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FOREWORD

The entry into a non-expansionary phase of the economic cycle, caused by the financial and economic crisis raised serious budgetary constraints to most countries since 2009, and reopened a debate that reconsiders the institutions and rules governing the functioning of markets. However, even in times of crisis, it is fundamental not to neglect the growth potential of policies that promote green and sustainable development, especially when the global landscape is being reconfigured by new technological paradigms, a new set of players and a high degree of uncertainty.

The emergence of a shift in consumers' preferences, more focused towards a greener economy and the rising concern about sustainable growth and development policies' implementation, call for renewed government intervention. Industrial and environmental policies can no doubt play an important role in supporting the channelling of resources necessary to guide technical change towards more sustainable practices.

Sustained growth is often associated with the creation of a productive manufacturing base and with tailor-made government intervention that usually goes along with it. But in fact, achieving green growth entails a more sophisticated production structure, with reforms that touch on many policy areas ranging from marketing, innovation, to territorial development and financing. The issue is not merely one of being part of the value chain, but of being in a position that allows capturing most of its value.

But growth must be accompanied by development. The traditional priorities of growth, focused on job creation and international competitiveness are increasingly being replaced by policies centred at sustainable development, social cohesion and territorial inclusion. Yet, an international agreement on how to shift towards sustainable industrial and environmental development and who should bear the costs is still pretty far off.

Despite the ongoing debate concerning sustainable development at the global level and its impact on future development strategies, several countries, including developing economies, are already prioritising sustainable development and investing in sustainable business models and technologies. The pursuit of sustainable development creates further opportunities in new environmental-related technologies and in environmentally friendly business models. Developed and developing countries are exploring new ways of entering into new sectors and engaging on new activities. Most of them are implementing new schemes to finance innovation and innovative marketing on a larger scale.

Different countries use different mechanisms, but overall this can be done in two basic ways, by providing financing to green projects at favourable interest rates and by presenting specific lines of financing for renewable energy projects; or by making use of direct subsidies, tax credits and regulations to foster the development of sustainable industries.

Policy actions are bound to include incentives that enable the shift towards new production and consumption patterns, aiming at diversifying the production structure, either by creating capacities in new economic sectors (e.g. biotechnology) or in new types of activities (e.g. new value-added services). Other

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actions seek to promote specialisation and the upgrading of existing activities and/or sectors (e.g.retail; alternative financial services such as green car loans, energy efficiency mortgages, and alternative energy venture capital).

Furthermore, as sustainable development involves more than sustainable technologies, new dimensions are also being built into the design and implementation of sustainable policies. These new dimensions include incentives to influence consumption patterns and cultural behaviours. Several countries are investing in improving legal frameworks and in awareness campaigns, making use of green marketing, sustainable retail development and social responsibility campaigns, among others.

This edition of the Journal of Economic Development, Environment and People dwells on these aspects and offers additional evidence as to how environmental, marketing and banking strategies can foster an economy's structural transformation towards increased sustainable development, corporate responsibility and environmental protection.

Elsa de Morais Sarmento

The World Bank, USA

Universidade de Aveiro, Portugal

Lisbon, 28th of June, 2013

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Foreword - (reviewers' view)

It is indeed a singular honor to be asked to write this Foreword for a prestigious journal like JEDEP that has now come out with its fifth issue.

I would like to share a thought that came to me as I was reading the abstracts. When you are presented with a bouquet of flowers all of the same hue and color it is beautiful. But when the flowers are in various colors but yet of the same biological genre this beauty is enhanced. That is true of this issue of the journal and the contribution of the authors as well. To begin with, for a person who has been looking into organizational excellence and business sustainability for the past two decades, this cluster of essays made delightful reading.

The first paper by Dragan Ilić, Jasmina Stanković and Stanko Ilić has made a lot of inroads into problems that we in India as well face. The enigmatic question they raise when they write "What would be the marketing steps that a company could take to benefit from its "sustainability focus?" The key to any marketing program is to differentiate a company's actions from those of competitors and to do it along lines that its various stakeholders care about" takes the debate from the market-place into the hearts and desires of the stakeholders.

The next paper by Jelena Prodanović, Marina Šćiban and Mirjana Antov on the improvement of waste water treatment has a very forthright message: The aim of *this paper is a consideration of potential environmental benefits of substitution of* alum by natural coagulant extracted from common bean seeds in sewage wastewater treatment process. Water has become a very important metric in human sustainability so much so that future wars may well be fought for water just as earlier ones were fought for land.

Jelena Premović and Tamara Premović, thereafter hint on the wanton plunder of *Mother Earth in their work on environment protection as a presumption of* sustainable development. They posit the argument that rapid (market driven) economic growth and irrational use of natural resources (to satiate human greed for profit) in the last decades of the twentieth century have influenced the changes in the environmental sphere and to specific environmental problems. Dwindling reserves of flora and fauna, melting of glaciers, global warming and erratic weather is there for all to see. We hold this world in trust for future generations and so when the objective of sustainable development outlined at the UN Conference on Environment and Development in Rio De Janeiro in 1992 and the ISO 14000 Standards were created it becomes our civic as well as historic duty to ensure that these two initiatives succeed – for the good of humankind.

