2007, Ciążela 2007). Zacytowani autorzy wskazują na brak etyki we współczesnym liberalnym kapitalizmie, jako głównej przyczyny obserwowanego kryzysu, formułując zarazem propozycje zmian w tym zakresie. Jednym słowem, obserwowany obecnie kryzys jest przede wszystkim kryzysem braku etycznych zachowań, które w niedostatecznym stopniu są uświadamiane. W mojej ocenie współczesne (narastające nierówności) jak i przyszłe zagrożenia (nadmierna eksploatacja szybko wyczerpujących się zasobów naturalnych, postępująca degradacja środowiska) wskazują, że współczesna cywilizacja rozwija się w sposób niezrównoważony. W następnym paragrafie postaram sie wskazać na przyczyny.

#### Przyczyny niezrównoważoności

Paradygmatem współczesnego liberalnego kapitalizmu jest ogromna chciwość elit zdążających za wszelką cen do gromadzenia dóbr, realizując zasadę *grow or die*. Kapitał może być akumulowany poprzez wykorzystywanie zasobów Ziemi i pracy ludzkiej. Wspomniane przez mnie związki zawodowe doprowadziły pod koniec pierwszej połowy XX wieku do równowagi w społeczeństwach pomiędzy kapitałem i światem pracy z jednej strony, a także poprzez silna rolę państwa, narzucono wysokie standardy ochrony środowiska. Możliwe to było dlatego, że siła kapitału była równoważona przez siłę państwa, w którym związki zawodowe reprezentowały pracowników najemnych.

Od czasów Ronalda Regana i Margaret Thatcher rozpoczęło się wycofywanie się państwa, w myśl hasła: miej państwa, propagowanego również w Polsce. Osłabione zwiazki zawodowe nie były w stanie w wielu państwach przeciwstawić się tej tendencji. Na tej glebie wyrosły wielkie ponadnarodowe korporacje, dysponujące majątkiem niekiedy przekraczającym budżety państw. Wycofanie się państwa i wzrost potęgi korporacji międzynarodowych spowodował, że zabrakło czynnika broniącego pracowników najemnych, ale także takich spraw jak ochrona środowiska, ochrona praw pracowniczych, racjonalizacja zużycia nieodnawialnych zasobów ziemi. Jednym słowem nie został wykształcony dostatecznie silny partner, który mógłby odgrywać rolę regulującą w stosunku do międzynarodowych korporacji, których jedynym celem jest zysk. Dlatego też tak łatwo przenosi się produkcje z krajów o większych zabezpieczeniach socjalnych i środowiskowych, do krajów gdzie te regulacje są bardziej liberalne. W konsekwencji mimo ogromnego wzrostu wydajności produkcji nie zmniejszono biedy w świecie, a ilość osób wykluczonych wrecz rośnie.

ble development. An even worse evil is the deregulation of the financial markets and the large scale privatisation of banks, as initiated by Ronald Reagan and Margaret Thatcher. This allowed for an unprecedented in human history, financial speculation and to detach it from production. In recent years, it was mainly the financial markets which caused the appropriation of most of the revenues as a result of speculation. Yet these missing vast sums have been transferred somewhere. It is even more outrageous that as a result of these massive transfers no added value has been created as opposed to production processes.

The deregulation of financial markets, allowing for speculation of money on an unprecedented scale in the history of mankind, is the main cause of separating ordinary people from their wealth. A new class has emerged, managing corporations and financial institutions on an international scale, with exorbitant incomes, who through links with the political elite do not bear any responsibility. An example in Poland are the notorious pension funds (OFE), so eagerly introduced by the Jerzy Buzek government, whose boards receive generous rewards regardless of the results, leading in some cases to a situation where, in the absence of profits from financial operations, their remuneration leads to a depletion of the received contributions. Insomuch, voices are being heard, calling for a return of the welfare state (Gawor, 2006, 2010; Laszlo, 2008; Kras, 2011; Hueting, 2011), all the more, as the Scandinavian countries were not submissive to the Reagan-Thatcherite ideology and function quite satisfactorily as countries with a developed social policy.

## Is globalisation compatible with sustainable development?

The creators of modern liberal capitalism extol globalisation, pointing out the positives arising from the creation of an international (without national barriers) market economy. Meanwhile, as demonstrated by Fotopolous (2007), the opening and liberalisation of the markets was carried out in the interests of the world's financial elite, who control the market economies. Its purpose was, and is, to minimize social control over the market, particularly of those who, like the trade unions, are trying to safeguard workers' interests and environmental protection.

This in turn becomes an obstacle to increasing *eco-nomic efficiency* and increased profits. Free movement of capital and goods across borders required the liberalisation of all the markets in order to minimise the role of the states, which are capable of effective control, protecting workers and the environment on their territory. However, on an international scale, corporations do not have a sufficiently powerful controller. Consequently, according to a

Z tego wynika, że dla globalnej gospodarki potrzebny jest również silny ponadnarodowym partner, który miałby instrumenty do kontroli i wymuszania zachowań prospołecznych i prośrodowiskowych, zgodnie z zasadą zrównoważonego rozwoju. Jeszcze gorszym złem jest rozpoczęta przez Ronalda Regana i Margaret Thatcher deregulacja rynków finansowanych i prywatyzacja w ogromnej skali banków. Pozwoliło to na niespotykaną w historii ludzkości spekulacje pieniądzem i oderwaniem go od produkcji. W ostatnich latach to przede wszystkim rynki finansowe powodowały zawłaszczenie, w wyniku spekulacji, większość dochodów. Przecież te brakujące ogromne sumy gdzieś przepłynęły. Jest to tym bardziej bulwersujące, że w wyniku tych olbrzymich transferów nie powstaje żadna wartość dodana w odróżnieniu od procesów produkcyjnych. Deregulacia rynków finansowych umożliwiajaca spekulacje pieniędzmi na niespotykana skalę w dziejach ludzkości jest główną przyczyną odzierania z dorobku zwykłych ludzi. Powstała nowa klasa składająca się z zarządzających korporacjami i instytucjami finansowymi w skali międzynarodowej, o niebotycznych dochodach, która przez powiązania z elitami politycznymi, nie ponosi żadnej odpowiedzialności. Przykładem w Polsce są sławetne fundusze emerytalne (OFE), z taką ochotą wprowadzone przez rząd Jerzego Buzka, których zarządy niezależnie od wyników otrzymują sowite wynagrodzenie, doprowadzając w niektórych przypadkach do sytuacji, że przy braku zysków z operacji finansowych, ich wynagrodzenie prowadzi do uszczuplenia wniesionych składek. Dlatego pojawiają się głosy nawołujące do powrotu do roli państwa opiekuńczego (Gawor, 2006, 2010; Laszlo, 2008; Kras, 2011; Hueting, 2011), tym bardziej, że kraje skandynawskie, nie uległy Reganowo-Thatcherowskiej ideologii i funkcjonuja całkiem dobrze jako państwa o rozwiniętej polityce społecznej.

#### Czy globalizacja jest kompatybilna ze zrównoważonym rozwojem?

Twórcy współczesnego liberalnego kapitalizmu zachwalają globalizację wskazując pozytywy wynikające z powstania międzynarodowej (bez barier narodowych) ekonomii rynku. Tymczasem, jak to wykazał Fotopolous (2007) otworzenie i liberalizacja rynków zostało dokonane w interesie światowych elit finansowych, kontrolujących gospodarki rynkowe. Jej celem było i jest zminimalizowanie społecznej kontroli nad rynkiem, w szczególności tych którzy – jak związki zawodowe – starają się zabezpieczyć interesy pracownicze i ochronę środowiska. To zaś staje na przeszkodzie zwiększenia efektywności ekonomicznej prowadzącej do wzrostu zysków. Swobodny przepływ kapitału i dóbr przez granice wymagał liberalizacji wszystkich rynków, aby zminimalizować społeczną kontrolę wprowareport by the International Labour Organisation (ILO), globalisation repeatedly leads to fast growing inequalities, creating a super-rich elite, and side-lining increasingly larger groups of people. This phenomenon occurs particularly strongly after 1990. This way, socialist ideas created in the East, or the social democratic ideas created in the West (equality and social justice) are pushed out of modern civilization.

The latest example is China, which by introducing the free market made a quantum leap in production. However, with a lack of social and democratic control, it is taking place at a huge cost. Around 500 million Chinese lack access to clean, safe water and only 1% of the 560 million Chinese living in towns breathe clean air. Consequently, according to the data in the report, issued by the Chinese Academy for the Environment, around 300,000 Chinese die annually, mainly from lung cancer, as a result of breathing polluted air, and this number could rise to 550,000 in 2020. A further 110,000 die from indoor air pollution caused by poor quality materials used for finishing housing.

According to the World Health Organization (WHO) around 750,000 people die annually in China due to poor air and water quality. It is true that in the case of China we are dealing with a strong country, but its elite introduced a free market with no regard for social security. The World Trade Organization (WTO), when accepting China, confirmed that it is profit-only driven with no social and environmental aspects. The reason is that 60% of goods exported by China come from multinational corporations, which take the advantage of very cheap labour and lack the emission controls to generate super-high profits.

According to a PriceWaterhouseCoopers report, China will achieve the same gross national income as the USA in 2050. However, the report paid no attention to the fact that the *per capita* income will be much lower, not exceeding 17% of the income in the USA. This means that the huge increase in production will not translate into a better quality of life. During the 10 years between 1994 and 2004, the average *per capita* income in China grew by only 3%. Currently 20% of the richest Chinese possess 50% of the wealth in China, whilst the poorest 20% only 4.7%. This means that the much praised free market in China has contributed to the prosperity of a small, privileged group. About 420 million Chinese continue to live on \$1 per day.

From the above, it follows that the introduction of a free market in China contributed minimally to the growth in the living standards of the Chinese people, who are paying high cost for it, as a result of increased environmental pollution and social instability.

dzoną wcześniej przez silne związki zawodowe, w celu ochrony pracowników i społeczeństw, przed kierującym się jedynie zasadą zysku wolnym rynkiem. Takie rozwiązania wymuszane są przez Światową Organizacje Handlu (WTO) w celu zminimalizowania roli państw, które są zdolne na swoim terytorium prowadzić skuteczna kontrolę chroniącą pracowników i środowisko. Natomiast w skali międzynarodowej korporacje nie mają dostatecznie silnego kontrolera. W konsekwencji wg. raportu Światowej Organizacji Pracy (ILO) globalizacja prowadzi do ponownie szybko narastających nierówności tworząc super bogate elity i coraz większe grupy ludzi spychanych na margines. Zjawisko to szczególnie silnie występuje po 1990 r. W ten sposób idee socjalistyczne kreowane na wschodzie czy socjaldemokratyczne kreowane na zachodzie (równość i sprawiedliwość społeczna) sa wypychane ze współczesnej cywilizacji.

Najnowszym przykładem są Chiny, które wprowadzając wolny rynek dokonały dużego skoku w produkcji. Jednakże z braku społecznej, demokratycznej kontroli, odbywa się to ogromnym kosztem. Około 500 mln Chińczyków nie ma dostępu do czystej, zdrowej wody, tylko 1% z 560 mln Chińczyków mieszkających w miasteczkach oddycha czystym powietrzem. W konsekwencji, według danych raportu Chińskiej Akademii Środowiska około 300 tys. Chińczyków umiera rocznie głównie z powodu raka płuc, jako skutek oddychania zanieczyszczonym powietrzem i liczba ta może wzrosnąć do 550 tys. w 2020 roku. Dalszych 110 tys. umiera z uwagi na zanieczyszczone powietrze wewnętrzne powodowane przez złej jakości materiały używane do wykańczania mieszkań.

Według danych Światowej Organizacji Zdrowia (WHO) rocznie umiera w Chinach około 750 tys. osób z powodu złej jakości powietrza i wody. Co prawda w przypadku Chin mamy do czynienia z silnym państwem, ale jego elity wprowadziły wolny rynek nie uwzględniając społecznych zabezpieczeń. Światowa Organizacja Handlu (WTO) przyjmując Chiny potwierdziła, że kieruje się jedynie zyskiem z pominięciem aspektów społecznych i środowiskowych. Jest tak dlatego, że 60% dóbr eksportowanych przez Chiny pochodzi z korporacji międzynarodowych, które wykorzystują tanią siłę roboczą i brak skutecznej kontroli emisji zanieczyszczeń do generowania ogromnych zysków.

Według raportu PriceWaterHouseCoopers Chiny w 2050 r. osiągną dochód narodowy brutto taki sam jak USA. W raporcie nie zwrócono jednak uwagi na to, że dochód na głowę mieszkańca będzie dużo niższy, nie przekroczy 17% dochodu osiąganego w USA. Oznacza to, że ogromny wzrost produkcji nie przełoży się na wzrost jakości życia. W ciągu 10 lat pomiędzy 1994 i 2004 r. wzrost średniego dochodu na głowę wzrósł w Chinach tylko o 3%. Obecnie 20% najbogatszych Chińczyków posiada 50% bogactwa Chin, podczas gdy 20% najbiedniejszych

#### Conclusions

Modern civilization is developing in an unbalanced way. Free market and liberalisation associated with globalisation lead to, without proper control, a fast, if not an exponential rise in inequality. This is facilitated by the lack of sufficiently strong employee representation on an international forum. This causes a direct increase in poverty. Simultaneously, a lack of proper control of international corporations causes an irrationally rapid depletion of Earth's non-renewable resources, and degradation of the environment.

The financial markets are a big threat to the world's stability, where speculation leads to acquiring vast sums of money without creating any added value. The slogan *less state* only serves big international capital, leaving most citizens without adequate safeguards.

It is essential to work on replacing the gross national product with a newly defined indicator, as a measure of development, which will determine the quality of life, taking into account the sustainability of the socio-economic system: permitting full compliance of environmental quality, and the degree of consumption of the Earth's irreversible resources on the one hand, and the welfare of all citizens on the other.

Just as in the nineteenth century, the spectre of unemployment is beginning to appear. This requires studies to be performed on how to change the organisation of socio-economic systems. An unemployment rate of 20-30% among young people is practically a humanitarian disaster. It acts degradingly on people affected by it, even more so than living in a degraded environment.

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zaledwie 4,7%. Oznacza to, że tak zachwalany wolny rynek przyczynił się w Chinach do wzrostu dobrobytu nielicznej, uprzywilejowanej grupy. W dalszym ciągu ok. 420 milionów Chińczyków żyje za 1 dolara dziennie. Z powyższego wynika, że wprowadzenie wolnego rynku w Chinach w minimalnym stopniu przyczyniło się do wzrostu standardu życia Chińczyków, którzy płacą za to duże koszty w wyniku wzrostu zanieczyszczenia środowiska i destabilizacji społecznej.

#### Wnioski

Współczesna cywilizacja rozwija się niezrównoważenie. Wolny rynek i liberalizacji powiązana z globalizacją prowadzą – bez należytej kontroli – do szybkiego, aby nie powiedzieć lawinowego narastania nierówności. Sprzyja temu brak dostatecznie silnej reprezentacji pracowniczej na forum międzynarodowym. Powoduje to wręcz wzrost obszarów biedy. Równocześnie brak należytej kontroli korporacji międzynarodowych powoduje nieracjonalnie szybkie zużywanie nieodnawialnych, szybko zużywanych zasobów Ziemi i degradację środowiska.

Ogromnym zagrożeniem dla stabilności świata są rynki finansowe, na których spekulacje prowadzą do przejmowania ogromnych pieniędzy bez wytwarzania jakiejkolwiek wartości dodanej. Hasło mniej państwa służy jedynie wielkiemu kapitałowi międzynarodowemu, pozostawiając bez należytych zabezpieczeń większość własnych obywateli. Koniecznym jest podjęcie prac nad zastąpieniem produktu narodowego brutto, jako miary rozwoju, na rzecz od nowa zdefiniowanego współczynnika określającego jakość życia z uwzględnieniem zrównoważoności systemu społeczno-ekonomicznego, pozwalającego na pełne uwzględnienie jakości środowiska, stopnia zużycia nieodwracalnych zasobów Ziemi z jednej strony oraz dobrostanu wszystkich obywateli z drugie strony. Podobnie, jak w XIX wieku zaczyna zarysowywać się widmo bezrobocia. Wymaga to podjęcia prac studialnych nad zmianą organizacji systemów społecznoekonomicznych. Bezrobocie wśród młodych ludzi na poziomie 20-30% oznacza praktycznie katastrofę humanitarną. Działa degradująco na ludzi nim dotkniętych nawet gorzej, jak życie w zdegradowanym środowisku.

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## **Energy Production from Maize**

## Produkcja energii z kukurydzy

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#### Abstract

All biofuels produced in the world utilize food resources. This contributes to the world starvation problem that is reported to be more than 66% of the world population being malnourished. Starvation is the number one cause of death in the world. Approximately 40% of U.S. corn is being converted into ethanol and 1.6 liters of fossil oil equivalents are required to produce 1 liter of ethanol. Thus, the U.S. is importing oil to produce ethanol at an enormous economic and fuel cost to the people of the nation, and reduces food resource availability to the people.

Key words: biofuels, maize, carbon print

#### Streszczenie

Produkcja biopaliw oznacza zużywanie zasobów żywności – to prowadzi do narastania problemu głodu. Szacuje się, że więcej niż 66% ludzi na świecie cierpi z powodu niedożywienia. Głód jest także najważniejszą przyczyną śmierci. Tymczasem ok. 40% amerykańskiej kukurydzy przeznacza się na produkcję etanolu. Co więcej, na wytworzenie 1 litra etanolu zużywa się 1,6 litra ekwiwalentu ropy. W tej sytuacji Ameryka musi importować ropę w celu produkcji etanolu, ponosząc przy tym ogromne koszty, zmniejszając zarazem dostępność żywności dla obywateli.

#### Słowa kluczowe: biopaliwa, kukurydza, ślad węglowy

#### \*Note from the editorial board:

In the European Union, through low carbon economy, wide use of ethanol as an alternative fuel for cars is being promoted. The article, that is printed here, shows that this solution is a dead end. Through the analysis of production cycle the Author proves, that carbon print of ethanol is bigger than carbon print of fuels extracted from oil. What's more, the production of ethanol as a fuel is connected with major pollution of the environment and significant increase of water used for irrigation of crops.

Professor D. Pimentel is also pointing out at a moral aspect: production of liquid biofuels from biomass is leading to increase of food prices, and the food is becoming more difficult to get for people living in poor parts of the world.

The arguments, formulated by professor D. Pimentel, undermine the thesis, that liquid fuels produced from biomass are the alternative for the fuels extracted from the oil. The analysis showed, that introducing liquid fuels from biomass is also in contradiction to the idea of sustainable development.

#### \* Nota od redakcji:

W Unii Europejskiej w ramach ekonomii niskowęglowej promuje się min. szerokie stosowanie etanolu jako alternatywnego paliwa dla samochodów. Z artykułu, który publikujemy, wynika, że jest to ślepa uliczka. Analizując cały cykl produkcyjny Autor wykazuje, że ślad węglowy etanolu jest większy od śladu węglowego paliw uzyskiwanych z ropy naftowej. Ponadto, produkcja etanolu jako paliwa jest związana ze znaczącym zanieczyszczeniem środowiska i ze znaczącym zwiększeniem zużycia wody do nawadniania upraw.

Profesor D. Pimentel zwraca uwagę jeszcze na aspekt moralny: produkcja biopaliw ciekłych z biomasy wpływa już na wzrost cen żywności, która staje się coraz trudniej dostępna dla mieszkańców ubogich części świata.

Argumenty przedstawione przez profesora D. Pimentela podważają tezę głoszącą, że paliwa ciekłe produkowane z biomasy stanowią alternatywę dla paliw uzyskiwanych z ropy naftowej. Co więcej, przeprowadzona analiza wykazuje, że wprowadzanie ciekłych paliw produkowanych z biomasy jest sprzeczne z ideą zrównoważonego rozwoju.

#### Introduction

Each year, the U.S. and other nations import more than 60% of their oil at a tremendous cost to themselves (USCB, 2009). In the U.S. alone, oil represents nearly 40% of the U.S.'s energy consumption, leading the International Energy Administration (2008) and other organizations to estimate that cheap world oil supplies will be depleted by 2040 (Murray, 2004; Green et al., 2006; Hodge, 2008; W. Youngquist, Personal communication, December 8, 2009). Such a forecast has created an urgent need for an alternate liquid fuel and has stimulated many nations to seek diverse ways to produce liquid fuels. As a consequence, maize ethanol production has become a popular feedstock for ethanol production. Unfortunately the production of ethanol from maize grain has proven to be energetically and environmentally costly in terms of the subsidies which now total \$12 billion per year (Koplow and Steenblik, 2008). In addition, converting corn into ethanol has increased U.S. food prices (Pimentel et al.,2009). Clearly, using food as a source of ethanol presents important ethical problems.

Increasing food costs and reduced food supplies worldwide has both the Director General of the United Nations and President of the World Bank warning that using grains and other human foods to produce fuel is leading to increasing malnutrition and starvation worldwide (Spillius, A. 2008). A total of 2.3 billion tons of grains are produced annually in the world and about 20% of this total is used for ethanol production. Another important food product, vegetable oils, are being used for biofuel, these oils include soybean, canola, and palm oil. Currently in Europe 60% of the rapeseed oil is being used for biodiesel or about 1.5 billion gallons (6 billion liters) (FAO, 2009).

Using food products in the production of biofuels is particularly troublesome because of the limited supply of biofuel energy that can be produced from foods. For example, the U.S. currently produces 34 billion liters of ethanol, consuming 33% of all U.S. maize production now, but only provides 1.7% of total oil consumption in the U.S. assuming no fossil energy inputs (USCB, 2009). In fact, if 100% of U.S. maize were converted into ethanol it would provide the U.S. with only 5% of its needed oil fuel, assuming again zero fossil energy inputs.

Other countries like Brazil, are producing about 27 million liters of ethanol but their source of ethanol is from sugarcane (Ministry of Brazilian Agriculture 2009). However, even the 27 million liters of ethanol are not enough to meet their consumption needs as Brazil's oil consumption during the past

10 years has increased 42% (Ministry of Brazilian Agriculture 2009). Additional costs to consumers in Brazil include the subsidies that total several billion dollars per year just for ethanol (Murray, 2004; Coelho, 2005; Green et al., 2006; Hodge, 2008;Berg, 2004; FEE, 2009; Schmitz et al., 2009). Others report that there are no subsidies for Brazilian ethanol (Union of Sugarcane Industry Association, 2009; Walter, 2009). However, the subsidies for ethanol are contributing to deforestation and other environmental problems in Brazil (Pacific Ecologist, 2009).

In addition to the subsidies in the U.S. and Brazil, there is the question whether green plants, such as maize, switchgrass, willow, and all other kinds of biomass can provide suitable sources of liquid fuels. Unfortunately, these green plants in the U.S. convert only about 0.1% solar energy into plant material (Table 1; Pimentel et al., 2009). The use of grain and other biomass for liquid fuels, also contribute  $CO_2$  emission to the atmosphere (Pimentel et al., 2009). In contrast, photovoltaic cells collect more than 150 times the solar energy that green plants collect and add relatively little  $CO_2$  to the atmosphere (Pimentel, 2008; Pimentel and Patzek, 2008).

In this article, we examine the potential for improving the efficiency of converting corn grain and cellulosic biomass into ethanol. Also we examine the production of biodiesel using algae. In summary, we attempt to define the impact of biofuel production on greenhouse gas emissions and the prevention of malnutrition and hunger.

#### **Energy Inputs in Corn Ethanol Production**

In this analysis, the most recent scientific data for maize fermentation/distillation were used. All current fossil energy inputs were also used in maize production and for the fermentation and distillation and were included to determine the entire energy cost of ethanol production. Additional costs to consumers include federal and state subsidies (Koplow and Steenblik, 2008), plus costs associated with environmental pollution and/or degradation that occur during the entire production process.

In a large ethanol conversion plant, the ethanol yield from 2.69 kg of maize grain produces 1 liter of ethanol (approximately 9.5 liters pure ethanol per bushel of corn). The production of maize in the United States requires a significant energy and monetary investment for an average of 14 inputs, including labor, farm machinery, fertilizers, irrigation, pesticides, and electricity (Table 2). As listed in table 2, the production of an average maize yield of 9,500 kg/ha (151 bu/ac) of maize using up-todate production technologies requires the expenditure of about 7.4 million kcal of energy inputs (mostly natural gas and oil). This is the equivalent of about ~743 liters of oil equivalents expended per hectare of maize. The production costs total 835/ha for the 9,500 kg/ha or approximately 11¢/kg (2.34/ bushel) of maize produced (Table 1).

Table 1. Total amount of biomass and solar energy captured each year in the United States.

An estimated 27.8 x  $10^{18}$  BTU of sunlight reaching the U.S. per year suggests that the green plants (crops, grasses, and forests) in the U.S. are collecting 0.1% of the solar energy reaching these plants (Pimentel et al., 2009).

				Total
	Million	tons/ha	x 10 <sup>6</sup>	Energy
	ha		tons	Collected
				x 10 <sup>15</sup>
				BTU
Crop	160	5.5	901	14.4
Pasture	300	1.1	333	9.6
Forests	264	2.0	527	8.4
TOTAL	724		1,758	27.8

Full irrigation (when there is insufficient or no rainfall) requires about 100 cm/ha of water per growing season. Because from 15% to 19% of U.S. maize production is irrigated (USDA, 1997a; Supalla, 2007), only 8.1 cm per ha of irrigation was included for the growing season. On average, irrigation water is pumped from a depth of 100 m (USDA, 1997a). On this basis, the average energy input associated with irrigation is 320,000 kcal per hectare (Table 2).

#### Energy Inputs in Maize Fermentation/ Distillation

The average costs in terms of energy and dollars for a large, modern dry-grind ethanol plant are significant and are listed in Table 3. In the fermentation/distillation process, the maize is finely ground and approximately 8 liters of water are added per 2.69 kg of ground maize. Some of this water maybe recycled. After fermentation, the mixture is distilled to obtain a liter of 95% pure ethanol from the 8-12% ethanol beer and 92-88% ethanol concentration. The 1 liter of ethanol must be extracted from approximately 11 liters of the ethanol/water mixture. Although ethanol boils at 78°C, and water boils at 100°C, the ethanol is not extracted from the water in the first distillation, which obtains 95% ethanol (Maiorella, 1985; Wereko-Brobby and Hagan, 1996; S. Lamberson, personal communication, Cornell University, 2000). To be mixed with gasoline, the 95% ethanol must be further processed and more water removed, requiring additional fossil energy inputs to achieve 99.5% pure ethanol (Table 3). Thus, a total of 8 liters of wastewater is required

Table 2. Energy inputs and costs of corn production per hectare in the United States.

Inputs	Quantity	kcal x 1000	Costs \$
Labor	11.4 hrs <sup>a</sup>	520 <sup>b</sup>	148.20
Machinery	55 kg <sup>d</sup>	1,018 <sup>e</sup>	110.00 <sup>f</sup>
Diesel	62 L <sup>g</sup>	620 <sup>h</sup>	46.42
Gasoline	9 L <sup>i</sup>	90 <sup>j</sup>	7.14
Nitrogen	150 kg <sup>k</sup>	2,475 <sup>1</sup>	85.25 <sup>m</sup>
Phosphorus	55 kg <sup>n</sup>	228°	48.98 <sup>p</sup>
Potassium	62 kg <sup>q</sup>	202 <sup>r</sup>	26.04 <sup>s</sup>
Lime	1,120 kg <sup>t</sup>	315 <sup>u</sup>	28.64
Seeds	21 kg <sup>v</sup>	520 <sup>w</sup>	74.81 <sup>x</sup>
Irrigation	8.1 cm <sup>y</sup>	320 <sup>z</sup>	123.00 <sup>aa</sup>
Herbicides	2.3 kg <sup>bb</sup>	230 <sup>ee</sup>	35.29
Insecticides	0.7 kg <sup>cc</sup>	70 <sup>ee</sup>	32.55
Electricity	103.2 kWh <sup>g</sup>	$34^{\rm ff}$	7.22
Transport	107 kg <sup>gg</sup>	122 <sup>hh</sup>	61.20
TOTAL		7,438	834.74
Corn yield 9	9,500 kg/ha <sup>ii</sup>	kcal inpu	ıt: 1;4.60

a) NASS, 2005.

- b) It is assumed that a person works 2,000 hrs per year and utilizes an average of 9,000 liters of oil equivalents per year.
- c) It is assumed that labor is paid \$20 an hour.
- d) Pimentel and Pimentel, 2008.
- e) Prorated per hectare and 10 year life of the machinery. Tractors weigh from 6 to 7 tons and harvesters 8 to 10 tons, plus plows, sprayers, and other equipment.
- f) Estimated.
- g) William McBride, Personal Communication, USDA, 2010.
- h) Input 11, 400 kcal per liter.
- i) Estimated
- j) Input 10,125 kcal per liter.
- k) NASS, 2003
- l) Cost \$.55 per kg.
- m) Patzek, 2004
- n) NASS, 2003.
- o) Input 4,154 kcal per kg.
- p) Cost \$.62 per kg.
- q) NASS, 2003.
- r) Input 3,260 kcal per kg.
- s) Cost \$.31 per kg.
- t) Estimated.
- u) Input 281 kcal per kg.
- v) Pimentel and Pimentel, 2008.
- w) Pimentel and Pimentel, 2008.
- x) Estimated.
- y) USDA, 1997a.
- z) Batty and Keller, 1980.
- aa) Irrigation for 100 cm of water per hectare costs \$1,000 (Larsen et al., 2002).
- bb) NASS, 2005.
- cc) USDA, 2002.
- dd) USDA, 1991.
- ee) Input 100,000 kcal per kg of herbicide and insecticide.
- ff) Input 860 kcal per kWh and requires 3 kWh thermal energy to produce 1 kWh electricity.
- gg) Goods transported include machinery, fuels, and seeds that were shipped an estimated 1,000 km.
- hh) Input 0.34 kcal per kg per km transported.
- ii) Average. USDA, 2007; USCB, 2008.

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Inputs	Quantity	Kcal	Dollars
		x 1000	\$
Corn grain	2,690 kg <sup>a</sup>	2,106 <sup>b</sup>	634.14
Corn			
transport	2,690kg <sup>b</sup>	264 <sup>c</sup>	27.63 <sup>d</sup>
Water	7,721 L <sup>e</sup>	46 <sup>f</sup>	3.86 <sup>g</sup>
Stainless steel	3 kg <sup>i</sup>	42 <sup>r</sup>	8.52 <sup>u</sup>
Steel	4 kg <sup>i</sup>	40 <sup>s</sup>	2.39 <sup>u</sup>
Cement	8 kg <sup>i</sup>	11 <sup>s</sup>	1.86 <sup>v</sup>
Steam	2,564,764	2,362 <sup>t</sup>	59.94 <sup>k</sup>
	kcal <sup>t</sup>		
Electricity	395 kWh <sup>t</sup>	2,863 <sup>t</sup>	26.38
95% ethanol			
to 99.5%	9 kcal/L <sup>m</sup>	9 <sup>m</sup>	40.00
Sewage			
effluent	20 kg BOD <sup>n</sup>	69 <sup>h</sup>	6.00
Distribution	331 kcal/L <sup>q</sup>	331	375.00
TOTAL		8,143	\$ 1185.72
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Table 3. Inputs per 1000 liters of 99.5% ethanol pro-

a) Output: 1 liter of ethanol = 5,130 kcal (Low heating value). The mean yield of 9.5 L pure EtOH per bushel has been obtained from the industry-reported ethanol sales minus ethanol imports from Brazil, both multiplied by 0.95 to account for 5% by volume of the #14 gasoline denaturant, and the result was divided by the industry-reported bushels of corn inputs to ethanol plants (See: http://petroleum.berkel ey.edu/patzek/BiofuelQA/Materials/TrueCostofEtO H.pdf (Patzek, 2006).

- c) Calculated for 144 km roundtrip.
- d) Pimentel et al., 2009.
- e) 7.7 liters of water mixed with each kg of grain.
- f) Pimentel et al., 2009.
- g) Pimentel et al., 2009.
- h) 4 kWh of energy required to process 1 kg of BOD (Blais et al., 1995; Illinois Corn, 2004).
- Estimated from the industry reported costs of \$85 million per 65 million gallons/yr dry grain plant amortized over 30 years. The total amortized cost is \$43.6/1000L EtOH, of which an estimated \$32 go to steel and cement.
- j) Patzek, 2008.
- k) Calculated based on coal fuel. Below the 1.95 kWh/gal of denatured EtOH in South Dakota, see j).
- l) \$0.07 per kWh (USCB, 2004-2005).
- m) 95% ethanol converted to 99.5% ethanol for addition to gasoline (T. Patzek, personal communication, University of California, Berkeley, 2004).
- n) 20 kg of BOD per 1000 liters of ethanol produced (Martinelli, 2009).
- p) Newton, 2001.
- q) DOE, 2002.
- r) Johnson et al., 2007
- s) Venkatarama and Jagadish, 2003.
- t) Lin and Echkhoff, 2009.
- u) Steel Mill, 2010.
- v) Concrete Products, (2010).

for the production of 1 liter of ethanol, and the disposal of this relatively large amount of sewage effluent comes at an energetic, economic, and environmental cost.

The production of a liter of 99.5% ethanol, including the energy to produce the corn, requires 158% more fossil energy than the energy present in 1 liter of ethanol and costs \$1.19 per liter (\$4.48 per gallon) (Table 3). The corn feedstock requires more than 26% of the total energy input. In this analysis, the total cost, including the energy inputs for the fermentation/distillation process and the apportioned energy costs of steam, electricity, and stainless steel tanks and other industrial materials is significant (Table 3).

#### **Net Energy Yield**

The largest energy inputs in cmaize-ethanol production are corn feedstock production energy, steam energy, and electricity used in the fermentation and distillation process. The total energy input to produce a liter of ethanol is 8,143 kcal (Table 3). However, a liter of ethanol has an energy value of only 5,130 kcal. Based on a net energy loss of 3,013 kcal of ethanol produced, 58% more fossil energy is expended than is produced as ethanol.

#### **Economic Costs**

Current maize ethanol production technology uses more fossil fuel and costs substantially more to produce in dollars than its energy value is worth on the market. Without the more than \$12 billion annual federal and state government subsidies, U.S. ethanol production would be reduced or cease, confirming the basic fact that ethanol production is uneconomical and does not provide the U.S. with any net energy benefit (Koplow and Steenblik, 2008).

Federal and state subsidies for ethanol production that total more than \$12 billion/year for ethanol are mainly paid to large corporations (Koplow and Steenblik, 2008), while maize farmers are receiving a minimum profit per bushel for their maize (Pimentel and Patzek, 2008). Senator McCain reports that direct subsidies for ethanol, plus the subsidies for maize grain, amount to 79¢ per liter (McCain, 2003).

About 80% of the ethanol in Brazil is also heavily subsidized (Berg, 2004). Even with heavy subsidies, about half of the fuel burned in autos in Brazil is gasoline, only about 50% is ethanol (Berg, 2004). Sugar subsidies have a major impact on ethanol production from sugarcane.

If the production cost of a liter of ethanol were added to the tax subsidy cost, then the total cost for a liter of ethanol would be \$1.54. The mean wholesale price of ethanol was almost \$1.00 per liter without subsidies. Because of the relatively low energy content of ethanol, 1.6 liters of ethanol have the energy equivalent of 1 liter of gasoline. Thus, the cost of producing an amount of ethanol equal a liter of gasoline is about \$2.33 (\$8.82 per gallon of gasoline). This is more than the  $53\phi$  per liter, the current cost of producing a liter of gasoline. The subsidy per liter of ethanol is 60 times greater than the subsidy per liter of gasoline! This is the reason why ethanol is so attractive to large corporations.

#### **Maizeland Use**

In 2008, about 34 billion liters of ethanol (9 billion gallons) are being produced in the United States each year (EIA, 2008). The total amount of petroleum fuels used in the U.S. is about 1,270 billion liters (USCB, 2009). Therefore, 34 billion liters of ethanol (energy equivalent to 22 billion liters of petroleum fuel) provided only 1.7% of the petroleum utilized. To produce this 34 billion liters of ethanol, about 9.6 million ha or 34% of U.S. maize land was used. Expanding maize-ethanol production to 100% of U.S. maize production would provide just 4% of the petroleum needs of the U.S., while diminishing cropland needed for food production.

However, U.S. maize cultivation may continue to increase because of the ethanol targets (36 billion gallons) set by the most recent Energy Bill (Donner and Kucharik, 2008) of which 15 billion gallons which are to be produced from maize grain.

Corn production is the prime cause of the *dead zone* in the Gulf of Mexico (NAS, 2003). Increased maize ethanol production will increase the nitrogen fertilizer pollution in the Gulf of Mexico (Donner and Kucharik, 2008).

#### **By Products**

The energy and dollar costs of producing ethanol can be offset partially through by-products, like the dry distillers grains (DDG) made from dry-milling of maize. From about 10 kg of maize feedstock, about 3.3 kg of DDG with 27% protein content can be harvested (Stanton, 1999). The DDG is suitable for feeding cattle that are ruminants, but has only limited value for feeding hogs and chickens. In practice, this DDG is generally used as a substitute for soybean feed that contains 49% protein (Stanton, 1999). However, soybean production for livestock feed is more energy efficient than maize production because little or no nitrogen fertilizer is needed for the production of this legume feed (Pimentel et al., 2002). In practice, only 2.1 kg of soybean protein provides the equivalent nutrient value of 3.3 kg of DDG (or nearly 60% more DDG is required to equal the soybean meal protein). Thus, the credit fossil energy per liter of ethanol produced is about 445 kcal. Factoring this credit for a non-fuel source in the production of ethanol reduces the negative energy balance for ethanol production from 158% to 151% (Table 3). The high energy credits for DDG given by some are unrealistic because the production of livestock feed from ethanol is uneconomical given the high costs of fossil energy, plus the costs of soil depletion to the farmer (Patzek, 2004).

The resulting overall energy output/input comparison remains negative even with the large credits for the DDG by-product.

#### **Environmental Impacts**

Some of the economic and energy contributions of the by-products are negated by the widespread environmental pollution problems associated with ethanol production. First, U.S. maize production causes more soil erosion than any other U.S. crop (Pimentel et al., 1995; NAS, 2003). In addition, maize production uses more herbicides and insecticides and nitrogen fertilizer than any other crop produced in the U.S. Consequently, maize causes more water pollution than any other crop since there is a large quantity of these chemicals invading ground and surface waters, thereby causing more water pollution than any other crop (NAS, 2003).

Another environmental impact of biomass crop production is the land use change that they demand. Nabuurs et al. (2007) reports that the limit for biomass crops is the availability of arable land, and that the massive scale necessary will require defor-However, an important consideration estation. when evaluating the environmental effects of biofuels is whether the emissions avoided are higher and in favor of biofuel production or in favor of forest preservation and expansion (Righelato, 2007). According to the International Energy Authority, forests converted to cropland has a negative environmental impact because of the land change that destroys the carbon sink that the forest represented (IEA, 2004). Renton Righelato (2007) of the World Land Trust investigated the impacts of land use changes from forest to biofuel cropland, and found that the amount of carbon sequestered, emissions avoided, by tropical forests is 3 to 4 times more than the emissions avoided by bioethanol production. Only after the forest area reaches maturity, 50 to 100 years, would the emissions avoided from cropland conversion be able to surpass the amount of carbon stock that is accumulated and calculated according to models for the power of age in a forest structure (Righelato, 2007; Alexandrov 2007; Sylvesster-Bradley, 2008).

As mentioned, the production of 1 liter of ethanol requires 1,700 liters of freshwater both for corn production and for the fermentation/distillation processing of ethanol (Pimentel and Patzek, 2008). In some Western irrigated corn acreages, like some regions of Arizona, ground water is being pumped 10-times faster than the natural recharge of the aquifers (Pimentel et al., 2004). Ethanol production using sugarcane requires slightly more water per ethanol liter than corn ethanol or about 2,000 liters of water.

In addition, because 1.59 liters more fossil fuel is required to produce 1 liter of ethanol than the ethanol produced, this confirms that ethanol production is significantly contributing to the global warming problems (Pimentel and Pimentel, 2008). All these factors confirm that the environmental and agricultural system in which U.S. maize is being produced is experiencing major degradation. Further, it substantiates the conclusion that the U.S. maize production system, and indeed the entire ethanol production system, is not environmentally sustainable now or for the future, unless major changes are made in the cultivation of this major food/feed crop. Because maize is raw material for ethanol production, it cannot be considered a renewable energy source.

Pollution problems associated with the production of ethanol at the chemical plant sites are also emerging. The EPA (2002) already has issued warnings to ethanol plants to reduce their air pollution emissions or be shut down. Another pollution problem concerns the large amounts of wastewater produced by each ethanol plant. As noted, the production of 1 liter of maize ethanol produces 6-12 liters of wastewater. This polluting wastewater has a biological oxygen demand (BOD) of 18,000 to 37,000 mg/liter depending on the type of plant (Kuby, et al., 1984; Patzek, 2004). The cost of processing this sewage in terms of energy (4 kWh/kg of BOD) was included in the cost of producing ethanol (Table 3) maize and all other biomass crops is that they collect on average only 0.1% of the solar energy per year (Pimentel et al, 2009). At a fairly typical gross yield of 3,000 liters of ethanol per hectare per year, the power density achieved is only 2.1 kW/ha. That is compared with the gross power density achieved via oil, after delivery for use, on the order of 2,000 kW/ha. (Ferguson, 2007).

#### World Malnutrition and Use of Food for Biofuel

The Food and Agriculture Organization (FAO) of the United Nations estimated that there were 1.02 billion undernourished people worldwide in 2009, representing approximately a sixth of the entire population. In its 2009 report, The State of Food Insecurity in the World, the FAO defined undernourishment as being when caloric intake is below the minimum dietary energy requirement (MDER), where MDER is the amount of energy needed for light activity and a minimum acceptable weight for attained height. Caloric intake is certainly not the only measurement of malnourishment; micronutrient deficiencies can also have severe health impacts. In 2000, the World Health Organization (WHO) estimated that the number of people who have iron deficiency anemia is around two billion. Anemia can result in extreme fatigue, impairment of physical and mental development in children, and higher maternal deaths. The WHO also estimated that 740 million people have iodine deficiency disorder, which can have severe impacts on children's brain development. Both WHO and FAO

combined are reporting more than 66% of the world population are currently malnourished results in the number one cause of death in the world.

As more land and crops are devoted to the production of biofuels, rather than to human consumption, concerns have been raised that malnutrition will worsen (Pimentel et al, 2009). Jacques Diouf, head of the FAO, stated in 2007 that he feared that a number of factors, including the production of crops for biofuels, create a very serious risk that fewer people will be able to get food and the poor will suffer (Rosenthal 2007). The president of the World Bank, Robert Zoellick, shared a similar apprehension, asserting that demand for biofuels has been a significant contributor to ballooning food prices. According to Zoellick, It is clearly the case that programs in Europe and the United States that have increased biofuel production have contributed to the added demand for food (2008) and increased food prices (Congressional Budget Office, 2009). Jean Ziegler, the UN Special Rapporteur on the Right to Food, has taken a more extreme stance. In 2007, he claimed biofuels to be a crime against humanity and called for a five-year moratorium on their production (Ferrett 2007).

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## Revealing the Level of Tension Between Cultural Heritage and Development in World Heritage Cities

## Oszacowanie zakresu konfliktów występujących pomiędzy ochroną dziedzictwa kulturowego a rozwojem w miastach z Listy Światowego Dziedzictwa

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#### Abstract

In theory, cultural heritage is regarded as a useful catalyst for sustainable development. However, in reality it is also regarded as an obstacle. Although cultural heritage is widely recognized as a unique and valuable resource of economic development, local governments often favor development over the protection of cultural heritage. World Heritage cities (i.e. all urban settlements with properties inscribed on the World Heritage List, located in or at the outskirts of their urban areas) contain cultural heritage that is not only of local importance, but is also of *outstanding universal value* (OUV) – that is, of global importance. Such heritage can enrich cultural diversity of urban settlements, but can also provide a source of tension for the comprehensive management of varied urban landscapes.

Three international organizations have been found periodically and systematically inventorying endangered cultural heritage properties throughout the world: UNESCO with the *List of World Heritage in Danger*, ICO-MOS with *Heritage at Risk*, and the World Monuments Fund with the *World Monuments Watch*. Properties identified by these organizations are considered to be at risk as a result of varied threats, including development. However, the processes and criteria used by these organizations to determine such dangers were found to be very distinctive and inconsistent.

The goal of this paper is to propose systematic and comprehensive criteria with which to categorize the endangered level of World Heritage cities – specifically those threatened by development – and to present the resultant ranking of these cities by such criteria. All official documents publishing the decisions adopted during the Sessions of the WH Committee, from 1977 to 2009, shall be used as a data source. This quantitative analysis will help evidence the evolution of World Heritage cities threatened by development, as well as the related trends of threats, causes and impacts.

Initial analysis of the data has shown that many more WH cities (as defined above) have been endangered than have been represented on the *List of World Heritage in Danger*. While only 21 of the 476 WH properties including or included in WH cities have been included on the List in Danger, 193 have been discussed as endangered (to varying degrees) during WH Committee Sessions. Most frequently, the threats discussed had the potential to – but did not yet – cause irreversible damage to the OUV. However, many of the threats *did* cause damage to the OUV, though not to the extent necessary to warrant inclusion on the List in Danger.

The primary threats mentioned in Committee Sessions have been new development (mostly commercial and residential) and infrastructure construction (such as roads, airports, ports and sewage systems). The primary causes of these threats have been insufficient implementation of regulatory frameworks (such as management plans, zoning laws and conservation plans), insufficient buffer zones, and insufficient coordination of stakeholders. While other threats, such as looting, flawed restoration work and general neglect have been mentioned; new

development and construction are by far the most cited threats to OUV. This initial analysis illustrates the alarming tensions between heritage preservation, modernization and growth in WH cities throughout the world.

This data is only the tip of the iceberg. Based mainly on official documents from World Heritage Committee Meeting Sessions, the data reflects only those cities and threats that capture the attention of the Committee. There are likely many more WH cities endangered than the Committee has the time to consider during its annual Sessions. Furthermore, the lack of specific references to development-related threats in all cities does not mean that they do not exist. Just as the operational guidelines have evolved, it is expected that the detail of information concerning threats, causes and impacts, will also increase in time.

This research is considered to be a step forward in understanding development as a danger to World Heritage cities, including its threats, causes and impact. Moreover, as part of a broader international research entitled, *Outstanding Universal Value, World Heritage Cities and Sustainability*, the results will also help to determine best practices among the OUV assessment practices followed to protect World Heritage cities.

Key words: level of tension, cultural heritage, development

#### Streszczenie

W teorii dziedzictwo kulturowe jest traktowane jako użyteczny czynnik sprzyjający rozwojowi zrównoważonemu. W rzeczywistości może być także przeszkodą. Chociaż dziedzictwo kulturowe jest powszechnie uznawane za unikalny i wartościowy kapitał rozwoju ekonomicznego, lokalne władze zwykle przedkładają zwykły rozwój nad ochronę dziedzictwa kulturowego.

Miasta Światowego Dziedzictwa (a więc założenia miejsca wpisane na *Listę Światowego Dziedzictwa*) posiadają wartości kulturowe nie tylko w aspekcie lokalnym, ale także *wybitne wartości uniwersalne* (OUV – *outstanding universal value*) – uznawane w wymiarze ogólnoświatowym. Takie dziedzictwo wzbogaca różnorodność kulturową miast, a także może dostarczyć wskazań dla wszechstronnych systemów zarządzania zróżnicowanymi krajobrazami miejskimi.

Trzy międzynarodowe organizacje katalogują zagrożone dziedzictwo kulturowe w skali światowej, to: UNCESO z *Listą Zagrożonego Światowego Dziedzictwa*, ICOMOS z *Zagrożonym dziedzictwem* i World Monuments Found z *World Monuments Watch*. Wskazywane przez te organizacje cechy są traktowane jako zagrożone w wyniku zaistnienia różnorodnych czynników, takich jak rozwój. Niestety, kryteria stosowane przez te organizacje w celu określenia tych zagrożeń są odmienne i niespójne.

W tym artykule proponujemy usystematyzowane i wyczerpujące kryteria wskazujące, jak należy kategoryzować poziom zagrożenia w miastach z Listy Światowego Dziedzictwa – w szczególności te zagrożone tradycyjnym rozwojem – i przedstawiamy powstały w oparciu te kryteria ranking miast. Jako dane źródłowe przyjmujemy wszystkie oficjalne dokumenty przyjęte podczas obrad Komitetu WH w okresie 1977-2009. Ta analiza ilościowa pomoże uwodnić charakter przemian zachodzących w Miastach Światowego Dziedzictwa zagrożonych rozwojem, jak też kierunków tych zagrożeń, przyczyn i skutków.

Analiza wstępna dostępnych danych wykazała, że znacznie więcej miast z Listy Światowego Dziedzictwa jest zagrożonych, niż to wynika z *Listą Zagrożonego Światowego Dziedzictwa*. Podczas gdy tylko 21 z 476 cech odnoszących się do Listy Światowego Dziedzictwa znalazło się na Liście Zagrożeń, to podczas obrad komitetu WH rozważano aż 193 cechy. W większości wypadków było to potencjalne zagrożenie, które – jak dotąd – nie pociągnęło za sobą nieodwracalnych zniszczeń dla walorów miast z Listy Światowego Dziedzictwa. Jednak wiele z zagrożeń doprowadziło do negatywnych konsekwencji, choć nie w wymiarze gwarantującym uwzględnienie na Liście Zagrożeń.

Podstawowe zagrożenia dostrzeżone przez komitet WH to nowy rozwój (komercyjny i mieszkaniowy) i rozbudowa infrastruktury (drogi, lotniska, porty, kanalizacja). Ich przyczyną jest nieefektywne ramy zarządzania (plany zarządzania, prawa określającego poszczególne strefy, plany ochrony), niewystarczający strefy buforowe i zbyt słaba koordynacja interesariuszy. Podczas gdy wskazywano także na inne zagrożenia, takie jak grabież, wadliwie przeprowadzone prace konserwatorskie i ogólne zaniedbania, najczęściej wskazywano jednak na rozwój, rozbudowę i modernizację.

Te dane to tylko szczyt góry lodowej. Oparte głównie na oficjalnych dokumentach odzwierciedlają jedynie te miasta i zagrożenia, na które uwagę zwrócił Komitet WH. Z dużym prawdopodobieństwem można założyć, że w rzeczywistości zagrożonych miast jest więcej. Ponadto, brak szczegółowych danych do zagrożeń związanych z rozwojem we wszystkich miastach wcale nie oznacza, że takie zagrożenia nie istnieją. Tak jak ewoluowały wytyczne operacyjne, oczekuje się, że szczegółowych informacji odnoszących się do zagrożeń, przyczyn i konsekwencji także będzie z czasem przybywało.

Prezentowane w tym artykule badania stanowią krok naprzód w rozumieniu rozwoju jako zagrożenia (w tym jego typu, przyczyn i konsekwencji) dla miast z Listy Światowego Dziedzictwa. Co więcej, jest to część szerszego międzynarodowego programu badawczego *Outstanding Universal Value, World Heritage Cities and Sustainability/Wybitne wartości uniwersalne (OUV), miasta Światowego Dziedzictwa i zrównoważoność*, którego rezultaty pozwolą określić najlepsze praktyki, które pomogą następnie lepiej chronić miasta z Listy Światowego Dziedzictwa.

Słowa kluczowe: zakres konfliktów, dziedzictwo kulturowe, rozwój

#### 1. Introduction

Although the reporting process on the State of Conservation (SoC) of World Heritage properties has made some progress in recent decades, still no systematic and standardized assessment is being followed worldwide. In 1999, the World Heritage (WH) Committee did adopt the six-yearly *periodic reporting* process, which focuses on one of 6 geographic regions annually (UNESCO, 1999). However, that process is *still being improved and information so gathered is highly variable in consistency and detail, and thus not readily interpreted for the purposes of comparative temporal or special analyses* (Patry, 2005).

A similar pattern is to be found in the reports created during occasional site level *reactive monitoring* missions, carried out by WH Centre and the Advisory Bodies staff, at the request of the WH Committee. These neither comply with a standard format nor are related in structure to the "periodic reporting" process. These missions merely gather disparate information, which is no more than an *assembly of basic quantitative attributes of these sites as a group and qualitative summaries of conservation issues on a site by site basis* (Thorsell and Sigaty, 1997).

Some global initiatives, such as the *Rapid Assessment and Prioritization of Protected Areas Management* (RAPPAM) methodology developed by WWF, the World Bank / WWF tracking tool (Ervin, 2003), have proposed the standardization of a set of criteria across World Heritage properties listed as natural heritage, allowing quantitative and comparative analyses. One other example of a similar Management Effectiveness Assessment methodology developed by the WH Centre (UNESCO, 2008a).

While useful, these methodologies "have been applied haphazardly to only a very few WH sites to date (Patry, 2005), resulting in very limited analytical uses across WH cities (i.e. all urban settlements with properties inscribed on the World Heritage List, located in or at the outskirts of their urban areas (Pereira Roders, 2010).

Despite these limitations, the WH Centre has easy access to existing information that can in fact permit the monitoring of objective indicators (quantitative and qualitative) of the State of Conservation (SoC) of WH Cities. These are respectively:

INDICATOR 1. Absolute number of WH properties including or included in WH cities on the List WH in Danger.

INDICATOR 2.	Proportion of all WH properties including or included in WH cities on the List of WH in Dan- ger (number of WH cit- ies on Danger List / To- tal number of WH cit- ies)
INDICATOR 3.	Threat intensity to which WH properties including or included in WH cities are subjected
INDICATOR 4.	Average threat intensity for entire WH properties including or included in WH cities network.

The value of these indicators can be tracked over time, providing important information on trends, and allowing for a variety of practical analyses. All raw data used to generate the graphs illustrating this paper can be found available on the World Heritage Cities Programme website at: http://whc.unesco. org/en/cities. Particularly, the methodology to determine indicators 3 and 4 can be found detailed at *The State of Conservation of the World Heritage Forest Network* (Patry, 2005). Basically, they are based on the frequency with which the WH Committee has discussed a WH property over the past 15 years (0 = minimum reports, 100 = maximum reports).

#### 2. Results

For cultural heritage assets, and for a scale of property such as a WH city, it is a challenge to identify indicators that can provide tangible and comparable measures of the SoC of WH properties. However, much information is periodically gathered by the WH centre *through its reactive monitoring process and by way of third party information*. The data so obtained is *rarely of a nature that allows for objective quantifiable analysis* (Patry, 2005). The following data, proposed as indicators, is quantitative and available to every WH property.

The first two indicators (indicators 1 and 2) are based on WH cities' potential inscription on the List of WH in Danger. The second two indicators (indicators 3 and 4) are based on whether monitored conditions at individual WH cities reveal significant enough threats to be discussed by the WH Committee at their annual Sessions.

INDICATOR 1.

Absolute number of WH properties including or included in WH cities on the List WH in Danger.

#### INDICATOR 2. Proportion of all WH properties including or included in WH cities on the List of WH in Danger (number of WH cities on Danger List / Total number of WH cities).

When a property's OUV is threatened *by serious and specific dangers* the WH Committee has the option of inscribing the property on the List of WH in Danger (UNESCO, 2008b). This *Danger Listing* serves not only to heighten concern about the property's integrity and stir up international support, but the list itself also serves as a record of the threatened state of the property.

By 2010, 21 WH properties found including or included in WH Cities (indicator 1) had made an appearance on the Danger List (see Table 1). An exceptional case is the WH property Dresden Elbe Valley (Germany), inscribed on the Danger List in 2006 and delisted from the WH List in 2009. As it was no longer a WH property at the time this research was conducted, Dresden Elbe Valley was excluded from this survey.

Since 1979, when the first WH properties that include or are included in WH Cities were inscribed in the *List of WH in Danger*, the proportion (indicator 2) of these WH properties on the Danger List has ranged from as high as 100% (1979-1983) to as low as 26% (1993). Ten of these WH properties still remain inscribed today on the Danger List. An additional ten properties have been delisted and still remain on the WH List. No WH property returned after delisting.

Both indicator 1 (number) and 2 (%) can be used as a measure of the degree to which these particular WH properties were under threat worldwide (Figure 1). Although indicator 1 reveals a small sample of properties when compared with the whole population (4.4% of all 459 WH properties including or included in WH Cities), it reflects the whole *List of WH in Danger*, which includes no more than 31 WH properties (3.5% of all 890 WH properties inscribed on the WH List).

Similarly, indicator 2 (with an average of 53% along the last 32 years) lightly surpasses the proportion of WH properties including or included in WH Cities on the WH List (51.6% of all 890 WH properties). In fact, until 1997 all cultural heritage inscribed in the Danger List were WH properties including or included in WH Cities.

The list of all WH properties including or included in WH Cities having been inscribed on the *List of WH in Danger* is provided in Table 2. Similar to the WH Forests (Patry, 2005), a future indicator of the state of these WH properties overall might focus on the urban area of WH properties in danger as a proportion of total WH properties cover. This indicator could increase the accuracy of the assumptions reached when surveying indicators 1 and 2. However, urban area cover values of the protection zones (core and buffer zones) of WH properties including or included in WH Cities are unreliable, making it premature to consider this indicator.

Nevertheless, it is telling to review which WH Cities have appeared on the Danger List, as well as the threats for which they were included. After reviewing the threats all WH properties including or included in WH cities face it will be interesting to compare which threats have resulted in Danger Listing and which have not. A review of the nature of threats that affect those on the Danger List shows the principle threats have been *new development* and *flawed restoration work*. These threats affect more than half of the WH properties including or included in WH cities on the Danger List (see Table 1).

The average time spent on the Danger List for WH Cities is 10.7 years. Seven cities have remained on the *Danger List* for more than the average tenure. For those properties, *new development* has been the most prevalent threat. However, for the thirteen cities with less than average tenure on the List, the prevalent threat has been *lack of, flawed or damaging maintenance, reconstruction and restoration work.* One might therefore conclude that new development poses a more serious and longer-term danger to these properties, therefore resulting in longer tenures on the Danger List.

Table	1.	Threats	affecting	WH	properties	including	or
includ	ed i	in WH C	ities on th	e Dar	nger List		

	# Cities	% of
THREAT	Facing	all
	Threat	Threats
new development	11	16.42%
lack of, flawed or damaging		
maintenance, reconstruction		
and restoration work	11	16.42%
natural disaster	8	11.94%
general degradation	7	10.45%
infrastructure construction		
and development	7	10.45%
tourism pressures and associ-		
ated development	5	7.46%
informal/illegal settlements		
or construction	5	7.46%
illegal or inappropriate dis-		
mantling and demolition	3	4.48%
archaeological excavations	2	2.99%
natural causes	2	2.99%
motor traffic	2	2.99%
land privatization and owner-	2	2.99%
ship issues		
lack of or insufficient infra-	1	1.49%
structure		
neglect	1	1.49%

As seen in Figure 1, the number of WH properties including or included in WH cities on the Danger

wit	Including of included in wirecities previously and editently of a		Off	#
W fi Droporty	Threats*	(Veer)	(Veer)	# Voors
Old City of Jerusalem	archaeological excavation: new development: tourism pres	(Tear)	(Tear)	rears
and its Walls	sures and associated development: lack of flawed or damag-			
and its wans	ing maintenance, reconstruction and restoration work; ne-			
	alect	1082	still on	28
Natural and Culturo-	new development: tourism pressures and associated devel-	1782	Still Oli	20
Historical Region of	opment: natural disaster: infrastructure construction and			
Kotor	development	1979	2003	24
Chan Chan Archaeo-	archaeological excavations: new development: tourism pres-	1777	2005	27
logical Zone	sures and associated development: informal/illegal settle-			
logical Zolic	ments or construction: natural disaster: general degradation:			
	lack of or insufficient infrastructure: natural causes: lack of			
	flawed or damaging maintenance reconstruction and restora-			
	tion work. looting/theft	1986	still on	24
Royal Palaces of	natural disaster: general degradation: lack of flawed or	1700	5till 6li	21
Abomey	damaging maintenance reconstruction and restoration work	1985	2007	22
Bahla Fort	new development: lack of flawed or damaging maintenance	1705	2007	22
Dunia i ori	reconstruction and restoration work	1988	2004	16
Timbuktu	new development: natural disaster: general degradation:	1700	2001	10
Timouktu	natural causes	1990	2005	15
Angkor	new development: tourism pressures and associated devel-	1770	2005	15
Aligkoi	opment: informal/illegal settlements or construction: infra-			
	structure construction and development: political un-			
	rest/violence: looting/theft	1992	2004	12
Fort and Shalamar	new development: general degradation: infrastructure con-	1772	2004	12
Gardens in Labore	struction and development: motor traffic: illegal or inappro-			
Gardens in Lanore	priate dismantling and demolition: land privatization and			
	ownershin issues	2000	still on	10
Historic Town of	new development: informal/illegal settlements or construc-	2000	Still Oli	10
Zabid	tion general degradation infrastructure construction and			
Luoid	development: lack of flawed or damaging maintenance			
	reconstruction and restoration work	2000	still on	10
Wieliczka Salt Mine	unidentified threats	1989	1998	9
Old City of Dubrov-	natural disaster: lack of flawed or damaging maintenance.			
nik	reconstruction and restoration work: political unrest/violence	1991	1998	7
Walled City of Baku	new development: tourism pressures and associated devel-			
with the Shirvanshah's	opment: natural disaster: illegal or inappropriate dismantling			
Palace and Maiden	and demolition			
Tower		2003	2010	7
Bam and its Cultural	security			
Landscape		2004	still on	6
Coro and its Port	natural disaster: general degradation: lack of, flawed or			
	damaging maintenance, reconstruction and restoration work	2005	still on	5
Tipasa	new development; informal/illegal settlements or construc-			
L	tion: natural disaster: infrastructure construction and devel-			
	opment: lack of, flawed or damaging maintenance, recon-			
	struction and restoration work	2002	2006	4
Kathmandu Vallev	new development: informal/illegal settlements or construc-			
	tion: general degradation: infrastructure construction and			
	development; illegal or inappropriate dismantling and demo-			
	lition; lack of, flawed or damaging maintenance, reconstruc-			
	tion and restoration work; political unrest/violence	2003	2007	4
Medieval Monuments	political unrest/violence			
in Kosovo		2006	still on	4
Samarra Archaeologi-	motor traffic; security; political unrest/violence			
cal City	, ,, <b>r</b>	2007	still on	3
Cologne Cathedral		2004	2006	2
Historical Monuments	land privatization and ownership issues: lack of. flawed or	-		
of Mtskheta	damaging maintenance, reconstruction and restoration work	2009	still on	1

Table 2. WH properties including or included in WH cities previously and currently on the Danger list

\*Taken from Official Reports of the Sessions of the WH Committee from 1977-2009



Figure 1. Number and Proportion of WH properties including or included in WH cities on the Danger List

list does not grow in proportion to the number of WH cities being added to the WH List. Again, if the Danger List were used more comprehensively it might better reflect the growing proportion of WH Cities that are endangered.

INDICATOR 3.

Threat intensity to which WH properties including or included in WH Cities are subjected.

INDICATOR 4.

Average threat intensity for entire WH properties including or included in WH Cities network.

Throughout the year the WH Centre and Advisory Bodies (ICOMOS and IUCN) receive information (unsolicited and solicited) related to emerging and on-going conservation issues in WH properties from a variety of sources.

Once a year, to prepare the World Heritage Committee meeting, the WH Centre and Advisory Bodies meet to review and discuss information gathered during the previous months and jointly decide whether conditions warrant that a particular WH property and its conservation issues be discussed by the WH Committee.

When affirmative, the WH Centre and Advisory Bodies prepare a State of Conservation Report or SoC Report, which includes a brief analysis of the conservation threats for the selected properties, along with a draft decision for the WH Committee's consideration. Typically, a SoC report will be requested when the values for which a property was inscribed on the WH List appear to be significantly threatened by either existing processes (e.g. change of uses), or by potential processes with a high likelihood of taking place (e.g. plans for development). During its annual meeting in June/July, the WH Committee, which insures the WH Convention is being properly implemented by the States Parties, discuss the SoC reports and takes decisions on specific courses of action. Generally, they request that a State Party implement particular measures to mitigate threats. Usually, the WH Committee requests that a SoC report be produced for the following year's WH Committee meeting to determine if the threats have been properly mitigated. If confirmed by a subsequent SoC report, the WH Committee usually ceases to request any further SoC reports for that particular property. Otherwise, a SoC report will be requested again for the following year's meeting.

This fairly rigorous process provides the necessary data to develop an indicator of the overall level of threat intensity to which particular WH properties are being subjected (Patry, 2005). Accordingly, the reliability of this indicator is based on the assumption of the degree involved parties are aware of all of the major conservation threats at all WH sites at all times and a standard minimum threshold of concern is passed before the decision to produce a SOC report is made.

Figure 2 illustrates the Threat Intensity Coefficients (TIC) when applied for 2 WH properties including or included in WH Cities over the last 15 years. While the Old City of Dubrovnik, Croatia (which in the past has been inscribed on the List of WH in Danger) is decreasing its TIC year after year; Chan Chan Archaeological Zone, Peru keeps on rising, despite the many years in the Danger List.

Figure 2. Sample Threat Intensity Coefficients for 2 WH properties including or included in WH Cities, over time



Figure 3 illustrates the average annual values of the TIC from 1995 to 2009. The average TIC values during the last 15-year intervals are 6.7 (1995) and 16.9 (2009). These values are affected by a combination of the actual TIC values of WH properties including or included in WH Cities and the total number of WH properties.

Figure 3: Average TIC Value for entire WH properties including or included in WH Cities network



As SoC reports for newly inscribed WH sites are rarely requested, the year of nomination has not been included in the sum. This methodological decision creates a downward pressure on the average TIC value. Another factor that also likely influences the average TIC value of the earlier years is the difference in the Operational Guidelines and the requested information and focus during the Sessions of the WH Committee.

The Official Reports of the Sessions of the WH Committee mention threats facing 193 of the 476 WH properties including or included in WH Cities. Each discussed property faced anywhere from one to eleven unique threats. Therefore, all together, hundreds of unique threats emerge from the reports. For the purposes of this research we have grouped the referenced threats into twenty-three distinct categories. Among these, a handful emerged as most common.

The most-referenced threat represents a notable limitation of the data source: *unidentified threats*. The reports do not detail the specificities of all threats, particularly in earlier years when reports were less comprehensive. Thirty-two percent of WH properties including or included in WH Cities face unidentified threats, which represent twenty-seven percent of all threats. The remaining threats referenced in the reports are indeed more specific and demonstrate the prevalence of one specific class of threat: *the development threat*.

*New development* and *infrastructure construction* are referenced as threats to twenty-six and twelve percent of WH properties including or included in WH Cities respectively. Threats that are mentioned in reference to five to ten percent of WH properties including or included in WH Cities are *insufficient maintenance* and *restoration, tourism pressures* and *natural disasters* (n.b. *tourism pressures* include new development, but also non-development threats such as motor traffic and foot traffic).

In addition to *new development*, other categories of threats represent development (defined for the pur-

poses of this research as all activities of urban planning/renewal promoting changes on the built environment). Therefore, categories representing development threats are: new development; infrastructure construction and development; tourism pressures and associated development; informal/illegal settlements or construction; temporary events (and associated structures); oil and gas exploration and mining; land privatization and ownership issues; industrial construction and development; and military facilities development. All together, these development threats represent forty-five percent of the threats facing WH properties including or included in WH Cities and are referenced as threats to fiftyfour percent of WH properties including or included in WH Cities. In comparison, inappropriate excavation and restoration is mentioned as a threat to only thirteen percent of WH properties including or included in WH Cities; natural threats are referenced for only nine percent; security-related threats referenced for only seven percent and general neglect and degradation referenced for only four percent. This data clearly shows developmentrelated threats as the greatest perceived threats to WH properties including or included in WH Cities. For the purposes of this research we have also grouped the referenced causes of threats into nineteen distinct categories. As mentioned previously, not all referenced threats were discussed in detail in the reports; consequently the causes of such threats were not always given. However, those causes that were given show a majority of development-related causes (defined for the purposes of this research as the causes that led development to become a threat to these WH properties). Among all causes referenced, the most common categories are insufficient regulatory frameworks, insufficient buffer zones and insufficient enforcement of regulatory frame*works*, representing twenty-three percent, seventeen percent and fifteen percent of causes respectively. These three cause categories are all mentioned in reference to development threats (as defined for Indicator 5). Other categories mentioned in relation to development threats are: insufficient coordination of stakeholders, insufficient tourism plan, insufficient impact analyses, insufficient understanding of heritage's value, insufficient involvement of local population, insufficient design guidelines, insufficient political agreement and population growth and economic pressures (see Figure 5). All together, these development-related causes represent eighty-three percent of all causes and were mentioned in reference to ninety-eight percent of all WH properties including or included in WH Cities. This data shows development-related causes as the principle cause of threats to WH properties including or included in WH Cities is development.

	# Properties		% of all
	Facing	% of all	Properties
Threat Category	Threat	Threats	Facing Threat*
unidentified threat(s)	152	26.67%	31.93%
new development	124	21.75%	26.05%
infrastructure construction and development (roads, airports, ports,	57	10.00%	11.97%
sewers, etc.)			
lack of, flawed or damaging maintenance, reconstruction and	46	8.07%	9.66%
restoration work			
tourism pressures and associated development	44	7.72%	9.24%
natural disaster	32	5.61%	6.72%
general degradation	16	2.81%	3.36%
illegal or inappropriate dismantling and demolition	14	2.46%	2.94%
informal/illegal settlements or construction	13	2.28%	2.73%
natural causes	12	2.11%	2.52%
lack of or insufficient infrastructure	10	1.75%	2.10%
motor traffic	8	1.40%	1.68%
political unrest/violence	8	1.40%	1.68%
temporary events (and associated structures)	7	1.23%	1.47%
neglect	5	0.88%	1.05%
oil and gas exploration and mining	4	0.70%	0.84%
land privatization and ownership issues	4	0.70%	0.84%
looting/theft	4	0.70%	0.84%
industrial construction and development	3	0.53%	0.63%
archeological excavations	2	0.35%	0.42%
security	2	0.35%	0.42%
military facilities development	2	0.35%	0.42%
noise and visual pollution	1	0.18%	0.21%
TOTAL DEVELOPMENT THREATS	258	45.26%	

Table 3. Development-related threats referenced for WH properties including or included in WH cities

\*Properties often face more than one threat, therefore, this column adds up to more than 100%.

Table 4.	The causes	for develo	opment-related	threats affecting	g all WH r	properties	including o	r included in	WH cities
							0		

Table 4. The causes for development-related threats affecting an will prop	crucs menualing of	menudeu m w	11 cities
			% of all
	# Properties	% of all	Properties
Cause Category	Facing Cause	Causes	Facing Cause
lack of or insufficient regulatory framework (including management			
plan, conservation plan, zoning laws, urban plan, etc.)	127	22.48%	26.68%
lack of or insufficient buffer zone	98	17.35%	20.59%
insufficient implementation or enforcement of regulatory framework			
(including management plan, conservation plan, zoning laws, urban plan,			
etc.)	85	15.04%	17.86%
insufficient coordination of stakeholders or integration of respective			
initiatives	43	7.61%	9.03%
lack of or insufficient tourism plan	33	5.84%	6.93%
lack of or insufficient impact analyses	31	5.49%	6.51%
lack of corrective measures and their timely implementation	23	4.07%	4.83%
lack of or insufficient human, financial and technical resources	20	3.54%	4.20%
lack of or insufficient emergency, risk and disaster preparedness plan	19	3.36%	3.99%
lack of or insufficient monitoring and indicators	18	3.19%	3.78%
insufficient understanding of heritage's value and conditions of integrity	16	2.83%	3.36%
insufficient involvement of local population	14	2.48%	2.94%
lack of or insufficient funding	13	2.30%	2.73%
lack of design guidelines	9	1.59%	1.89%
lack of political agreement or support	6	1.06%	1.26%
population growth	4	0.71%	0.84%
insufficient socio-economic conditions	3	0.53%	0.63%
economic pressures	2	0.35%	0.42%
lack of or insufficient infrastructure	1	0.18%	0.21%
TOTAL DEVELOPMENT-RELATED CAUSES	468	82.83%	98.32%

#### 3. Conclusion

Given the absence of any framework under which a homogeneous set of indicators on the state of conservation (SoC) of WH properties including or included in WH cities worldwide can be constructed for the time being, it will remain extremely difficult to develop a highly reliable measure of how well these WH properties are being conserved over time.

Under these difficult conditions, the WH Centre must rely on indirect measures of the SoC, using the Periodic/Reactive Monitoring, the Danger Listing or the Threat Intensity Coefficient. However, based on the information so gathered, positive and negative aspects can be ascertained on the state of conservation of WH properties including or included in WH cities.

The average TIC values for all WH properties including or included in WH cities network over the past 5 years is relatively low (ranging between 12.4 and 16.9), as the proportion of these WH properties including or included in WH cities on the Danger List (ranging between 35.5 and 32.3). However, both indicators show steady growth along the years. Considering that the WH Committee only meets once a year and for a limited amount of time, the number of cases discussed cannot grow that much. Still, there is a high probability that more WH properties including or included in WH cities shall join the Danger List and/or become discussed by the WH Committee in the following years.

When comparing the results of the four indicators it was possible to conclude that the level of tension between cultural heritage and development in World Heritage cities has been rising over the last years and is varied in nature. It was also evident that the List of WH in Danger cannot alone act as an indicator as it does not accurately include all cases of WH properties including or included in WH cities facing development-related threats, nor their level of threat.

The root of this problem may be grounded in the politicization of the Danger List. If its use – extension of damage for a property to be listed, duration of a property to stay listed, degrees of danger and respective mitigation strategies, etc – were to become more comprehensive and/or complemented with other indicators (e.g. decisions from the Annual Sessions of the WH Committee) it could become an even more useful indicator.

The changing composition of the Danger List over time is a dynamic record of the SoC of the most threatened WH properties in the world. The composition of the Danger List, both the categories of properties included and categories of threat they are included for, indicated which categories were most threatened and which threats were most prevalent worldwide. Therefore, the Danger List provides rather objective indicators for the monitoring of the category that concerns us in this research, WH Cities.

Moreover, the Threat Intensity Coefficient (TIC) was a first attempt at providing a quantitative value on the State of Conservation (SoC) of WH forests that is applicable to all WH properties, natural or cultural. Though, the actual utility of this indicator remains to be seen over time. Further research on rationalizing on the nature of the identified threats and causes could help raise the understanding of the SoC of these and other WH properties.

This initial use of the four indicators has revealed the high degree of tension between heritage preservation and development in WH Cities. WH Cities are dynamic organisms within which pressures for modernization are not likely to subside. Therefore, it is essential to collect more detailed information about the particular characteristics of new development that threaten a property's OUV. In this regard, our analysis only scratches the surface, as it is limited by the depth of available data. Therefore, we hope this can serve as an impetus for more systematic and comprehensive monitoring of the evolving threats to WH cities.

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## Low Carbon Development of China's Yangtze River Delta Region

## Gospodarka niskowęglowa w delcie rzeki Jangcy w Chinach

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#### Abstract

Low carbon development is a development pattern to enable social and economic progress along the path of sustainable development. This paper analyzes the low carbon development situation and trend in the China's Yangtze River Delta region, one of the most important industrial and economic centers of China. The results indicate low carbon development in this region continues to move forward. However, many barriers, such as unbalanced energy consumption structure and limited research and development capability still exist. Some solutions to overcoming the barriers are proposed in the paper, covering policy, strategic, technological, educational measures.

Key words: sustainable development; low carbon development, Yangtze River Delta region of China, barriers, solution

#### Streszczenie

Gospodarka niskowęglowa sprzyja zarówno rozwojowi społecznemu, jak ekonomicznemu i jest zgodna z koncepcją rozwoju zrównoważonego. Ten artykuł analizuje uwarunkowania wprowadzania gospodarki niskowęglowej w delcie rzeki Jangcy w Chinach, będącej jednym z najważniejszych przemysłowych i ekonomicznych obszarów w tym kraju. Otrzymane rezultaty wskazują na pozytywny rozwój gospodarki niskowęglowej na tym obszarze. Jednakże nadal występuje wiele barier, takich jak niezrównoważona struktura konsumpcja energii i ograniczone możliwości badawcze i rozwojowe. W artykule zawarto propozycje pokonania tych barier, uwzględniające wskaźniki polityczne, strategiczne, techniczne i edukacyjne,

Słowa kluczowe: rozwój zrównoważony, gospodarka niskowęglowa, Delta rzeki Jangcy w Chinach, bariery, rozwiązania

#### 1. Introduction

Fossil energy use and its adverse impacts on environment have become a major issue in the last few decades. World primary energy consumption grew by 5.6% in 2010, the largest increase since 1973 (BP, 2011). Of all greenhouse gases carbon dioxide (CO<sub>2</sub>) is the most important one. The rising concentration of atmospheric CO<sub>2</sub> results in rising temperature of the earth during the past several decades. According to the World Meteorological Organization (WMO, 2010), over the ten years from 2001 to 2010, global temperature grows averaged 0.46 °C above the 1961-1990 mean, and are the highest ever recorded for a 10-year period based on instrumental climate records.

Most countries, especially the European Union Community, take great effort to decrease greenhouse gases emissions. Although  $CO_2$  accounts for 77% of anthropogenic greenhouse gas emissions and burning of fossil fuels stands for 57% (IPCC, 2007), there are other important greenhouse gases like methane emitted mostly from agriculture activity (51%) and landfills (12%) (EPA, 2006). In the case of landfills a great effort has been made to control methane emissions, mostly biogas recovery for use as energy resources. However, when methane content in landfill biogas is below 30% it cannot be used as energy carrier. Therefore there are a lot of efforts to control methane emission from landfills. The most important effort, but not applied yet on industrial scale is enrichment of biogas in methane by carbon dioxide removal (Pawłowska at al., 2008a, 2008b, 2008d). Much wider biochemical oxidation of methane emitted from landfills is used (Stepniewski at al., 1995, 1996, 1997, 2008a, 2008b; Pawłowska at al., 2005, 2006a, 2006b, 2006c, 2006d, 2008c, 2010, 2011a, 2011b).

During last a few decades most countries in the world have taken attempts to make development more sustainable. The concept of sustainable development was introduced by famous Brundtland Report (WCED, 1987) and it says: Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Pawłowski (2006) reviewing development of sustainability over last century showed that nowadays idea of sustainable development has multidimensional nature (Pawłowski, 2008, 2011a) and touches so many aspects of our civilization that Pawłowski (2003a, 2003b, 2009a, 2010a, 2011b) named nowadays period as a sustainable development revolution.

Recently, much attention has been given to philosophical aspects of sustainable development (Gawor, 2010; Udo at al., 2010; Keitsch, 2011; Krajewski, 2012; Rodojicic at al., 2012), social (Venkatesh, 2010; Krasm, 2011; Pawłowski, 2010a, 2010b; Bernat, 2012; Golušin at al., 2012) and economical (Tuziak, 2010; Hoedl 2011, Hueting, 2011; Gurtowski, 2011).