When the doctoral scholar Maja Drobnjaković, argues that there is an urgent need to march towards "low - carbon economy", he is outlining the terms of a new crusade. Global challenges, he says, of diminishing fossil fuel reserves, climate change, environmental management and finite natural resources

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serving an expanding population. For him these reasons mean that urgent action is required to transition to solutions which minimize environmental world impact and are sustainable. One cannot agree more!

In a manner of speaking, Zoran Mijatović, R. Kobilarov, B. T. Vujičić, and D. T. Mihailović in their research paper reinforce the prognosis posited earlier in that in monitoring of sun's ultra violet radiation and stratospheric ozone layer thickness over the region of Novi Sad (Serbia) and have concluded that during observational period, the significant difference in daily maxima of the UV radiation recordings or ozone seasonal maximal values from year to year, has not been detected.

Finally Saša Raletić, and Dragana Beljanski excellently champion the cause of Green Marketing as a Form of Social Responsibility in Serbia thereby making an academically based rational as well as emotional appeal to conserve the environment.

In congratulating the eminent contributors all I can say that they spoke from their heart but reasoned with their head. I see a great future ahead for the journal, the editorial team and the contributors on the basis of what I had the privilege to read. I wish them good luck.

Dr Sorab Sadri ***June 2013***
Professor of Political Economy and Management Sciences
Director School of Humanities
JECRC University, Jaipur 303905, Rajasthan, India
sorab.sadri2010@gmail.com

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Environment Protection as a Presumption of Sustainable Development

M.Sc Jelena Premović, Tamara Premović, Phd student
The University of Novi Sad, Serbia

Abstract.
Rapid economic growth and irrational use of natural resources in the last decades of the XX century have influenced the changes in the environmental sphere and to specific environmental problems. These processes in the global economy and society, caused a disturbance of the environment by increasing pollution of the environment.
Emerging problems of the entire human society can be solved by applying the concept of sustainable growth and development and raising awareness about the necessity of implementation of basic environmental standards in business. In order to reduce the harmful effects of production processes on the environment and to help meet the objective of sustainable development outlined at the UN Conference on Environment and Development in Rio De Janeiro in 1992 the ISO 14000 Standards were created.
The essence of sustainable development is responsible development that meets the current needs a way to rationally use natural resources to ensure meeting the needs of future generations and environment protection.

Keywords: environment, environment protection, growth, sustainable development.

JEL Codes: Q44, Q01

1. Introduction

In the whole development of human society, man has sought to meet their environment and understand the basic laws of natural phenomena that occur in it to master the same and to achieve higher performance and a result of their work.

Global world environment at the end of XX and at beginning of XXI century is characterized by the scientifically and technological progress, which is escorted by constant and dynamical changes in the socio-economic processes. Technical and technological achievements were accompanied by demands for increased productivity and quality of products and services. In those times, business companies were focused on achieving growth in the volume of production whose result was the increase in profits. Therefore, imperative task manager has been achieving so called „economy of scale", so the success of the company was measured by the quantity produced and sold products and services. On the other hand, these phenomena and processes in the global economy and society have influenced the changes in the environmental sphere and to specific environmental problems are gradually gaining multiply growing, global dimension. Increase the physical volume of production in response to the growing needs of consumers and society, caused a disturbance of the environment by increasing pollution of the environment (Premović, et al., in press).

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2. Environmental protection management

Dynamical economic growth and irrational use of natural resources 70th of the last century, have influenced the emergence of global structural crisis in energy and raw materials. "Key environmental areas of interest include climate change, water supply and waste water, air pollution, waste management and hazardous waste, and land use issues such as deforestation, desertification, and urban sprawl…Environmental protection is a practice of protecting the environment, on individual, organizational or governmental level, for the benefit of the natural environment and (or) humans" (www.library.thinkquest.org/26026/Environmental_Problems).

Disproportion in the development of individual countries and regions, caused shortages of certain products on the world market, which is its immediate consequence the sudden jump in the prices of scarce products, growth, unemployment and the decline in income - only confirmed the necessity of practical implementation of environmental protection management as a new management concept in everyday life companies.

"Conservation is a state of harmony between men and land. Environmental management is the practice of creating this harmony. It involves management of both the living and non-living components-all components of nature." (Leopold, A. source: www.qfinance.com).