Although most researchers insist on to decrease greenhouse gases emissions which may slow down economic development, some known scholars (Lindzen, 2010) argue that threat created by emissions of greenhouse gases is not so great as described in most publications and primary energy supply is the most important to assure introduction of sustainable development (Pawłowski, 2009b, 2010b, 2011c; Pieńkowski 2012).

As the biggest developing country China has been experiencing a rapid economic growth with GDP increasing from 364.5 billion RMB in 1978 to 40120.2 billion RMB in 2010 (National Bureau of Statistics, 2011a). The rapid economic growth is accompanied with increasing energy demand and increasing greenhouse gas emissions. China's total energy consumption reached 3.25 billion tonnes of coal equivalent (tce) in 2010 and has become the world's second largest energy consuming country (National Bureau of Statistics, 2011b). Faced with the grim situation, Chinese government has initiatively taken concrete actions to develop low carbon economy. China has pledged to cut 40-50% of  $CO_2$ emissions per unit of GDP by 2020 on the 2005 basis. According to China's 12th Five-Year Plan (2011), during the next five years China will raise the share of non-fossil energy in primary energy consumption to 11.4%, and reduce energy consumption and  $CO_2$  emission per unit of GDP by 16% and 17%, respectively.

The Yangtze River Delta region of China encompasses Shanghai Municipality, Jiangsu and Zhejiang provinces with total area of about 210,700 square kilometers. The region is one of the most important industrial and economic centers of China, responsible for 21.5% of China's GDP and 36.6% of China's imports and exports in 2010 (National Bureau of Statistics, 2011a). However, this region is being faced with many problems during its industrialization and urbanization. For example, energy efficiency is low and energy consumption is too much, energy supplies and natural resources are scarce, carbon emissions gradually increase and ecological environment has been deteriorating. So it is necessary for this region to realize sustainable development and change the economic growth mode to low carbon economy.

#### 2. Current Situation of Low Carbon Development

#### 2.1. Energy Consumption

Since China's reform and opening up, the Yangtze River Delta region has maintained a high economic growth rate. Its nominal GDP rose from 310.3 billion RMB in 1990 to 8631.4 billion RMB in 2010 (Shanghai Municipal Bureau of Statistics, 2011; Jiangsu Bureau of Statistics, 2011; Zhejiang Bureau of Statistics, 2011). Meanwhile, its energy consumption rose from 112.6 million tce in 1990 to 538.4 tce in 2010 (National Bureau of Statistics of China, 2011). Its share in the country's total energy consumption increased gradually from 11.4% in 1990 to 16.6% in 2010. This increase is largely attributed to the contribution of Jiangsu and Zhejiang provinces.



Figure 1. Growth Rate of Energy Consumption for China and the Yangtze River Delta Region (National Bureau of Statistics of China 1997-1999, 2004, 2007, 2010).

To further see the change trend in energy consumption, we analyze the energy consumption growth rate (percentage change on previous year) in this region. As shown in Figure 1, the growth rate in each year is positive, meaning that the energy consumption has been increasing over the ten years (2000-2009). Besides, the growth rate in this region is also too high when compared with the whole country. The average annual growth rate in this region reached 10.6% in the ten years, greater than the country average growth rate (8.6%). Such a high growth rate is mainly contributed by the rapid energy consumption growth in Jiangsu and Zhejiang, especially Jiangsu. Increasing energy consumption is a great challenge to low carbon development and sustainable development for the Yangtze River Delta region. Facing such a situation, the region has made great effort to improve it. As we can see from Figure 1, the energy consumption growth rate of this region began to decline sharply from 2004.

#### 2.2. Energy intensity

Energy intensity is a measure of the energy efficiency relative to a nation's economy. It is calculated as units of energy consumption per unit of GDP. Figure 2 shows the energy intensity in Yangtze River Delta Region. It indicates that energy intensity of this region is much lower than the whole country in the past decade from 2000 to 2009, and shows an overall downward trend, dropped from 0.89 tce per ten thousand Yuan of GDP in 2000 to 0.75 in 2009. The overall downward trend of energy intensity in this region means the improving energy efficiency, which is good for low carbon development. Specially, energy intensity of this region declined from 2000 to 2003 at first, then increased till 2005, and declined again till 2009. Variation of energy intensity in Jiangsu and Zhejiang is consistent with the whole region. However, energy intensity of Shanghai has been continuing to decline from 2000 to 2009 without any fluctuation.



Figure 2. Energy Intensity of China and the Yangtze River Delta Region (Shanghai Municipal Bureau of Statistics, 2010; Jiangsu Bureau of Statistics, 2010; Zhejiang Bureau of Statistics, 2010, and National Bureau of Statistics of China, 2004, 2007 and 2010).

#### 2.3. $CO_2$ emission

The energy-related  $CO_2$  emissions in the Yangtze River Delta region were analyzed using the first method in IPCC Guidelines for National Greenhouse Gas Inventories (2006). A total of 11 kinds of fuels were included. The calculation was conducted using the following equation:

$$G = \sum G_{i} = \sum E_{i} \times EC$$

where G is the total CO<sub>2</sub> emissions,  $G_i$  is the CO<sub>2</sub> emissions by fuel type *i*,  $E_i$  is the consumption of fuel type *i* and  $EC_i$  is the CO<sub>2</sub> emission factor of fuel type *i*.

Table 1 shows the  $CO_2$  emission factors and conversion factors from physical units to coal equivalent of 11 kinds of fuels<sup>1</sup>.

Table 1  $CO_2$  emission factors and conversion factors of 11 kinds of fuels (Zhao at al., 2009; Rao, 2011 and Jiang, 2011).

Fuel	CO <sub>2</sub> Emission	Conversion
	Factor	Factor
Raw Coal	2.7716 t/tce	0.7143 kgce/kg
Cleaned Coal	2.7716 t/tce	0.9000 kgce/kg
Coke	3.135t/tce	0.9714 kgce/kg
Crude Oil	2.1482 t/tce	1.4286 kgce/kg
Gasoline	2.0306 t/tce	1.4714 kgce/kg
Kerosene	2.0955 t/tce	1.4714 kgce/kg
Diesel Oil	2.171 t/tce	1.4571 kgce/kg
Fuel Oil	2.2678 t/tce	1.4286 kgce/kg
LPG	1.8421 t/tce	1.7143 kgce/kg
Refinery Gas	1.6874 t/tce	1.5714 kgce/kg
Natural Gas	1.6438 t/tce	1.330 kgce/cu.m

Figure 3 illustrates that CO<sub>2</sub> emissions in this region have been continually increasing from 622.3 million tonnes in 2000 to 1344.9 million tonnes in 2009. The average annual growth rate of  $CO_2$  emissions is 8.9%, less than national average  $9.8\%^2$ . For Shanghai, the average annual growth rate of CO<sub>2</sub> emissions is only 3.9%, far below national average and CO<sub>2</sub> emissions dropped from 268.0 million tonnes in 2008 to 267.0 million tonnes in 2009. The dropping is mainly due to the consumption decline of the fuels which has greater CO<sub>2</sub> emission factor such as raw coal, cleaned coal, coke and crude oil. However, for Jiangsu and Zhejiang the average annual growth rate of CO<sub>2</sub> emissions is 10.5% and 10.9% respectively, much higher than the national average.

<sup>&</sup>lt;sup>1</sup> CO<sub>2</sub> emission factors in this paper are based on IPCC default CO<sub>2</sub> emission factors. The unit of original data in IPCC is converted from t/TJ to t/tce based on GB/T 2589-2008 (1tce = 293 TJ). In China Energy Statistical Yearbook, the unit of energy consumption for each fuel is physical unit, so we need to convert physical unit to coal equivalent for calculation.

<sup>&</sup>lt;sup>2</sup> National average is calculated by using the same method and the same 11 kinds of fuels.



Figure 3.  $CO_2$  emissions of the Yangtze River Delta region 2000-2009 (National Bureau of Statistics of China 2004, 2007 and 2010).

#### 2.4. Carbon intensity

To analyze the impact of this region's economic growth on  $CO_2$  emissions, carbon intensity ( $CO_2$ emissions per unit of GDP) is calculated and shown in Table 2. As we see, declining trend occurred in carbon intensity of this region, which means the same units of GDP can be produced with less and less  $CO_2$  emissions. Shanghai, Jiangsu and Zhejiang all show the declining trend and carbon intensity declined fastest in Shanghai. In 2000 Shanghai's carbon intensity is 3.6, the highest in this region. However, in 2009 Shanghai's carbon intensity is only 1.87, the lowest in this region. Better industry structure and energy consumption structure contribute to this (Zhu, 2011).

Table 2. Carbon Intensity in the Yangtze River Delta Region 2000-2009, unit: tonne/10<sup>4</sup> RMB, GDP at 2005 prices (Shanghai Municipal Bureau of Statistics 2010, Jiangsu Bureau of Statistics 2010, Zhejiang Bureau of Statistics 2010, and National Bureau of Statistics of China 2004, 2007 and 2010)

Year	Yangtze River Delta	Shanghai	Jiangsu	Zhejiang
2000	2.75	3.60	2.61	2.31
2001	2.57	3.36	2.40	2.24
2002	2.44	3.09	2.31	2.15
2003	2.42	3.04	2.33	2.11
2004	2.49	2.82	2.46	2.29
2005	2.61	2.69	2.74	2.37
2006	2.47	2.39	2.60	2.35
2007	2.31	2.13	2.42	2.28
2008	2.15	2.03	2.22	2.12
2009	2.03	1.87	2.09	2.03

2.5 Development of new and renewable energy New and renewable energy, such as solar, wind,

ocean and biomass, generally has the characteristics

of large reserves and less pollution, which is very important to solve the world's serious environmental pollution problems and resources (especially fossil energy) depletion (He and Shan, 2009). As the world's major carbon emitter, China, in addition to a need to limit greenhouse emissions in the long run, need to seek a new engine to lead the longterm economic growth, and the new energy industry is undoubtedly the logical choice. In the State Council's Decision on the Accelerating the Fostering and Development of New Strategic Emerging Industries (State Council of China, 2010), the important role of new energy industry has been further clarified and the new energy industry has been recognized as one of China's leading industries.

The Yangtze River Delta region is one of the most important regions for new energy industry development in China. This region mainly undertakes new energy industrial R&D and high-end manufacturing functions and has concentrated 60% of China's photovoltaic enterprises, over 20% of wind power equipment manufacturing enterprises, 53.5% of installed capacity of nuclear power plants and nearly 40% of biomass power generation capacity (CCID, 2011).

Shanghai has developed its strategic layout planning of new energy industry, and will build Nanhui Industrial Park into the dominant solar photovoltaic industry base, Pudong District and Minhang District into the dominant nuclear power industry bases, Jiading District into the center of new energy vehicles and key parts industry base, and Lingang District into the dominant wind power industry base. Jiangsu has issued a proposal for developing into the country's new energy equipment manufacturing industry bases. New materials industry will be mainly in Lianyungang City, wind power equipment industry mainly in Yancheng City, renewable energy industry mainly in Kunshan City, and photovoltaic industry mainly in Xuzhou City. Zhejiang has proposed to build low carbon industry agglomeration districts with high competitiveness. Photovoltaic industry cluster will be mainly in Quzhou City, Hangzhou City, Jiaxing City and Shaoxing City, wind energy equipment industry cluster mainly in Hangzhou City and Wenzhou City, solar thermal industry cluster mainly in Haining City, and hydropower and tidal energy industry cluster mainly in Tonglu County.

## 3. Challenges and Barriers to Low Carbon Development

#### 3.1. Population

The Yangtze River Delta region is a very densely populated area. The population density of Shanghai, Jiangsu and Zhejiang, has reached 3654, 767 and 535 people per square km respectively, greater than national average level (140). The excessive increase of population has brought greater pressure on ecol-
ogy, environment, resources, and transportation. For example, Shanghai's residential energy consumption reached 10.1 million tce in 2010, which has increased by 56.3% during the 11th Five-Year Plan period (2006-2010). Of all residential petroleum products, gasoline consumption has greatest increase, from 30800 tonnes in 1995 to 1036800 tonnes in 2009 (National Bureau of Statistics of China, 2010).

### 3.2. Low Energy self-sufficiency rate

China has been the largest energy production country in the world for five consecutive years and energy self-sufficiency rate is over 90%. However the Yangtze River Delta region's energy selfsufficiency is very low. Most consumption of raw coal, crude oil and natural gas is from other provinces and foreign imports. In 2009, self-sufficiency rate of raw coal is nearly zero in Shanghai, 11.2% in Jiangsu and 0.1% in Zhejiang. Self-sufficiency rate of crude oil is 0.5% in Shanghai, 6.9% in Jiangsu and 0% in Zhejiang. Self-sufficiency rate of natural gas is 12% in Shanghai, 0.9% in Jiangsu and 0% in Zhejiang. Such a low rate of primary energy self-sufficiency requires the Yangtze River Delta region must turn to the road of sustainable development and reduce energy consumption.

3.3. Limited deployment of low carbon technologies Development and diffusion of low carbon technologies is very important to solve the challenges of climate change and energy security. According to China Human Development Report 2009/10 (UNDP, 2011), China's innovation capability in the field of low carbon technologies is weak. Currently, China only masters 19 kinds of low carbon technologies of 62 kinds of key support technologies. As to the other 43 kinds of low carbon technologies, China has not mastered the core. Low carbon technology development in the Yangtze River Delta region faces many obstacles. For example, the world's largest carbon capture project launched by a coal-fired power plant broke ground in July, 2009 in Shanghai. It's the second program developed by Huaneng Power International Inc. However, due to technical, financial and project implementation reasons, the current development of this project is still relatively slow. Limited R&D capability, imperfect laws and regulations, insufficient investment and diffusion difficulty of new technologies all hampered the development of low carbon technologies in this region (Wang, 2010).

### 3.4. Unbalanced energy consumption structure

According to *BP Statistical Review of World Ener*gy (2011), coal accounted for only 29.6% of global primary energy consumption in 2010. However, China's proportion was as high as 70.2%. In the Yangtze River Delta region, energy consumption also mainly relies on coal. Proportion of oil and natural gas consumption, especially natural gas consumption is very low. In 2007 coal accounted for 60.1% of this region's consumption. Natural gas only accounted for 0.2%. Energy consumption structure of Shanghai is a little better than Jiangsu and Zhejiang, but still unbalanced. Because the  $CO_2$  emission factor of coal is the highest in the main fossil fuels, a coal-dominant energy endowment and consumption structure must be changed in the long run in order to further promote low carbon development.

#### 4. The Way to Low Carbon Economy

#### 4.1. Integration and coordination

As the Yangtze River Delta region is in a shift to market economy, many obstacles including limited integration and coordination of policies among local government and sectors still exist during the process of low carbon development. Fragmentation among authorities, particularly in different sectors, often leads to bias in and sometimes contradictions between the policies of different government departments. The limited integration and coordination among Shanghai, Jiangsu and Zhejiang has weakened the effectiveness of many laws, polices and other measures. So regional cooperation, regional division and joint development in this region is the inevitable choice. A linkage mechanism for low carbon development among Shanghai, Jiangsu and Zhejiang should be established from the perspectives of joint planning and decision-making, cooperation in environmental protection, industrial reconstruction, and free movement of production factors. The linkage mechanism should cover decision-making, implementation, monitoring and advisory systems.

### 4.2. Diversity of energy supply

Because energy consumption structure is a coaldominated one in the Yangtze River Delta region and cannot be changed in the short term, we should focus on the development of clean coal technology to reduce  $CO_2$  emission in the short term. Measures should be taken to save energy and reduce emissions in the energy-intensive industries such as power, iron, steel, building materials, and aluminum electrolysis industry. The region especially Jiangsu and Zhejiang should continue to phase out obsolete production capacities. In the long run the region should change the coal-dominated energy consumption and gradually increase the consumption proportion of natural gas. The Yangtze River Delta region should take advantage of its technological advantage and opening up to actively develop new energy industry; increase the consumption proportion of renewable resources such as hydropower, nuclear, solar, and biomass (Shan at al., 2008).

#### 4.3. Technology support

International technology transfer lies at the core of mitigation to tackle climate change challenges (Dasgupta and Taneja, 2011). Moving to a low carbon growth path poses immense technological challenges for China. The Yangtze River Delta region should take advantage of its opening up to accelerate the introduction, digestion and absorption of advanced and applicable low carbon technologies from other developed countries. Meanwhile this region should attract creative talent, increase innovation fund investment, and improve the government's incentive policies to form the technological support system of low carbon economy.

The Yangtze River Delta region should operate pilots and demonstration projects in different types of cities, communities and sectors based on the *point-line-surface* promotion model. This region should initiate appropriate support policies and evaluation indicators including energy intensity and carbon intensity indicators to stress the quality of GDP. Each pilot's emission reduction rate should be clear through the detailed decomposition of evaluation indicators. Through exploring replicable models, each city in this region will achieve low carbon development ultimately.

### 4.4. Education and promotion

Residential energy consumption has been continuously increasing in the Yangtze River Delta region and this region is becoming a major luxury goods market in China recently. More generally, consumption patterns are influenced by larger socioeconomic changes and increased consumption levels are induced by economic growth (Kronenberg and Iida, 2011). So it is necessary and urgent to raise public awareness and reduce residential energy consumption in the context of economic development. A robust public awareness-building mechanism should be established. Encourage the media (i.e., TV, radio, press and the Internet) to fully play their roles in public education through institutional arrangements. Educate the public to reverse the ideas of luxury spending and foster the public awareness of low carbon and energy-efficient products so that the public can form environmentally friendly consumption and lifestyles.

### 5. Conclusion

The concept of low carbon has received more and more attention around the world. The Yangtze River Delta region, one of the most developed regions in China, has large numbers of energy intensive industries and businesses. Energy shortage and environmental deterioration require this region to move to the path of low carbon and sustainable development. This paper aims to comprehensively analyze low carbon development in this region and provide a useful reference for relevant government departments for policy-making. The analysis shows that the situation of low carbon development in this region gets improved, but it is not enough. The situation in Shanghai is the best compared with Jiangsu and Zhejiang. This is largely due to its best industry structure. Many barriers still exist in this region and some cannot be overcome in the short run. Labor intensive and carbon intensive industries are still one of the important driving forces of economic growth in this region. Energy security is a serious problem for the region because of its low energy self-sufficiency rate. Limited R&D capability and imperfect diffusion mechanism hamper a further development of low carbon technologies. In order to achieve sustainable development, this paper proposes some measures such as establishment of integration and coordination mechanism, diversity of energy supply, technology innovation, and raising public awareness.

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# Sustainable Development: the upcoming civilizational revolution?

# Rozwój zrównoważony: zbliżająca się rewolucja cywilizacyjna?

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### Abstract

In this work the concept of sustainable development is presented as the currently most important revolutionary project in our civilisation, which should rapidly change the way people think and act globally. The aim of this revolution should be the distancing from, or the overcoming of difficulties which beset the modern world, resulting from the growing disharmony and ecological imbalance between the global community and our planet's entire natural environment.

The basis for the analysis is Artur Pawłowski's book entitled *Sustainable Development as a Civilizational Revolution. A Multidisciplinary Approach to the Challenges of the 21<sup>st</sup> Century.* The author presents multilateral arguments for the necessity of such a global revolution related to civilisation. This idea is discussed and compared with other views on the world's future and the possibility of realising within it the concept of sustainable development in terms of business, economic, political, social and awareness activities.

Pawłowski's view has been categorised as a form of hypothetical rationalism and realism, and continues the Polish traditional way of thinking in this field. In modern analysis, the author's view on the possibility of realising sustainable development can be placed between Klaus Bosselmann's optimism and Christian de Duve's pessimism.

Key words: sustainable development, global civilizational revolution, optimism, realistic and pessimistic worldview

### Streszczenie

W pracy zaprezentowano ideę rozwoju zrównoważonego jako najważniejszego obecnie projektu rewolucyjnego w naszej cywilizacji, który powinien szybko dokonać zmian w myśleniu i działaniu ludzi w wymiarze globalnym. Celem tej rewolucji powinno być oddalenie lub przezwyciężenie trudności, jakie nękają świat współczesny, a wynikają z rosnącej dysharmonii i nierównowagi ekologicznej między społecznością globalną a całym środowiskiem naturalnym naszej planety.

Podstawą analizy jest książka Artura Pawłowskiego pt. Sustainable Development as a Civilizational Revolution. Multidisciplinary Approach to the Challenges of the 21st Century. Autor przedstawia wielostronne argumenty za koniecznością takiej rewolucji globalnej. Pomysł ten jest omawiany i zestawiany z innymi poglądami na kwestie przyszłości świata i możliwości realizacji w nim idei zrównoważonego rozwoju w działaniach gospodarczych, ekonomicznych, politycznych, społecznych i świadomościowych.

Pogląd Pawłowskiego zostaje usytuowany jako forma racjonalizmu i realizmu hipotetycznego, kontynuującego polską tradycje myślową w tej dziedzinie. We współczesnej analizie możliwości realizacji idei rozwoju zrównoważonego pogląd autora można umieścić między stanowiskiem optymistycznym – np. Klausa Bosselmanna i pesymistycznym – np. Christiana de Duve. Słowa kluczowe: rozwój zrównoważony, cywilizacyjna rewolucja globalna, optymizm, realizm i pesymizm światopoglądowy

#### Introduction

The concept of sustainable development and activities related to its implementation currently form one of the most important revolutionary systems after the scientific, industrial, and media revolutions. These activities relate to the global society in its natural so to speak, living environment. Also, no one can counter the claim that wholly natural environments, untouched by some form of Man's activity, no longer exist on our planet. Considering the global situation, Klaus Bosselmann even proposes the need to create a global eco-constitution within the international legal framework, which for civilised societies would be binding globally (Bosselman, 2010, p. 337-347, Bosselman, Taylor 2009, p. 173-174, Godden, 2009, p. 807-816). In addition, it would form the basic regulatory body for recommendations, which should become the basis of national and international legislation in environmental law. The purpose of this law would be to confront the civilizational revolution based on the principles of sustainability, which by their nature are consistent with the spirit of legislation in general and particularly, within the spirit of international law. It would be important to promote sustainable development in all possible spheres of political and economic governance, and in the regulation of social life, respecting the boundaries of ecological possibilities of the natural environment on a global scale (Bosselmann, 2008, p. 176 and others).

Man, from the beginning of his existence as a species on Earth, demonstrated an exploitative attitude towards nature, although the natural regulatory mechanisms rewarded him with a fairly harmonious coexistence in the bio-natural space. However, the history of life, including human's evolution and the accompanying revolutionary stages also reflect the history of disasters. The term *crises* is commonly used to describe them, pointing to breakthroughs in the world, mostly from an anthropocentric perspective. On a cosmic scale, these types of breakthroughs are seen more as components of universal processes of cosmic evolution, determined by the laws of physics, from the moment of the Big Bang (the initial singularity), as a result of which the Milky Way emerged, in which our planet can also be found (Sztumski, 2008, p. 61-81). On a human timescale, these phenomena are actually insignificant, but may be seen in the timescale of our species and its relationship and interaction with the natural basis of existence and the social environment, ultimately conditioned by the dynamics of existence and the expansion into all the possible ecosystems in the world, and maybe in the near

future into the extra-terrestrial cosmos managed by man.

## The origin, meaning and relevance of sustainable development

Artur Pawłowski's book, Sustainable Development as a Civilizational Revolution. A Multidisciplinary Approach to the Challenges of the 21st Century, published in London in 2011 by CRS/Balkema, a member of the Taylor & Francis Group, undoubtedly fits into the discussion about man's actual condition on Earth. The book has been updated with the latest data related to man's situation in modern reality compared with the author's earlier work Rozwój zrównoważony – idea, filozofia, praktyka/ Sustainable Development – Concept, Philosophy, Practice (Lublin 2008).

The publication consists of six parts. The first part, The evolution of the idea of sustainable development in history describes and summarises in a historical perspective the early initiatives forming man's sustainability attitudes towards the natural living environment and their further evolution in time, up to the current global and European perspective. The second part, Theoretical basis for sustainable development describes the sustainable development concept, the hierarchical analysis of its planes, the accompanying principles and indicators. Philosophy, religion and environmental edu*cation* is the third part presenting such issues as: the essence of eco-philosophy and the ethical planes of sustainable development, the relationship of religion towards it, the practical aspects of realising this concept on a moral level in the context of human attitudes and education, and also philosophical audit which is a new field of scientific research. Part four is entitled Level II of sustainable development: Ecological, social, and economic considerations. In this part Pawłowski presents an ecological plane from the natural environment perspective and landscape changes. Next, he covers the social plane which is comprised of, in his opinion, issues such as social development, the cultural landscape, urbanisation and urban health, the relationship between the rich North and the poor South. In discussing the economic plane of sustainable development, the author compares the principles of traditional economics with ecological economics, economic instruments for the protection of the environment, the concept of responsible business and the environmental management system, and the financial security conditions for the implementation of sustainable development into practice.

Part five, Level III of sustainable development: Technical, legal and political considerations discusses the factors related to technology in relation to the natural environment, industrial ecology and clean production, the world's energy resources, the legal basis for the protection of the environment and related barriers, bringing to the fore this type of development, and also the political plane, indicating the role of politics and politicians and the democratic system in the construction of public spaces, friendly for the natural environment. Part six, Integration of planes, the phenomenon of globalisation and the Sustainable Development Revolution, is undoubtedly an attempt at synthesis, in which the Lublin scholar tries to summarise, from the world's globalisation process perspective, the earlier theoretical findings and empirical data (statistical) for each of the planes that sustainable development operates in. It points out the major achievements and shortcomings, and attempts to explain their causes. It shows that sustainable development is a landmark in the history of man's thinking and that it is undoubtedly the most important intellectual breakthrough in the development of civilisation on Earth, and maybe in the history of the human species. It emphasises at the same time that sustainable development can only be constructively developed when all the planes of this development are integrated and it is implemented globally. It raises the awareness that humanity on the planet is highly diverse economically and culturally, so the need for revolutionary change is unavoidable. It also believes that the sooner and more knowingly such revolutionary activities begin the lower will be their costs, especially for future generations.

## The specifics of Artur Pawlowski's thoughts on sustainable development

So what topoi and way of thinking accompanies the studies and considerations of the Lublin author? Man's attitude towards the natural environment from his very beginning bore the characteristics which on the one hand, expressed respect for the environment, while on the other, exhibited a systematic pursuit of deeper understanding in order to better subjugate it.

Pawłowski emphasises that people were interested, above all, in improving their condition and quality of life which was constantly threatened by external and internal factors. These efforts have always had an anthropocentric character, rarely biocentric or ecocentric, though people were often aware that the condition of human life, both individual as well as for the species, which belongs to the natural order, is a concern for life itself and its environment. It was also important for the human species, not only for the individual, but also for collective survival in the long term. However, it was not fully realised that the Earth's resources are limited and can be exhausted, since from the beginning of his existence, man acquired and used natural renewable resources, and only later non-renewable. However,

human life was always threatened by a phenomenon which was only described as a tragedy of the joint pastures, frequently called the tragedy of the commons (Hardin, 1968, p. 1244-1248. Hardin, 1998, p. 682-683) and did not only refer to the hunting, pastoral and agricultural economies. It also appeared in a more distinctive form during the societies' industrial development period and attained a global character, with the successive phases often described by scholars as ecological imperialism and then by industrial imperialism. These imperialisms are characterised by the fact that certain ecological coexistence models between man and nature quickly spread to those areas and continents, where their long term activities inflicted more damage than benefit, because overall local bio-ecological and cultural conditions, functioning ecosystems arising from historical evolutionary processes, and human communities adapted to them, were not taken into account (Crosby, 1999, p. 9-19). These processes and the accompanying management types became more clearly understood in the 20<sup>th</sup> century, and in the 1970's this led to the diagnosis of a global ecological crisis, for which precisely these imperialisms (agriculture and industry) were responsible. It was no longer possible to move their effects off the planet because they touched the whole biosphere in various forms, becoming part of everyday life, manifesting themselves in recognition of various forms of deficits in our lives e.g. oil, coal, clean drinking water, fertile soils, appropriate social and psychological climate for people. The known form of protection was not sufficient towards nature and its resources. Gradually another axiological attitude towards nature was born, which was now begun to be seen as man's proper coexistence with other living beings and their living environments. It began to become noticed that these other living beings also need caring and concern, which in turn spawned a separate subject, named ecology. In later stages, firstly ethical, later philosophical, and even socio-humanistic reflection, which justified the need to impose on all people the obligation to care about life and its environment. Pawłowski is discussing these issues with other authors: Piątek (1998, 2008), Fiut (1999, 2003). The different ethical-environmental and ecophilosophical orientations currently express this; most commonly the evolutionary orientated ones (Weiss, 2010, Papuziński, 2011). All the drastic environmental changes were not only imprinted in the development history of human consciousness, but also in society's collective consciousness, and even on the whole of humanity. The need for rational management of natural resources matured, which should be accompanied by a corresponding cultural superstructure, a new type of spirituality orientated towards pro-ecology. Its expression in production and consumption has become a sociopolitical economic strategy, which was defined at a

UN forum in 1987 and termed the SUSTAINABLE DEVELOPMENT strategy in the *Our common future* report, which required rapid deployment on a global scale.

In the 20 years following this declaration, the book Rozwój zrównoważony – idea, filozofia, praktyka/ (Sustainable development – concept, philosophy, practice written by the Lublin scholar A. Pawłowski, appeared. Three years later, its newer and decidedly more ideological version Sustainable Development as a Civilizational Revolution. A Multidisciplinary Approach to the Challenges of 21st Century (Pawłowski, 2008, p. 9-109, Pawłowski, 2011, p. 1-36) appeared. Both publications are attempts to balance these two decades at the beginning of the third millennium and are associated with the implementation of this development model into people's lives as well as into the entire global community. If the first book is effectively an encyclopaedic research into the development and concept of sustainable development, the second book has as its prime objective the human issues on the planet, in the near and distant future, in the context of an ever accelerating civilizational revolution, already taking place, based on the principle of sustainable development and in all possible areas of life.

At the beginning of his books, Artur Pawłowski discusses the successive eras of relations between man and his natural environment, starting with the Neolithic revolution (the creation of tools) followed by the development of hunting, agriculture and in the long run, rural and urban life. All these stages led to successive crises in the history of relations between man and nature. The emerging crises gradually developed in man a reflection of the need for balanced measures of ever deepening integration of his live with the natural processes of the natural environment. The author stresses that although the protectionist attitudes are known from distant history, the growth of awareness of the need for protection and sustainable actions towards nature appeared on a wide scale relatively late, during the period of industrial growth, particularly in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries and mainly in wealthy countries, only to fully come to the fore in the 1970s.

The awareness of the need to shape sustainable development globally, European-wide and domestically was undoubtedly the result of a UN initiative, starting with the Earth Summit in Stockholm (1972), then in Rio de Janeiro (1992), New York (2000) and Johannesburg (2002). The key world event for these initiatives, which introduced into global circulation sustainable development awareness, was the UN General Secretary's U. Thant's report from 1969 entitled *Man and his environment* in which it was highlighted, that the world crisis, as Pawłowski reminds us, has its natural basis in the overexploitation of natural riches by a growing population on the planet, which simultaneously is accompanied by their inequitable distribution globally.

Successive reports by the Club of Rome, beginning in 1972, were essential for the growing need to build awareness and activities in sustainability. They left no illusions that a change in man's approach to the environment is necessary, because otherwise he is threatened with extinction as a biological species. Although the phrase sustainable development was first used in 1980, it wasn't popularised until the World Commission on Environment and Development (WCED). Chaired by the then Norwegian Prime Minister Gro Harlem Brundtland, the commission prepared on the basis of all the previous UN's ideological achievements in this field, a report entitled Our Common Future, published in 1987. Next, the Rio Summit within the framework of the *Rio Declaration*, and the *Agenda* 21 concept devised there, prepared new causative action opportunities for which the Section for Sustainable Development working in the UN Department of Economic and Social Affairs is responsible. From European and Polish perspectives, the ways of implementing the concept and the strategic program of this development model are outlined in the acts adopted by the EU Parliament and the Polish Parliament and governments such as: Lisbon Strategy for the period 2000-2010, Strategies for Sustainable Development from 2000 and 2006, Natura 2000 and Culture 2000 EU programs, as well as other key documents, setting out specific economic development objectives for EU member states. Poland, as an EU member state and a signatory to almost all important international documents on implementing sustainable development into management processes, also realises many of these programs as an individual political entity, or as an EU member state and of a global community.

Sustainable development undoubtedly has a natural perspective, but also many others. Although it is difficult to distinguish them clearly, because of their overlap, Pawłowski stresses that they remain in a complex network of feedback loops. The Lublin researcher reckons that on a global level they must be seen even as an integrated network, guaranteeing for this type of development two, or even three of its essential properties, i.e. PERSISTENCE and SELF-SUSTAINABILITY, and as a dynamic phenomenon also its SELF-SUFFICIENCY. Considerations of such a development in the light of current research can be, in the author's opinion, grouped into three levels: the first and the most general level includes the ethical-philosophical plane, the second more concrete level includes ecological, social and economic planes, whilst in the third (which actually determines its realisation) the technical, legal and political planes, forming the grounds and rules, upon which real activities are played out related with the directions and methods of implementing this management model, pro-ecologically orientated (Pawłowski, 2011, p. 110). Sustainable development is not limited only to ecological development or nature conservation, but is rather a program of integration of the possible levels of human activity, appealing to moral reflection, imposing an obligation of man's responsibility for his condition in nature, for which the right living condition is essential. This integration should in practice lead to harmony between man and nature for each of the three types of plane and in their relationship networks (Pawłowski, Dudzińska, 2001).

Ecological conflicts related to the deficit of natural resources always have a social dimension, because they reveal not only the natural environmental degradation but also the social (Piatek, 2011). Man is inscribed into the cultural landscape in which he expresses his relationship with nature and should also have hallmarks of sustainability, which in turn expresses the degree and types of socio-cultural integration between man and the natural basis of existence. That is why the cultural background of human life has an impact on the occurrence of conflicts, whose source lies in the natural conditions of life. This problem is constantly increasing because of the planet's rapid urbanisation. Such a situation causes reflections in the social ecological spirit and urban ecology, in order to explain the basis for conflicts arising between the centres and peripheries of great urban-industrial conglomerates. In the economic dimension, it is not the lack of food, but the disproportionate distribution and consumption in the modern world which become the source of social injustice, emphasises Pawłowski, and consequently famine and war, in addition to the unjust consumption of raw materials by the rich countries, which also employ so-called ecological dumping towards the poor countries, which can even take on the form of *ecological terrorism*. In this perspective it is important to manage an appropriate tax policy at both the local and global level, in order to provide opportunities for the practical realisation of sustainable development, which is constantly short of funds especially in times of crisis which since 2008 symptomatically affects successive countries and international communities on a global scale. Thus the key question becomes that of the development of responsible business, with a lookout for ecological and socio-cultural interests, which should result in the transformation of economic thinking about man, and thus the move away from the currently promoted model of man, homo economicus, to homo sustinensa, meaning sustainable man (Pawłowski, 2011, p. 64-72 and 192-194).

Techniques and technologies have been and are the source of degradation, not only of the natural environment, but also socio-cultural. However, thanks to them, if they are environmentally friendly, degradation can also be effectively prevented. The key is *industrial ecology*, and in particular the sustaina-

ble management of production, distribution and consumption of products. Such strategies are conducive to sustainable development, especially the so-called *clean* strategies: cleaner production, distribution and consumption, recycling, all natural forms of disposal and treatment and coupled with this, the development of efficient technologies and the acquisition of natural energy sources, preferably renewable. Pawłowski states that the axiological assumptions accompanying these strategies should justify the ECO-EFFECTIVENESS, both in the production and consumption of all worldly and spiritual goods, as well as related services. The author considers these eco-effective strategy issues as the key to the building of a stable base for implementing sustainable development, so that it can, on the basis of these, take on the dimension of a global revolutionary system (Pawłowski, 2011, p. 196-198).

Pawłowski emphasises that the technical dimension must however be related to the legal dimension, i.e. administrative legal, civil and criminal normalisations. The most important, of course, is the effectiveness of the legal normalisations but also such legal impacts which allow reasonable and ecological effective management of natural resources as well as the so-called socio-cultural and human capital. However, they are not possible to realise without a political dimension, i.e. political decisions associated with the art of governing people in pursuit of indicated goals. These include political strategies and policies, in which the goals are ideas associated with this development concept. The ecodevelopment policy, or green policy should be characterised with the often discussed abstinence *principle*, whose main criterion should be the level of people's health and that of the ecosystem in which they live. The media also serve an important function in the spreading of the green policy, supporting ecological initiatives and moving away from the public promotion of the consumer lifestyle. However, this last point is difficult to realise, since the media nowadays lives off the advertising agencies to whom public market research and its consumption appetites are sold through earlier created advertising and marketing, which does not mean that it could not be ecologically orientated consumption patterns. According to the author, it is also worth focusing on two important issues which occur during a policy integration approach to sustainable development. They can be found in the slogan Think globally, act locally and in the socalled issue political will-power, whose lack often inhibits the practice of sustainable economic policy and its main global obstacles become the rich countries, especially the USA and EU members. Pawłowski states that one should, however, strive for inclusive and resist exclusive globalisation, as the latter is the domain of wealthy countries. The global market which has submitted to the McDonaldisation process does not create conditions conducive to sustainable development solutions, but rather is guided by the principles of social Darwinism, in which the stronger always takes advantage of the weaker and poorer (Pawłowski, 2011, p. 20-21).

Turning to the modern analysis of eco-philosophy, the researcher focuses on the multidirectional disputes on the assumptions which define the axiological basis of thinking and acting in the spirit of sustainable development. In his view, they should be focused on a new type of environmental ethics, inclusive character, because in the ecophilosophical ideas always have an anthropocentric element; they are formed by man and intentionally take into account the interests of his species, which only unequivocally should exclude species chauvinism, since axiological anthropocentrism always stands behind him, leading to many intellectual traps in thinking. A good and constructive example of coherent eco-philosophical thinking is the often proclaimed ethical principle of intra-species and inter-species justice, corresponding to the purely ecological principle of biodiversity protection, avoiding all absolutisations and falling into the anthropocentrism trap, whilst adopting its moderated version (Piątek, 2008, p. 160-171).

Important values, essential for the cultivation and realisation of sustainable development, are undoubtedly: freedom, equality, tolerance, respect for other human beings and nature, the common good and a sense of shared responsibility and commitment to peace as a form of coexistence, not only between people, but also other living beings. Within the Polish philosophical community the champions of such values include: Jerzy W. Gałkowski, Zbigniew Hull, Zdzisława Piątek, Zbigniew Kuderowicz, whilst their concepts refer to the earlier concepts of value e.g. Roman Ingarden and Hans Jonas. In this context, the most important question is the responsibility for future generations, that is, not only responsibility typically natural in character, but also contractual (formal), in which liability payments to the bygone generations is important, from whom we inherited the fruits of their labours for future generations which do not yet exist. Hans Jonas's proclaimed principle of responsibility for the future is therefore, according to Pawłowski and other Polish scholars, in line with sustainable development. It is a position of moderate anthropocentrism, also taking into account the worthy existence of future generations, because based upon it, we are by command obliged to leave them an environment in such a state in which they can also develop their own species, contained in human nature inherited from previous generations (Pawłowski, 2011, p. 69-70). The author reminds us that this axiological reflection is in many ways consistent with the reflections of many religious communities, as for example the Catholic Church's documents certify and its eco-theological grounds for the eco*logical sin* concept, that is a reprehensible manifestation of contemporary moral evil inflicted upon the natural environment.