Following global environmental changes, in June 1972 in Nairobi, was held the United Nations Conference on the Human Environment. The United Nations Environment Programme (UNEP) coordinates United Nations environmental activities, assisting developing countries in implementing environmentally sound policies and practices. UNEP is the designated authority of the UN system in environmental issues at the global and regional level. Its mandate is to coordinate the development of environmental policy consensus by keeping the global environment under review and bringing emerging issues to the attention of governments and the international community for action. The mandate and objectives of UNEP emanate from United Nations General Assembly resolution 2997 (XXVII) of 15 December 1972 and subsequent amendments adopted at UNCED in 1992, the Nairobi Declaration on the Role and Mandate of UNEP, adopted at the Nineteenth Session of the UNEP Governing Council, and the Malmo Ministerial Declaration of 31 May 2000

(http://en.wikipedia.org/wiki/Environmental_management).

Environmental management is a new concept for solving environmental problems, and it "includes organizational structure, processes, procedures, resources for the implementation of environmental policy and accountability in the region." (Ivanović et al., 2005). It is „the process by which environmental health is regulated. It does not involve managing the environment itself, but it is the process of taking steps and behaviors to have a positive effect on the environment. Environmental management involves the wise use of activity and resources to have an impact on the world". (www.wisegeek.com/what-is-environmental- management.htm)

We can conclude that the essence of the application of environmental protection management is to ensure the necessary conditions for the effective planning and operation of companies with the factors in the environment.

In order to reduce the harmful effects of production processes on the environment, and in response to the social responsibility of companies, are defined and specific environmental standards ISO 14000 which must adhere to managers.

„The ISO 14000 Standards are a set of environmental standards designed by the International Organization for Standardization 1994 to assure that businesses are environmentally responsible. The

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ISO 14000 Standards were created to help meet the objective of "sustainable development" outlined at the United Nations Conference on Environment and Development in Rio De Janeiro in 1992. The ISO 14000 Standards include guidelines for waste disposal, use of natural resources, pollution control and environmental responsibility. The ISO 14000 Standards also include sets of tests and measures that help organizations and businesses measure the impact they are having on the environment. ISO 14001 is the corner stone standard of the ISO 14000 series. It specifies a framework of control for an Environmental Management System against which an organization can be certified by a third party.

ISO 14001 was first published in 1996 and specifies the actual requirements for an environmental management system. It applies to those environmental aspects which the organization has control and over which it can be expected to have an influence.

Other standards in the series are actually guidelines, many to help you achieve registration to ISO 14001. These include the following:

- ✓ ISO 14004 provides guidance on the development and implementation of environmental management systems,
- ✓ ISO 14010 provides general principles of environmental auditing (now superseded by ISO 19011),
- ✓ ISO 14011 provides specific guidance on audit an environmental management system (now superseded by ISO 19011),
- ✓ ISO 14012 provides guidance on qualification criteria for environmental auditors and lead auditors (now superseded by ISO 19011),
- ✓ ISO 14013/5 provides audit program review and assessment material,
- ✓ ISO 14020+ labeling issues,
- ✓ ISO 14030+ provides guidance on performance targets and monitoring within an Environmental Management System,
- ✓ ISO 14040+ covers life cycle issues.

Of all these, ISO14001 is not only the most well known, but is the only ISO 14000 standard against which it is currently possible to be certified by an external certification authority." (Premović et al., in press).

3. Sustainable development

According to these social and economic changes in the world's environment, at the beginning of the XXI century, the question of national economy development become quite different, so instead development theory based on „natural restruction" in achieving high development rate in the long term, today dominant role has theory of sustainable growth and development.

Emerging problems of the entire human society can be solved by applying the concept of sustainable growth and development and raising awareness about the necessity of implementation of basic environmental standards in business.

The World Commission on Environment and Development was initiated by the General Assembly of the United Nations in 1982, and its report, Our Common Future, was published in 1987.

It was chaired by then–Prime Minister of Norway Gro Harlem Brundtland, thus earning the name the "Brundtland Commission." The Brundtland Commission began its work committed to the unity of environment and development. As Brundtland argued the environment does not exist as a sphere

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separate from human actions, ambitions, needs and attempts to defend it in isolation from human concerns have given the very word "environment" a connotation of naivety in some political circles. The word "development" has also been narrowed by some into a very limited focus, along the lines of "what poor nations should do to become richer," and thus again is automatically dismissed by many in the international arena as being a concern of specialists, of those involved in questions of "development assistance…But the "environment" is where we live; and "development" is what we all do in attempting to improve our lot within that abode. The two are inseparable (Kates, R.W. et al., 2005).

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs" (WCED, 1987).

"Awakening of ecological consciousness" influenced the decision-Business Charter of Sustainable Development 1991st in which the environmental management marked a key determinant for sustainable development and the priority task of the modern enterprise. This Charter was proclaimed that ecology and environment protection must be integrated into the management of the company and that its promotion must be a continuous process, to ensure that employees are required to motivate and educate environmentally, that we must make a constant assessment of environmental consequences of any new processes and products, the company must assume responsibility for the behavior of their subcontractors and suppliers, that the company must be open to dialogue on environmental risks and engaged in joint efforts to promote environmental awareness and regularly informing all interested parties. A year later, 1992 in Rio de Janeiru held The First International Environmental Summit which adopted Agenda 21. Starting from the Business Charter of Sustainable Development to elaborate further principles for strengthening the role of business entities in the environment is very important. The Agenda 21 explicitly defined category of environmental management as one of the priorities of each business entity (Premović and Drašković, 2010).