The educational effort is also an important aspect of eco-philosophy, leading people through the generality to the formation of so-called ecologically oriented self-realisation, whose concept was formulated earlier by Arne Naess. Environmental ethics alone, judged by Pawłowski, should shape people's sensitivity to its values and form and promote the desired patterns creating relationships with the environment. Recalling Włodzimierz Tyburski's ecological education demands and Julian Aleksandrowicz's earlier ideas relating to his idea of ecological conscience, Pawłowski points out that today the question of skill in adapting man's culture to the environment is important. Underlining the success of implementing the sustainable development strategy in the current reality, it turns out, that the most important role falls to philosophy. Within the framework of philosophical audits the effectiveness of implementing this revolutionary idea pointed to the key values within successive sustainable development projects, highlighting its modern and humanistic character, prejudicing positive content within the sustainable development concept (Pawłowski, 2011, p. 81-83).

Comparing the previous achievements of this great ideological revolution in the economy and the community-conscious life of modern man, the author frequently reminds us that all the projects have not been fully implemented, since it constantly lacks adequate funding for their realisation and the political will-power of the richer countries, which can manage them on a global scale. Hence the reviews and evaluations as to the future of this economic development model, are repeatedly sceptical, sometimes pessimistic, but in many areas the author has noticed progress in that it was possible to obtain successful results and prevent many socioecological catastrophes, or to minimise the harm associated with *draining the economy* in various parts of the world. It is not known whether these are only a postponement of further damage to our biosphere, or whether they are relatively durable trends, restoring the harmonious coexistence of man with his natural environment.

### Conclusions

It is worth noting yet another question regarding general-philosophical nature, which appears during the multilateral analysis of the sustainable development phenomenon, presented by Artur Pawłowski in his publications. These studies were accompanied by an attitude and realistic thinking of a critical nature, which built the right epistemological road about the considerations of this subject and a hypothetical realism on an ontological vision of the world level. In matters of cognition and existence in this area of research, it is also important to take into account thinking in the spirit of the evolutionary theory of understanding the world, viewed not only from our planet's perspective, but even from a cosmic one. Understanding the meaning and validity of the sustainable development concept is not entirely possible without such often silent cognitive, living assumptions with an evolutionary overview, showing our planet not only integrated with the cosmos, but also participating in the internal innovation and selection mechanism, in which a decisive role is played today by the human species along with its culture and technological forces. Without taking into account this evolutionary perspective, each analysis and philosophical reflection must fall in contradiction and antimony when indicating rational legitimacy of pro-ecological human attitude in action. Its absence on the one hand, weakens the rational justification of all possible actions of a sustainable nature, whilst on the other hand, it provides arguments for ordinary colloquial and voluntaristic thinking, leaving space for fostering irrational attitudes, as well as for absolutisational thinking, and these essentially detach man from his discourse congruent with the natural world. Super-evolutionary and super-rational reasoning cease to have a fully intellectual character because they are unable to self-restrain and control them, that is they are unable to become tools peculiar to people's minds - entities of desire and action - to effectively shape the sustainability of socio-natural processes in a now global world. The author of these studies did not make such a mistake.

Successive wars on Twitter and Facebook in the Mediterranean, the bankruptcy of EU states, the world's economic hiccup, the possible armed conflicts in the Middle East and increasing social stratification between the rich and the poor, the rapidly increasing risk of existence not only of people but also entire ecosystems clearly indicate that the revolution which is carried by sustainable development is still far from decent realisation, and sometimes its sense is even questioned. Pawłowski reveals a vision of the world that demands asking key questions: Is it not too late? Has human selfishness led man to a situation where retreat from selfdestruction is impossible? Many researchers already think so. Christian de Duve, for example, presents important arguments that the off-biological selfishness of our species has actually lost us, whilst the cultural treatments against it have up to now been weakly effective and only prolong the agony of our civilisation (De Duve, 2010, p. 256-257).

The process of implementing of sustainable development is now into the third decade and does not inspire strong optimism. On a global scale, more resources are still earmarked for war than on the implementation of programs and supporting sustainability in the world; individual and national particularism still flourishes. What is more, this concept is becoming a tool of manipulation of the world's ideologies, serving to expose the selfish attitudes, justifying global violence and exploitation, war and all kinds of socio-economic and ecological dispersal of injustice, reported as forms of realisation of sustainability in the world (Ikerd, 2008).

Even in the earlier centuries there were people and systems thinking and acting similarly towards sustainable development. It is worth recalling the tragic endings, when they were not realised or undesirably understood. However, it is hoped that global sustainable development has a dynamic character, innovative and revolutionary, and that the fully aware development strategy will support those human activities which weaken all forms of selfishness to meaningful, global cooperation, through which the logic of life will outweigh the logic of death. And in this context the accomplishments, evaluations and Pawłowski's suggestions are worthy of attention and deeper thought. They are an inspiration for action and justification of attitudes marked by sustainability towards man, all forms of life and its natural basis of existence.

The dynamic growth of the Internet has made it into a global and social communications media in our society; the information society. It can also promote the harmonious development of pro-ecological awareness, exposing sustainability of development, and become a tool of a global bloodless revolution, about which De Kerckhove wrote in 2009. The work of the Lublin researcher, because of its scientific and ideological significance can be placed in the native tradition of research, which in the 19th and 20th century was initiated and developed on the global level by: Tadeusz Garbowski, Władysław Szafer, Julian Aleksandrowicz, Walter Goetel, now constructively continued and developed by other scholars, focused on journals such as Problemy *Ekorozwoju/Problems of Sustainable Development,* amongst others: Henryk Skolimowski, Stefan Kozłowski, Zdzisława Piątek, Włodzimierz Tyburski, Tadeusz Borys, Leszek Gawor, Józef M. Dołęga, Zbigniew Hull, and Andrzej Papuziński.

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### Social Policy in the European Sustainable Development Strategy

### Polityka społeczna w strategii zrównoważonego rozwoju Unii Europejskiej

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### Abstract

Sustainable development not only refers to the relationship between the economy and the environment, but it also has a social dimension. This article reviews the original acts and basic documents concerning EU's sustainable development strategy, from the *Maastricht Treaty* in 1992 to the latest *Europe 2020* (2010) economic strategy, in terms of their reference to the problems of social security and social policy. It also presents examples of EU's activities in the social pillar of the sustainable development policy, especially in the areas of health, demographic problems, poverty, and social exclusion. A system of indicators is presented as the measure of progress of sustainable development within the Communities. In the final part of this article the system of indicators for health is presented.

Key words: sustainable development, social security, social policy, European Union

### Streszczenie

Zrównoważony rozwój odnosi się nie tylko do relacji pomiędzy gospodarką i środowiskiem, ale posiada także wymiar społeczny. W artykule dokonano przeglądu aktów pierwotnych i podstawowych dokumentów Unii Europejskiej podejmujących kwestie zrównoważonego rozwoju, od *Traktatu z Maastricht* z 1992 r. do najnowszej strategii gospodarczej *Europa 2020* z 2010 r., w aspekcie ich odniesienia do problemów bezpieczeństwa socjalnego i polityki społecznej. Przedstawiono również przykłady działań Unii Europejskiej w zakresie filaru społecznego polityki zrównoważonego rozwoju, zwłaszcza w dziedzinie zdrowia, problemów demograficznych oraz ubóstwa i wykluczenia społecznego. Miarą postępu w dziedzinie zrównoważonego rozwoju we Wspólnotach są systemy wskaźników. W końcowej części tekstu zaprezentowano system wskaźników w dziedzinie zdrowia.

Słowa kluczowe: zrównoważony rozwój, bezpieczeństwo socjalne, polityka społeczna, Unia Europejska

### Introduction

Sustainable development has been for several years an important development goal and one of the EU's horizontal policies (Papuziński, 2011). Its presence and importance is associated with the transfer of declarations, from international conferences organised by the UN in Rio de Janeiro and Johannesburg into the regions. It also includes ecological cooperation between Member States, especially around the Baltic Sea. The concepts of sustainable development in the European Union also result from the environmental protection policy, whose expression are the *Action Plans*, developed and implemented since 1973, as well as the *Lisbon* and *Gothenburg Strategies*.

The most quoted definition of sustainable development, introduced by the World Commission on Environment and Development in 1987, states that sustainable development is such a development in which the needs of the present generation can be met without compromising the ability of future generations to meet their own needs. From this definition a commonly so-called narrower interpretation of the sustainable development concept is derived, limited to the protection of the natural environment from the risks emanating as a result of economic development in present-day nations. It is thus usually synonymous with environmental and ecological policies. However, it is just one area of interest within the framework of the sustainable development concept. From the quoted definition, it follows that the second area of interest is satisfying social needs (Tuziak, 2010; Piontek, 2010). Thus we can speak, not only of ecological but also of social objectives of sustainable development, which belongs to two groups:

- the first group includes initiatives to help the most vulnerable communities, thus protecting them from the threat of outbreaks of social conflict,
- the second group contains objectives to change social attitudes towards implementing ecologically sustainable development practices (Mazur, 2008, p. 69-70).

From different perspective, for sustainable development purposes, besides maintaining the communal production potential, development and operation prospects, it is necessary to guarantee people an ontic security. It would depend on, among others, protecting human health, guaranteeing a basic level of supply, and reducing the extreme differences in income (Papuziński, 2006, Table 1, p. 118-119).

This objective is often referred to as social security, which is spoken of as a social value, occurring together with other values recognised in most societies, such as social justice, egalitarianism and social solidarity. Providing citizens with a sense of social security is, in turn, the primary objective of social security systems, which operate in present-day European countries and are an important part of these countries' social policy.

Thus the narrow ecological-only interpretation of sustainable development would be inappropriate, or could actually even be harmful to the development of present-day countries. Equally important to, such as counteracting negative phenomena occurring in the natural environment, is solving social problems. Does this apply to Europe, most often associated with high levels of social security? The price paid by the majority of the highly developed European countries for the feeling of social security and for the welfare of the majority of their population is significant. Firstly, high labour costs, which resulted in the loss of European economic competitiveness in global markets. Secondly, there is the fall in employment and a rise in unemployment caused by promoting, even forcibly, technical and IT advances leading to, in effect, a so called growth in nonemployment. Thirdly and finally, the occurrence of self-incapacitation in part of the population expecting state aid for its every need, without utilising its own efforts and capabilities. All this meant that the European welfare states (social welfare, caring),

already began to *collapse* during the 1980s due to their national budgets becoming overloaded. However, their dismantling (causing the European residents to feel primarily a weakening of social security, especially in the western and southern parts) was met with frequently harsh objections from society and a growing social unrest. This situation continues to this day, with the result that Europe needs to strike a new balance between economic and social development, which means new social policies. That difficult task stands not only before the individual European states, but also before the European Union, to which the majority now belongs.

The occurrence of social aspects in the sustainable development concept raises the question of mutual relations between the EU strategy for sustainable development and the social policies of the European Communities. More specifically, we can formulate two questions about the:

- 1. presence and extent of social policy issues in the design and policy of sustainable development, pursued in the European Union,
- 2. manifestation of sustainable development ideas (principles, concepts) in the Community's social policies.

However, it seems that the main problem comes down to whether, through the strategy and policy of sustainable development, the European Union will be able to restore to its citizens, heavily unsettled in recent years, a feeling of social security.

In seeking answers to this question I sought the presence of social issues and objectives in the European Communities' official documents on sustainable development and selected policies in this field. I also tried to explain the main concepts related to the topic and the relationships between them.

# 1. Sustainable development, social security and social policy – notes on the terminology

The idea of sustainable development has been around since the 1960s through U Thant's report, then the UN Secretary General, and the first commissioned report for the Club of Rome entitled The Limits to Growth, published in 1972 (Zabłocki, 2002, p. 13). Over the decades it has had many interpretations, explanations, and has been extensively written about (Piontek F., Piontek B., 2009). Sustainable development emerged in the European Union under the provisions of Article 2 and Article 3 in the Treaty on European Union (TEU), also known as the Maastricht Treaty, signed in February 1992 before the UN Rio Earth Summit in Rio de Janeiro in June later that year. This is because, during the Dublin Summit in June 1990, the Heads of State and the Community governments recognised the Community's and the whole world's shared responsibility for the environment, indicating that preventive action in this respect should be based on the principles of sustainable development (Ciechanowicz-McLean, 2005, p. 10).

The problem of satisfying social needs, which constitutes the sustainable development concept, is the subject of analysis in many fields, especially social policy, understood both as a science, as well as an activity, most of all, of the State, local government and/or non-governmental organisations. Although there is no single, commonly accepted definition of social policy, most of them refer to some important concept, with a rich theoretical and empirical content. Hence, there are definitions that relate not only to needs, but also to social welfare, social rights, social justice, social issues, and also to social security (Szarfenberg, 2008, p. 62-74). Some definitions of social policy point to this relationship directly. For example, according to Edwin Amenta, social policy is the state's policy response to basic social risks to employment, income and social security (Szarfenberg, 2008, p. 64). Also, Barbara Szatur-Jaworska and Grażyna Firlit-Fesnak, in their definition of social policy, regard social security as being one of the goals of the state and other organisations, in the development of the population's living and working conditions as well as social relations (Szatur-Jaworska, Firlit-Fesnak, 1994, p. 3).

Social security has no universally accepted definition. One definition states that they are guarantees to meet the social needs of individuals and families, safe-guarding against poverty or the lowering of the quality of life (money.pl, 2011). According to Anthony Rajkiewicz, it is understood to be a collective term covering human needs, civil rights and state obligations. Its existence is a guarantee for obtaining external assistance (outside the family) in cases of change of fortune and other situations determined by law or specific agreements (Rajkiewicz, 1993, quoted in Uścińska, 2007, p. 1). Niklas Luhmann links them to the type of state, using the term social security state and points out that social security today means and requires something more than just social care or compensation for harm caused by accelerated industrialisation. It is also about compensation for losses, which individuals experience as a result of a particular life-style (Luhmann, 1994, p. 3-4). Social security is considered in most European countries, and also in international legislation, as the main goal of a country's social policy. However, it is worth noting, that it is also refers to some of the sociological type categories, which indicates a certain conceptual chaos<sup>1</sup>.

Social policy occupies an important place in the European Union's activities, especially since the *Amsterdam Treaty* came into force. This manifests itself mainly in the form of numerous regulations and directives governing the working conditions for EU citizens, and also in a number of strategies related to social issues (employment, social integration, health, pensions and education). The social security system also has a big meaning for EU citizens and migrant workers, guaranteeing them a sense of social security.

In practice, for European countries, social policy is a very extensive area. It is primarily associated with the shaping of working conditions, the existence of society and social security, i.e. the traditional social domains, but it also encompasses areas shaping human capital: health, education and culture. Its domain also includes policies towards the different social groups: the family, the disabled, the elderly, children and young people, the poor, the socially excluded and discriminated. The concept of the European Union's social policy has a much narrower scope than that of its Member States. It mainly covers the issues of employment, safety and working conditions, social security, and more recently social exclusion and equality between women and men (Anioł, 2003, p. 10; Żukowski, 2010, p. 2).

In principle, in the policy documents for sustainable development in the EU, there is no concept of social policy or social security. The sustainable development categories, taking into account its social pillar are most often general, expressing its intended targets, such as:

- Social cohesion, sometimes referred to as building a new social state, as adopted by the *Lisbon Strategy* of 2000.
- Quality of life which is the most widely used term referring to the objectives and effects of sustainable development. T. Borys presented this category's possible inclusions in the context of sustainable development. He points out two interpretations for the quality of life - having understood as well-being and being or welfare. He also differentiates seven quality of life concepts which differ in principle according to the domain, which make up the quality of life category. For example, the tridomain concept differentiates quality of life into social, economic and environmental, whilst the tridecadomain concept has: marriage and family life, health, neighborhood, friends and acquaintances (level of life in the USA as a reference point), place of residence, housing, professional work and house work, leisure, education and its

<sup>&</sup>lt;sup>1</sup> a nation's social security is that quality of society's culture and social structure, as well as the system of division of labour, which allows citizens to achieve individual values, and which manifests itself by individuals, natural and formal groups undertaking action-oriented cooperation for the common good, the realization of recognized cultural values using accepted means and also upholds and strengthens social bonds ensuring the shaping of the community's identity enclosed within the

nation's political organization, quoted in Jakubczak et. al, 2008, p. 60.

usefulness, financial security (Kiełczewski, 2009, p. 109-110).

- Social welfare, used as an alternative to the quality of life category in sustainable development and understood as an opportunity to satisfy basic needs, not just here and now, but also by future generations (intra-generation and inter-generation solidarity appears among the methods which determine the policies for maintainable development in the Renewed Gothenburg Strategy) and others cohabiting Earth (cifalplock.eu. 2011).

In addition to these general concepts related to social development, there are specific issues which are included in the social problems catalogue. These are: public health, employment, demographic changes, education, poverty, social exclusion, migration. They are treated as challenges or areas that should be addressed within the framework of the sustainable development policy.

Attention is drawn to a lack of consistency in highlighting these social problems in successive EU legislation and strategies, which address the issue of sustainable development. The only permanent issues seem to be employment and health, though the goals which should be achieved in these areas, in order to realise the sustainable development concept, are formulated differently. Therefore, instead of talking about social policy as one of the pillars of sustainable development, in terms of the European Union it is preferable to use the term *social development*, *social goals* or *social development policy*, a category which appeared in the *EU's Renewed Sustainable Development Strategy* in 2006.

In addition, the social security category is not present as a goal or a social aspect of the European Union's sustainable development policy. However, the attitude towards solving European problems, such as low levels of population growth, poverty, social exclusion and unemployment, suggests that it is precisely about achieving social security.

### 2. Social issues in the European Union's sustainable development documents

Article 2 and Article 3 of the *Maastricht Treaty* (1992) steered the European Union towards sustainable development, initially only in the spheres of politics and environmental law. This was before the UN conference in Rio de Janeiro, which took place in June of that year. In accordance with the provisions of the *Maastricht Treaty* environmental protection became an integral part of the European Union's so-called *first pillar*, i.e. the social and economic pillar, which consists of, among others, competition and the trade, social and employment policies (J. Ciechanowicz-Mclean, 2005, p. 11 and p. 15). As mentioned previously, the *Maastricht Treaty* contains the important objectives of the European Union's social policy. Article 2 states that the Community's duty, amongst others, is *to promote a high level of employment and social protection, the raising of the standard of living and quality of life, economic and social cohesion and solidarity among Member States* (Głąbicka, 2001, p. 162). They were to be implemented based on the principle of subsidiarity (Article 3 TEU) but were not yet linked to sustainable development (Hartman, 2009(.

The Fifth EC Environmental Action Programme Towards Sustainability (1993-2000) directly linked environmental protection to the idea of sustainable development which was already evident from the title Towards Sustainability - the European Community Programme of policy and action in relation to the environment and sustainable development. The programme set out strategic objectives, principles and an overall activity framework for achieving sustainable development and defined long-term activities in different sectors (environmental protection, energy, transport, agriculture, tourism), but did not include elements of sustainable impact in the social aspect, with the exception of indicators promoting changes in society's behaviour towards the environment (Ciechanowicz-McLean, 2005, p. 10). Subsequent Community treaties: The Treaty of Amsterdam (2<sup>nd</sup> October 1997) and Treaty of Nice (26<sup>th</sup> February 2001) did not add any significant substantial changes to the environmental protection policy and did not expand on the concept of sustainable development. However, in the first of the aforenamed documents, for the first time a lot of space was set aside for social issues. The range of social objectives adopted in the Maastricht Treaty was extended and legislation was introduced for a number of social issues, including among others: free movement of people, employment, education and professional training, health care, social care, and migration policy. However, in Title XIX of the Amsterdam Treaty, relating to the natural environment, it was indicated that the Community's policy in this area contributes to achieving not only the purely environmental objectives, such as preserving, protecting and improving the natural environment, with prudent and rational utilisation of natural resources, but also protects human health, that is matters falling into the interests of social policy. Thus, the European Union treaties did not significantly change the regulation of sustainable development to the end of the twentieth century.

It wasn't until the *Lisbon Strategy*, adopted in January 2000, which brought to prominence sustainable development and its associations with the social sphere. The European Union has set itself in it, for the next 10 years, new strategic objectives to become the most dynamic knowledge-based economy in the world, capable of sustainable economic growth, with more and better jobs, and greater social cohesion. Despite the fact that social goals

were already revealed in the *Treaty of Amsterdam*, the *Lisbon Strategy* is quite commonly considered to be a turning point in the adoption of activities in the field of social policy by the European Union, understood as a policy to boost employment, fight social exclusion (Żukowski, 2010, p. 2) and to point to their links to the European sustainable economic development.

Although the sustainable development aspect appeared in this, important for European development strategic document, it was not developed relative to the natural environment. However, a year later, in Gothenburg in 2001, a successive EU strategy entitled A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development known as the Gothenburg Strategy was devoted to sustainable development. Sustainable development, as accepted in this document, has to ensure for the Union a long-term vision of society wealthier, just, with a cleaner, safer and healthier environment. Among the main threats to sustainable development, apart from greenhouse gas emissions and loss of bio-diversity, i.e. clear ecological threats, the following are listed:

- Severe threats to public health are posed by new antibiotic-resistant strains of some diseases and potentially, longer-term effects of many hazardous chemicals.
- One in every six Europeans lives in poverty which has a direct impact on individuals causing them ill-health, suicide, and persistent unemployment, particularly affecting single mothers and older women living alone.
- An ageing population threatens a slowdown in the rate of economic growth and adversely affects the quality and financial sustainability of pension schemes and public health care (Rosicki, 2010, p. 46-47).

After the European Commission reviewed the EU strategy for sustainable development the European Council adopted in June 2006 a comprehensive new strategy for sustainable development called *Renewed EU Sustainable Development Strategy*, which applies across the enlarged Union. *The overall aim of the Renewed EU SDS is to identify and develop actions to enable the EU to achieve continuous improvement of quality of life both for current and for future generations, through the creation of sustainable communities* – says the document. It contains four main objectives:

- 1. Protection of the natural environment.
- 2. Justice and social cohesion, a social aim explained as the promotion of democratic, cohesive, healthy, safe and just society, realising the idea of social integration and respecting the basic rights and cultural diversity which creates equal opportunities and combats all forms of discrimination.

- 3. *Economic prosperity*, not new but derived from the *Lisbon Strategy*, the combination of competitive knowledge-based economic development utilising the resources of the natural environment, ensuring a high standard of living, full employment and high quality jobs.
- 4. *Implementation of our obligations internationally* which means in brief, promoting sustainable development throughout the world.

The headline objectives translate into operational objectives related to social areas such as health, social integration, demography and migration. There are many goals and they cannot all be mentioned here, but it is worth looking at those which most attract the attention of EU experts and officials as essential activities for sustainable development within the social policy framework. Thus, the operational objectives of *Public Health* include:

- improving food and fodder legislation, through food labelling verification, amongst others,
- reducing the growing incidence of lifestyle and chronic diseases, especially in communities and regions with an unfavourable economic situation,
- reducing health disparities in Member States and between them,
- improving mental health and preventing suicides.

In turn, for *social integration, demography and migration* aims, we find:

- reduction in the number of people at risk of poverty and social exclusion, with particular emphasis on child poverty,
- support for Member States in their efforts to modernise social security in the face of an aging population,
- increasing the number of women and older workers in the labour market and increasing employment of migrants and persons with disabilities,
- reducing the negative effects of globalisation on workers and their families,
- promoting employment for young people (every young person who has left school and is unemployed should, within six months, get a job offer, apprenticeship, or additional training).

Even these mentioned social objective examples for supporting EU's sustainable development are impressive in number. They are largely subordinated to one of the most important Community goals of the last decade, which is a rise in employment, which should in turn, serve economic growth. We are dealing with an economic priority, characteristic for the functioning of the Community, whilst social issues are unfortunately in second place.

The latest EU document entitled Europe 2020 (Hoedl, 2011), undertaking the sustainable development issues was adopted in March 2010 and sets out a vision of the social market economy for Europe in the 21st Century. It identifies sustainable development as one of the three most important factors of economic growth alongside smart development i.e. knowledge-based economic development, innovation and development favouring social inclusion. Here we have a triad of objectives similar to that in the Lisbon Strategy. Then it was the development of a knowledge-based economy, high employment, environmental protection and fight against poverty and social exclusion. Now Europe is to become smart and balanced, will promote social inclusion, will be able to boast high employment and productivity indicators, and greater social cohesion (Europe 2020, 2010). In order to assess the progress in implementing the Europe 2020 strategy, the European Commission identified five EU headline targets which have to be realised within the agreed priorities by 2020. As many as three have a social dimension, since they refer to employment, education and social integration:

- 1) 75% of the population aged 20-64 should be employed.
- 2) The share of early school leavers should be under 10% and at least 40% of the younger generation should have completed tertiary education.
- Reduction of poverty by aiming to lift at least 20 million people out of the risk of poverty or social exclusion (Europe 2020, 2010).

These are long-term objectives whereas the new EU strategy emerged in conditions of economic and financial crisis. However, as Jose Manuel Barroso stated, though the difficult period for EU countries is not over, in order to build a SUSTAINABLE FUTURE one must look beyond the short term (Europe 2020, 2010). In the context of this analysis, once again considering the wide range and depth of social goals related to the prospective development of Europe, including sustainable development, it can be assumed that it is not even possible without a solution, or at least to mitigate, the severe social issues, acknowledged by low levels of employment, educational exclusion of the young generation, and a significant spread of poverty.

# **3.** EU's sustainable development practices in social areas

For several years the EU has taken into account the objectives of sustainable development in its policies in several areas. In particular, it has assumed a leadership role in tackling climate change and in promoting an economy based on low emission technologies, knowledge and efficient management of resources. Periodic reviews of the EU strategy for sustainable development analyse the effectiveness of these actions which are delivered to the EU's bodies in the form of communications from the European Communities Commission (Communication..., 2005).

Analysis of the first of these communications from 2005 shows, that three social issues were the subject of the evaluation: public health, social exclusion, demography and migration, which together were treated as interdependent issues and challenges of global poverty and development.

The key health activities of the EU and its Member States (planned rather than implemented) were:

- refining plans to counter various pandemics,
- agreeing and implementing a HIV/AIDS strategy, and also fighting malaria and tuberculosis,
- coordinating research into the links between environmental pollutants, health risks and health impacts, with the aim to improve our knowledge of what environmental factors cause health problems and how to prevent them.

Another social issue, which the EU's actions focus on, are the demographic problems, which is understood as being Europe's ageing population, the decline in indicators for fertility, and the reduction in the professionally active population. This in turn reduces the number of employed and threatens the Member States' economic growth. The economic social conditions in a united Europe are clearly evident here. A key action that is being proposed is to analyse the ways aid is provided to Member States in responding to demographic problems, in particular by promoting active ageing strategies, integrating immigrants, better conditions for families, and identifying new initiatives to promote a balance between work and private life.

And one final question. Poverty and social exclusion, which is no longer only linked to increasing low income, but also with promoting access to employment, worker mobility, health care, telecommunication and information services, and – above all – education and professional training. In this regard, as a corrective action the Commission proposed:

- announcing 2010 as the European Year for combating poverty and social exclusion,
- providing a roadmap for equality between women and men in order to achieve gender equality and solving demographic problems.

The proposed actions took on real shape in the form of action plans, campaigns, communications, strategy and even regulations, not only to stimulate the decision makers to act, but actually to force them. They were focused on promoting better legislation. The role of the impact assessment system should also be emphasised. It shows that it has a big significance for sustainable development, as it foresees the potential impacts of new legislation or policy proposals.

The global economic and financial crisis in 2008 became the impetus to take stock of current policies and to intensify the activities of sustainable development. It contributed to the publication of a successive European Commission communication on the inclusion of sustainable development in EU policies in various areas (Communication..., 2009). It also applied to social issues according to the previously approved scheme. Thus, amongst the actions for promoting health the following were included:

- activities in the field of major and chronic diseases,
- political initiatives related to mental health, alcoholism, obesity, smoking and combating HIV/AIDS,
- authorisation system for feed additives and action plans to implement a new strategy for animal health,
- implementation of the *Youth Health* initiative in 2009, which aims to improve the health and well-being of young people.

In turn, activities in social inclusion, demography and migration include:

- moving the retirement age to 65 years<sup>2</sup>,
- social inclusion and social protection reforms in the Member States supported by the open method of coordination (some 10 billion euros were allocated for this purpose for the period 2007-2013),
- the creation of a European alliance for families and a new government advisory group dealing with demographic issues<sup>3</sup>,
- An in-depth analysis of the impact of ageing on the budget and the economy up to 2060. This resulted in the Commission producing the 2009 Ageing Report – dealing with the impact of an ageing population in the EU (Communication, 2009), and an action programme of research into how modern technologies can serve elderly people (Decision 742/2008/WE).
- An outline for the policy on legal migration aimed at harmonising migrant admission procedures and the introduction of an EU Blue Card system for highly-skilled migrants, whilst on the other hand accepting directives foreseeing sanctions against employers who employ workers from third

countries who are illegally staying within the EU.

Even this sample review of the EU's objectives and social activities, is convincing of their major importance for the realisation of the sustainable development policy. The Renewed Sustainable Development Strategy, and documents monitoring its implementation progress, place a strong emphasis on the objectives and activities in the employment arena, in which the European Union has been implementing since 1997, one of its most important strategies<sup>4</sup>. Improving the health of Europeans and freeing them from the most serious threats in this area, and reducing the number of poor and those threatened with social exclusion, especially women and older people who remain outside of the labour market and in need of State aid, are the goals and in their wake activities, which support the European employment policy. They are the subject of the Social Security and Social Integration Strategy, encompassing three groups of problems: social integration, pension schemes and health care combined with long-term care, which has been implemented since 2006 using the open method of coordination: OMC (Żukowski, 2010, p. 2; Rosati, 2009, p. 285-288). The implemented social strategies, in relation to the sustainable development policy, serve mainly for economic growth in Europe, but one can also assume that they confirm the ecohumanistic trend in the European Union which depends on rejecting the zero growth strategy in favour of the sustainable development strategy (Michnowski, 2008, p. 89-90).

Progress in the field of sustainable development in the European Union is monitored by a system of indicators. The first set of indicators was adopted in 2005 and then updated in 2007. Alongside the structural indicators which monitor the Lisbon Strategy, such as employment levels, a catalogue of monitoring indicators appears in as many as three social spheres: poverty and social exclusion, educational policy, and public health.

The indicators which monitor each of the EU SDS priorities form a three-level pyramid. At the top the first level indicators (so-called headline indicators) relate to the main purpose of a given priority, and at the same time have the largest communication capacity. The second level comprises of indicators for operational purposes, whilst the third relate to the activities (Sulmicka, 2010, p. 6).

<sup>&</sup>lt;sup>2</sup> Achieving this objective in the short term is considered unlikely, although demographic trends are disturbing and indicate that the population of working age in the EU-27 will start to fall from 2013 and will decrease to around 39 million (12%) by 2050 compared with 2008.

<sup>&</sup>lt;sup>3</sup> These actions indicate a widening of interests in European social policy regarding family issues and associated demographic processes.

<sup>&</sup>lt;sup>4</sup> The European Employment Strategy, launched at the Luxembourg Employment Summit was the EU's response to the decline in the level of employment and rising unemployment in Europe since the 1970s. In 2003, the European Council in Thessaloniki adopted New Employment Policy Guidelines, organised around the four Luxembourg pillars of the European Employment Strategy.

The Public Health theme, having strong ties with both environmental considerations, as well as with economic development, is particularly suitable for assessing progress on sustainable development in Europe. Its headline indicators are the number of years lived in good health broken down by gender, and the average life expectancy at birth. In 2007 the statistical life expectancy of a newborn male in the EU was 76.07 years. The second level (operation target) indicators, measuring health and social inequalities relate to: mortality from chronic diseases in the population aged over 65 years, suicide, as well as the unmet needs in healthcare. The third level indicators are the health determinants such as the exposure of the urban population to air pollution by particulate matter and by ozone, noise nuisance, and accidents at work (Eurostat, 2012).

In view of these indicators a whole range of concerns, especially methodological (ozone indicator) can be put forward, but in the light of Eurostat data, the majority of monitored countries present a varied, but generally positive picture, with the exception of the third level indicators, where no progress is visible.

#### Summary

Ever since sustainable development appeared in EU's documents and activities, the role of social factors within it has greatly increased. Social policy, not only in the EU's narrow but also in the wider definition, taking into consideration demographic issues, health and education, is now an indispensable element for achieving sustainable development in the European Union. Although the EU's social policy does not explicitly state the notion of social security, the goals that are placed in this area, must unconditionally lead to its achievement.

It should be noted that in the context of the deepening 2011 economic crisis, particularly the financial and consequently the political crisis, which the EU Member States are now going through, social security for Europeans has drifted away. Jeffrey Sachs, one of the world's eminent economists, commenting on the symptoms of this European and global crisis, points out that the way to overcome it is to help the poorest countries in their fight against poverty, hunger and disease, and to repair capitalism, according to Scandinavian templates, where the country's policy is oriented towards the implementation of social rights (Sachs, 2011). This postulate can be read not only as a departure from the neo-liberal solutions that were espoused in Europe since the 1990s, but also as a clear focus of the current policy determined to implement the social aspects of sustainable development.

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# Does the Evangelical understanding of the concept of property serve sustainable development?

### Czy ewangelickie rozumienie pojęcia własności służy zrównoważonemu rozwojowi?

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### Abstract

Protestant Reformation brought about some revolutionary changes in the ways that God and human role in the world were perceived. Martin Luther, known as the *Father of the Reformation*, adhered to the principle *sola scriptura – only Scripture*, and hence based all his teachings on the Word of God. The understanding of ownership proposed by him was also a faithful reflection of biblical teaching. According to Luther, the true meaning of ownership was servanthood – God bestowed goods to man in order for him to share his possessions with others. The Reformer did not perceive property as a value on its own. Rather, a man's attitude to property reflected his attitude towards his neighbour and the creation as a whole. People should not forget that all their possessions have merely been temporarily entrusted to them by God.

This Biblical principle has been elaborated on by evangelical theologians. Modern reflection emphasizes that the idea of ownership is not confined to material goods, but encompasses various elements of the surrounding world. Consequently, care for the creation and natural environment should be viewed as Christian responsibility. Man was created in God's image and likeness, and is known to be the crown of creation. Evangelical theologians point out that Christians should be particularly sensitive to issues of environmental protection and preserving this world for future generations. Responsibility for the surrounding world should not be a burdensome duty. It ought to be an expression of love for God and one's neighbour, a proof of deeper understanding of the meaning of Christianity. All in all, it is the fullest realization of the idea of sustainable development.

Key words: ownership, Christian responsibility, Reformation, sustainable development

### Streszczenie

Reformacja spowodowała przełomowe zmiany w sposobie myślenia o Bogu i roli człowieka w świecie. Marcin Luter, nazywany dziś *ojcem reformacji* w myśl zasady *sola scriptura – tylko Pismo* całą swoją naukę opierał na Bożym słowie. Również proponowane przez niego rozumienie pojęcia własności było wiernym odbiciem nauk zawartych w Biblii. Własność, według Lutra, ma charakter służebny – człowiek zostaje obdarowany przez Boga po to, by móc dzielić się z innymi. Reformator nie postrzegał własności jako dobra samego w sobie. Własność była elementem, do którego stosunek określa nasze podejście do bliźniego i całego dzieła stworzenia. Człowiek nie powinien zapominać, że wszelkie dobra są mu jedynie przez Boga powierzone.

Ta biblijna myśl została rozwinięta przez współczesnych teologów ewangelickich. W aktualnych rozważaniach podkreśla się, że pojęcie własności dotyczy nie tylko dóbr materialnych, ale wielu elementów otaczającego nas świata. Troska o stworzenie i środowisko naturalne winna więc być przejawem chrześcijańskiej odpowiedzialności. Człowiek został stworzony na obraz i podobieństwo Boże. Jest ukoronowaniem dzieła stworzenia. Teolodzy ewangeliccy zwracają uwagę, że chrześcijanie powinni być szczególnie wrażliwi na ochronę środowiska, a co za tym idzie na zachowanie świata dla przyszłych pokoleń. Odpowiedzialność człowieka za otaczający go świat, nie może być jedynie uciążliwym obowiązkiem. Powinna być przejawem miłości do Boga i bliźnich oraz znakiem zrozumienia naszego chrześcijaństwa. Jest bowiem najpełniejszą realizacją idei zrównoważonego rozwoju.

### Słowa kluczowe: własność, chrześcijańska odpowiedzialność, reformacja, rozwój zrównoważony

### Introduction

Over centuries, Christianity adopted different approaches to the issue of ownership, or property. The Church of the Middle Ages aimed at turning people's attention away from worldly matters (Szarek, 2004). The most heated medieval disputes focused mainly on the question of peripheral, and at the same time central place of man among other beings (Bochenek, 2010). It was not until The Reformation that a significant change of attitude towards the issue of ownership took place. Analysing the situation in Europe at the end of Middle Ages, it seems that Martin Luther, or the Father of the Reformation, must have been driven by outer circumstances. Church reform had already been the subject of debate for several centuries (Uglorz, 1995). Reformation today it is defined as a religious-social movement which led to significant changes in the doctrine and structure of the Church (PWN, 1996). Assuming that a religious doctrine encompasses a theory of God - theology, a theory of the universe cosmology, and a theory of man - religious anthropology, it seems evident that the Reformation brought about some critical changes in the way of thinking. It influenced both the way people thought about God, and about human role in the world. The latter pertains also to man's attitude to property, including his attitude to the whole creation and the natural environment.

### The notion of ownership in the Bible

In the Old Testament, the issue of ownership is mentioned mostly in context of legal regulations for the Israelites. But is it that the Old Testament has nothing to say on how a contemporary man, not necessarily a Christian, should perceive property, and consequently, how he should relate to the surrounding world? Actually, there are many relevant passages that theologians would be ready to point out. I would like to bring up just two of them. The first fragment is from the Book of Genesis, which speaks of creation of the world and man (Gen 1:1-31). Udo and Pawłowski (2010) quoted it as probably the earliest and the most important passage, and also an interpretation of global social equilibrium attained by the means of populating the Earth. I agree with this statement. However, I would like to especially emphasize the words referring to the Earth: (...) and subdue it. Is it not a clear suggestion that we are owners (co-owners) of the world? The world has been given to us so that we can manage it. We are to use its resources, but in a rational way. Although we are the crown of creation, we are also

its part. Being a part of creation, we have the responsibility to care for it. The proponents of sustainable development also tend to take expressions like *use in a way not to use up* or *live and let live* as their central axiological premise (Kuzior 2006).

In the Book of Deuteronomy (Deut 8:17-18), in turn, there is a passage concerning the Promised Land which says: You may say to yourself, "My power and the strength of my hands have produced this wealth for me", and in the following verse: But remember the Lord your God, for it is he who gives you the ability to produce wealth, and so confirms his covenant, which he swore to your forefathers, as it is today. The fragment warns clearly against pride because of one's possessions. For all that we have has been given to us by God.

Interesting reflections on Biblical ecology can be found in Uglorz's (2010) Ekologiczne watki w biblijnej historii zbawienia [Ecological Themes in the Biblical History of Salvation]. The book presents, among others, two ecological metaphors of man: man as an administrator, and man as a host. The former is most fully illustrated in the Book of Psalms (Ps 24:1; Ps 50:10; Ps 89:12). As the author indicates, the metaphor stands there for the idea of care and a sense of responsibility for a received gift. Administering the Earth on God's behalf should be characterized by care and responsibility. The metaphor of a host, taking care of a common house for all living things created by God (Isa 45:18), is the epitome of the basic idea of ecology. Ecology, in the words of Uglorz, is a word (teaching) about a house. A host takes care of the house, i.e. the environment God created for man to live in. Good condition of the house is reflected by proper relations between the household members, and between them and other creatures inhabiting the house.