In 2002, at the World Summit on Sustainable Development in Johannesburg, South Africa, the commitment to sustainable development was reaffirmed. The 2002 World Summit on Sustainable Development marked a further expansion of the standard definition with the widely used three pillars of sustainable development: economic, social, and environmental. The Johannesburg Declaration created "a collective responsibility to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development—economic development, social development and environmental protection—at local, national, regional and global levels."

The original emphasis on economic development and environmental protection has been broadened and deepened to include alternative notions of development (human and social) and alternative views of nature (anthropocentric versus ecocentric). Thus, the concept maintains a creative tension between a few core principles and openness to reinterpretation and adaptation to different social and ecological contexts.

"The basic focus of the sustainable development is society and its need for involving care for environment while social and economic changes are anticipating and planning. Sustainable development could be consider as a „roof concept" which including many different ideas" (Milutinović, 2009).

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According to Professor Agneš Boljević, the bridge between ecology and economy is sustainable growth and development. The essence of sustainable development is responsible for development or development that meets the current needs a way to rationally use natural resources to ensure meeting the needs of future generations (Boljević, 2008).

Sustainable development is a way of thinking about how we organize our lives and work so that we protect our most precious resource - Planet, a way to promote economic growth, rational utilization of resources, and environmental protection for the benefit of the quality of life. As a life philosophy, it is a complex and long-lasting process aiming to satisfy our today's needs, not destroying resources of the future generation! Defined like this as a responsibility toward environment, future generations and intensity of satisfying the needs, it can be applied as a national policy with different aspects: economic, demographic, social, cultural, urban planning, infrastructure, etc. (Sinadinovska-Shumar and Donev, 2010).

Sustainable development thus requires the participation of diverse stakeholders and perspectives, with the ideal of reconciling different and sometimes opposing values and goals toward a new synthesis and subsequent coordination of mutual action to achieve multiple values simultaneously and even synergistically.

4. Conclusion

Increase the physical volume of production in response to the growing needs of consumers and society in the last decades of the XX century caused variety environmental problems by increasing pollution of the environment. These environmental problems can be solved by applying the concept of sustainable growth and development and implementing the basic environmental standards in business.

Increasing awareness of environmental protection in the framework of sustainable development, contribute to the need to integrate environmental protection management as a new concept for solving environmental problems in the context of modern business.

Sustainable development has been defined in many different ways, but all definitions require a systematic and holistic approaches which will alow us to understand the entire world as a complex system. "The concept of sustainable development does imply limits—not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities" (Kates, R.W. et al., 2005).

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Monitoring of Sun's Uv Radiation and Stratospheric Ozone Layer Thickness over the Region of Novi Sad (Serbia)

Prof. Zoran Mijatović, PhD, R. Kobilarov, B. T. Vujičić, D. T. Mihailović
University of Novi Sad, Serbia

Abstract.
The results of the Sun's UV radiation and stratospheric ozone layer thickness over the region of Novi Sad (Serbia) are reported. Monitoring the UV radiation and stratospheric ozone layer thickness started in 2003 and 2007 respectively. Results recorded during these years have been analyzed. Upon these analyses it can be concluded that during observational period, the significant difference in daily maxima of the UV radiation recordings or ozone seasonal maximal values from year to year, has not been detected. Obtained results are graphically depicted.

Keywords: Solar radiation, UV radiation, UV monitoring, Ozone layer

JEL Codes: Q53, Q54

1. Introduction

Sun, the closest star to our planet, emits electromagnetic radiation in a wide range spectrum. This radiation is called Sun's or solar radiation. Part of the radiation is emitted in ultraviolet (UV) wavelength range below 400 nm (CIE - Commission Internationale de l'Eclairage definition). The great amount of this radiation is absorbed, reflected or scattered by the Earth's atmosphere. Particularly important role in the absorption has the stratospheric ozone (O3 molecule) layer where UV radiation is mostly absorbed. This layer completely absorbs radiation of wavelengths below 280 nm, so called UV-C radiation which has germicidal effect, i.e. kills bacteria. The radiation in the wavelength range 280 – 400 nm (UV-B, 280 – 320 nm and UV-A, 320 – 400 nm) is partly absorbed. Amount of the absorbed radiation strongly depends on ozone layer thickness. Namely, the amount of absorbed radiation is getting higher when ozone layer thickness goes up.

Besides useful effects, the UV radiation has harmful effects on humans, plants, animals and ecosystem. UV-B is typically the most destructive form of UV radiation because it has enough energy to cause photochemical damage to cellular DNA. UV- Bis needed by humans for synthesis of vitamin D; however, harmful effects can include erythema (sunburn), cataracts, and development of skin cancer (melanoma). UV-A is the most commonly encountered type of UV light. UV-A exposure has an initial pigment-darkening effect (tanning) followed by erythema if the exposure is excessive. Atmospheric ozone absorbs very little of this part of the UV spectrum. UV-A is needed by humans for synthesis of vitamin D; however, overexposure to UV-A has been associated with toughening of the skin, suppression of the immune system, and cataract formation. These risks increase with the increasing of UV radiation intensity (radiation flux expressed in SI

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units W/m2). Therefore ozone layer, and its thickness, is very important as the shield from intensive UV radiation. Ozone in stratosphere is produced by the action of UV radiation, but it is also destroyed by this radiation. The production and destruction are balanced. This process is known as Chapman cycle (Chapman, 1930). Unfortunately, human activities cause the emission of halogen source gases that contain chlorine and bromine atoms (Molina and Rowland, 1974; Rowland, 2010). These emissions into the atmosphere ultimately lead to stratospheric ozone depletion. These gases are called "chlorofluorocarbons", abbreviated as CFCs. CFCs, along with carbon tetrachloride (CCl4) and methyl chloroform (CH3CCl3) are the most important chlorine-containing gases that are emitted by human activities and destroy stratospheric ozone. The first decreases in Antarctic ozone were observed in the early 1980s. On 1985, a treaty called the Convention for the Protection of the Ozone Layer was signed in Vienna. This was followed by the Montreal Protocol on Substances that deplete the Ozone Layer, signed in 1987 and ratified in 1989. The protocol established legally binding controls for developed and developing countries on the production and consumption of halogen source gases. Later, The Montreal Protocol was strengthened with various Amendments and Adjustments.

Increasing public concern over declining ozone levels and the resultant UV radiation reaching the Earth has brought the world-wide ozone and the UV radiation networks and also a need to communicate daily information about UV radiation level to the public in a credible and understandable manner. This standard establishes a quantitative index for reporting the level of harmful ambient solar ultraviolet radiation reaching the surface of the Earth to the general public. The Global Solar UV Index quantifies the exposure of the skin to ultraviolet radiation. UV index (accordingly to World Meteorological Organization – WMO) is defined as (WMO, 1994): Where the above integral is expressed in W/m2. is the global spectral irradiance and is the action spectrum for erytema proposed by CIE and defined by McKinley and Diffey (1987).

The Dobson Unit (DU) is the most common unit for measuring ozone concentration. The unit is named after G. M. B. Dobson, who designed the 'Dobson Spectrometer' - the standard instrument used to measure ozone from the ground. The Dobson spectrometer measures the intensity of the solar UV radiation at four wavelengths, two of which are absorbed by ozone and two of which are not. One Dobson Unit is the

$$UVI = 40 \int_{250\,nm}^{400\,nm} E_G(\lambda) \cdot C(\lambda) d\lambda \qquad (1)$$

number of molecules of the ozone that would be required to create a layer of pure ozone 0.01 millimeters thick at a temperature of 0 oC and a pressure of 1 atmosphere (the air pressure at the surface of the Earth). Expressed another way, a column of air with an ozone concentration of 1 Dobson Unit would contain about 2.69x1016 ozone molecules for every square centimeter of area at the base of the column. Over the Earth's surface, the ozone layer's average thickness is about 300 Dobson Units or a layer that is 3 millimeters thick.

The next chapters contain description of the methods used for the monitoring of (i) the solar UV radiation and the measurement of ozone layer thickness, (ii) presentation of obtained results with discussion and finally (iii) conclusion.

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2. Methods of measurement

Standard instrument that is used for monitoring of Solar UV radiation and ozone layer is spectral instrument known as Brewer spectrometer (WMO, TD 1066). Such instruments are very worth and are used usually for calibration procedure for broadband instruments and less sophisticated instruments for ozone layer monitoring.

Broadband instruments (WMO, 2008) are usually used to build up national Solar UV radiation monitoring networks. One of such instruments Yankee Environmental Systems (YES) UVB-1 piranometer is used for monitoring in this work. Relative spectral response (Dichter et al, 1993) of the instrument is close to erythemal action spectrum (McKinley and Diffey, 1987). Due to such spectral response in combination with the Solar spectrum, resulting measured quantity is very close to the integral value in Eq. (1). YES is placed inside the campus of the University of Novi Sad. Coordinates are 45.33o N, 19.85o E and 84 m a.s.l. The instrument is connected to the computer for data acquisition via data logger. Measurements are done every 30 sec. These results are averaged for 10-min time interval and such obtained data, together with minimal and maximal data, are recorded in the daily data base. In the same time measured values are sent to the internet web page http://cmep.rs where are available to the public use every 10 min. Measured values are presented numerically as well as graphically, by the means of diurnal course of UV index. As an example, this picture is presented in Fig. 1, for 24th May 2011, until 12.30 PM. As it can be seen from Figure 1 this day was partially cloudy.