The New Testament speaks even more pointedly of the attitude towards possessions that a man should take. The Gospel of Luke (Lk 12:13-21) openly warns against greed and teaches that wealth should not be accumulated for its own sake. Another passage from this Gospel explains how wealth ought to be used (Lk 16:9–13). The concept is then illustrated even more clearly in the parable of the talents (Mt 25:14–30). Man is only a steward of property belonging to the Lord. Property that we are to respect, manage and multiply. In his teaching, Jesus did not condemn wealth on its own; neither did he condemn the idea of growing rich. But he very strongly warned against getting enslaved by wealth. One should also agree with the observation made by Rev. Bołoz, that the Bible presents animals and plants as worthy of praise and of caring for their good (Smoderek, 2010). Care for the surrounding world means care for a common property. It is also a measure of our responsibility towards ourselves and towards the following generations.

### The notion of ownership in the views of Martin Luther

Conforming to the Reformation rule sola Scriptura only Scripture, Martin Luther based all of his teachings on the Word of God. He believed that the Bible should be the only source of faith and Christian life. Concerning the question of property, the Wittenberg theologian laid special emphasis on the Biblical passage, which states that: the love of money is a root of all kinds of evil (I Tm 6:9-10). One of the mottos of the Reformation ethics was that faith was made effective through love (Hintz, 2009). Therefore, the Reformation model of a Christian was that of a socially active person, readily participating in the matters of this world. Luther's ethics, including his views on property, is an integral part of his theology. His understanding of the concept of ownership is presented in the Catechism. Explaining the seventh commandment (thou shalt not steal), the theologian wrote: it is herewith forbidden, in the first place, to do our neighbour any injury or harm (in whatever manner supposable, by curtailing, forestalling, and withholding his possessions and property), or even to consent or allow such a thing, but to interpose and prevent it. Luther indicated clearly that other people's property was to be respected. Our attitude towards our neighbour's property defines our attitude towards our neighbour himself. By respecting other person's property, we respect that person as a human being. In the following passage Luther writes: and, on the other hand, it is commanded that we advance and improve his possessions, and in case he suffers, we must help, communicate, and lend both to friends and foes. It is evident, then, that Luther saw property as a means of obeying the commandment of love. This is further confirmed by Luther's explanation of the ninth and the tenth commandments (thou shalt not covet thy neighbour's house; thou shalt not covet thy neighbour's wife, nor his man-servant, nor his maid-servant, nor his cattle, nor anything that is his). The Reformer writes that: it is commanded, first, that we do not desire our neighbour's damage, nor even assist, nor give occasion for it, but gladly wish and leave him what he has, and, besides, advance and preserve for him what may be for his profit and service, as we should wish to be treated. As can be seen, these commandments are directed against greed. Greed is a desire to possess some goods, regardless of the consequences the fulfilment of that desire might lead to. It basically comes down to here and now. In many fields of human activity, striving to maximize profits is tainted with greed. Yet what can be observed from the analysis of a branch of economy such as agriculture, is that

increase in production disturbed the ecological balance and caused a lot of damage in the form of environment pollution, water and air contamination (Pawłowski, Pawłowski, 2008). In other words, the acceleration of development resulted in the loss of equilibrium between man and nature (Tuziak, 2010). Of course, it can be proven that the world population explosion necessitated an increase in food production. But on the other hand, one should not overlook the phenomenon of overproduction. The maximisation of production did not alleviate the problem of food availability in the poorest countries. Is it not, then, that the real, though perfectly disguised, reason for the intensification observed not only in agriculture, is greed, or the desire to possess? Luther treated the existence of ownership, that is the stewardship of possessions, as an inevitable state of affairs. According to the theologian, the true meaning of ownership was servanthood - God bestowed goods to man in order for him to share his possessions with others. As far as economy is concerned, Luther was a child of his time, and so he was oblivious to the rules of modern economy, governed by the law of supply and demand, and driven by the desire for profit. He believed that the traditional economy of goods ensured welfare for a large number of people, while the money economy lead to excessive wealth of a small group of citizens, at the expense of the poor majority (Hintz, 2007). Although today the latter model prevailed, it is hard not to notice that in the long run, it might turn out to be fatal. The devastation of natural environment is caused by the current global economic system. Modern industrial society has already seriously upset the balance of the whole organism of the Earth (Naumowicz, 2009). Actually, a kind of paradox can be observed. The chase after personal gain and increasing personal assets has lead to a decrease in the assets of humanity as a whole. Due to wasteful exploitation of the environment, the natural resources are dwindling at an appalling rate. If humanity does not come to its senses, there will be not much left for the generations to come. For some losses, such as the extinction of numerous species of plants and animals, are irreversible.

# Ownership as seen by contemporary evangelical theologians

Nowadays, the concept of ownership as entrusted property should be universally recognized (Benedyktowicz, 1993). The idea of trust makes us treat our own possessions as common property. In Anglo-Saxon countries there is an expression *Christian stewardship*, understood as Christian trust. Benedyktowicz (1993) writes that being aware of the fact that what we have has been entrusted to us to manage, requires treating property in a sensible, responsible and socially useful way. If we believe property to be an entrusted gift, we cannot use it improperly.

The question is whether property refers only to material goods. Certainly not. Christian responsibility should be also reflected in caring for the creation and natural environment. Man was created in God's image and likeness, and is considered to be the crown of creation. Nevertheless, although God gave him rule over other creatures, this rule is not that of a sovereign. The kings of Israel can serve as an example. Uglorz (2010) explains that royal rule in Israel was not sovereign. The rulers were obliged to obey the Law and walk in the ways of Jehovah. They were assessed and qualified according to their faithfulness to God.

After all, modern man is not that different from the first people. We still face the same problems and dilemmas. However, taking into account the fact that we have been exploiting the Earth for a very long time, we are worse off than our ancestors. We can no longer pretend not to notice the dangers that we have created and keep on creating. It seems that the idea of sustainable development, as opposed to consumerism, evolved out of a human twinge of conscience, in order to stop this destructive process. Piątek (2005) expressed a similar thought, saying that the concept of sustainable development is the first intentionally formulated attempt to avoid selfdestruction in the history of the Earth. Also today, the idea of sustainable development is seen as an urgent demand for a change in the direction of human development (Gawor, 2010).

The importance of introducing this idea was confirmed by the manifold interpretations that the term *sustainable development* generated (Redclift, 2009; Wodzikowski, 2009, Pawłowski, 2009).

In a Christian society the idea of sustainability replacing, according to Sztumski (2008), uninhibited and ferocious development, should automatically find understanding and support. At least because of the values that we hold. Unfortunately, very often we do not see the relationship between loving and responsible attitude towards the creation commanded by God, and everyday life.

Still, in my opinion, this command is the fullest realization of the idea of sustainable development. The results of research conducted by Bołtromiuk (2010) indicate that only a small portion of the Polish society can correctly identify the meaning of the term. Nevertheless, in spite of lack of full understanding of the concept, over 70% of the respondents expressed support for the idea, which is encouraging. The vast majority also declared awareness of both the positive and negative influence that their attitude and behaviour have on the natural environment.

Maybe, then, it is not true that, as Sztumski (2008) said, sustainable development is an illusion, or *opium of the masses*, since it is based on illusionary and irrational premises, and unfounded faith.

Perhaps realizing the true meaning of Christianity will help us work on preserving this world for future generations.

This is a task for all Christians (and not only), however, it should especially concern the Protestants. One should not forget that Luther's teaching on the attitude of man towards God's creation is a direct interpretation of the Holy Scripture. And the Reformer fiercely condemned selfishness and desire for profit, which stand against God's teachings.

Modern evangelical theologians also indicate, but more directly, that Christians should be particularly sensitive to the issues of environmental protection, and preserving the world for the generations to come. Benedyktowicz (1993) claims that appreciating the dignity of the world should come to us naturally, since it is the work of God the Creator. He also points out that in our times such respect ought to express itself in supporting environmental protection activities. Also Jagudzki (1975), who rejects the possibility of isolating oneself in a religious fortress, as a means of escaping the world, proposes an affirmation of the world, which should reflect a spirit of servanthood. Similar views are expressed by Uglorz (2010) in his reflection on the position of modern man in the world, when he writes: God equipped man in gifts which will enable him to care for all the creation according to the will of God, and then: royal reign of man over creation is a service for its good, since man is connected with the creation and dependent upon it. Finally, Hintz (2006) highlights the fact that both the Old Testament and the New Testament perceive human being as a psychosomatic whole. Especially the Old Testament emphasizes a close, almost intimate, relationship between God and nature, and in particular man, as being part of it.

#### Conclusions

In the light of the discourse presented above, it can be said that the evangelical understanding of ownership does serve sustainable development. Evangelical thought, being based, among others, on the principle *sola scriptura*, is a simple and clear interpretation of the *Bible*. Evangelical theologians, beginning with Luther, unanimously emphasized that man is to serve the surrounding world. The work of creation, of which according to God's will we are co-owners, is a possession entrusted to us. Responsibility of man for the world should not be a burden, but rather an expression of love towards God and our neighbour, as well as a sign of our Christian maturity. For it is the fullest realization of the idea of sustainable development.

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# Man and Nature. A New Project on New Spirituality

### Człowiek i natura. Nowy projekt nowej duchowości

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### Abstract

This article is a prelude to a planned project aimed at researching new ways of understanding and redefining the concept of nature in the so-called New Spirituality movements. The authors begin from a theoretical context associated with the meaning, for religious studies, of the sacred – profane and culture – nature dichotomies, and show the changes religiousness undergoes. Today we see an increasing number of people turning away from traditional forms of religious cult with a simultaneously declared wish to develop their own spirituality. New spirituality is provisionally defined here as the worldly transgression of the human condition committed in the name of different values strongly associated with the physical (bodily) dimension of life and a holistic vision of the world. On the basis of examples, drawn mainly from publications based on the Deep Ecology trend, the authors discuss three aspects: (1) a new understanding of one's own nature, (2) a new understanding of the nature of the world; and (3) new forms of activity for changes in awareness. In the dimensions under discussion, the process of recently locating the element of the sacred in the profane sphere and the resacralisation of nature clearly emerges. In the conclusions we also consider to what extent the formative new spirituality on the ecological trait can help to popularise the sustainable development idea within the framework of changing the religiousness of man at the start of the twenty-first century.

Key words: nature, New Spirituality, Deep Ecology, the sacred, sacrum, the profane, sustainable development

### Streszczenie

Artykuł ten jest zapowiedzią planowanego projektu mającego na celu zbadanie nowych sposobów rozumienia i redefiniowania pojęcia natury w ruchach z kręgu tzw. nowej duchowości. Autorzy wychodzą od kontekstu teoretycznego związanego ze znaczeniem dla nauk religioznawczych takich podziałów jak sacrum – profanum i kultura – natura, ukazując zmiany jakim podlega religijność. Współcześnie obserwuje się odwrót coraz większej liczby osób od tradycyjnych form kultu religijnego z równoczesnym deklarowaniem chęci rozwijania własnej duchowości. Nową duchowość roboczo definiujemy tu jako transgresje doczesnej kondycji człowieka dokonywane w imię różnych wartości, silnie powiązanych z fizycznym (cielesnym) wymiarem życia oraz holistyczną wizją świata. Autorzy na podstawie przykładów, zaczerpniętych głównie z publikacji z nurtu ekologii pogłębionej omawiają trzy aspekty: (1) nowe rozumienie swojej własnej natury, (2) nowe rozumienie natury świata i (3) nowe formy aktywności na rzecz przemiany świadomości. W omawianych wymiarach wyraźnie zarysowuje się proces umiejscawiania współcześnie pierwiastka sacrum w sferze profanum i resakralizacja natury. We wnioskach zastanawiamy się również, na ile kształtująca się nowa duchowość o rysie ekologicznym może sprzyjać upowszechnianiu idei rozwoju zrównoważonego w ramach przemian religijności przemian religijności człowieka początku XXI wieku.

Słowa kluczowe: natura, nowa duchowość, ekologia pogłębiona, sacrum, profanum, rozwój zrównoważony

#### Introduction

The emergence of the sustainable development idea in Western culture is closely related to spiritual and religious transformations. The background for the birth of many new religious movements and New Spirituality are the many transformations relating to anthropology (individualism), cosmology (holism) and axiology (supergenerational responsibility). As Lesław Michnowski points out Eco-humanistic joint actions, concern for the weak and cooperation, instead of deadly socio-Darwinian rivalry destroying egoistic socio-diversity, become essential (Michnowski, 2010). This cultural paradigm change occurs slowly and in different ways. Some of the postulates formulated in the second half of the twentieth century are synthetic, closely linking into the postulated programs, ecological and religious ideas. A good example are the philosophical works of Henryk Skolimowski who writes metaphors of light as an energy, divine life, the Universe as an Artist, or the world as a sanctuary. Discussing Skolimowski's views, Ignacy Fiut highlights the clear presence of religious influences through the use of religious language repertoire when formulating the postulates of change (Fiut, 2009). In our opinion, it was at the end of the twentieth century that attitudes inspired by New Spirituality strongly revealed themselves culturally in different ways, depending amongst others, on the understanding of such concepts as nature, the supernatural and sacrality, which were absent up to now. The measurable effect of these changes to is initiate actions aimed at realising in different areas the sustainable development project.

The key distinguishing feature of the religious sphere in classic religious studies was the separation of the supernatural from the natural - the sacred from the profane. Rudolph Otto's concept of a numinous experience is to be in communion with a sphere which cannot be rationalised, mysterious, awesome, but above all it is characterised by the coexistence of ambivalent elements, both fearful and fascinating (misterium tremendum and misterium fascinans) (Otto, 2004). This specific experience of the sacred, after being repeatedly emphasized in various religious texts, is associated with the distance it introduces towards the known world. The profane sphere becomes mediated by symbols relating to the sacred, which allows transcending (exceeding) everyday experiences. Émile Durkheim believed that the sacred - profane (supernaturaleveryday) division is the extrapolation of fundamental dichotomy experienced by man, the socialindividual. Hence the sacred sphere verbalisations are saturated with symbols which are expressions, amongst others, of the need to recognise the particular manifestations of reality in universal terms (Durkheim, 1995; Zwierżdżyński, 2009, p. 86-92). Currently, the trend is away from the sharp separation of the sacred from the profane, instead treating them as the poles of a continuum of an ordering system (Bowie, 2008). However, this division is still essential and retains its scientific usefulness, even in the latest religiousness changes.

The distinction between *natural* and *supernatural* was recognised and very often still is, but colloquially, that what is *supernatural* is precisely what is religious. This distinction was used mainly within Western European culture characterised by Eurocentrism and Christocentrism, closely associated with the Judeo-Christian tradition. The emphasis on God's transcendence in monotheistic religions, and separating him from nature, contributed to a large extent to the domination of this assumption. God of the Old Testament is radically transcendent, according to Peter Berger (Berger, 1967). This strong transcendentalism was in a certain sense weakened by the incarnation of Christ, but at the same time it uplifted man as an indirect, intermediate element, not belonging only to the Natural world. It should be emphasized that the theologies of such religions as Judaism, Christianity or Islam assumed the possibility of divine (external, extra-terrestrial) intervention in worldliness i.e. nature. Although they were rare, in addition, through their uniqueness they emphasised God's supernaturalness/sacrilaty. These interventions were described as miracles because miracle in the religious understanding means the temporary suspension of the laws of nature (Gadacz, Milerski, 2001, p. 62).

Attention can also be drawn to the different characteristics attributed to gods in the Eastern and Western religions. In the Western religions God's strong personification and anthropomorphisation is apparent, and God is treated as a source or cause of all energy and the world. However, in Eastern religions, the gods exhibit much more naturalness, often personifying the forces of nature; they are the media of ultimately impersonal energy (Campbell, 1988).

However, in the European pre-Christian religions, as well as in heterodox pantheistic movements, in terms of Christianity, nature is treated as holy in itself and the sharp distinction between the supernatural and natural is either not applicable or is completely abolished (Macnaghten, Urry, 1998). It must be emphasized that in so-called primitive communities nature was harnessed into intricate systems which were expressions of the sacralised reality experienced. To a lesser or greater degree, everything was connected with holiness - from its identification through to its radical contradiction. To illustrate the point, let us only mention terms such a taboo, axis of the world (axis mundi), tribal classification (e.g. totemism) as well as the division of clean – unclean, man – animal, our – foreign, dead – alive, which are so essential in traditional cultures (Szyjewski, 2001, pp. 60-71). The culture -

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nature<sup>1</sup> division was extremely important, even as an element of complex classifications, but nature formed an important element of this relationship. Along with disenchanting the world (consisting of a number of factors such as the concept of a transcendent God, rationalisation, industrial development, and industrialisation), nature was subordinated under culture, whilst the sacred became the domain of mainly ethereal transcendence (Weber, 1988). Even if around the edges there were tendencies favouring nature, the above trend was dominant.

In the 20th century new movements began to grow strongly, trying to *charm* nature again, and *ipso facto* re-sacralising it in very different ways. We will define them here as the so-called New Spirituality movements, without doing into detail. As they constitute a (continuously growing) social *margin*, let us first look at the cultural context which accompanies them. Its main aspects include among others: technologisation of everyday life, institutionalisation and segmentation of society, digitisation of communications and transfer of its many aspects into virtual space (Castells, 2003).

The religiousness of present day man is also subject to the inevitable changes. In reflecting upon religion's place in the modern world over the past several years, it can be perceived that often, when describing religion, the term CHANGE appears which results from a series of transformations which social systems have been subject to (Borowik, 2004, p. 23). Sociologists, describing the transformation in contemporary religiousness, perceive a strong individualisation of attitudes toward religion, both in terms of content and their functions (Beckford, 2003; Hervieu-Léger, 2000). Regarding general trends, religions are seen to have lost their monopoly and the power to impose unequivocal judgements, guidance and interpretation of the world. Also, consumer orientation influences the individual's relationship with the sacred cosmos and the choice of the *definitive* meanings according to a private key. Thus religion becomes primarily a private matter - an invisible religion. The observed shift from heteronomy to autonomy, according to Janusz Mariański relates to religiousness outside the church, which although it cannot be generalized, contains with itself something of a personal "profession of faith", of nonconformist religiousness and vague notions of God (Mariański, 2007, p.  $(252)^2$ .

Another issue associated with changes in contemporary religiousness is secularisation. At its core are modernisation processes and progressive institutional specialisation which contribute to the disappearance of compliance with subjective systems of *definitive* meanings and the weakening of religious bonds (Koseła, 2003, p. 289). Thus, religion as a system institutionally separated, can by means of entering into relationships of various intensities with other social spheres, incline an individual to renegotiate internalised definitive meanings and influence the reaction, from a compromise to conflict, whilst the religion's *destiny* can be both fundamentalism as well as secularisation.

Finally, one of the signs of contemporary change is the steadily growing percentage of people who do not want to be described as religious, but declare that they lead a spiritual life (Wulff, 1997; Tylor, 2010). It is also possible to note the popularity of the word *spirituality*, as evidenced by numerous studies devoted to this phenomenon (Heelas et al., 2005; Grzegorczyk et al., 2006; Flangan and Jupp, 2007; Dobroczyński, 2010; Pasek, Skowronek, 2011). In this new meaning, spirituality embraces both traditional understanding of this word as a deepened religious life, and also as fulfilling or aspiring towards ethical, esthetical and other values in life treated as development and selfimprovement. In the subject literature the notion of so-called New Spirituality is also differentiated (Herrick, 2003; Lynch, 2007; Gordon, 2007; Leszczyńska, Pasek, 2008), which we can provisionally define as transcending the earthly human condition in the name of various values. This understanding of spirituality is closely linked with the belief that this transcendence happens in close cooperation of man's physical and mental aspects (conditioning only development) and usually connects with a holistic vision of the world.

These contemporary forms of spirituality are an alternative to historical religions, rooted in tradition. On an individual level they are symbolised in new religious subjects, characterised by syncretism, vagueness and instability in comparison to the official model (Luckmann, 1967). The new content sources are also different. And right next to the traditional sources, which are the original institutions (e.g. family, the Church), other secondary

<sup>&</sup>lt;sup>1</sup> The nature – culture split, similar to the previously cited sacred – profane split, is a very helpful distinction but does not have absolute basis (Chmurzyński, 1990, p. 78-81).

<sup>&</sup>lt;sup>2</sup> In this context, Stella Grotowska's research is interesting. The axial term in her research is subjective religiousness, with the main parameters: freedom of choice, the search for meaning, the reorientation of identity, mosaicism, attitude to problem solving, providing a new sense

of everyday life and a sense for the individual, that the chosen religion is its own. Objective religiousness, according to the author, is that in which the individual grows, and subjective religiousness is the result of individual choice – the individual is strongly involved in the shaping process. It is not passively received, but very actively sought and individually processed. Describing the initiation situation to subjective religiousness the author cites as specific, next to the aforementioned freedom of choice: significant tension, orientation towards therapy, the reorientation of identity, existential crisis (Grotowska, 1999, p. 61-116).

determinants of meaning, often competing with each other, appear within the institutions.

The term New Spirituality is sometimes used interchangeably with the term New Age. However, let us note that it is becoming an increasingly pejorative and stigmatising term. In Poland this is due to the activities of numerous anti-cult centres situated next to churches as well as the fairly common identification of New Age with its so-called *low* trend, marked with marketplace magic and above all commercialism (Dobraczyński 2010, Kubiak 2005; Hall 2007; Leszczyńska, Pasek, 2008, p. 18).

This *new* attitude towards nature in Western culture is accompanied by changes in the understanding of the sacred, dependent on locating *that which is sacred* within the world of the profane. Using the examples below, mainly from Deep Ecology and the Raelian Movement, we have flagged some of the accents, typical of the social manifestations of New Spirituality.

### First Accent: The nature of 'self'

The main emphasis in the New Spirituality movements is placed on a kind of self-diagnosis involving looking inside oneself and answering the question *Who is man and what is his true nature?* According to Paul Heelas, the researcher of these cultural changes, it is associated with the need to express individuality, primarily in the search for one's own unique, spiritual path (Heelas, 1996).

A change has been noticed in the way *soteriological procedures* have been understood. Followers of mainstream New Spirituality usually do not accept the mechanism of sacrifice and reject salvation *ab extra*, i.e. given from outside. These include for example the Christian concept of *Christ's sacrifice for salvation* or *the gift of grace*. Followers of New Spirituality are closer to Asian concepts, such as the Buddhist concept of self-improvement and inner development.<sup>3</sup> The dominant belief is that salvation (self-salvation perceived as inner self-improvement) should take place here and now<sup>4</sup>. As for the method, two solutions are possible. In the first solution representatives of New Spirituality very

often say that some people have a greater chance for full transformation, whilst others lesser. As noted by James Beckford, one of the common features linking diverse contemporary religious and spiritual phenomena is the search for ways to individual liberation from socio-cultural constraints, which are unfavourable for discovering one's genuine personality and the release of individual potential (Beckford, 2003). Now and again the development story is a reminder of the three-way gnostic split into somatics (hylics), psychics and pneumatics. Pneumatics are spiritual people and fully initiated, psychics can become spiritualised in time (after developing themselves), and somatics are completely buried in worldly matters. The second solution is more *democratic*; it depends on the belief in an infinitely large number of *salvation paths* available to everybody. They only need to be discovered by seeking them out and attempting the process, which turns out to be the best and the most effective for a given individual. Simultaneously, Steve Sutcliffe's observation regarding spiritual seekers who are seeking appropriate paths to selffulfilment in relation to the needs of their own personality is interesting (Sutcliffe, 2003)

Christian mythology speaks of a cankered human nature, which previously was like the gods or Godlike. After the fall in Paradise (the myth being the basis of the concept of original sin) human nature was destroyed (Protestantism), or weakened (Catholicism, Eastern Orthodox Church), from which Christianity evolved the idea of sin being man's second nature. Many times during history, this view has been rebelled against, including by reference to ancient tradition or other portrayals rejecting such a pessimistic view of man (e.g. Friedrich Nietzsche). Soteriological processes, as depicted by New Spirituality start in a similar way, that is with the diagnosis of one's own nature, but further interpretations and proposed methods of salvation are somewhat different. Proponents of New Spirituality state that true or possible to realise human nature has been forgotten, smothered, unrecognised, or would be *blocked* by the dominating culture. As formulated on one of the eco-philosophical blogs, there has been a violation of the natural world and man himself. Thus the author of the blog postulates, citing Pierre Tielhard de Chardin and Henryk Skolimowski, that the alternative for industrial society's arrogant humanism, humanism must be green (www.ekofilozofia.blogspot.com). Consequently, various proposals using diverse *liberating* techniques have been put forward, which will be discussed later.

<sup>&</sup>lt;sup>3</sup> Here we see oriental soteriology's overpowering influences which, since at least the 18th/19th century have been impacting on European culture (Tokarski, 1984). One consequence of these interactions is, amongst others, the belief in reincarnation. According to CBOS (Public Opinion Research Centre) research from 2009, 12% of Polish society emphatically believes in the transmigration of souls, and 21% *sort of* believes (CBOS, 2009, p. 14).

<sup>&</sup>lt;sup>4</sup> In the works of Hermann Hesse, one of the New Spirituality *spiritual fathers*, a number of threads appear which New Spirituality will develop, such as salvation being life compatible with its nature in Narcissus and Goldmund (in the form of two development paths: the spiritual intellect and the sensual sphere), and the concept of selfdevelopment e.g. in Demian and Siddhartha).

Numerous ecological movements have undertaken to answer the question of who man is, predominantly with reference to his relationship with the natural environment, the so-called subjective realism. Anthropocentrism is rejected in favour of ecocentrism, biocentrism and ecohumanistic economics. Human

spirituality happens to be understood, especially in the mainstream Deep Ecology Movement, without taking into account theistic elements. For example, Lesław Michnowski (the creator of cybernetic ecodevelopment), referring to Al Gore's ideas, treats spirituality as the ability to feel empathy, that is compassion with the needs and threats of all entities on Earth, producing appropriate changes (i.e. sustaining life) by itself or through others, as well as intuitively perceiving their consequences (Michnowski, 1996).

The question of identity is also raised with regards to the man-animal relationship and also to research into artificial intelligence. In both cases *Homo sapiens* has been dethroned and no longer occupies a privileged place at the top of the Porphyrian tree. As an example, for many vegetarians the recognition/awareness of the value of an animal's life, not necessarily on par with human life, is an impulse to refrain from eating meat and to choose a new selfidentification, which can be paraphrased, not only in the statement I = man not eating aspects of life so similar to my existence, but also in I = man affirming the various aspects of life (Dyczewska, 2008, p. 121).

Nevertheless, a strong emphasis in the New Spirituality movements seems to be placed on one's own *self* – my wellbeing, my way, my place on Earth (in the Universe), my choices, or finally my salvation. Therefore, the sacro-egoism concept can be brought up in which that *ego* (myself) becomes the highest and the holiest authority for an individual (Knox, 2008). The transformation of the ecosystem begins with the transformation of one's own nature, so is specific self-sacralisation and *self-cultivation* (Taehyun, 2009) as well as *spiritual ecology* (Tucker, 2002).

### Second Accent: The nature of the world

Tendencies to desacralise nature are not unfamiliar to modern culture. Mircea Eliade believes that, when contemplating nature's majesty, contemporary man can be viewed as a degraded religious experience (Eliade, 1987). Within the activities of the New Spirituality movements, nature is treated as a window for that what is supernatural, this window is open, it is just necessary to look through it properly, which means - be equipped with the appropriate interpreting representations. Man himself becomes the most important creator of his own world, while simultaneously the accent falls on nature's role as master and guide (Zylbertal, 2010). Arne Naess, patron of Deep Ecology, summons to establish a closer contact with the environment (nature), because only there can emerge a distinct feeling of who I really am (Naess, 2008, p. 105). Nature, that which is on the outside of man, enables him to get to know himself and to fulfil tasks which we described in the first part.

Based on our analysis of numerous publications, it is often difficult to define sharp boundaries between that which is ecological and that which is parareligious. The respect which is bestowed on nature fluidly transfers itself into devotion, even without the authors' awareness. The concept of Gaia, Mother Earth, can serve as an example or by referring to Buddhism (Drengson, 1995). The followers of Deep Ecology themselves, frequently declare above admission. Janusz Korbel from the Pracownia na Rzecz Wszystkich Istot (Workshop for All Entities) in Bielsko-Biala (Poland), whilst discussing Bron Taylor's work stated:

the term "deep" and not "spiritual" ecology was introduced because people, who are followers of different religions and different philosophies meet on this level. They are afraid of religious terms, so as not to trivialise the basis of Deep Ecology to a pseudo-spiritual fashion of recent years, and also not to suggest any divisions. There is one nature which gives life to the followers of different religions (Korbel, 1996; see also Tylor, 1995).

Thus, the Earth, nature, the natural environment are regarded as the overriding value, which is expressed in the numerous ecocentric postulates (Metzner, 1991) and promulgated slogans, such as: Earth First! (Waloszczyk, 1996, p. 249-250). Ipso facto, man is one, not necessarily the most important, although in many respects unique, part of this world (Lynch, 2007, p. 36). Henryk Skolimowski, the creator of Polish mainstream ecophilosophy (ecological philosophy), author of numerous articles and books devoted to this subject, condemned the mechanistic view of the world and acknowledged life on Earth, which he treated as a life sanctuary (Skolimowski, 2003, p. 122; see also Dołęga 2006, p. 19). He summarised his views in a short sentence – To venerate God in our time is to save the Planet (Skolimowski, 1996, p. 21). Written with a capital letter, meant to him something more than an astronomical concept. Skolimowski advocates devotion and reverence for nature and the world, calls for the creation of eco-spirituality, because in today's age that which is ecological and that which is spiritual become the same (Skolimowski, 1996). Thus, in the New Spirituality movements, holism and monism are ubiquitous (Zamoyski, 2002, p. 147). A pantheistic understanding of God also appears, whilst the forces of nature, both from under the signs of Eros and Thanatos, can be regarded as God's manifestations (Cranwell, 2010, p. 280).

Recognition of the natural environment as a key value is associated with a new positioning of man in the world. As Leszek Gawor says:

On the one hand, man and nature are a unity, in the sense that the sociosphere is a special case of the biosphere, and therefore these two elements of reality cannot be considered oppositional. On the other hand, the natural environment here has a very wide connotation (...). In this context, the most important values are reverence for every manifestation of life, moderation in the use of the natural environment for human needs, and taking responsibility for man's presence in the natural world (Gawor, 2006).

The New Spirituality movements raise the global crisis issue in relation to various aspects. Ecophilosophy associates him with disturbing the ecological balance and breaching the resource regeneration of each ecosystem<sup>5</sup>. For some Deep Ecology followers, the attitude towards the future is marked with specific apocalyptic visions and prophecies of impending disaster (Hervieu-Léger, 2000). Thus, Deep Ecology movements primarily concentrate on what can/should be done first of all now and not in the future, since that is under a question mark (Naess, 1992, p. 612).

### Third Accent: Call to action

Certain actions, subjects and experts play an important role in sustaining each *sacred universe* in its particular manifestation. Here we would like to just briefly discuss the first of these manifestations, the action aspect, since this practical dimension seems to be extremely important for the New Spirituality followers. There are different ways of selfrealisation and self-improvement (frequently personalised, rarely communal). The diagnosis relating to the recognition of one's own (true) nature, described earlier, as well as recognising a specific state (redefinition of the natural environment) initiates actions with respect to both self-salvation as well as to overcoming the global crisis.

Amongst the mainstream Deep Ecology groups examples of practices similar to some neo-pagan movements can be found. These can be regarded as specific rituals whose aim is to change the attitude towards nature by rediscovering the lost unity. For example, the classes organised by the Workshop for All Entities from Bielsko-Biala, during which participants lie down on the ground in the forest, cover themselves with leaves, in order to then arise, symbolising their rebirth. A similar role is supposed to be fulfilled by embracing trees in order to synchronize and/or strengthen one's own energy with them, whilst the various tree varieties affect the human body through their specific properties in different ways. Such a tree energy actions list can be found in the first year Materials from forest usage class of the Technical School for Forestry in Tułowice. Amongst other things, we learn, that birch:

Bestows positive feelings, calms, and comforts. The birch's gentleness can be used to alleviate any psychological shocks and traumas. This tree contains energies which help to calm down, to free in a mellow manner negative emotions like anger, fear, wrath, they support efforts to control one's ego and facilitate contact with the higher self. The birch also helps to balance the masculine and feminine element, combining them in such a way so that they will function creatively (uzytkowanielasu.zafriko. .pl). We have now reached New Spirituality. The overall objective of these activities is the restoration of harmony, determined at the beginning of the world, because only it is able to provide us with a taste of true happiness (matkanatura.pl). Thus, it is not the breaking of connectivity with God but with nature, which is the cause of man's poor condition and various problems, whilst connecting to the energy of Mother Earth is a fitting antidote<sup>6</sup>

For the functional interpretation of the cultural phenomena, the role of many practices, known to us from Deep Ecology communities, is similar and is associated primarily with being involved/an active witness (Rappaport, 1999). Although there is no explicitly expressed myth behind these actions, in these workshops/rituals one can discern references mainly to the myth of lost unity. It should be emphasised that the Deep Ecology movements decidedly distance themselves from linking their missions with the religious sphere, using the term spirituality to describe the area in which their work with man is carried out.

Finally, the habitual high importance of science and its achievements in the New Spirituality movements should be emphasised. In many cases, the mystique is linked with physics e.g. within so-called. cybergnosis (Partridge, 2005). However, the belief in the unfathomable possibilities of science prevails, although so far not fully known to the end. This happens in the Raelian Movement, whose members believe in the Rael's (Claude Vorilhon) revelations, describing his contacts with extraterrestrials (the Elohim) and travel to their planet which was to take place in 1975. They also believe in cloning as a possibility to prolonging human life. One could say that this is a new story about man's eschatological dreams about the afterlife. This story is devoid of wonder and is *natural* in the sense that it does not refer to anything else, but only to knowledge and scientifically recognised processes and phenomena. The messages proclaimed by the

<sup>&</sup>lt;sup>5</sup> It should be noted that historic churches also raise issues related to ecology. Peter Beyer, describing religious environmental movements, distinguishes several types: *the spirituality of creation* (ecospiritualism) – stressing the holistic continuity between the human world and the natural world; *ecojustice* – concern about environmental issues linked to social justice issues; *ecotraditionalism* – the call for the renewal of religious traditions in the face of ecological crisis (Beyer 1994, p. 206-223).

<sup>&</sup>lt;sup>6</sup> Written with a capital letters, Mother Earth likens herself to a living entity. James Lovelock's Gaia hypothesis (1979) can be evoked here, about the unity of the Earth's ecosystem (living entity), as a specific biological unity of a higher order, capable of e.g. responding to climate change or human interference.
Raelians can be considered as a manifestation of a New Spirituality, which dispenses with the concept of the sacred. Extra-terrestrials are natural for them in the sense that they are not a *miracle*, whilst Raelian faith recognises them as an object of knowledge. We will consciously avoid the distinction between religious and nonreligious belief (faith), which clearly overlap here. The followers of this movement are convinced that in the future immortality will depend on trouble-free replication of personal DNA, for a given person (rael.org). Raelians however, do not stop at dreaming of futuristic vision, as is exemplified by the use of scientific methods in the implementation of espoused postulates; in this case the Clitoraid program affirms sexuality.

#### Conclusions

To the discussed New Spirituality we can include many different movements that are characterised by sometimes conflicting aspirations, from activities to enchant the world again (ecophilosophy) to the belief (faith) in the possibility of fully decoding nature's mysteries, maybe in the not too distant future (Raelians). Summarising the selected aspects of human - nature relationships, only outlined here, regarding movements under the banner of so-called New Spirituality, one may ask the question, why is this a new spirituality and in what way, in this context, would its old version be. This novelty is associated with a temporal caesura, whose origins can be seen in the ancient past, but with the twentieth century being a particular period of boom. The term New Spirituality refers primarily to a specific attitude, characterized by the awareness of the importance of one's (individual) existence and a solicitous mindfulness towards one's own selfimprovement and intellectual (analytical) approach to the subject of *faith* which may be *old*. New Spirituality often resurrects the rites rooted firmly in the past, such as e.g. shamanism or a magical view of the world. It is therefore not surprising that in such a wide range of different types of spirituality we see the animation of nature treated amongst other things as a soul of the universe, the source of cosmic energy or a life force (Herrick, 2003). But this is not a simple attempt to restore the bygone views of the world, which in itself seems to be impossible. The followers of this trend, on the one hand refer to the past, whilst on the other readily draw on the achievements of modern science, by being the initiators of very bold forward looking activities. Is by no means an uncritical gaze into the achievements of the modern world, but often an emphatic protest against the many already existing *patencies*. Hence in the New Spirituality movements, in the approach to what is natural, a specific dialectic becomes apparent. It is not a pure admiration (affirmation), so-called first nature, nor its negation through empowerment (Roberts, 2004). It is a specific synthesis of these two attitudes - a self-conscious individual who keeps a distance with respect to cultural achievements, whilst simultaneously does not want to/cannot overcome the distance which separates him, as a Homo sapiens representative, from that which he is accustomed to call nature. One could go a step further and define this so-called New Spirituality as postmodern spirituality. In addition, a specific shift of the element of the sacred becomes apparent within the mentioned divisions of the sacred - profane and nature - culture in the direction of the sacralisation of the profane and resacralisation of nature. This renewed enchantment, of nature occurs by the power of man, stripped of his enchantment, no longer demanding strong transcendental justification. Strictly theistic elements are rare or non-existent, and if present, are mainly within the framework of pantheistic and gnosticising cosmologies.

In our opinion, the reflections above, only scratched the surface of an interesting topic on the change in perception or feeling that which is holy by modern man. It seems pretty obvious that the concept of the sacred, as the basic category distinguishing the religious sphere, should be decidedly redefined. As we tried to show, some of the New Spirituality movements refer to the pre-Christian unity and sanctity of nature, placing the sacred within the realm hitherto defined as the profane world. However, another group of followers of these movements, completely *eliminate* from their vision of the world the traditionally perceived sacred (or at least its tremendum dimension), adding paramount importance to e.g. human cognitive powers or forces of nature. The latest, broad understanding of spirituality generates an anthropology project, in which it is possible for man to realise his greatness by means of self-development and which has not been determined by the context of historical religions. Let us mention, that it also happens that it is achieved by referring to syncretic ideas, merging selected religious elements with those extrareligious.

Not wanting to pass arbitrary judgements and remembering, that one person's sustainable activity is another person's unsustainable activity (Russell, 2010), let us finally consider, but not dwell on, to what extent the postulates of sustainable development can be applied to the rich offerings from the New Spirituality movements. A strong similarity can be seen on a general level, since both the sustainable development and the New Spirituality postulates have an alternative character to the dominant options; they identify practical goals which they regard as being of indispensable character, but most of all propose measures which are to lead to profound changes whose effect is to be, amongst others, the harmonisation of the coexist of homo sapiens with the environment. However, the starting point appears to be different, which for the sustainable development postulates is the human community, a *family of nations* (Udo, Pawłowski, 2010), whereas for New Spirituality an individual comes first. Yet, both these subjects, individual and collective, meet in a holistic (interdependent) vision of reality, pursuing *green metanoia* (Gawor, 2006).

This text served not only to describe certain, in our opinion, unusually interesting changes in the field of religiousness and contemporary mentality, but also to indicate areas for further research. A very general objective of the planned project is the attempt to investigate the understanding (construction) of the concept of nature, in different, often distinct New Spirituality groups. We are assuming that at their core lie certain anthropological and cosmological assumptions. Man and nature are interdependent concepts, having a strong relational character. Noteworthy are the constructive dichotomies for the man - nature relationship: natural antinatural (unnatural, artificial) and natural supernatural (spiritual, transcendental, extraterrestrial). Within the framework of this project our intention is to answer the general question, if there are common (basic) definition elements in the understanding of the human-nature relationship (and if so what are they), and which of them are specific and typical only for the selected groups. This opens further, specific research problems, such as those related with the semiotics of nature and assigned meanings by contemporary culture, and the functions fulfilled by New Spirituality - equally strictly religious and extra-religious, the cyber environment as a new environment, etc.