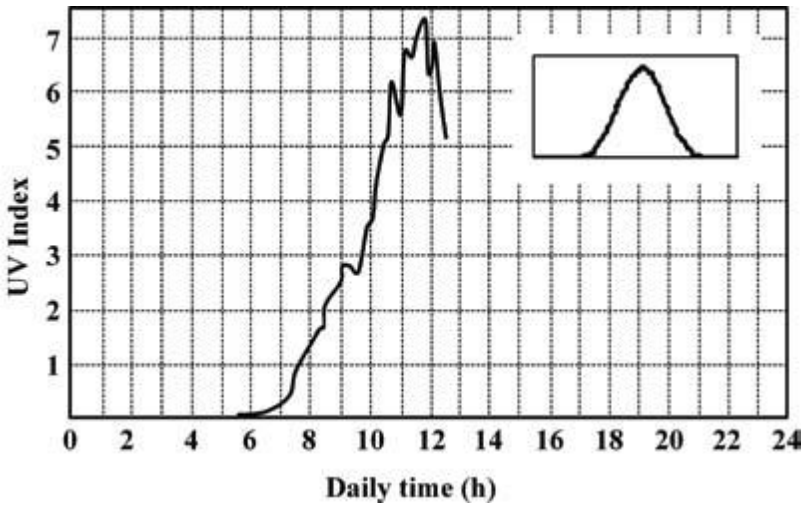

Fig 1: Diurnal course of the UV Index presented at web page http://cmep.rs

During cloudless days the curve presented in Figure 1 is a smooth curve, closely to the Gaussian one (illustrated in the rectangular of the upper right part of Figure 1).

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For the monitoring of ozone layer thickness Microtops II, Solar Light Co. is used. The instrument is equipped with five accurately aligned optical collimators, capable of full field view of 2.5o. Each channel is fitted with narrow-band interference filter and photodiode suitable for the particular wavelength. Short wavelengths of UV radiation are much more readily absorbed by ozone than the longer wavelengths in the same UV bandwidth. This means that the amount of ozone between observer and the Sun is proportional to the intensity ratio of two wavelengths of solar UV radiation. This instrument uses that relationship to derive the total ozone column (ozone layer thickness in DU) from measurements of three wavelengths – 305.0 nm; 312.5 nm and 320.5 nm. This principle is very similar to the traditional Dobson instrument. Two additional channels at 936 nm and 1020 nm are used for water column and aerosol optical thickness determinations. Measurements are possible only when Sun's disc is clearly visible, and the best results are obtained with the sun high in the sky. Complete description of the theory of operation is given in (Morys et al, 2001). Measurements are performed on every day, when is possible, around the noon. The scan length is about 20 sec with 32 samples in a scan. Each result that is stored in the data base is the average from at least five scans.

3. Results

Monitoring of solar UV radiation started in April 2003 and data are collected in the data base created for this purpose. This data base contains all measured values, so it is possible to retrieve data either for the particular day(s) and month(s) or year(s). Intensity of the solar UV radiation is highest during the summer, particularly at the end of June and beginning of July when maximal daily values reach UV Index of 9 or more. During the winter these values are at the yearly minimum when fall below 1. Maximal daily values during the years 2003 – 2010 are presented in Figure 2. Data are missing for the period end of September 2006 – beginning of May 2007 because the instrument was sent on recalibration.

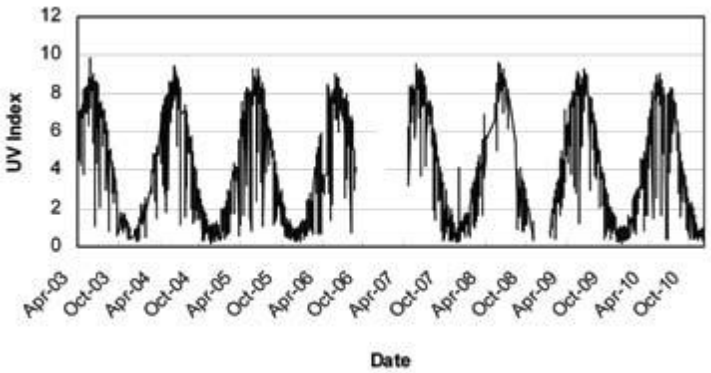

Fig. 2: Maximal daily values of the UV Index during the period 2003 – 2010

Local minimums in the graph correspond to cloudy days. As it can be seen from Figure 2 maximal daily values of UV Index were registered during the summers. For these eight years maximal summer values are almost the same, around 9. Also the annual change of UV Index is the same from year to year. These facts

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indicate that during observed period there were no significant changes in the atmospheric conditions having influence on the solar UV radiation.

Another quantity connected with the solar UV radiation is emitted dose, which is expressed in physical units Jm-2. The dose is a quantity which better indicates the possible influence of the UV radiation on different humans and others than simply intensity; because it takes into account not only intensity but also time of the exposure to the radiation. Consequently, it is possible that for the particular day maximal UV Index is very high, but the dose is very low. This is the case when the day is cloudy but cloudless around the noon.