The methodology of this project will draw on the backing of qualitative research, both in terms of methods for data acquisition (in-depth interviews, participant observation, experiment), as well as data analysis (e.g. content analysis, the analysis of semantic fields of key words, analysis of biographical structure processes). Those wishing to be included in this project substantively, by providing their scientific work, please contact the Pracownia Badań Współczesnych Form Duchowości (Research Centre for Contemporary Forms of Spirituality), located in the Faculty of Humanities, AGH University of Science and Technology.

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# Selecting Sustainability Indicators for Local Community – Case Study of Milanówek Municipality, Poland

## Dobór wskaźników zrównoważonego rozwoju lokalnej społeczności na przykładzie gminy Milanówek

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#### Abstract

Actions for sustainable development at the local community level are the key elements of *Agenda 21* but they also prove to be a difficult challenge. The governance of this process needs sustainability indicators to assess changes in local socio-economic and environmental systems to date. This article presents results of research on the local sustainable development assessment in Milanówek Municipality in Poland. This is an attempt to use a mixed, reductionist-participatory approach to selecting sustainability indicators for one local community in Poland. The paper shows how to develop and use, at the time of broad theoretical debate on implementation of sustainable development strategies, a set of indicators helping us to shape the development strategy of a municipality to fully satisfy its requirements.

Key words: sustainable development, indicators, local communities

#### Streszczenie

Działania na rzecz zrównoważonego rozwoju na poziomie lokalnych społeczności są kluczowym elementem *Agendy 21* i zarazem niezwykle trudnym wyzwaniem. Do skutecznego zarządzania tym procesem, potrzebne są wskaźniki zrównoważonego rozwoju, które pozwolą na bieżąco oceniać zmiany zachodzące w lokalnym systemie społecznym, gospodarczym i środowiskowym. W niniejszym artykule przedstawiono wyniki oceny zrównoważonego rozwoju gminy Milanówek (woj. mazowieckie) jako przykład wykorzystania na polskim gruncie mieszanego, redukcjonistyczno-partycypacyjnego podejścia do doboru wskaźników zrównoważonego rozwoju społeczności lokalnych. Wyniki pokazują, że można podczas toczącej się obecnie szerokiej dyskusji teoretycznej nad zrównoważonym rozwojem wypracować i zastosować zestaw wskaźników pomagający kształtować strategię rozwoju gminy w celu jak najpełniejszego zrealizowania jej założeń.

Słowa kluczowe: rozwój zrównoważony, wskaźniki, lokalne społeczności

#### Introduction

The rules of sustainable development, promotion and implementation on the level of local communities are the essential elements of the *Agenda 21* programme (UN, 1993; Tuziak, 2010). Translation of the term *sustainable* into the Polish language itself proved to be problematic and brought many competitive proposals: the most popular *zrównoważony* (balanced) (Polish republic constitution), but also *trwały* (lasting) (Śleszyński, 1997), *sustensywny* (from latin *sustenso/sustineo* – sustain, maintain, withstand, nourish, last, etc.) (Janikowski, 2004), *samopodtrzymujący* (self-sustaining) or *ekorozwój* (ecodevelopment) (Borys, 1996). Translating the concept of sustainable development into an action plan for a community as well as local governance to meet the sustainable development objectives, are comparable, if not more challenging, for the local communities than the translation from English to the Polish language.

Many communities in Poland started implementing the rules of sustainable development with passing a resolution on a sustainable development strategy. However, in practice, local decision-makers' activity only begins from this step, because the tasks specified in a strategy must be then realized. Activities aiming at sustainable development as well as the key elements of the local social-environmental system should be systematically monitored. In such a case, indicators will remind local actors of the importance of the goals that are covered in the indicator set (Eckerberg and Mineur, 2003). This is why the sustainability indicator set, enabling assessment of changes in the municipality, should be developed. The diversity of local communities and the need for taking into account the given area characteristics while working on the local sustainable development makes it imperative for the local indicators selection to be specific for each community (Śleszyński, 2000; Valentin and Spangenberg, 2000). The diversity of approaches to sustainable development and its indicators (Eckerberg and Mineur, 2003; Reed et al., 2006; Niemeijer and de Groot, 2008; Solace Scotland and Improvement Service, 2010) also does not facilitate the development of a relevant monitoring system for polish local communities who are beginners in this area.

# Sustainable development management at the local level

*Think globally, act locally* – a popular phrase used in many contexts and coined by David Brower, founder of ecological organization Friends of the Earth, shows that actions at the local level have a key role in global goals achievement. Moreover, Jeffrey Sachs in his speech during the Central and Eastern Europe Environmental Economics and Policy Project conference in February 1995, while citing the important factors of transition in the Eastern European countries owing to which the market and democratic reforms went hand in hand with a significant improvement of the environment, mentioned the democracy in itself, particularly the creation of local government and transfer of power from the central to the local level (Sachs, 1995). The authors of the Agenda 21 were also aware of the magnitude that local action has on sustainable development. Among the basis for action in this program we find that participation and cooperation of local authorities will be a determining factor in fulfilling its objectives (Chapter 28.1.; UN, 1993). This document literally proposes to the local authorities a consultative process with their populations and development of a local Agenda 21 for the community' (Chapter 28.2.a.; UN, 1993). In the pages of Problems of Sustainable Development many authors emphasized the role of local authorities in achieving sustainable development as well (Tuziak, 2010; Udo and Pawłowski, 2011).

Managing sustainable development is a major challenge because it is rather formation of open processes and continuous learning than achieving settled results (Rammel et al., 2004). Because of that, systematic sustainable development monitoring is necessary for its proper management. The base cannot be a rigid definition of sustainable development because management is a social process of adaptation to changes of the surroundings according to pointed economic, environmental, social and institutional objectives. Thus, a sustainable development strategy should assume the possibility of making corrections of settled objectives and actions, even before the time assumed for such strategy realization expires, enabling the fastest possible adaptation to upcoming knowledge and methods (Rammel et al., 2004). A set of indicators is a tool which allows us to detect deviations from direction of development settled in the strategy by the objectives.

Indicators do more than describe current conditions or trends. According to McCool and Stankey (2004) they create understanding and insights about how systems operate, they suggest the nature and intensity of linkages among different components of systems, they provide decision-makers with opportunities to think at larger scales, and they offer more informed conceptions of how human actions affect different dimensions of the environment. (...) Well-designed indicators suggest implications of alternative policies, providing decision-makers with salient information when making choices. Moreover, indicators permit us to modify policies to address specific issues and, if necessary, enact new ones to fashion a more desirable future (Chiras and Corson, 1997). Thus, communities using them (or even trying to) would be more sensitive to inevitably upcoming changes in social, economic and environmental systems (e.g. decreasing size of the ozone layer).

Sustainable indicators are able to aid the evaluation of policy but also, and arguably more importantly, they are able to facilitate relationships between actors and act as a catalyst around which various contested meanings of sustainability can be evaluated (Holman, 2009). In previous years proposed ways of selecting indicators were often accused of vagueness. Moreover, a *top-down* methodological paradigm for developing and applying sustainability indicators at local scales by experts and then imposing them to local communities can antagonize stakeholders and make it impossible to use them, especially when they do not take into account important stakeholders' hierarchy of values (Eckerberg and Mineur, 2003). The process of designing indicators using a participatory approach, including local stakeholders participation, can improve communication and helps to create consensus even between potential opponents (Reed et al., 2006). Whereas indicators have made no progress with respect to specific policy actions, the benefits of the softer impacts of capacity building, the production of social capital and communication can be gained through indicator programmes (Holman, 2009).

It seems crucial in the process of selecting indicators at the local level to take into account a localization specificity, as well as the needs and aspirations of the concrete community (Śleszyński, 2000). Therefore, indicators should be individually selected for each municipality, and opinions from the public should be collected and considered before their implementation, e.g. through organizing public consultation (Valentin and Spangenberg, 2000). A participatory approach to selecting indicators carries educational values - stakeholders gain an understanding of what sustainable development is (Grodzińska-Jurczak et al., 2010). This is the first step on the way towards sustainable development and in the future it should produce effects, whose portrayal is made possible with the use of carefully selected indicators (Holman, 2009). Once designated, indicators have to be systematically monitored, which would enable, if needed, modifying a strategy or a policy or passing a new one to address appearing problems in a possibly short time (Rammel et al., 2004).

#### Case Study of Milanówek

In ascertaining that it is quite hard to find an example of effective management towards sustainable among Polish municipalities, development Milanówek Municipality - which has passed a sustainable development strategy - was chosen for the study. Milanówek's sustainable development strategy is much better in comparison to other development strategies in the Grodziski District (Mazowieckie Voivodship, Poland). The garden-town Milanówek has a current population of over 16 000 inhabitants, who have emphasized the need of environmental protection for many years. Milanówek's sustainable development strategy, passed in 2005, contains environmental, social and economic goals. The last chapter of this document is on a set of indicators for monitoring of the strategy's realization, however this monitoring is currently not being used.

The objective of this paper, the results of which are presented here, was to assess if Milanówek Municipality undertook effective action for sustainable development in 2004-2010. This article presents devising a proposition of the method of selecting indicators that employs a mixed approach, combining reductionist (top-down) and participatory methodologies. Enabling community participation was possible through conducting the survey addressing local sustainable development and its indicators. We show below examples of indicators' values analysis serving an assessment of the Municipal actions and a verification of the sustainable development strategy, as well as the most important conclusions from the synthetic analysis, summing up conclusions from interpretation of all the indicators' values in our set. In some way, this counteracts prevailing – according to Borys (2011) – disintegration in previous researches on sustainable development.

#### Monitoring of Milanówek's sustainable development strategy

Maintaining and improving the current gardentown character of Milanówek has been set as the main goal in Milanówek's sustainable development strategy. Operational programmes and set of indicators were settled for six strategic goals, subordinated to the main one (Table 1). Nevertheless, description of these goals, programmes and indicators do not form a consistent system.

To date, systematic monitoring of the town development using set of indicators proposed in Milanówek's strategy was not carried out, even though the strategy was passed 6 years before and was already actualized (without indicator analysis). Moreover, it was not possible for the Municipal Office to collect data needed to calculate indicators' values between December 2010 – April 2011, and many indicators were imprecisely defined (e.g. rate of built sewage system – is it a rate of built sewage system length to projected sewage system length or a percentage of inhabitants using sewage system?). There are no hints for interpretation of the indicators' values: no desired values or directions of changes were defined.

Poorly defined goals do not make dispelling doubts easier. E.g. description of the 4<sup>th</sup> goal *Constant care of inhabitants* high level of life' suggests that authors of the strategy have taken into account the problem of authorities not caring in this respect enough, not the problem of inhabitants' level of life itself.

#### Strategy realization analysis

To make the management of sustainable development in Milanówek Municipality effective, the proposed indicator set needs to be improved. The scheme of the adaptive learning process for sustainability indicator development and application (Reed et al., 2006) is very helpful for work on indicators, so the analysis presented here was conducted on its basis.

No	Strategic goal	Indicators
1	Modernization of the	- number of interruptions in electric energy supply,
	town - Making	- rate of built sewage system in the town,
	Milanówek's moderniza-	- number of households with gas supply,
	tion actions faster	- number of households with fast Internet connection,
		- number of unpaved streets.
2	Ecology – Improving the	- number of issued permits for cutting healthy or dead trees,
	level of local authorities',	- number of trees that underwent conditioning cuttings in a given year,
	business' and inhabitants'	- percentage of green areas,
	actions for sustainable	- length of water flows renovated,
	development of the town	- percentage of wastes segregated,
		- number of wild waste dumps,
		- percentage of the Municipal budget used for environmental protection,
		- class of water purity in reservoirs and water flows.
3	Culture, tourism, recrea-	- resources from the Municipal budget spent on tourism,
	tion – Development of	- number of cultural and sport events in a given year, including co-organized with the
	cultural, touristic and	district,
	recreational functions of	- number of extra-school computer courses for Milanówek's inhabitants organized in
	the town based on local	a given year,
	tradition and history	- total length of tourist routs in the town, including cycle paths,
		- total circulation of touristic promotion brochures,
		- number of sport complexes offering free entrance for youth,
		- number of places to stay,
		- number of overnight stays.
4	Inhabitants – Constant	- drinking water quality parameters,
	care of innabitants high	- percentage of Municipal budget reserved for educational investments,
	level of file	- number of people enjoying the town's cultural other in a given year,
		- mean living area per innabitant,
		- unemployment rate,
		- number of crimes, such as, beatings, robberies, burgianes to nouses and apartments,
5	Citizen society For	cal lifetis.
5	mation of citizen society	- number of neonle being a member of nongovernmental organisations
	mation of citizen society	- number of people being a member of nongovernmental organisations,
		units' work
		- number of inhabitants participating in the meetings with local authorities in a given
		vear
		- percentage of inhabitants participating in the cultural and sport events
		- number of Citizens' Initiatives
6	Enterprise – Development	- percentage of Municipal budget reserved for economic promotion
Ĭ	of New business ventures	- resources spent on equipping investment areas with necessary utilities
	in Milanówek and	- average time for obtaining a building permit.
	strengthening existing	- number of firms in the town.
	firms	
	tirms	

 Table 1. Monitoring of the sustainable development strategy's realisation indicators from the strategy passed by the

 Milanówek Municipal Council in 2005 (author's own work, based on RMM, 2009)

Analysis of the indicator set was carried out using criteria listed by Holman (2009): (1) measurability (including here available data for 2004-2010), (2) validity in given case and (3) transparency for the local community. The first stage of the analysis was to reject indicators for which data are not available or which had been so imprecisely defined, that it was not clear what data should be collected to calculate them. Then, looking for indicators that could replace rejected ones or complete gaps in other themes in the set, and for which data were available (mainly asking for data in Municipal Office and looking into Main Statistical Office's Local Data Bank database). Indicators related to the rate of achieving strategic goals and to the most important circumstances of the town development that might signalize the need for urgent new town

policy were acknowledged as valid in Milanówek case.

Presenting indicators' values and their eventual changes in comparison with average values for the voivodeship and their trends makes interpretation of ongoing changes in the Municipality easier (Telega, 2009). This is why data availability for all the other municipalities in the voivodeship became an additional criterion. For some indicators it was not possible to meet this criterion, for others it was pointless because of the specificity of garden-town Milanówek. We included into a questionnaire 41 potential indicators chosen in this way, including, when appropriate, some indicators from the original set retained without any changes. The questionnaire contained 20 open- and close-ended questions related to understanding of the sustainable development

term, priorities in the town's development, proposed sustainable indicators, respondents' opinion about the town and about the Municipal Office. In the most important part of the questionnaire respondents were asked to assess on a scale from 1 to 5, how important is it for them to include a given indicator into the set for monitoring. Owing to assessments and comments given by the respondents, selection of the most transparent and valid indicators according to the local community succeeded. The survey was conducted on inhabitants of Milanówek through auditorium and individual interviews and a questionnaire published in the Internet. Inhabitants well oriented in the Municipality situation and potentially having an impact on the town policy (local authorities, councilors, local nongovernmental organizations' representatives, businessmen, officials) were targeted as respondents. At the same time, the questionnaire was published at the Milanówek Municipal Office's webpage. In practice, every person interested in the town management policy could freely express his/her viewpoint. 100 filled in questionnaires in total were obtained.

The process of selecting indicators is open-ended. In case of changes in the strategy or new opportunities arising, e.g. obtaining access to additional data, the set might need to be modified again. Due to the high diversity of themes indicators were supposed to be related to, we did not use a unified scheme for indicator selection, but separately analyzed the inclusion of each indicator into the set. The set proposed in the strategy contained over 30 indicators. To keep the set accessible this number should not be much exceeded. Accessibility is a very desired feature of sustainable development indicators sets - monitoring, as we mentioned, can have the educational value as well, whereas lengthy and complicated reports would rather not be gladly read, neither easily assimilated. To improve readability, key indicators were pointed out and four thematic groups of indicators were appointed: environmental, social, institutional and economic. Examples of indicators' values analysis for each of four groups will be demonstrated below.

#### Results

#### *Example 1 – tree stand*

The conclusion from the analysis is that Milanówek's community regards *percentage of wastes segregated*, *percentage of inhabitants using sewage system* and *number of trees planted during given year in the town* as the most important indicators among environmental ones (their average assessment is above 4-4,25; 4,25 and 4,04, adequately – on the scale of importance from 1 to 5). These indicators cover fields the Municipality has actively supported for many years. The segregated wastes' collection system is very well organized here. Subsequent sewage system's segments are systematically, however slowly, finalised. The Municipality plants trees and propagates planting trees among its inhabitants throughout many actions of sapling distribution for a competitive price, as well as planting trees according to custom, for the memory of important people or significant events in the local history. In the strategic goals' description one can find such directions like *building a sewage sanitary and rainwater systems* and *designation of an effective model for cutting trees control* (RMM, 2009).

Milanówek is exceptional in terms of tree stand, so values of indicator covering it will not be compared with other municipalities of the Mazowieckie voivodeship. In Milanówek's strategy two indicators connected to this topic were proposed: number of issued permits for cutting healthy or dead trees and number of trees that underwent conditioning cuttings in a given year. Number of issued permits for cutting, was more or less at the same level during the 2004-2010 period (the data obtained from Milanówek Municipal Office, on request). However, it does not mean that the number of trees in Milanówek is not decreasing and *there will be new* sufficient growth (Kośmicki, 2009). The optimal value, constituting a reference point, would need to be found. As long as this is unknown, the value of the indicator cannot be interpreted. Yet, making use of the precautionary principle, it can be assumed that an increase of the number of issued permits would be perceived as negative. Additionally, the number of issued permits is only an approximation of the number of trees actually cut in the town, because it does not capture trees cut without any permits - illegally in the Polish law, trees younger than 10 years old and trees at the forest plots, but we can presume they are rare cases, omission of which would not considerably change the results of the analysis.

Because the local community cares about the forest character of the town, it would be valid to construct an indicator entailing number of planted trees and number of cut trees. Difference of numbers of trees in the open-access and housing estate areas (loss minus planted trees) can be found in the Local Data Bank (BDL GUS, 1995-2010), however it is not a valid indicator for Milanówek because there are very few open-access and housing estate areas in the town. Furthermore, simply counting a difference of the two numbers might be misleading. If someone cut a 30-year-old tree and in exchange for it planted a 2-year-old sapling, the difference (loss minus planted trees) would equal zero, whereas in fact greenery of the town would decrease because there would be a much smaller tree. Moreover, we are not sure if the sapling would take root and live up to 30-years of age (furthermore, trees younger than 10-years old can be cut without any permit). If the park-forest character of Milanówek is to be

maintained, the proportion of cut trees and planted trees should, in the long-term, remain at a certain sufficient level, but without long-term research or data from many years in the past, this level cannot be determined. So, we suggest collecting data on a number of planted trees and the issued permits, whereas *number of trees planted in a given year* is the key indicator for the time being, because it was assessed higher by the respondents. Unfortunately, the Municipal Office keeps data on trees planted only by the town and cannot require reporting number of trees planted on private land, however inhabitants might do this on a voluntary basis. For now, we recommend to make use of what is available, even if it is only an approximation.

The binding Polish Nature Protection Law allows making the issue of a permit for tree or bushes cut conditional on replanting trees or bushes to the place given by the administration body issuing this permit or exchanging them by other trees or bushes, at least as many as cut ones. If the optimal value of the indicator was defined, Milanówek could use it to manage the town's greenery in such a way that tree stand would be maintained in the long-term. According to the opportunity given by the law, making the issue of a permit for tree cutting conditional on planting proportionally as many trees as is the optimal value of the indicator would be enough to maintain current tree stand character.

#### *Example 2 – health service*

In the case of social indicators, respondents regarded indicators on health service important. Among them number of basic health service consultations per inhabitant gained the highest average assessment of the respondents, which was sixth in the entire ranking. Respondents' comments on it claimed that more important could be number of medical specialists working in Milanówek per inhabitant. We can add that time that medical specialists work in Milanówek would be more adequate. It is hard to say if the community as a whole would support this change. It can be considered in the future (this would require further research), but in the current study we included in the final set of indicators number of basic health service consultations per inhabitant as a key indicator. Two others, number of pharmacists per inhabitant and number of people per pharmacy, were averagely assessed as much less important (student t test for independent groups gives statistical basics to reject the hypothesis that a mean mark of the two indicators is equal to a mean mark of number of basic health service consultations per inhabitant), and therefore they are not included in the set.

The number of basic health service consultations per inhabitant in Milanówek in 2005-2009 was decreasing (Fig. 1). We assess this fact as a negative one because most probably it means that less and less inhabitants go to a doctor close to their

place of living. It might also indicate better health in this community, and in this case we should assess this change as a positive one, but there is a lack of arguments explaining such considerable improvement in comparison with the voivodeship. Less inhabitants go to the local doctors perhaps because the local clinic was a few years ago overcrowded (more consultations per inhabitant in voivodeship; one respondent's proposition to monitor number of people per clinic suggests it too), so some inhabitants chose another clinic. Perhaps an increase of the indicator value after 2003 is connected to the abolishment of inhabitants assignment to local clinics, which occurred in this year. It could be that the clinic in Milanówek had a good opinion among patients then, so the number of patients increased, but during the following few vears patients started to resign from this clinic because of overcrowding and chose other clinics. which in the meantime had improved the quality of their services (subjective feeling of the author of this text, who was a patient of the clinic in Milanówek too, patients' opinions changed in this way). This might mean that the quality of the basic health service in Milanówek, or maybe rather an access to it, decreased in comparison to surrounding clinics.

Figure 1. Number of basic health service consultations per inhabitant in Milanówek and Mazowieckie Voivodeship in 2004-2009 (Gutowska, 2011)



#### *Example 3 – European Union Funds*

The indicator *funds gained by the Municipality from the European Union per inhabitant* was assessed as not only the most important among institutional ones, but also as the most important among all indicators assessed in the survey (average assessment 4,48; standard error of mean 0,081). Respondents stated that Milanówek gained much less from the EU funds in comparison to other municipalities (BDL GUS data confirm it) and this is a weakness of the town. However, there were also comments reflecting acceptance to the situation, saying that Milanówek's applications are rejected because *it is not a rural area*, as well as because *a lot of people work outside the town*. One of the respondents explained that the EU funds can be gained particularly *for sustainable purposes* and every activity funded by the EU *requires meeting standards, besides the environmental standards* and *has to be followed by compensation to nature if it was harmful in some way*, so this indicator is unavoidably valid for measuring sustainable development. *Intensive usage of the EU funds*, is mentioned in the strategy as well, among other action directions under strategic goals (RMM, 2009). We point this indicator as a key one for the development of the town.

In the period between 2006-2009 the EU funds gained by the municipalities in Mazowieckie Voivodeship per inhabitant were much higher than gained by Milanówek (even without including cities with district rights, which were clearly leading in this respect; BDL GUS, 2009). Also neighboring municipalities gained more funds per inhabitant (BDL GUS, 2009). The value of this indicator is assessed as negative, but the trend, which was increasing faster than in other municipalities in the voivodeship can be assessed as a positive.

#### Example 4 -development plans

Development plans apply to a large extent to all four aspects of sustainable development, which we adopted to highlight: environment, economy, social and institutional dimensions. Therefore, their monitoring might be more beneficial for sustainable development than indicators applying to only one or two aspects. *Percentage of area, for which valid local development plan exists* was included to the group of economic indicators, because the local development plan's provisions determine the profile and existence of local economic activities and in the author's opinion are most important in this aspect.

Percentage of area, for which valid local development plan exists is the one and only indicator from the economic group assessed averagely higher than 4. Comments on it contained opinions that current plans are not the best in terms of merits, that percentage of area covered by plans does not bear witness to sustainable development, yet its provisions do, too much area is automatically reserved for economic activities, whereas reckless area allocation for services causes interruptions in the town architecture (supermarkets, garages) and this plans are not subordinated to the garden character of the town (blocks of apartments). Therefore, sustainable development rules should be followed in local development plans, in which Milanówek's strategy can help: the plans should be consistent with the strategy. One respondent simply suggested to use indicators considering the plans' provisions, e.g. part of area reserved as biologically active in the plans. This proposal and similar ones are worth considering, yet currently, when less than half of the town area is covered by plans (16,3%), it seems

to be more appropriate to generally design more plans, although it would be better if they were immediately robust, preceded by a nature inventory and met valid standards. This indicator's significance could weaken in future and perhaps then the respondent's proposal might be appropriate.

Since 2005 valid local development plans exist only for 16,3% of Milanówek Municipality area. Unfortunately, we could find the value of this indicator only for the year 2009 for the Mazowieckie Voivodeship (28,5%), but even knowing only this we can state that it is much higher than for Milanówek. We assess this indicator value for Milanówek as a negative one, and its retainment at a stable level does not testify the town's activities to be developmental.

#### Synthetic analysis

Table 2 presents the synthetic analysis, enabling to asses if Milanówek was developing according to sustainable development rules in 2004-2010. 15 out of 30 indicators' values give evidence to assess changes in aspects captured by strategic goals as positive (progress), including 8 out of 10 key indicators, whereas only 7 give evidence to assess these changes as negative (exacerbation). 3 indicators' values, including 2 key indicators, remain stable, yet for 5 indicators the direction of the changing trend cannot be defined.

While assessing Milanówek's development in four aspects of sustainability, the development in the social aspect looks the best and institutional aspects looks the worst. Few environmental indicators' values give evidence of exacerbation, however all the key environmental indicators give evidence of progress. In terms of economic development the situation looks a bit worse. However, it has to be mentioned that almost all indicators included in the set refer to more than one of the four aspects, thus analysis for the whole groups should be treated very carefully. Therefore, we recommend presenting each particular indicator's values rather than synthetic analysis to the inhabitants in the yearly reports.

Based on the analysis, we can recommend undertaking actions considering strategic goals in which Milanówek's results were the worst. To generally specify, these are: trees, electric energy consumption, wild waste dumps, administration costs and local entrepreneurships' condition. Work on local development plans is also recommended.

Comparison of Milanówek's development with an average municipality's development in Mazowieckie Voivodeship in the aspects of the Municipality's strategic goals was possible for 16 out of 30 indicators. 9 among them indicated a higher progress rate for Milanówek than the average voivodeship progress rate, 3 showed exacerbation compared with the voivodeship, whereas for 2 indicators the trend of changes reflected the voivode-

		Indicator's value trend assessment				Trend assessment in comparison with aver- age municipality in Mazowieckie Voivode- ship				
Lp.	<b>Milanówek's sustainable development indicators (SDIs)</b> (key indicators in bold)		exacerbation	indicator value remaining stable	no well-defined trend <sup>1</sup>	progress	exacerbation	the same as the voivodeship trend	cannot be defined	
	ENVIRONMENTAL									
1	percentage of inhabitants using sewage system	1				1				
2	number of trees planted in a given year within town's	1 <sup>2</sup>							1	
	area	1							1	
3	percentage of waste segregated	1				1				
4	percentage of area being biologically active within town's			1					1	
5	area									
3	percentage of municipal budget spent on environmental protection	1						1		
6	number of issued permits for cutting trees in a given year		1						1	
7	difference between the number of trees in the open-access		-						-	
,	and housing estate areas (loss minus planted trees)				1				1	
8	percentage of the open-access and housing estate greenery	1				1				
	areas within town area	1				1				
9	percentage of drainage ditches renovated in a given year				1				1	
10	water consumption in a household per inhabitant	13					1			
11	electric energy consumption per inhabitant		1						1	
12	number of wild waste dumps within town area	6	1	1		2		- 1	1	
ENVIRONMENTAL SDIS IN TOTAL 6 3 1 2 3 1 1 7							/			
12	SOCIAL									
13	access reserved for students' use in primary schools and gymnasiums	1				1				
14	number of crimes against life and health per inhabitant	1				1				
15	number of basic health service consultations per inhabitant		1				1			
16	number of cultural and sport events in a given year	1							1	
17	living floor space per inhabitant	1						1		
18	number of crimes per inhabitant	1				1				
19	number of crimes against property per inhabitant	I				1				
20	number of foundations, associations and social organizations				1				1	
21	population in no-working age per 100 inhabitants in working age				1				1	
22	population in post-working age per 100 inhabitants in pre- working age		1			1				
	SOCIAL SDIs IN TOTAL	6	2	0	2	5	1	1	3	
ISTITUTIONAL										
23 funds gained by the Municipality from the European 1										
	Union per inhabitant	· ·				1				
24	turnout (in local authorities, presidential, Polish and EU parliamentary elections)				1 <sup>4</sup>				1	
25	public administration costs per inhabitant		1				1			
	INSTITUTIONAL SDIS IN TOTAL	1	1	0	1	1	1	0	1	

Table 2. Summary of the development of Milanówek assessment in 2004-2010 using sustainable development indicators (Gutowska, 2011)

<sup>&</sup>lt;sup>1</sup> Coefficient of determination  $R^2 \le 0,1$ . <sup>2</sup> Without the indicator's value for the year 2004. <sup>3</sup> The municipalities in Mazowieckie Voivodeship without cities with district rights. <sup>4</sup> Trend cannot be defined for this indicator because of the too short time period the research relates to.

		Indicator's value trend assessment				Trend assessment in comparison with aver- age municipality in Mazowieckie Voivode- ship			
Lp.	Milanówek's sustainable development indicators (SDIs) (key indicators in bold)		exacerbation	indicator value remaining stable	no well-defined trend <sup>1</sup>	progress	exacerbation	the same as the voivodeship trend	cannot be defined
	ECONOMIC								
26	percentage of area covered by valid local development plans			1					1
27	percentage of roads paved	1							1
28	proportion of Municipal income from CIT taxes in total Municipal income		1						1
29	percentage of service entrepreneurs			1				1	
30	proportion of registered unemployed in working-age popula- tion	1						1	
	ECONOMIC SDIs IN TOTAL	2	1	2	0	0	0	2	3
	ALL SDIs IN TOTAL	15	7	3	5	9	3	4	14

ship changes. Among 10 key indicators, 5 give evidence for higher progress rate of Milanówek than the voivodeship, 1 had the same rate as the voivodeship, whereas for 4 of them such comparison was not possible.

Based on the analysis, we can assess Milanówek's development in the spheres described by the strategic goals of it's sustainable development as faster than average in the voivodeship. However, it should be kept in mind that exacerbation in comparison with the voivodeship happened in terms of some aspects important for Milanówek's development, as well as the fact that for as many as 14 indicators such comparison was not possible or appropriate. Exacerbation in comparison with the average municipality in Mazowieckie Voivodeship was indicated for: water consumption per inhabitant, public administration costs and number of basic health service consultations per inhabitant. This signalizes that actions in aspects captured by these indicators should be urgently undertaken.

#### Conclusions

Inhabitants who spoke on the indicators in the survey valuably contributed to the analysis of this study. To a large extent their comments helped in identifying the directions of further work on the sustainable indicator set (details in Gutowska, 2011). Moreover, if the local community considered selected indicators as of little importance or they were not transparent for local users, there is a high probability that they were not used for systematic monitoring and managing municipal development (Reed et al., 2006). *Need for acceptance and public participation assumption is a manifestation of practical use of sustainable development* (Gro-

dzińska-Jurczak et al., 2010). For these reasons enabling local community participation in sustainable indicators' selection process should be obligatory. Selecting sustainable development indicators for a municipality requires many compromises. Lack of available data limits us to the highest extent in this process (Tuziak, 2010), which hampers designing and functioning of sustainable development monitoring (Solace Scotland and Improvement Service, 2010). In the case of Milanówek we fulfilled the work that enabling us to make a general assessment if the municipality undertook effective actions for sustainable development in 2004-2010, however it is known that this set of indicators requires permanent improvement. Referring to the adaptive learning process for sustainability indicator development and application scheme (Reed et al., 2006), we almost realised the first cycle of the process. As new potential indicators were identified during the work, they require evaluation with user groups and preceding further steps of the process. Yet, thanks to the work done to this date, the strategy can be corrected by the municipal authorities, making use of the conclusions from up-to-date work on the indicators. Thus, it is possible to finish the first cycle of the process and realize management of the town's sustainable development now.

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<sup>&</sup>lt;sup>5</sup> For data from BDL GUS we do not give a year of publication (no information on it in the database), but a year the data used relate to. In case of using separate values in the text, we give a year that the value used relates to. In the chart's description we give the last year that the data used relate to. In our text we use only annual data.

# Polish planners' attitudes towards citizen participation

# Polscy urbaniści wobec partycypacji społecznej

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#### Abstract

In the Polish spatial-planning system, planners are situated between the citizens, developers, local authorities and non-governmental organizations. Such a unique position gives them an opportunity to promote and stimulate the cooperation between the most important local players in order to reach constant and sustainable development of a given territorial unit. A question arises here: how does citizen participation look in practice? This paper looks for the answer by presenting selected findings of a survey conducted with Polish planners in 2010. The results suggest that planners are aware of the need for public involvement in the planning process though they have some doubts about the real effects of such involvement. The planning practice proves that citizens first of all require satisfaction of their private interests, local authorities care mainly about the current political advantages and the planners lack the power and appropriate knowledge to conduct the public consultation process. The survey points to the need for improvement of the citizen participation in Poland.

Key words: planning, planners, citizen participation, Poland

#### Streszczenie

Szczególna pozycja urbanistów daje im możliwość bezpośredniego kontaktu z najważniejszymi uczestnikami procesu projektowego: mieszkańcami, inwestorami, władzami samorządowymi i organizacjami pozarządowymi. Mając na względzie potrzeby trwałego i zrównoważonego rozwoju danej jednostki samorządu terytorialnego, planiści winni promować i stymulować współpracę między różnymi podmiotami polityki samorządowej w dążeniu do zaspokojenia potrzeb i aspiracji społeczności lokalnej. Czy jednak tak się dzieje? Jak w praktyce wygląda proces partycypacji społecznej? Poszukując odpowiedzi na te pytania w artykule przedstawiono wybrane wyniki badań ankietowych przeprowadzonych wśród polskich urbanistów w 2010 r. Wskazują one, że planiści dostrzegają potrzebę angażowania społeczności lokalnych w proces projektowy, chociaż mają wątpliwości co do rzeczywistych efektów partycypacji społecznej. Zdaniem urbanistów mieszkańcy oczekują przede wszystkim realizacji swoich prywatnych interesów, władze samorządowe kierują się potrzebą realizacji bieżącej polityki lokalnej, a samym urbanistom brakuje *siły przebicia* i odpowiednich umiejętności do właściwego prowadzenia konsultacji społecznych. Z badania wyłania się potrzeba jakościowej zmiany procesu partycypacji społecznej w Polsce.

Słowa kluczowe: urbanista, planista, partycypacja społeczna, Polska

#### 1. Introduction

The cardinal rule, which governs shaping of the spatial policy in Poland, is preserving spatial order and striving for sustainable development (Act, 2003). In this instance, one should comprehend the spatial order as the formation of space, which makes harmonious whole, and in orderly relations fulfils all functional, social, economic, environmental, cultural as well as compositional and aesthe-

tic conditions and requirements. In turn, the definition of the sustainable development, among other things, indicates the need of integrating political, economic and social undertakings while preserving natural balance and durability of the fundamental natural processes (Act, 2001). The paradigm of spatial planning, comprehended in this way, imposes significant obligations upon the urban planners related to ensuring constant development of the country and makes them responsible for the broadly defined human habitat. Therefore, planners became the subject of this paper – after all, their attitudes and opinions largely influence creation of spatial order and implementation of the sustainable development assumptions.

# 2. Citizen participation as a condition of the sustainable development

The notion of sustainable development is related to numerous challenges encountered in the natural environment, society and economy. Environmental sustainability aims at maintaining biodiversity and ensuring the capability of ecosystems' constant renewal, social sustainability reflects the relationship between the activity of individuals and social norms (given type of activity may be considered sustainable if it does not go beyond social norms in a given local community), whereas, economic sustainability requires that the value of the benefits to the society in question exceed the costs incurred and the worked out capital to be handed down from one generation to the next (Bass et al., 1995). Sustainable development programs, projects and strategies carried out all over the world, both in the developed and developing countries, indicate clearly that participatory approach is necessary in all areas mentioned: without it, permanent consensus between the needs of the environment, society and economy, is not possible<sup>1</sup> (Hague, 2004).

The relationship between the sustainable development and democracy is also the subject of deliberations presented in *Problems of Sustainable Development*. For example, H. Ciążela, who analyzes fundamentals of sustainable development from the philosophical perspective, pays attention to positive dimension of democracy, which means taking responsibility for the community life (Ciążela, 2009). This responsibility covers both community existence in the present form and ensuring appropriate life conditions to future generations and – provided it is treated seriously by the politicians – it may have tangible results.

On the other hand, Z. Piątek, who responded to charges brought by the exponents of the liberal capitalism or traditional humanism against the supporters of the sustainable development (including in particular environmentalists and ecologists), which indicate the hazards to human freedom and democracy due to excessive concentration on the environmental issues, states that only reasonable management of the Earth, i.e. balance between the development of anthroposphere and biosphere may ensure accomplishment of our humanity (Piątek, 2011). Thus, treating Nature with respect does not pose any hazard to neither humanism, nor democracy, nor freedom.

L. Gawor goes a bit further in his deliberations and comments on the provisions of the Johannesburg Declaration (UN, 2002), he notices that just, democratic society is a warranty of achieving sustainable development, which is entirely in favour of the civil society (Gawor, 2010). Thus, planning and taking action in the environment should be characterized by the multilateralism - no one can be excluded from this process, and everyone should be required to act for the benefit of the future of the humankind. Finally, R. Janikowski states that sustainable development is a multi-level process, which means that improving quality of human life should take place due to creation of the social, economic, ecological, spatial as well as institutional and political order (Janikowski, 2009). This approach is close to spatial planning, which in fact, is an interdisciplinary field. Any action undertaken in the space has its consequences in the environment, economy and society, and it requires socializing of the decisionmaking processes.

In the town planning, the idea of sustainable cities is a response to the challenges of the sustainable development. Behind this idea, the cities must be once again set in their ecological and cultural context, and their dwellers should be actively involved in the process of municipal resources planning and management. These sustainable, and simultaneously, democratic municipal systems, are characterized by limited environmental impact and higher quality of life (URBACT, 2008).

However, several important conditions must be met for the urban governance to respond to the challenges of the modern times. Most of all, the key issue is the above-mentioned balance between the environmental, social and economic needs of the present citizens and the future generations. Moreover, good urban governance should be of subsidiary nature (it should allocate resources and competences possibly most closely to the recipients, which ensures effective handling of resources), it should guarantee equal access to resources, it should be efficient (in particular with regard to offered services), it should be transparent and corruption free, it should ensure safety of inhabitants and environment, finally, it should propagate civic attitudes and care for public interests by enabling participation in the decision-making processes to all citizens (UN-HABITAT, 2002).

Yet, what is citizen participation? It is a systematic process during which citizens, developers, various experts, clerks, officials and non-governmental organizations can share their experience, knowledge and opinions in order to prepare com-

<sup>&</sup>lt;sup>1</sup> As is stated by D. W. Pearce, sustainable development is a process which spans entire society and each function we serve in it: as citizens, parents, children, students, clerks, teachers, entrepreneurs and employees; sustainable development is neither an automatic process, nor may it be forced by authoritarian government – it must be worked out by means of partnership and consultation between individual players functioning in a given space (Pearce, 1994).

mon plan of action (Jakubowski, 2001). In case of spatial development, such common plan of action is the land development plan, which – in accordance with the participatory urban governance and communicative planning (Healey, 1997) – must be prepared by way of public consultations, participated by all groups of citizens (including in particular the poor, marginalized or excluded), it must refer to the public vision of city development, and finally, it must emphasize the public interest. This approach is accurately described by S. Narang and L. Reutersward: *planning is thus no longer about plans. It is, and must increasingly be, about people* (Narang and Reutersward, 2006, p. 8).

#### 3. Citizen participation in the Polish spatial planning system

The system transformation, taking place in Poland for the past 20 years, aims at (among other things) empowering local communities through continuous extending of the impact the citizens have on the local government policy. Starting from the *Local Government Act* dated 1990, through the *Constitution* dated 1990 and the administration reform of 1990, and finishing with *Act on Access to Environmental Information and its Protection, Public Participation in Environmental Protection and Environmental Impact Assessments* dated 2008, local communities gain increasing number of tools enabling their impact on the local government policy.

Spatial planning is an extremely significant element of this policy, it also undergoes the process of gradual democratization. Recent amendments of the legal acts regulating spatial development, reinforce three basic forms of public involvement in the design process<sup>2</sup>: submission of requests, providing the public with the right of access (including public discussion, in force since 2003) and submission of remarks and reservations (until 2003 classified as protests and charges). This scope of public participation is assessed in different ways. Some researchers say, that it does not guarantee real cooperation between the citizens and the local authorities in shaping the spatial policy, that it only gives the appearance of the democratic procedures (Hirt and Stanilov, 2009). Some other say that the planning process involves the local communities sufficiently, however, we do miss good local government practices (Damurski 2010, Parysek, 2010). Nevertheless, all of them agree that regardless of the legal regulations in force, public participation in the decision-making process is low, and Poles lack citizen competences (Sułek, 2009).

Who can participate in the spatial planning process? In accordance with *the Land Planning and Development Act* dated 27 March 2003, (Journal of Laws /Dz. U./ No 80, item 717 as amended), which is currently in force, everyone may submit a request or remark to the prepared land use plan or the local land development plan. In order to systematize the wide range of participants involved in the space decision-making process, for the purposes of this paper, they have been divided into four groups, related to their interests. These are the local authorities, citizens, developers and non-governmental organizations<sup>3</sup>. Each of them has a bit different view on the issue of local development, they have different knowledge and manner of assessing reality, thus, it is impossible to specify one social vision of development for a given place (Bass et al., 1995).

The conditions of the spatial policy presented here lead to a conclusion that urban planners play a special role in the citizen participation process. Their positioning between the authorities, citizens, developers and other local space players, allows for direct observation of the relationships on the local level, whereas, their legal empowerment enables application of the democratic procedures while making spatial decisions. In addition, it is worth remembering, that among the tasks assigned to the modern planners by the New Charter of Athens 2003, there is, among other things, the role of a mediator and political adviser (ECTP, 2003). Thus, if the Polish urban governance is to deserve to be called good and sustainable, planners should be personally involved in the preparation and implementation of the citizen participation process, they should strive for involvement of numerous and various groups into the planning process.

This is the source of inspiration for the research work presented here. Its purpose is giving answers to the following questions: how do the planners assess condition of the citizen participation in Poland? are they well prepared to conduct public consultations? can they accomplish the tasks imposed by the *New Charter of Athens* 2003? Observation of the public discussions and brief analysis of the planning documents show that the condition of the citizen participation in the space decision making process is bad, and the planners lack knowledge and tools to effectively cooperate with various entities of the local government policy. Nevertheless, this thesis needs to be verified and it is the objective of this paper.

<sup>&</sup>lt;sup>2</sup> Refers to both planning documents prepared at the local level: land use plan and the local land development plan.

<sup>&</sup>lt;sup>3</sup> This division is not a clear-cut (which separates groups), it means that individual participants of the design process may belong to several groups simultaneously. However, as is shown by the planning practice, persons who participate in the meetings or submit requests or remarks, concentrate on the interests of only one of the categories specified.

#### 4. Materials and methods

The circle of Polish planners is highly diversified, with regard to both education and type of job done. This circle encompasses persons holding diploma in architecture and town-planning and graduates of numerous other studies (geography, geodesy, cartography, landscape architecture) who graduated from postgraduate studies in spatial development. Planners are employed in commercial design studios and local government institutions dealing with spatial planning. What is more, it is difficult to determine the total number of active planners, because not all persons working for the spatial development, are members of the Chamber of Planners<sup>4</sup>. All these factors result in the fact, that it is difficult to gain reliable opinion of this professional circle about participation of various entities in the space decision making process.

Thus, in order to present possibly most comprehensive picture of phenomena accompanying local spatial policy, an Internet survey was carried out. This invaluable research tool is more comfortable and cheaper in application than research conducted by means of traditional methods (such as an interview). The Internet survey may have much wider scope with simultaneous reduction of data collection time. Moreover, digital form of results enables faster analysis and interpretation of studied phenomena. Also, from the perspective of the research subjects, this tool offers specific benefits: lack of direct fact-to-face interaction gives the feeling of anonymity, thanks to that the respondents are more relaxed and do not censure their responses, moreover, they have more time to give their answers<sup>5</sup>.

Obviously, apart from the advantages listed here, the Internet survey has considerable disadvantages. The most important one is the fact that the Internet users differ from the entire studied population (in particular they are younger, better educated, live in bigger cities), this considerably hinders the drawing of the representative sample. What is more, a characteristic feature of research conducted on volunteers (and this is the way of conducting majority of the Internet surveys) is non-random character of the sample, which considerably hinders generalization of findings. On the whole, volunteers give different answers than persons who are not prone to participate in the surveys. Thus, one needs to remember that even though the Internet survey offers specific benefits, at the same time, it requires prudence while generalizing the results on the entire population.

The survey presented in this article, entitled Space at stake, planners vs. citizens was conducted between 28.10.2010 and 30.11.2010. The survey, which is a part of the research project entitled *Role* of the urban planner in the process of citizen participation, was aimed at planners working in Poland and regarded selected aspects of citizen participation in the spatial planning process. In order to obtain possibly greatest participation in the survey, the information about the research was placed on the websites of all district chambers of planners (District Chamber of Planners in Wrocław, District Chamber of Planners with registered office in Gdańsk, District Chamber of Planners with registered office in Warsaw and District Chamber of Planners with registered office in Katowice) and the National Chamber of Planners in Warsaw<sup>6</sup>.

The survey was participated by 83 planners working in all 16 provinces of Poland. The respondents have relatively long length of service: 73.5% (61 subjects) have worked as planners for at least 5 years. Majority of respondents - 67.5% (56 subjects) - are members of the Polish Chamber of Planners, which makes 61,5% of all members of this professional self-government. Unfortunately, it is impossible to define the degree of sample representativeness, due to above-mentioned lack of data about the number of planners in total, the structure of their gender, age, education and length of service. However, it should be noted that obtained results correspond perfectly with the observations of the planning practice, and therefore, the survey entitled Space at stake, planners vs. citizens was considered an invaluable and reliable source of knowledge about the planners' attitudes towards citizen participation.

The survey comprised 16 questions, including 9 subject-matter questions, 6 personal details questions and 1 question regarding respondents' will to receive information about survey findings. Further part of this article concentrates on the following issues: Is citizen participation in the spatial planning process necessary?, Why?, To what degree, the legal regulations in force at present (end of 2010), ensure citizen participation in the spatial planning process?, What is most frequently expected from the planners by the citizens? Please describe shortly typical relationship between the citizens and planners, What is most frequently expected from the planners by the local authorities (councillors, heads of municipalities, mayors and presidents of cities)? Please describe shortly typical relationship between the authorities and planners, What (statutory and non-statutory) forms of citizen involvement did you encounter in your planning practice?, and What forms of citizen involvement are most effective from the perspective of the plan-

<sup>&</sup>lt;sup>4</sup> In October 2010, 1350 persons in total were members of the Chamber of Planners (divided into four district chambers), even though, obviously much more planners work in Poland.

<sup>&</sup>lt;sup>5</sup> Internet survey has already been the subject of numerous deliberations – both in terms of theory and application – in particular Batorski and Olcoń-Kubicka, 2006.

<sup>&</sup>lt;sup>6</sup> Detailed description of the applied research method is presented in a separate report (Damurski, 2011).

ning process? as well as Do the studies you graduated from provide good preparation of planners for conducting public discussion and other forms of citizen cooperation?

#### 5. Planners' attitude to citizen participation

The first two questions of the survey concerned planners' attitudes towards citizen participation as a method of making public decisions. Overwhelming majority of respondents (89.2%, 74 subjects) think that citizen participation in the spatial planning process is necessary (Fig. 1); only one subject (1.2%) thinks that it is not necessary to involve citizens. The share of planners who are not able to voice their opinion on this issue is relatively high (9.6%, 8 subjects chose the answer *Difficult to say*).



Figure 1. Answers to the question: *Is citizen participation in the spatial planning process necessary*?

To substantiate their responses, most of all, the exponents of the citizen participation emphasize the practical aspects: citizens are users of the planned space (40.5% respondents in this group, 30 responses), they know the space they live in better than the planners do (21.6%, 16 responses), they know best what they need (18.9%, 14 responses). Moreover, the respondents pay attention to planners' duties, that they should listen to the local community (20.3%, 15 responses) and treat it subjectively (21.6%, 16 responses).

On the other hand, subjects who are against citizen participation in the spatial planning process or who have doubts whether such a participation is necessary, put forward the arguments that the citizens are not ready for participation in making public decisions (66.7% respondents in this group, 6 responses), that they care mainly about private interests (also 66.7%, 6 responses) and that their protests delay the planning procedure (44.4%, 4 responses). At the same time planners, who participated in the survey, appreciate the fact that this procedure enables the citizens to present their opinions and expectations (33.3%, 3 responses) and they call for gaining information from the local community at the beginning of the planning process, without later citizen involvement in the space decision making process (also 33.3%, 3 responses).

Moreover, the research findings reveal, that the position taken by the planners with regard to citizen

participation in the spatial planning process is largely dependent upon their individual features. What is characteristic, favourable treatment of citizen participation decreases with age and development of planners' professional carrier (Fig. 2). Most of all, the reasons for this situation should be looked for in wider (let us add – frequently negative) experience in public cooperation of the experienced designers.



Figure 2. Answers to the question: *Is citizen participation in the spatial planning process necessary?* vs. age and length of service of the respondents

Legal status of spatial development in Poland, including in particular the status of legal regulations regarding citizen participation, is an enormously important issue, which requires commenting on by the planners. Therefore, the survey contained the following question: To what degree, the legal regulations in force at present (end of 2010), ensure citizen participation in the spatial planning process?. In the opinion of almost half of the subjects, Polish law guarantees the citizens sufficient influence on the planning process (45.8% of respondents, 38 persons). Over one fourth of planners participating in the survey (26.5% of respondents, 22 subjects) say that citizens have too little influence on the planning process, and consequently - the planning procedures in force require increased role of citizen participation (Fig. 3). This view is expressed more frequently by young planners than persons aged more than 40 (the response The citizens have too little influence on planning was chosen by 32.1% of subjects, up to 39 years old and by 14.8% of subjects, 40 years old and more), which may indicate that with age assessment of the legal status of the spatial planning gets softened.



Figure 3. Answers to the question: *To what degree, the legal regulations in force at present* (end of 2010), *ensure citizen participation in the spatial planning?* Each respondent could choose 1 answer

It is curious that a large group of subjects cannot unambiguously assess the current legal status regarding citizen participation (18.1% of respondents, 15 persons). Most probably, this is related with social problems encountered in the spatial development (lack of civic attitudes among citizens, concentration on private interests) and the general condition of the local policy (lack of encouragement on the part of authorities to participate in the decision-making process, lack of good practices in citizen participation). All this, to some extent, is independent from the law and hinders its evaluation. Whereas, the opinion that the citizens have too large influence on planning should be treated as marginal - this standpoint is represented by 9.6% of respondents (8 persons).

Thus, in general, the planners who participated in the survey are aware of the needs related with citizen participation, they positively assess legal regulations governing it, at the same time, their professional experience does not instil optimism. In this context, it is worth looking closer at the planning practice and the social relations in it.

#### 6. Citizen participation in practice

An essential element of the picture presenting citizen participation in Poland is the relationship between the most important players in the planning process: citizens, local authorities and planners. The survey entitled *Space at stake, planners vs. citizens* allows for defining this relationship from the perspective of the planners.

Thus, in the opinion of the planners who participated in the survey, most frequently, the citizens expect safeguarding of their private interests: taking their requests and remarks into consideration, regardless of the best interests of the public (51.8% of respondents gave this answer, 43 responses), provisions, which on the one hand will allow them having the real properties at their disposal and at their own discretion (44.6% of respondents, 37 responses) and on the other, provisions which will not allow location of new projects in the neighbourhood (20.5% of respondents, 17 responses). This discrepancy in citizens' attitudes is well described by the statement of one of the designers: *Building* 

# land is supposed to be everywhere, without roads and public green spaces.

This means, that among the planners, majority of them had bad experience of citizen cooperation. To these unfavourable opinions, one should add responses indicating lack of local communities' preparation to participation in the planning process and accusations brought against the planners. This critical depiction of the citizen participation is only slightly softened by less frequently given, positive categories of responses, saying that the citizens expect that they will be informed about the prepared project, that they will act as a mediator and they expect planned space to be made more attractive. However, good experience of this type, in relationships between the planners and citizens, has been enjoyed by less than 10% of the subjects.

In turn, the expectations of the local authorities most of all apply to implementation of the current local policy – even if it stands in contradiction to the good planning practice (this answer was given by 43.4% respondents, 36 responses). From this perspective, the planner becomes a tool in the hands of the municipality head, mayor or president, and his knowledge and competences are supposed to serve the purpose of quick completion of the planning procedures (33.7% of respondents, 28 responses) and avoidance of conflicts (24.1% of respondents, 20 responses). In the relationships between the planners and authorities, the need to satisfy the expectations of a specific developer appears very frequently as well as the pressure to delineate new investment areas in the municipality, which additionally confirms treatment of planners like a tool (not partner) by the local authorities. In order to present these relationships better, let us quote fragments of statements given by two respondents: "At present, an average planner is only 'a pencil' in the hands of a municipality head or mayor. Most frequently, the municipal space is created pursuant to the following rule 'I will favour this one, because he voted for me, but I will not favour that one, because it is an opposite political option'. A planner has not much to say. The only thing a planner may say, is whether a given project is in compliance with the Act or not. There is no chance of SPACE PLANNING from the planning perspective; (...) a lot depends on the power and skills of the planner. The trouble is that the prestige of this profession is low and the planner has no tools at his disposal to decidedly 'get his own way' (apart from resigning from the project).

Only one answer is decidedly positive – in the opinion of 12.1% of respondents (10 responses), local authorities expect professionalism and competences and, following on from this, unambiguous designs easy to use in practice. Still, this aspect of relationship between the planners and local authorities remains marginal, as compared to the abovementioned ones. As far as the tools used for the purposes of citizen participation are concerned, the survey contained two questions regarding forms of citizen involvement: the first one asked to indicate tools of participation encountered by the respondents in their planning carrier, the second one asked to indicate most effective methods of conducting public consultations. List of answers to these two questions is presented in Tab. 1.

Table 1. Answers to the questions: What (statutory and non-statutory) forms of citizen involvement did you encounter in your planning practice? and What forms of citizen involvement are most effective from the perspective of the planning process?. To the question: What (statutory and non-statutory) forms of citizen involvement did you encounter in your planning practice? the respondents could give unlimited number of answers. To the question: What forms of citizen involvement are most effective from the perspective of the planning process? the respondents could give 3 answers at the most

What invol tice?	t (statutory and non-sta vement did you encounte	itutory) forn er in your pla	ns of citizen Inning prac-
No.	Answer	Number of re- sponses	% of res- pondents
1	Public discussions in the office (statutory requirement)	79	95.2
2	Press release in the local newspapers (statutory require- ment)	76	91.6
3	Written requests and remarks submitted to the office (statutory requirement)	55	66.3
4	Additional meetings in the office (apart from the public dis- cussion which is the statutory requirement)	49	59.0
5	Information about the project in the local mass media (apart from press releases which are the statuto- ry requirement)	33	39.8
6	Meetings between planners and citizens in the design studio	30	36.1
7	Information about the project in churches and other religious and cultural organiza- tions	20	24.1
8	Opinion polls and surveys	16	19.3
9	Public consultations conducted with partic- ipation of the local media	10	12.1
10	Total	368	443.4

What forms of citizen involvement are most effective from the perspective of the planning process?

nom	the perspective of the pl	anning proce	33.		
No.	Answer	Number of re-	% of res-		
		sponses	pondents		
	Public discussions in				
1	the office (statutory	46	55.4		
	requirement)				
	Additional meetings				
•	in the office (apart	2.6	10.1		
2	from the public dis-	36	43.4		
	cussion which is the				
	statutory requirement)				
	Written requests and				
3	remarks submitted to	32	38.6		
	the office (statutory				
	requirement)				
4	Meetings between	22	27.7		
4	planners and citizens	23	27.7		
	In the design studio				
5	Opinion polls and	22	26.5		
	Surveys				
	Public consultations				
6	instice of the level	21	25.3		
	ipation of the local				
	Information about the				
	project in the legal				
	mass media (apart				
7	from press releases	16	19.3		
	which are the statuto-				
	ry requirement)				
	Information about the				
	project in churches				
8	and other religious	11	13 3		
0	and cultural organiza-		15.5		
	tions				
	Press release in the				
0	local newspapers	_	6.0		
9	(statutory require-	5	6.0		
	ment)				
10	Total	212	255 1		
10	Total	212	233.4		

It is obvious that the most frequent forms of citizen involvement are the ones, which are the statutory requirement, meaning: public discussions in the office, press releases in the local newspapers as well as requests and remarks submitted under the planning procedure. Further on, there are additional meetings in the office (apart from the public discussion which is the statutory requirement), information about the project in the local mass media (apart from press releases which are the statutory requirement) and meetings between planners and citizens in the design studio. Taking into consideration the total number of responses - each respondent has given 4.4 answers on average – one may state that the range of forms for citizen involvement in the planning process is rather wide.

As appears from the table, the most effective methods of cooperation with the citizens in the spatial planning process comprise personal meetings: public discussions (statutory requirement) and additional meetings in the office and the design studio – they took appropriately 1, 2 and 4 position. In addition, written requests and remarks submitted to the office under the statutory requirement turn out to be effective together with opinion polls and surveys. Whereas, press releases in the local newspapers (statutory requirement) got decidedly negative opinions, and only slightly better opinions were given to – information about the project in churches and cultural organizations and the local mass media. Thus, this confirms the rule known for a long time, which says that informing local community about undertaken action is not real participation (Arnstein, 1969).

#### 7. Planners' qualifications

As mentioned above, the circle of Polish planners is highly diversified with regard to their education. The survey conducted for the needs of this paper confirms this thesis: almost half of the respondents (47.0%, 39 subjects) has higher education and graduated from the following majors: spatial development or spatial planning. Almost every fourth respondent is an architect by education (24.1%, 20 subjects), every fifth respondent graduated from the postgraduate studies in spatial development (21.7%, 18 subjects). The education of the rest of them (7.2%, 6 subjects) is not directly related to spatial planning or they are not planners at all.

This poses a question, whether the studies they graduated from provided good preparation of the respondents for conducting public discussion and other forms of citizen participation. It turns out, that in most instances, the planners who participated in the survey negatively assess their education with regard to the citizen participation - majority of them (62.7% of respondents, 52 subjects) think that the studies they graduated from failed to prepare them to conduct public discussion and other forms of citizen cooperation. The remaining ones have doubts (20.5%, 17 subjects) or they positively assess their knowledge about citizen participation (16.9%, 14 subjects). Graduates of the following majors: architecture and city planning are most poorly prepared to conduct public discussions, whereas, graduates of spatial development - including postgraduate studies in spatial development assess their preparation a bit better (Fig. 4).

At the same time, these are the urban planners who have most serious doubts about citizen participation -14.0% of them (8 subjects) think that citizen participation in the spatial planning process is not an indispensable element of the planning process. On the other hand, graduates of architecture and city planning turn out to be keen supporters of the citizen participation (100.0% of them thinks that public participation is necessary), still it is them, who consider that they are poorly prepared to conduct public discussions.



Fig. 4. List of answers to the questions: How did you receive your education as a planner? Please specify the type of studies, major or specialisation and Do the studies you graduated from provide good preparation of planners for conducting public discussion and other forms of citizen cooperation? The subjects who graduated from the full-time studies and/or postgraduate studies were included in the spatial development category

#### 8. Conclusions

Urban planners are particularly responsible for shaping of the spatial order and creation of the sustainable development. It is them who – acting on commission of the local authorities of various levels – make decisions about space use and development, thereby influence living conditions of the present and future generations. Thus, their knowledge, attitude and opinions about the most important aspects of the sustainable development are of the utmost importance. One of these aspects is democratic, participatory management of the local development.

The survey carried out among the Polish planners in 2010, presented in this article, requires some caution. The sample of respondents in the study has non-random and most probably – non-representative character for the entire group of urban planners. Nevertheless, the responses given in the survey, correspond well enough with the phenomena observed in the planning practice, so for the purposes of this article they were considered valid and a good source of planners' opinions about the space decision making process.

An interesting picture of planners' attitude towards the citizen participation emerges from the carried out research. Majority of respondents who participated in the survey support citizen involvement, majority of them thinks that the current planning procedures ensure sufficient citizen influence on planning, still, most of them feel that they are poorly prepared to conduct public consultations; whereas, the best methods of participation are discussions and meetings.

This is the prevailing assessment of the citizen participation condition, as perceived by the planners; still, if the planners' responses are examined in more detail, it turns out that this picture is composite and multifaceted. Firstly, professional practice brings the feeling of disappointment with regard to the possibility of citizen cooperation and makes the experienced planners more critical towards the issue of participation. Secondly, generally accepted legal regulations impose use of ineffective tools and this questions favourable assessment of the planning procedures in force. Thirdly, participants of the public consultations (citizens, politicians, developers) concentrate on gaining their own goals; this prevents working out of solutions, which are good for the entire community. Fourthly and finally, even though the graduates of the spatial development studies feel best prepared to conduct public consultations, they have most serious doubts about justness of citizen involvement in the planning process.

Then, how can one assess the condition of citizen participation in Poland? Does it meet the requirements of the sustainable development? For the time being, it seems that the situation is bad, and the urban planners only slightly contribute to balancing of the social, economic and environmental needs by way of partnership and cooperation with various players of the local government policy. They lack sufficient attitude and qualifications, they lack appropriate powers. In such a situation, it turns out necessary to redefine the role of the urban planners. In order to increase the prestige of the planner profession, and in the long-term perspective enable the planners to inspire and conduct effective public consultations, most of all, the curricula of spatial development studies should be amended and supplemented, so that they cover the issues of participation, negotiation and group process, etc. - owing to this, future planners will be better prepared to the role assigned to them by the modern local democracy. Moreover, it is necessary to incorporate more effective mechanisms of the citizen participation into the planning practice (and also to the legal regulations), which would enable active participation in the space decision making process to all representatives of the local government policy this will contribute to creation of civic attitudes, increase the level of social capital and allow for taking care of widely understood best interests of the present and future space users. Finally, it is necessary to promote the image of a planner as a sustainable development expert, independent from the local authorities and citizens - such a position would enable presentation of benefits and costs related to satisfying the needs of various groups functioning in the local space. This last postulate is particularly difficult to carry out due to the existing financial and time-limit obligations between the planners and municipal offices, but it does not change the fact that it remains valid and up-to-date.

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# Ecosystem services in the light of a sustainable knowledge-based economy

# Usługi środowiska w świetle zrównoważonej gospodarki opartej na wiedzy

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#### Abstract

The article attempts to present the issue of ecosystem services in the light of a sustainable knowledge-based economy. The category of ecosystem services is of key importance in the emerging economy of sustainable development, which analyses the society-economy-environment macro-system. The economic system should be based on knowledge and pursue a new paradigm of sustainable development, with consideration given to ecosystem services. The article examines the most important aspects of sustainable development and the essence of a sustainable knowledge-based economy as theoretical and practical perspectives of outlining the foundations of ecosystem services for the development of society.

Key words: sustainable development, economy of sustainable development, knowledge-based economy, sustainable knowledge-based economy, ecosystem services, natural processes

#### Streszczenie

Celem opracowania jest próba przedstawienia problematyki usług środowiska (świadczeń ekosystemów) w świetle zrównoważonej gospodarki opartej na wiedzy. Kategoria usług środowiska jest priorytetową w tworzącej się ekonomii zrównoważonego rozwoju, która obejmuje analizę makrosystemu społeczeństwo-gospodarkaśrodowisko. System gospodarki powinien opierać się na wiedzy i realizować nowy paradygmat zrównoważonego rozwoju z uwzględnieniem usług środowiska. W opracowaniu przeanalizowano najważniejsze aspekty zrównoważonego rozwoju i istotę zrównoważonej gospodarki opartej na wiedzy jako teoretyczne i praktyczne perspektywy zarysowania podstaw usług środowiska na rzecz rozwoju społeczeństwa.

Slowa kluczowe: zrównoważony rozwój, ekonomia zrównoważonego rozwoju, gospodarka oparta na wiedzy, zrównoważona gospodarka oparta na wiedzy, usługi środowiska (świadczenia ekosystemów), procesy przyrodnicze

#### Introduction

Ecosystem services are the key category of the emerging economy of sustainable development. In fact, real economy cannot function properly without the support of ecosystem services. So far, the theory of economy has focused mostly on the problems of natural resources and environmental goods. However, the paradigm of sustainable development requires that the services provided by the natural environment should also be taken into account in the analysis of the macro-system of societyeconomy-environment. A sustainable knowledgebased economy, which makes use of the achievements of different biological sciences and of broadly understood technological progress, should be one of the elements of this paradigm (Pawłowski, Pawłowski, 2008; Gurtowski, 2011; Zacher, 2011; Michałowski, 2011).

The article attempts to present ecosystem services in the light of a sustainable knowledge-based economy. Ecosystem services are based on complex natural processes that take place in natural ecosystems. In a sustainable knowledge-based economy, these processes should be used in a conscious and sustainable way, which will significantly increase their ecological and economic efficiency, and social well-being.

#### 1. Theoretical and practical aspects of sustainable development

The paradigm of sustainable development requires formulating scientific interdisciplinary foundations by integrating its features, principles, objectives, and orders. All these groups should be subject to an in-depth interdisciplinary research. They are particularly prominent in general definitions of sustainable development.

In the literature, three essential characteristics of sustainable development are distinguished. These are: sustainability, durability and self-sustenance. A broader consideration of the last characteristic may designate a stage for forming theoretical and practical foundations for the new paradigm of sustainable development. In order to form these foundations, it is necessary to develop comprehensive theories of particular characteristics, of the relationships between the concepts of sustainable, durable and selfsustaining development, and of how these concepts contribute to the enhancement of the new paradigm. The principles of this new paradigm should play the key role in verifying whether the declarations made, for example, by different development programs, really reflect the new paradigm of sustainable development or not. These principles must explain in more detail the paradigm's characteristics and present the result of the consensus reached in social, economic and environmental research. Objectives describe the target situations and should be a logical sequence of the integrational transformation of operational targets. The integration of social, economic and environmental orders is the responsibility of representatives of economic, humanistic and natural sciences. It should result in establishing the integrated order, which is one way of expressing the development pattern (Borys, 2011A, 2011B).

The paradigm of sustainable development has an important temporal dimension. Its processes take place in time, which can be treated as abstract and boundary-free. In the implementation of sustainable development, this temporal dimension means the reduction of negative impacts on the natural environment, the need for the integrated order and the coordination of development processes (Czaja, 2005, 2011A). The necessity to reduce negative impacts on the environment is related to the implementation of a reactive or preventive environmental policy. In the case of a heavily destroyed environment, sustainable development involves a significant limitation of the time dimension, which can be described with the s-logistic model. This model

exhibits the most characteristic elements of time, both in abstract and real terms, including those relating to the dynamics of ecosystem services. It focuses on the development of phenomena below our horizon of perception, at the horizon of perception and above it. The horizon of perception is a unique moment in the development of each phenomenon, and refers to the time when this phenomenon is identifiable by humans and monitoring technology. The horizon of perception designates the change in the nature of the phenomenon. Above it, the phenomenon changes its pace and moves on to an exponential curve, which results in shortening of the reaction time of environmental policy measures. Some minor delays may lead to the growth of the phenomenon, which, in turn, leads to an increase in the expenditure needed to reduce it, and at the same time to an accelerated degradation of the ecosystem elements and synergy effects. The model of a s-logistic curve reveals time limitations in achieving sustainable development. Similarly, the time of achieving orders of sustainable development and of achieving the integrated order is limited. It can be interpreted as a completed time of implementation of the sustainable development strategy, which in fact is not complete. Another aspect of time is the evolution of sustainable development objectives. The discussion on sustainable development highlights different interpretations of the civilization problems as seen from a perspective of one generation, which is not homogeneous. Its members differ as far as their interests, social status, roles, beliefs and life expectations or axiological systems are concerned. Therefore, a generation's notion of sustainable development is a compromise of various individual and group approaches. It is obtained by checking various attitudes and in the process of negotiations. The problem becomes even more complicated when it comes to an intergenerational view in the time perspective of natural processes of ecosystem services. Generations function in different time dimensions, and the contact between them is minimal. It seems that one should expect a continuous evolution of the objectives and principles of sustainable development, as well as of their axiological and theological foundations. However, our ability to forecast evolution trends is limited. Certainly, a today's vision of sustainable development is different from its future form. Therefore, it is important that we are able to control the processes of sustainable development, which are reflected in social, economic and natural processes, in time. These processes can be controlled and coordinated to a different extent. When it comes to economy, the most controllable are technical and economic activities, such as producing, supplying, and distributing products. Macroeconomic processes are much more difficult to control. Social processes are even less controllable and more volatile than the economic ones. Natural processes of ecosystem services can be controlled in a very limited way, although our ability to control them is increasing gradually with the development of natural sciences. The ability to control sustainable development is extremely important because of its implementation and possibility of coordinating the processes of creating orders in time. This control should harmonize the periods when some defined processes take place. The synchronization of the sustainable development processes is connected with the problems of logical and temporal sequence of activities' impacts, and the consequences of distinguishing cause-and-effect relationships and functional relationships between them.

All processes in the real world, including sustainable development processes, operate in a system of a cycle. The principle of cyclical development applies to all elements of both an animate and inanimate world at all levels of the natural environment. When it comes to humans, it applies both to the entire human community and to each individual separately. Every man experiences youth, then maturity, and old age, and every society undergoes development, stabilization and regression. The cycles are different for organisms, phenomena or societies, with no one single cycle of development for everything. The development of the societyeconomy-environment macro-system is a combination of cycles of various phenomena. Not all of them are equally important and recognized. In economy, the most known are three cycles of development: the civilisation cycle, the Kondratiev's cycle and the business cycle. Each system of the environment, economy and society develops, however, in its own characteristic development cycle. This causes considerable difficulties in balancing the relationship between these systems. The environment and its services are subject to a slow growth and a long-term evolutionary cycle. Environmental processes can be only slightly accelerated or slowed down by human economic activities. This is not the case with the system of economy, the processes of which change very fast. This is why sustainable development should seek to control the pressures on the natural environment and ecosystem services in a scientifically justified way. This does not necessarily entail a slowdown in economic development, the quick pace of it may, after all, reduce material and energy consumption. Similarly, society has a life-cycle of its own. This diversity of development cycles causes difficulties in assessing the extent to which sustainable development policies are implemented. The research conducted over a period of several years can just reveal some trends in the development of the macro-system. Such research, however, should be carried out over a long time, for example, 25 years. Due to a high volatility of economy, it is possible to determine the alignment of the macro-system development with the environmental changes. It can also be assessed whether the changes in society are conditioned more by the environmental or by the economic factors (Poskrobko, 2005; Pawłowski 2008; Kiełczewski, 2010).

Implementation of the sustainable development paradigm is also conditioned by the introduction of a generally accepted system of indicators that would allow to accurately monitor the quality of ecosystem services. In the literature, many proposals for classifying the indicators of sustainable development have been put forward. They are related to the objectives of the sustainable development paradigm, but often differ in the scope of observation and detail. One of the major systems of classification is division of indicators on the basis of the degree of their aggregation (synthetisation). The monitoring of sustainable development is carried out by applying numerous specific indicators referring to particular spheres and orders, as well as applying aggregate (synthetic) indicators, or several sub-aggregate (sub-synthetic) indicators. The indicators applied in sustainable development are mostly specific and sub-aggregate indicators. Global synthetisation, i.e. constructing a global measurement system of sustainable development, is rare. However, some important attempts at synthesising the indicators, mainly within the environmental, social, and economic orders, have been made (Borys, 2007; Śleszyński, 2011).

Gross national product is still considered to be a primary indicator used to gauge a country's development and wealth. Contemporary civilization problems show that one of the biggest mistakes of classical economy was treating natural resources, ecological processes, and ecosystem services as free goods that acquired value only after they had been procured and processed by humans. This approach has led to nature colonisation (Kośmicki, 2009), i.e. permanent and purposeful human activities that affect the environment, but their impact is not taken into account. In colonization processes, natural flows of matter, energy and information are becoming subordinate to the system of economy. This results in exceeding the capacity and resilience of ecosystems, as well as in decreasing their productivity and all services. A major challenge for the emerging sustainable economy is to bring about decolonization of the natural environment. This requires designing new principles for the functioning of economy and a system for measuring the effects of development processes. One of the economic categories, which requires a redefinition is that of natural resources. It is also important to define properly the concept of natural capital and the nature's capital. Ecosystem services constitute part of this natural capital. However, further discussion in the field of economy of sustainable development is needed to formulate a precise definition understanding of ecosystem and services (Poskrobko, 2010A, 2011).

The economy of sustainable development is a newly emerging science. Its foundations were laid down by German economists (Rogall, 2010). According to them, it is developing on the basis of a political economy, sustainable science and in particular, an ecological economy, and a new environmental economy. In other words, it is an economic theory of sustainable development that is based in many different disciplines. The major problems of economy of sustainable development include: meeting sufficiently high economic, social, cultural, and ecological (ecosystem services included) standards within the capacity of ecosystems, and implementation of the principles of intragenerational and intergenerational justice (Rogall, 2010).

The economy of sustainable development is still in the process of developing its own language, based on a set of concepts and categories. This language will be a combination of entirely new categories. the categories that already exist, or modified categories. The language of economy of sustainable development should be made up of concepts that will enable to describe the phenomena and processes studied and characterize the principles applied by entities operating in the economy that employs the paradigm of sustainable development and knowledge-based economy. Today, the language of economy of sustainable development includes the categories used in a traditional economy, as well as completely new concepts. They can be grouped into several areas of research and implementation: economic processes, market mechanisms, economic entities, macro and micro economic calculations, decision making processes, a static view of economy, economic policies, a dynamic view of economy, international problems, the measurement of phenomena and levels of management, and the philosophy of management (Czaja, 2011B; Czaja, Fiedor, 2010).

The concepts and categories of economy of sustainable development highlight the problems occurring at the interface of different parts of the societyeconomy-environment macro-system, as well as highlight the importance of knowledge in producing added value. Knowledge is an inherent feature of all human activities and at present, it constitutes the most important source of a nation' s wealth. Such approach significantly alters our view on many ecosystem services and their commercial use.

#### 2. The essence of a sustainable knowledgebased economy

A knowledge-based economy can be analysed from a macro and micro economic perspective (Poskrobko, 2011). When looked at macroeconomic perspective, it has two basic characteristics:

widespread use of new technological and organizational solutions, in particular in acquiring, processing, storing and using information for innovation,

▲ development of the higher education sector and research & development institutions, and implementation of mechanisms and institutions that enable to make use of the generated knowledge in economy.

The foundations for a knowledge-based economy are provided by universities, research and development departments, knowledge transfer institutions, and the companies benefiting from the knowledge and education of their employees to produce ever more knowledge-intensive products, and implement innovations. The following knowledge management processes can be distinguished in the knowledgebased economy:

- generation and commercialization of knowledge, for example by patents and licenses,
- accumulation of knowledge, creation of databases, particularly databases that are institutionally established and provide efficient access to the knowledge capital,
- ▲ direct and indirect transfer of knowledge,
- ▲ absorption of knowledge conditioned by market mechanisms, institutional solutions and management systems in organizations.

In a macroeconomic perspective, it is important to develop a scenario that will enable to realise the concept of a knowledge-based economy. This requires designing a system that will assess the effects of adopted strategy and of development scenarios. In Polish literature, this problem is approached in two different ways: formal based on indicators and market-based. The first approach includes the assessment of the knowledge-based economy development on the basis of characteristics and indicators, proposed by S. Borkowska (2002) and Z. Madeja (2006). The second one describes stages based on competition, according to the classification of U. Płowiec (2010).

The microeconomic approach to the knowledgebased economy reveals endogenous utilization of a company's (or organization's) resources, creating favourable conditions for development, and taking advantage of the human capital and intellectual capital. From this, it follows that the main factor contributing to added value of a company and its competitive edge is the hidden knowledge of its employees, customers and all the stakeholders. Employees of knowledge – based organisations should (Poskrobko, 2011):

- know-what, i.e. know what information is needed and how it can be applied, be familiar with databases,
- know-why, i.e. identify cause-and-effect relationships,
- know-how, i.e. have the ability to create something new,
- know-who, i.e. know who has the necessary knowledge.

Development in the knowledge-based economy can be based on exogenous, endogenous, and mixed factors. Exogenous development occurs through the purchase of new technologies and product designs, as well as through acquiring creators of the intellectual capital. Endogenous development, on the other hand, is based on the company's own technologies and innovations. The growth of the information in society constitutes a specific factor.

Development of the knowledge-based economy creates new challenges and ethical dilemmas, and strongly influences the commonly recognized system of values. Furthermore, it is highly irregular. Not all societies and social and professional groups manage to keep up with the processes of this economy. This leads to marginalization of some social groups, social inequalities, ethical problems and alarming changes in the system of values. It can be stated that the knowledge society has developed its own new ethic in which:

- survival ethic has been replaced with selffulfillment ethic,
- ★ work ethic has been replaced with consumption and information ethic,
- traditional ethic is being replaced with innovation ethic,
- community ethic is being replaced with individual ethic,
- ethic of the virtual world is being developed.

Additionally, entirely new ethical concepts are emerging and changing the existing lifestyles. The most important ones include: lifestyles based on the post-modern ethic, bio-centred ethic, quality-of-life ethic, and new traditionalism. In terms of business ethic, the relations between ethic, and production and consumption can be noticed. This is expressed by, for example, the idea of ethical consumerism, corporate social responsibility and codes of work ethic (Kiełczewski, 2011; Piątek, Florek, 2007; Keitsch, 2011).

The development of knowledge-based economy and all the social, economic and environmental changes connected with it, need to be measured and assessed. Methodological and statistical work carried out by the Organisation for Economic Cooperation and Development (OECD), among others, is of crucial importance in this field. The studies conducted by the OECD emphasize the impact of knowledge and information on economy. Further studies have been published by the World Bank. The 21<sup>st</sup> World Development Report was devoted to the importance of knowledge in economic and social development. The Knowledge Assessment Methodology (KAM), compiled by a team led by C. Dahlman from the World Bank, assigns different variables (quantitative and qualitative) to some specified pillars of the knowledge-based economy, such as: institutional infrastructure, education system, ICT infrastructure and innovation. There is a simplified version of this method and an extended one, subject to constant modifications. The calculated values of the indicators show that there has been development of knowledge-based economies in the first decade of the 21<sup>st</sup> century. According to the latest rating of the top ten knowledge-based economies and the Visegrad Group countries, all Scandinavian countries are in the top ten positions, while Poland ranks last among the Visegrad Group countries. Worldwide, Poland occupies 37th position, a fall of two positions in comparison with the rating from the year 2008 (Pawluczuk, 2011). Giving an in-depth consideration to ecosystem services can significantly change the measurement of the knowledge-based economy and the present ratings. The beginning of the 21st century has been characterized by intense economic and social changes. As a result of the technical revolution and the revolution in information technology, new sectors of economy have emerged. They are based on biotechnologies, microprocessors and telecommunications, and influence the way production and enterprise are viewed. A wave of innovations creates new relations between the consumer and the producer, and new methods of operation, quality control or building production groups. Economic activities are shifting away from the industrial sector to the service sector, and innovations that support sustainable development are being developed. Innovative activity and the paradigm of sustainable development create a specific mechanism functioning in a broader context of social development. However, the changes which have taken place so far in economic and consumer systems show that it is difficult to abandon completely the existing methods of production and fully adapt to the conditions and requirements of sustainable development. The literature on innovation for sustainable development examines a number of mutually reinforcing processes that shape the channels of technological development according to the scenarios that do not always carry out the sustainable development paradigm. However, in the last two decades, an increasing interest in how innovative development is conditioned by the environment and how it influences competitiveness in the global economy, has been observed. Good examples here are empirical case studies of a dynamic technological development of some regions and attempts to channel it into sustainable development, or applying suitable and regional approaches in highly developed economies. Today, two theoretical approaches to the development of innovation and the paradigm of sustainable development can be distinguished: the cluster approach and the approach based on regional innovation systems (RIS). Similar as they are, they cannot be combined when assessing the extent and nature of innovation (Ciborowski, 2009).