The measured doses were 504647 Jm-2, 501866 Jm-2, 463315 Jm-2, 466487 Jm-2, 464245 Jm-2, 528211 Jm-2, 490914 Jm-2 and 445781 Jm-2 for the years 2003, 2004, 2005, 2006, 2007, 2008, 2009 and 2010 respectively. As it can be seen the differences are not too big and probably they are caused by different numbers of cloudy days. The average annual dose is 483 kJm-2 with standard deviation of 28 kJm-2.

Solar UV radiation is necessary for ozone production, so the ozone layer thickness is changing during the year in accordance with the changes of UV radiation intensity. Under normal circumstances this layer is maximal in March-May (400 – 450 DU) and is minimal in September-November (250 – 300 DU). Monitoring of ozone layer started in August 2007. The measurements are performed in University campus in Novi Sad. Results of measured ozone layer thickness for the period August 2007 – May 2011 are presented in Figure 3. As it can be seen from this figure maximal values over the period of observation are inside mentioned limits 400 – 450 DU, and also minimal values.

The exception is the period November 2010 – December 2011 when values were between 180 DU and 250 DU. Values below 200 DU are considered as >>ozone hole<< so it be said that in that period ozone hole, or similar, appeared over the region of Novi Sad. In March 2011 ozone hole was detected over North Pole that is unusual since temperature in the stratosphere over North Pole rarely drops below -78 oC. Such low temperatures are needed for the formation of polar stratospheric clouds that cause ozone holes over poles (usually above South Pole). However, the observed amount of the ozone loss does not coincide with observed ozone hole over the North Pole. Consequently, cannot be explained by the influence of this appearance. UV Index in this part of the year is generally low, so increase of around 20 %, caused by ozone layer depletion, cannot be detected with the high confidence. Since the data about the ozone depleting substances are not available, any explanation cannot be given properly why ozone layer was depleted in mentioned period.

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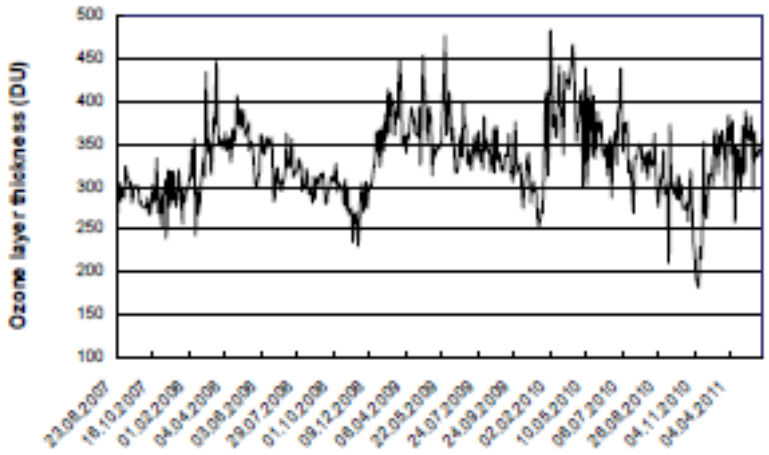

Fig 3: Measured ozone layer thicknes over the period 2007 – 2011.

4. Conclusion

The aim of this paper is to present activities and results of monitoring of solar UV radiation and ozone layer thickness in the region of Novi Sad (Serbia). In the first part short introduction about solar UV radiation, ozone layer and the units, is given. Next, methods applied for the measurements are described. Obtained results are presented and discussed. Concerning UV radiation it can be concluded that summer highs are almost the same over observed period. Similar conclusion can be drawn also for ozone layer thickness for seasonal changes with the exception of short period during the autumn 2010 when ozone layer thickness was unexpected. Appropriate explanation for this was not established.

5. Acknowledgements

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Improvement of wastewater treatment by use of natural coagulants

Jelena Prodanović, Marina Šćiban, Mirjana Antov
Faculty of Technology, Novi Sad, Serbia

Abstract.
An activated sludge and other organic sludges from wastewater treatment processes are usually anaerobically digested prior to application on land. The purpose of digestion is to convert bulky, odorous sludges to relatively inert material that can be rapidly dewatering. The important benefit of this process is a biogas production, too. It is proper to enlarge primary sludge production in a primary settler by adding some coagulation aids, with aim to increase a biogas production, as much as possible. The most common coagulant is alum, but presence of large quantities of aluminum salts in sludge has a harmful impact on digestion and digested sludge application. Some natural coagulants, that have a numerous advantages, can be used instead of alum. Natural coagulants could be extracted from a different plant material, and considering the fact that they are of organic nature, the biogas yield can be enhanced by their presence. A plant material that remains after extraction can be used as a feed. The aim of this paper is a consideration of potential environmental benefits of substitution of alum by natural coagulant extracted from common bean seeds in sewage wastewater treatment process.