In the sustainable knowledge-based economy, the key strategy for implementing the paradigm of

sustainable development are eco-innovations. Ecoinnovations bring about changes in the entire sectors of industry and services, and are not restricted only to certain types of products. Accordingly, the concept of eco-industries refers to all companies, that are actively involved in eco-innovations, i.e. innovations that reduce the use of natural resources and of ecosystem services (material, energy and information). Any extraction, processing, distribution, consumption and re-use, or recycling of natural resources can be a starting point for the development of eco-innovations. The research shows that the biggest resource efficiency gains can be achieved easier in the upstream part of the supply chain, namely in the production of base materials and by reorganising the ways products and services are used. Eco-innovations can be divided into (Welfens, 2009; Koneczna, 2011; Ekoinnowacviność..., 2010, Innowacje..., 2006; Jones, Harrison, McLaren, 2001):

- product innovations novel and significantly improved products or services produced in a way that minimises their overall impact on the environment,
- process innovations implementation of new or significantly improved production or delivery methods, such as development and application of so-called environmental technologies, or directly ecosystem services,
- organizational innovations implementtation of new organisational methods in a company's business practices, workplace organisation, or external relations,
- marketing innovations product design, packaging, product placement and promotion, which may be important for ecoefficiency.

Eco-innovations can also be analysed at 3 different levels:

- micro level refers to households and businesses,
- meso level refers to supply chains and production and service systems throughout the region or sector,
- macro level is analysed economy-wide, taking into account national and global consequences of eco-innovations.

In order to fully identify an eco-innovation, it is necessary to assess its impact on the environment and ecosystem services. Such assessment can be done in two ways:

- direct impact assessment assessment of technologies and services that reduce environmental impact generated by man, and help to achieve reduction of energy and raw material consumption, reduction of soil exploitation, reduction of emissions and waste, and to maintain biodiversity,
- ▲ indirect impact assessment assessment of

technologies and services in terms of how they contribute to achieving environmental objectives within the strategy of sustainable development set out in the environmental policy or by society (Lulewicz-Sas, 2011).

The importance of eco-innovations in the development of sustainable knowledge-based economy is emphasised, for example, in The National Development Strategy 2007-2015 (2006). It is stated there that sustainable development requires product, technological, and organizational innovations, changes in consumer behaviour and changes that will result in GDP increase and improvement of life quality. These processes should be implemented with a decreasing use of natural resources and ecosystem services, and decreasing human impact on the environment (pollution and waste). Proenvironmental investment should lead to sustainable development of economy and reduce the external costs of economic activities, including those relating to ecosystem services.

# 3. Aspects and conditions of preserving ecosystem services

In economic sciences, the research on ecosystem services can be traced back to the 18th century (Gómez-Baggethum et al., 2010). The concept of ecosystem services appeared in 1981. The article The value of the world's ecosystem services and natural capital (Costanza et al., 1997) is an important publication in this field. At the beginning of the 21<sup>st</sup> century, several global reports, which provide classification, assessment and appraisal of ecosystem services, were published. These include, for example, The Millennium Ecosystem Assessment (2005), The Economics of Ecosystems and Biodiversity (2008), The Economics of Ecosystems and Biodiversity. Mainstreaming the Economics of *Nature: A synthesis of the approach, conclusions* and recommendations of TEEB (2010). In Polish literature, a summary of international and national research on ecosystem services was presented in the first issue of Economy and Environment Journal from 2010 (Mizgajski, 2010; Poskrobko, 2010B; Żylicz, 2010).

One of the first definitions of ecosystem services has been suggested by E.O. Wilson, a biologist, (2003), who used the term to describe the processes of providing the matter, energy and information necessary for the development of society by the biosphere, for example, water purification and storage, maintaining the circulation of nutrients, control of the atmosphere and climate, pollution and waste decomposition, or pollination of plants. In Poland, one of the first general definitions has been formulated by A. Mizgajski and M. Stępniewska (2009). They defined environmental services, known as ecosystem services, as a whole range of benefits that are derived by humans from the metabolism of ecosystems. However, it is more precise to view ecosystem services in classification systems, the most popular of which is described in *The Millennium Ecosystem Assessment Report* (2005; Kośmicki, 2005, 2011). It groups ecosystem services into four broad categories:

- provisioning services for example, pharmaceuticals, genetic resources and decorative materials,
- regulating services for example, climate and air quality regulation, water purification, waste decomposition, or water flow regulation,
- cultural services intangible benefits, including recreation and tourism, cultural diversity, preservation of natural and cultural heritage, scientific and artistic inspiration,
- supporting services services that are necessary for the production of all other services, such as nutrient cycling, soil formation, or photosynthesis.

Taking into account the results of previous ecological and economic studies, and international reports as well as the assumptions of a sustainable knowledge-based economy presented above, ecosystem services can be defined as all natural processes carried out by the geophysical forces and living organisms, transforming matter, energy, information, and space in a way which is beneficial for sustainable economic processes based on knowledge (Michałowski, 2011). Accordingly, the following main groups of ecosystem services can be distinguished:

- ▲ material ecosystem services,
- ▲ energy ecosystem services,
- ▲ information ecosystem services,
- ▲ spacial ecosystem services.

All groups can be further subdivided into different types. However, further theoretical and empirical research in economy and a sustainable knowledgebased economy is needed to provide a full and indepth classification of ecosystem services.

Generally speaking, ecosystem services should be applied in the sustainable knowledge-based economy to support economic processes by making a conscious use of natural processes occurring in natural ecosystems, and considering all the available biological, technological, and economical knowledge. In order to achieve the paradigm of sustainable development, ecosystem services must be preserved at the appropriate level of ecological and economic efficiency, which will enable to increase the quality of life, globally and locally. This involves a number of actions for the preservation of ecosystem services in a knowledge-based economy. The most important include: ecological strategies, patterns of sustainable production and ethical programmes.

Environmental strategies are defined as measures of enforcing organisation policy in the field of environment and natural resources' management. Environmental strategies should take into account also ecosystem services. In the last thirty years, many different classifications of eco-strategies have been suggested (see for example: Stokłosa, 2011). Interestingly enough, strategies referring to technological solutions aiming at reducing the impact of pollution and waste are juxtaposed to the strategies that focus on the reduction or elimination of the source of pollution or waste by modifying the processes and products. Hence, eco-strategies can be divided into reactive and proactive. The proactive strategies have a greater competitive edge and are more environmentally and economically efficient. Therefore, in order to preserve ecosystem services, it is necessary to shift from reactive to pro-active strategies. Restoring the right level of ecosystem services, however, poses a real ecological challenge and requires significant funds.

Patterns of sustainable production are not clearly defined. Generally, they can be described as some sets of instruments, tools, practices, policies and initiatives that are implemented by organizations to ensure sustainable production. These are, for example:

- ▲ Corporate Social Responsibility (CSR),
- environmental management systems (ISO 14001, EMAS),
- voluntary initiatives, such as cleaner production projects, eco-labelling, product life cycle assessment,
- reducing material, water and energy consumption in production and services,
- institutional initiatives, such as the Enterprise Europe Network, ACT CLEAN / SPIN, Clean Business (Januszewska et al., 2011; Waloszczyk, 2008; Masternak, 2009; Venkatesh, 2012).

Moreover, knowledge-based organizations should be pro-ecological and implement the principles that promote preservation of ecosystem services. According to L. Białoń (2011), eco-friendly companies should:

- $\checkmark$  comply with the environmental policy,
- ▲ implement corporate social responsibility,
- implement the concept of environmental management,
- ▲ introduce innovative eco-strategies,
- ▲ introduce green products on the market,
- ▲ practice green marketing,
- ▲ develop a system of environmental information,
- ▲ introduce organizational structures to ensure ecological management.

All these principles can be applied to ecosystem services in a sustainable knowledge-based economy.

Sustainable use of ecosystem services and preserving their quality is conditioned by ethical aspects in functioning of the organization implementing a sustainable knowledge-based economy. All activities of such an organisation should be accompanied by introduction of the ethics programme, which should state the organization's mission, define ethical and professional standards, create a code of ethic, and develop a manual of standards and recommended practices (Leszczyńska, 2011; Gasparski, 2004).

A Code of Ethics is a philosophy that encompasses an organisation's responsibility to its employees, stakeholders, various external factors, and to the environment, including the need to preserve ecosystem services for society and economy. It sets out the objectives, norms and values that underlie the functioning of the organization. It can be directed inward or outward. In the first case, it defines the responsibilities of the management board and supervisory board and indicates behaviours which can threaten the values and fair operation. Outward orientation, on the other hand, focuses on the organization's relations with its customers, competitors and local community. The values and standards contained in the Code are not legally based, but have a moral justification. The Code of Ethics is complemented by manuals of standards which describe situational characteristics of the operations carried out in the organization and decision-making procedures.

Ethical programmes need to be promoted, first of all, by informing and involving managers in their implementation. Training programmes should also play a key role. They can create situations in which workers are made sensitive to the aspects of ecosystem services related to their duties, and also learn to act in precisely defined conditions. As a result, they can broaden their knowledge and stop applying their own ethical standards. Training programmes in ethic in relation to ecosystem services may include:

- ▲ basic programmes designed to raise awareness of some fundamental environmental issues, for example treating all living organisms as essential elements of the natural processes of ecosystem services,
- specialised programmes organised to develop in workers the ability to recognize specific problems when benefiting from ecosystem services in a sustainable, knowledge-based economy, for example, preserving natural processes that support climate control,
- programmes aimed at developing tolerance and openness towards ecologically- oriented ethical systems of other people, for example those of biocentrism and cosmocentrism.

Effective implementation of ethics programmes in sustainable knowledge-based organizations is assessed by means of ethics audits. They should constitute an integral element in the development of actions that aim to ensure the sustainable use of ecosystem services in a sustainable knowledgebased economy.

#### Conclusion

The paradigm of sustainable development changes the way a knowledge-based economy is perceived. Such economy has to take into account the benefits that ecosystem services offer to the society. The category of ecosystem services is one of the priorities in the emerging economy of sustainable development. It is legitimate that it should be equally important in a knowledge-based economy. This can be achieved by implementation of the concept of sustainable knowledge-based economy that will include, among others, the aspects of ecosystem services outlined above. This is not an easy task, though, both from a scientific and practical point of view. It requires further integrated discussions held by scientists representing different areas of research into sustainable development, and economic practitioners.

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# **Eco-management in Polish Companies**

## Zarządzanie środowiskowe w polskich przedsiębiorstwach

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#### Abstract

Economic activity has an enormous influence on the environment. Enterprises contribute to the progressing degradation of existing ecosystems, cause serious threats to the biological diversity of our planet, emit hazardous pollutants and use available natural resources excessively, which can lead to their premature exhaustion. Therefore, for the world's nations to grow and develop in a sustainable manner, there is an urgent need to minimize the adverse impact of business activities, households and whole societies on the environment. Environmental degradation cannot be restrained by the neutralization of produced pollutants alone. Today, we need efficient environment-friendly technologies and production processes. Effective efforts aimed at the reduction of our ecological footprint should be undertaken by all involved entities, including designers, engineers and managers at all stages of the product design, production and distribution processes. The concept of corporate social responsibility, understood as a voluntary process of taking into account a wide array of social and ecological issues in all business activities as well as contacts with stakeholders, has become very popular in Poland. Development of the concept of corporate social responsibility (CSR) and sustainable development has a huge impact on the shaping of pro-ecological attitudes in society. From this perspective corporate social responsibility (CSR) can be rightly regarded as a concept useful to ensure sustainable development at the micro-level, i.e. at the level of enterprises. CSR is a component of sustainable eco-management. It can ensure that the principles of sustainable development are effectively implemented at the level of socio-economic systems, as well as individual actors involved in change.

Lublin Voivodeship has a clean and attractive environment. This paper presents research findings of the study carried out in 2005-2010 by researchers from the Faculty of Management, Lublin University of Technology. The main purpose of the study was to analyze the environmental activities and initiatives undertaken by enterprises operating in the region, directions of pro-environmental investments, implemented environmental management systems, as well as motivations of business managers to pay more attention to environmental issues.

Keywords: eco-management, corporate social responsibility (CSR), sustainable development

#### Streszczenie

Działalność gospodarcza ma ogromny wpływ na środowisko. Przedsiębiorstwa przyczyniają się do postępującej degradacji istniejących ekosystemów, powodując poważne zagrożenie dla różnorodności biologicznej naszej planety, emitując niebezpieczne zanieczyszczenia i nadmiernie wykorzystując dostępne zasoby naturalne. Istnieje konieczność przeprowadzania różnorodnych działań w celu zahamowania degradacji środowiska poprzez minimalizację negatywnego wpływu podmiotów gospodarczych, gospodarstw domowych i całego społeczeństwa. Nie wystarczą już tylko inicjatywy, których celem jest unieszkodliwianie zanieczyszczeń wytworzonych. Niezbędne jest poszukiwanie rozwiązań prowadzenia działalności w sposób jak najmniej uciążliwy dla środowiska w czasie planowania produkcji, projektowania dóbr oraz na każdym etapie procesu wytwórczego.

Społeczna odpowiedzialność przedsiębiorstw rozumiana jako dobrowolne uwzględnianie aspektów społecznych i ekologicznych w działaniach biznesowych oraz w kontaktach z interesariuszami, stała się pojęciem powszechnie znanym w Polsce. Rozwój koncepcji społecznej odpowiedzialności i zrównoważonego rozwoju ma ogromny wpływ na kształtowanie właściwych postaw proekologicznych w społeczeństwie. Z tej perspektywy, CSR może być traktowana jako koncepcja zapewniająca zrównoważony rozwój na poziomie mikro, czyli na poziomie przedsiębiorstw. CSR stanowi element zrównoważonego zarządzania. Może zapewnić realizację zasad zrównoważonego rozwoju nie tylko na poziomie społeczno-ekonomicznych systemów, ale także indywidualnych działaczy zaangażowanych w zmiany.

Województwo lubelskie jest regionem czystym i atrakcyjnym środowiskowo. W latach 2005-2010 w celu oceny działań prośrodowiskowych najczęściej podejmowanych w przedsiębiorstwach zostały przeprowadzone badania w grupie podmiotów prowadzących działalność w tym województwie. Celem artykułu jest ukazanie kierunku inicjatyw prośrodowiskowych wyznaczanych przy prowadzeniu działalności gospodarczej, najczęściej podejmowanych inwestycjach prośrodowiskowych, wprowadzanych systemach zarządzania środowiskowego, a także czynnikach skłaniających do uwzględniania wpływu podmiotów na stan środowiska naturalnego oraz barier takiego postępowania.

Slowa kluczowe: zarządzanie środowiskowe, społeczna odpowiedzialność biznesu (CSR), zrównoważony rozwój

#### 1. Introduction

The paper presents a reflection on ecological aspects of corporate social responsibility and research findings of the study on environmental activities of companies operating in Lublin Voivodeship. For the purpose of the study, we developed a dedicated questionnaire in order to obtain necessary information from the most polluting companies based in the region. Obtained data were transferred to Statistica version 9.1 software, used to carry out a statistical correlation analysis. The research findings indicate that generally employees have positive attitudes to corporate social responsibility and that big and medium-sized companies undertake more pro-environmental actions than small enterprises.

The main goal of eco-management is to reduce the adverse impact of business activity on the environment. Growing social awareness has caused companies to pay more attention to environmental issues. If a company wants to survive in the market in the long run, it should generate profits in accordance with the law. According to the APO model of social responsibility (after profit obligation), the most important task of every business entity is to generate profit and respect binding legal regulations. These are the basic obligations which constitute the base of social responsibility (Carroll, 1979). In the short term, environmental and economic goals compete with one another. However, a more environmental friendly approach is beneficial to enterprises and can allow them to increase their profits markedly through a significant decrease in energy consumption, costs of raw materials and production components (Adamczyk, Nitkiewicz, 2007). Companies which invest in pro-environmental projects and implement environmental management systems, for example ISO 14000 or EMAS, constantly monitor and analyze their environmental impacts and make corresponding efforts to reduce environmental burden of their business activities.

The scope of responsibility of business entities towards different groups of stakeholders is widely debated in Europe, including in Poland (Laszlo, 2008). Decent labor conditions, environmental protection, fulfilling contractual obligations, as well as the quest for solutions that can lead to a significant improvement in the quality of life of local communities, should all be essential components of contemporary business management systems. Customers, consumers and employees, in making their decisions, take account of various aspects of activities run by business entities. Therefore, all aspects of business activity, including legal, economic and social responsibility should be properly balanced. Only best managed companies can effectively achieve that equilibrium.

In relation to the environment, Corporate Social Responsibility (CSR) is a form of corporate selfregulation integrated into a business model whereby companies, besides generating profits, make efforts to ensure that undertaken activities are in strict compliance with the rules of law and ethical standards, and managers take account of environmental impacts of both operations and strategic decisions. This kind of approach is in line with the principles of sustainable development and contributes to significant improvements in the quality of life. Socially responsible business entities assume responsibility for the environmental effects of their activities, strive to reduce the levels of emitted pollutants and increase the efficiency of natural resources used (Mazurkiewicz, Grenna, 2003). One should remember that rapid economic growth, associated with the intensive exploitation of resources, is in opposition to the protection of these resources for future generations. Every nation has the right to use available natural resources but also the responsibility to protect its natural resources from intensive exploitation (Ikerd, 2008).

The concept of sustainable development is widely discussed in literature (Gawor, 2006, Piątek, 2007; Jaskiewicz, 2008; Sanchez, 2008; Pawlowski, 2009; Borys, 2010; Myga-Piątek, 2011). Many authors attempt to analyze ethical aspects related to ecology and the environment (Ikerd, 2008; Keitsch, 2011). The issue of responsibility relates to individual persons, as well as to various aspects of human activity, including economic, social and ecological activities (Kuzior, 2006).
# Development of Corporate Social Responsibility in Poland

The first phase of development of the concept of social responsibility in Poland took place between 1997 and 2000. During this time, the concept of social responsibility was hotly debated in literature, while entrepreneurs remained completely uninterested. The primary argument raised in the debate was that business owners have just one goal: to maximize the value of their enterprises. Adamczyk (2009) claims, that the concept of social responsibility in business developed markedly only in the period of 2000-2002 when some businessmen, journalists and political commentators became very concerned with the concept and considered the principles of the free economy as the canons of enterprise development. In 2000, the Responsible Business Forum (RBF) was established. It is the largest and the oldest non-governmental organization in Poland engaged in promoting responsible business. The Forum presents good CSR practices and undertakes other actions in order to encourage Polish companies to behave responsibly and make CSR principles standard in Polish business. RBF develops annual reports on CSR practices in the biggest Polish companies (Responsible Business Forum, 2002-2009) and presents comparative surveys of managerial attitudes towards social responsibility in various countries.

An increasing interest in the concept of corporate social responsibility was observed in 2002-2004, when big corporations, mainly companies with foreign capital, started making claims about their pro-ethical and socially engaged activities. In 2003, the Foundation for Social Communication (FSC) launched a report on nation-wide research on consumers' and opinion-makers' attitudes towards the idea of corporate social responsibility. Upon Poland's accession to the European Union in 2004. business circles started to become more actively engaged in various sponsoring and charity campaigns, largely regarded as part of their marketing activities. In 2006-2007, companies became much keener on publicizing their CSR practices and analyzed their business environment in order to identify expectations of various stakeholders. At that time, social responsibility was largely associated with charity activities (Adamczyk, 2009).

In 2006, the Institute for Private Enterprise and Democracy carried out a comprehensive, qualitative and quantitative study on gains and benefits derived by Polish companies from the implementation of CSR principles in their business activities.

The research included a statistical analysis of differences in distribution of variables determining benefits resulting from the implementation of CSR principles. The research was carried out on two groups of companies, companies that adopted a business model based on CSR principles, which was confirmed by Business Fair Play Certificates, and a group of companies which did not participate in the Business Fair Play Certification Program, operating in the same sector and employing similar numbers of employees. These companies were selected from a database kept by the Central Statistical Office (Bak et al., 2006).

Current liquidity is markedly higher in companies which have adopted and consistently applied in their business activities the principles of corporate social responsibility (higher by approx. 80%), which is very important in a business model based on human capital. Human resources are also better utilized. In that group of companies' gross profit per employee was 22% higher. On average, sales income was lower; however, sales profitability was higher by about 13.5%. It was also observed that the average salary in this group of companies was about 20% higher than in companies that did not adopt the CSR-based business model. Certainly the observed differences may be caused by various factors and socially responsible business conduct may not be the only contributor.

In the period between 2008 and 2011, a growing number of press publications, articles in professional journals as well as conferences promoting the development of responsible business was observed in Poland. Today, one can easily observe that the concept of CSR, which has developed dynamically in western European companies in the 1970s, is becoming equally popular in Polish companies.

Werther and Chandler (2006) claim that the growing importance of CSR in the 21<sup>st</sup> century has been caused by a series of factors, including the growing affluence of certain segments of society, which stimulates further growth and development, changes in social expectations resulting from growing social awareness, progressive globalization, the free flow of information, and the necessity for ecologically sustainable development.

The aim of the Lisbon Strategy, set out by the European Council in March 2000, was to make the European Union the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth. The European Union member states undertake many initiatives towards sustainable development (Pawłowski, 2009). According to Article 5 of the Polish Constitution, the Republic of Poland shall ensure the protection of the natural environment pursuant to the principles of sustainable development. In many aspects and areas the concepts of social responsibility and sustainable development overlap, which contributes to the integration of economic, social and environmental goals. From this perspective, corporate social responsibility can ensure sustainable development at the level of enterprises (the micro level). Some authors profess that effective implementation of CSR principles can not only contribute to sustainable development at the level of socioeconomical systems, but also at the level of individual players engaged in the process of change (Perrini et al., 2006).

A. Pawlowski points to several groups of problems associated with sustainable development. He claims that the ongoing discussion on sustainable development touches on three levels (Pawlowski, 2011). The first level is ethical reflection. The second level concerns environmental, social and economic issues. And finally, the third and equally important level of the debate concerns a wide range of technical, legal and political issues. According to Pawlowski the most important is the moral dimension. He claims that without ethical reflection the sustainable development revolution would never have taken place. The most hotly debated is the second level, however, without the third level any precise practical solutions would be unfeasible. CSR activities could also use such a hierarchy, but with some restrictions concerning the third level, because CSR should go beyond legal requirements and political pressures.

# A Study of Corporate Social Responsibility in the Lublin Region

Social responsibility issues have been widely discussed for a number of years now and the research finding are presented during thematic conferences. In 2005-2009 Faculty of Management of the Lublin University of Technology carried out a research project on the social responsibility of businesses based in the Lublin region and environmental aspects of undertaken CSR activities.

The research involved a group of employees and managers, including managers and employees of companies which activity constitute significant burdens for the environment.

The Lublin region, which occupies 12% of the total area of Poland, is located in central-eastern part of Poland between the Vistula and Bug rivers. Its eastern frontier borders with Belarus and Ukraine. The region is clean and environmentally attractive, which is conducive to the development of tourism and agro-tourism, as well as health resorts. This is the reason why both regional and local authorities as well as local communities pay a lot of attention to the way companies operating in the region behave toward the environment. A prime example of this care can be The Economic Prize Contest organized annually by the President of the city of Lublin. Regional development strategy perceive the region as a future Ecopolis that take advantage of its most valuable assets - pure environment, healthy food, tourist potential and renewable energy sources. Most entrepreneurs demonstrate their commitment to environmental issues and cares of various stakeholders. Regional economic development strategy is based on the two key elements efficient regional business and very attractive regional health resorts and spas, as well as development of agro-tourism. There is a common consensus that the region should develop in a sustainable manner and its economic growth should be reconciled with a wide range of environmental issues, including development of cleaner production technologies.

During the first stage of the research, which involved a group of 600 employees of randomly selected enterprises, it was revealed that social responsibility was mainly associated with ethical behavior, acting according to binding legal regulations and care of the environment going beyond the legal requirements. According to the respondents' opinions, a more positive company image and a cleaner environment are among the most important benefits resulting from socially responsible attitudes.

The second stage of this empirical research was designed to analyze the most frequent environment protection activities, was carried out on a sample of companies whose business activity generates a significant burden for the environment in the Lublin region. The research sample was selected based on the classification of installations that can produce significant pollution in the environment or certain eco-systems, listed in a document issued in 2002 by the Minister of the Environment (Journal of Laws of 2002, no 122, item 1055). Initially, 103 business entities were selected, but finally the research involved 53 enterprises.

The research proved a close link between the company's size and its ecological activities. Researchers observed that there was a correlation between the size of the company and the number of undertaken ecological and environmental initiatives going beyond the legal requirements (correlation coefficient r = 0.6779). The number of ecological and environmental initiatives undertaken by organizations, depending on the number of employees, can be expressed by the following formula:

LDP (AEA) = 
$$2,2893 + 0,0152 * x$$

where:

x represents the number of employees, and LDP (AEA) represents the number of ecological (pro-environmental) initiatives.

The research revealed that small businesses generally are not interested in the implementation of environmental management systems (EMS) and their environmental activities are confined to those explicitly required by the law. Most proenvironmental measures were undertaken by big and medium-sized companies. They also more frequently incorporate environmental management systems into their business management systems, spend more on staff training, and invest in research and development projects more than small enterprises. As for micro-enterprises and small enterprises, owners are mainly responsible for environmental protection issues. Frequently these issues are also entrusted to employees responsible for occupational health and safety, quality assurance departments or even to technical personnel. Bigger companies have specialized departments responsible for environmental protection issues that are staffed by highly qualified personnel, well-prepared to deal with environmental issues.

Figure 1. Correlation between company size, measured by the number of employees, and the number of undertaken pro-environmental activities and initiatives (Authors' own work)



The implementation of environmental management systems (EMS) is currently becoming one of the most popular environmental protection activities. Almost 40% of respondents declared that they either had already put into practice the ISO 14001 standard or had plans to implement it in the near future. The purpose of this standard is to help all types of organizations to minimize their environmental footprint and improve their environmental performance regardless of the kind and extent of business operations, based on developed and introduced procedures. To date, the European Union's Eco-Management and Audit Scheme (EMAS) is little-known in Poland. The EMAS implementation procedure is quite complex, takes a lot of time and requires substantial capital and human resources. Despite potential difficulties, a growing number of companies have plans to put EMAS into practice in the future.

According to the research, most companies operating in the Lublin region undertook actions aimed at reducing air pollution which went beyond requirements imposed by the law. About 41% of analyzed units have purchased equipment that reduces or neutralizes gas pollutants emitted in the atmosphere and 47% of companies have installed dust pollutant collectors. Pro-environmental investments in almost 50% of analyzed companies included biological sewage treatment plants, modernization of sewage systems and equipment reducing the amount of produced contaminants and decreasing their harmfulness.

The research also revealed that environmental fees, including fees for the modification of the environ-

ment and using its resources for economic activity, tax relief, preferential credits and loans, credit guarantees, as well as the possibility of converting fees imposed for the excessive pollution into investments reducing this pollution turned out to be the most effective environmental policy instruments. In the case of a cement plant included in the research, the most effective instruments were transferable pollution emission permits, emission certificates and fees for excessive levels of pollutant emission.

There is no doubt that the ecological awareness of top-level managers of the companies analyzed was the main factor that, besides the binding legal regulations and possible sanctions, has motivated them to undertake pro-environmental activities and initiatives. Pro-environmental investment decisions were made based on environmental regulations, recommendations made by regulatory authorities, and the managements' ecological awareness. Almost 70% of top-level decision-makers expressed opinions that pro-environmental activities were less costly than corrective actions, and over 50% of them demonstrated sufficient knowledge about how the reduction of emitted pollutants can contribute to ensuring atmospheric balance. 67% of top level managers took the view that pro-environment activities had improved their company's image and perception by customers.

The research also showed that managers noticed measurable economic benefits resulting from environment protection investments. They pointed to the lower environmental fees (46% of respondents, including 34% of managers who managed to decrease environmental fees by up to 30%), and lower equipment and machinery utilization fees calculated by production volume and machinery efficiency (indicated by 21% of respondents). Proenvironment investments should be regarded as long-term profitable investments. In the analyzed companies an average investment return period ranged from 5-10 years (42% of companies). Sixty percent of companies that made pro-environment investments found them profitable, while 33% of companies did not analyze the profitability of undertaken ecological investments. Additional benefits resulting from the implementation of environmental management systems and pro-environment investments pointed to by the companies covered in the study included developing internal regulations and procedures relating to the company's daily operations, development of environmental impact monitoring systems, as well as a significant increase in the number of new customers and increased loyalty of business partners.

In 2004-2008, pro-environment investment outlays, purchased services, and expenditures associated with the research and development works and staff training were the most significant components of the environmental protection budgets of companies included in the study. Regardless of the fact whether managers are motivated by pressures exerted by the stakeholders or act voluntarily, if their activities go beyond the legal requirements, they can be considered as manifestations of corporate social responsibility and therefore they contribute to sustainable development. It was also observed that in 2006-2008 these companies gradually decreased the percentage of pro-environment investment outlays in their environmental protection budgets, while the proportion of costs associated with factory laboratories, research-and-development and staff training costs increased.

Limited financial resources turned out to be the main barrier that hampered pro-environment and ecological investment decisions. Entrepreneurs pointed to the high costs of ecological investments, long investment return period, difficult financial conditions and other investment priorities. Eighty seven percent of companies financed proenvironment investments from their own resources but only a quarter of these businesses managed to win co-financing by the National Environmental Protection Fund (NEPF), Regional Environmental Protection Fund (REPF) or other assistance funds offered by the European Union.

### Conclusion

In the Lublin region, the concept of social responsibility is associated mainly with environmental protection and running business activities in accordance with eco-management principles. Often the companies undertake pro-environment investments in order to reduce air pollution and to modernize existing water supply installations, as well as sewage collection and disposal systems. A typical investment return period is up to 10 years. Therefore, companies, which comply with eco-management principles, should be encouraged to seek external financial resources, for example preferential credits, grants and subsidies offered within the framework of various EU programs. The most popular ecomanagement system is the ISO 14000 environmental management system, composed of the ISO 14000 family of international standards, which was developed in order to help organizations take a more proactive approach to the management of environmental issues. The Eco-Management and Audit Scheme (EMAS), developed by the European Union, previously unknown in Poland, is now becoming increasingly popular.

Our research revealed that big and medium-sized companies, more often than small enterprises, get involved in environmental protection undertakings. Therefore, micro- and small enterprises should be encouraged to take a more active role in environmental protection. Support provided by regional and local authorities as well as the promotion of socially responsible behaviors are the main contributors to the fact that the Lublin region still features a clean environment and undamaged natural conditions.

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## **Time for the Intellect to Take Over From Mind** O racjonalnym myśleniu i kierowaniu się emocjami

Any person actively committed to sustainable development, when he/she keeps his/her eyes open to happenings in society, catches behavioural signals which when analysed by his/her intellect against the backdrop of his/her personal commitments and beliefs, seem to be deterrents to efforts being made to usher in sustainable development. Toying around with these niggling irritants in one's mind strengthens one's resolve to speak out, write and make the deluded brethren understand that they are often sadly mistaken. More often than not, these individuals are essentially those who are enslaved by their emotions and attachments to sensory objects in the material world. Mind and Body individuals in other words, who refuse adamantly to allow their Intellect and Soul to take charge and bring their minds and bodies under their sway.



Figure 1. Body, mind, intellect and soul & sustainable development

We can start off with Figure 1 which illustrates the gist of the introduction above (adapted from *The Holy Geeta: Commentary by Swami Chinmaya-nanda*, published by the Central Chinmaya Mission Trust in Mumbai, India). The gross body is the physical envelope including the sensory organs, organs of action (legs, hands etc.), and the internal physical constituents of the human body. The mind (seat of emotions), intellect (seat of reasoning) and soul (seat of perfect realisation) are the other facets

of human existence, in increasing order of subtleness. The sensory objects of the external world through stimuli of sound, taste, smell, touch and sight, interact with the sensory organs which pass the stimuli back to the mind. A thinking, reasoning individual will involve the intellect (and the soul, if the individual is a self-realised person) before instructing the organs of action to act (or abstain from acting). An emotional person – the Body and Mind individual alluded to earlier, will be spurred on by his/her emotional attachment to the external world. The actions of the former – when the individual is committed to the cause of sustainable development - would be blessings for the society and the world; while the actions of the latter would be deterrents to sustainable development.

## **Rebound effect**

Seven years ago, in Singapore, as a student at the Nanyang Technological University, I was having lunch at one of the university eateries. A Chinese colleague of mine seated opposite me, got up leaving a half-full plate of food on the table (which was duly consigned to the trash can by the cleaner woman later). I looked at the plate and up at his face and made a futile attempt to conceal my annoyance, as thoughts of famished, ill-nourished children in sub-Saharan Africa flashed across my mind.

What? He challenged me arrogantly.

*Why have you wasted food?* I said with the utmost self-restraint.

Singapore has a very efficient food-waste handling system. You should know that. They make biogas out of all this food waste. He smirked and walked away.

I did not want to wrestle with the smart Alec. I let the matter rest.

Yes, that is right. The food yields a lot of biogas. But it also takes a lot of effort and energy (both manual and fossil) to make it. Also, more importantly, there are others who would need it for its primary purpose – nutrition. Some would say that they are using their money to buy food which they waste, and not someone else's – so it is not anyone else's problem. It may not be anyone else's problem, but a problem it is, for sure, for sustainable development. The so-called rebound effect of setting up efficient waste collection and material/energy recovery systems; or a type of the same.

More recently, in Trondheim, at the Norwegian University of Science and Technology, where I am employed at the time of writing, as a post-doctoral researcher, I asked a colleague who was about to throw away a stack of papers, one side of each of them plain and not written or typed upon, to hand them over to me. I have developed a habit of using paper optimally and writing on both sides of each sheet with pencil (which aids in the reduction of chemicals usage during the recycling process). The proclivity to writing first, before typing matter onto a laptop screen, has come in handy. The colleague studied me with a *where-has-this-guy-come-from* look and quipped – *We all know that there is 100% paper recycling in this country. So, do not bother. Sending more and more waste paper to the paper mills is a good thing!* The rebound effect again!

One talks about the rebound effect when it comes to consumption or purchase of goods. It is rarely talked about when the end-of-life is in focus. One needs to get to the root of these misunderstandings and effect a permanent healing. While these two real-life observations prove that changes which prima facie are deemed to be good are sometimes not so, when one acts on impulse, spurred by emotions and force of habit. He/she is loath to subject his/her mind to the examination of the intellect (It would be good not to refer to the Soul here, as this article would then fail to motivate atheists and people professing faiths which do not believe in the Soul). Surely, every human being would agree that there is a Mind and an Intellect with each one of us. Paper and food were instances which came to mind when yours sincerely recalled these incidents. There is however a more common failing, universal and often unresolvable. It is worth giving a thought to this, in the paragraphs that follow.

## Gifts - a new perspective

The difference between the Lake of Galilee and the Dead Sea is that the blessing (river Jordan) flows in and out of the former, while in the latter, it flows in and stays there. The Dead Sea is absolutely dead – no fish can survive in it. The Lake of Galilee is full of vivacity and vibrancy. This is attributed to David Steindl-Rast & Sharon Lebell (Music of Silence, 2002).

A blessing is a divine gift, and the goodness associated with it and happening as a consequence of it is meant to be shared and passed on to envelop the whole of the sea of humanity (Venkatesh, Gift of the Tyagi, www.upanishabd.com, 2009). If the Earth had been blessed by God with abundant resources, they were meant to be shared and equitably distributed to enable the whole of mankind to reap the benefits thereof. Alas, we all know that it has never been so. *Keep what you need, and spread the others around to those who do not have access to the same*. A much-hackneyed spiritual message, which sadly languishes in books. The bridge between practice and precept, walking and talking, is widening in the post-modern era. While that takes a macroscopic view of the material bounties that mankind has been thriving on over the years, one can apply the same spiritual message to gifts exchanged among individuals. Gift-giving, which is more satisfying for the giver, in its purest form, is an expression of all that is noble in man. Of course, the act of giving gifts also has darker connotations - bribes, obligatory acts, inter alia. While receiving a material gift often compels man to view it as an obligation to repay the kind deed (with material objects), it also impels him to shower other acquaintances and friends with gifts, often motivated by the wrong reasons. There are often lock-ins when man, owing to emotional clinging and sentimental attachments to material objects, refuses to part with them. The blessings get stored up and stagnate, and in due course of time, the functionality associated with the objects is lost – quite like the Dead Sea being absolutely dead. At times, gifts are white elephants and more than the happiness they confer in the beginning, they also turn irksome when they demand periodic maintenance in the form of cleaning, dusting, restoring, relocating etc. The fact that they were once items of sentimental value is overshadowed by the angst and anxiety that their deterioration with time lead to.

If my brother for instance gifts me with something, as a symbol of fraternal affection, he would be the happiest person in the world if I, after finding use for the gift, pass it on to someone in greater need of the same, than I. It is his gift which finds a medium through me to bring joy and happiness and add value to a third person's life; and perhaps many more later on, if this third person also thinks as I do. The *blessing* thus moves on, helping several people during its *physical lifetime*, rather than being locked up for its sentimental value in the *almirah*, showcase or a suitcase.

The receiver multiplies the satisfaction of the giver, if he (the former) passes it on. A book gifted by my father for example, certainly has incomparable value. But the value is enhanced when I donate it after reading, to a library wherefrom it will be accessible to thousands, maybe millions during its lifetime. The earlier I donate it, the better – the impact of the *blessing* will be much greater, available to many when needed. At a later date, the need for the same may not exist. A delayed donation – after the book has spent many years in a book-case – may not really spread the *blessing* as effectively.

Sentimental attachment to material gifts is also materialism, though not as stark as the craving for objects of comfort and luxury. Memories of good deeds last forever and do not need items of paper, cloth, glass, rubber, metal or leather to serve as mnemonics. While the material component is to be appreciated, enjoyed and promptly shared, the underlying subtle component is to be preserved in the lake of Galilee that is found within each one of us. Blessings graze past an evolved mind, nourishing and calming it, leaving behind traces of the uplifting subtle. The multiplier effect is played out and the value of the gifts fully realised. By passing on gifts, the receiver has expressed his thankfulness exceedingly well, augmenting further the giver's stock of virtuous deeds. This may be an entirely new perspective. It is however not to dub sentimental and emotional human beings as irrational or wrong in any way. This may just serve as food for thought – accepted or rejected. De-stock, give and free yourself. Blessings flowing in should flow out as well – the subtle traces remain nevertheless.

### En passant

It is good to keep our eyes and ears open, observe and attempt to mend the ways of people around us...calmly, patiently, while remembering that the *You are wrong, I am right* approach fails to yield the expected results.

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