Keywords: alum, natural coagulants, sludge, wastewater

JEL Codes: Q25, Q53

1. Introduction

Coagulants can be applied in wastewater to reduce or remove suspended solids, nutrients, organic matter and different pollutants and also in sludge treatment processes. Commonly used coagulants are on the base of Al or Fe compounds. These coagulant aids occur in produced sludges and after their disposal get into the environment. On the other hand, a typically portion of the coagulant added in the wastewater is not removed completely during the treatment, remains as residual Al or Fe in the treated water, and released into the water in nature. Aluminum has no known function in living cells and presents some toxic effects in elevated concentrations. Aluminum toxicity is an important growth-limiting factor for plants in acid soils below pH 5.0, but can also occur at pH levels as high as 5.5 (Rout et al., 2001). Aluminum enters into the human body from the environment, from diet and medication, and its toxic effects on brain, liver, skeletal muscles, heart, and bone marrow are well established (Nayak, 2002). Although Fe is an essential element for all plant, high Fe content in acid soils could has a negative impact on nutrient and minerals uptake leads to yield losses (Becker and Asch, 2005).

Instead of chemical coagulants, the natural ones can also be successfully used. It was investigated water clarification and reduction of microorganisms (Pritchard et al., 2010), organic matter removal (Musikavong et al., 2005; Bhuptawat et al., 2007; Prodanović et al., 2011), sludge dewatering (Ghebremichael and Hultman, 2004), improvement of wastewater microfiltration performance (Katayon

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et al., 2007) etc. by natural coagulants which are usually obtained by extraction of different plant materials.

The application of natural coagulants is based on their traditional use in tropical, rural areas. Seed extracts from Moringa oleifera and Nirmali (Strihnos potatorum) are used for a century in Southern Asia, subSaharan Africa and Latin America. Recently, among these plant materials, the application of extracts of cacti (Opuntia ficus-indica and Cactus latifaria) (Yin, 2010), different Leguminose species as Cassia angustifolia and Phaseolus vulgaris (Sanghi, 2002; Šćiban et al., 2010) and so on, were investigated.

It is well known that the coagulants could enhance primary treatment in municipal wastewater treatment plants, thereby reducing the cost of the secondary treatment stage. Because of negative effects of conventional coagulants, the possibility of usage of natural coagulants, which are biodegradable and have no detrimental effect on health, on wastewater treatment, and their overall environmental impact will be considered in this manuscript.

2. Methods

2.1. Wastewater

Discussion was made to follow the example of wastewater. .Municipal wastewater from city having 40 000 PE (Population Equivalent) has average daily flow of 7200 m3/ day (180 L/resident • day). Wastewaters of two food factories, two metal industry factories and infiltration waters flow into the sewer system, too. Projected flow of total wastewater is 630 m3/h while the average concentration of particular components in mixture is given in Table 1.

Table 1 The average concentrations of pollution in influent (mg/L)

Biological oxigen demand **(BOD)**	Chemical oxigen demand **(COD)**	Suspended solids **(SS)**	Total Kjeldahl nitrogen **(TKN)**	Total phosphorus **(TP)**
265	**420**	**245**	**52**	**9**

Criterions for the purification of such wastewater are postulated on the base of EU Directive 91/271/EEC and they are shown in Table 2.

Table 2 Required percentage of wastewater treatment

Parameter **(mg/L)**	**Raw wastewater**	**Purified wastewater***	**Percentage of removal**
BOD	**265**	**25**	**90**
COD	**420**	**125**	**70**
SS	**245**	**35**	**86**
TKN	**52**	**15**	**71**
TP	**9**	**2**	**78**

***according to Eu Directive 91/271/EEC**

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2.2. Coagulants

As a coagulants alum (KAl(SO4)2 · 12 H2O) and natural coagulant from common bean seeds were considered. Natural coagulants from common bean seeds are extracted by the procedure described by Šćiban et al. (2010). An amount of a 10 g/L of grinded white bean seeds was suspended in distilled water. This suspension was stirred 10 minutes, and after that was filtered through a filter paper. Obtained filtrate should be kept in the refrigerator until use.

Actual cost for alum is about 25 dinars per kilogram, and for white bean is about 100 dinars per kilogram (wholesale price). Because of the probable price differences between geographical regions, manufacturers etc. the costs stated here should be treated as an indication rather than absolute values.

2.3. The plant design proposal

Municipal wastewater is possible to be treated on several different ways which certainly include aerobic biological treatment. Considering quantity and content of wastewater, conventional treatment is accomplished by a biological process called aerobic, suspended growth, activated sludge treatment. Both excess of active sludge from those processes and sludge originated from primary sedimentation unit are possible to be stabilized by anaerobic treatment which can be accompanied by production of certain amount of biogas.

According to presented assumptions, the proposal of procedure of spoken wastewater treatment is given (Fig. 1).

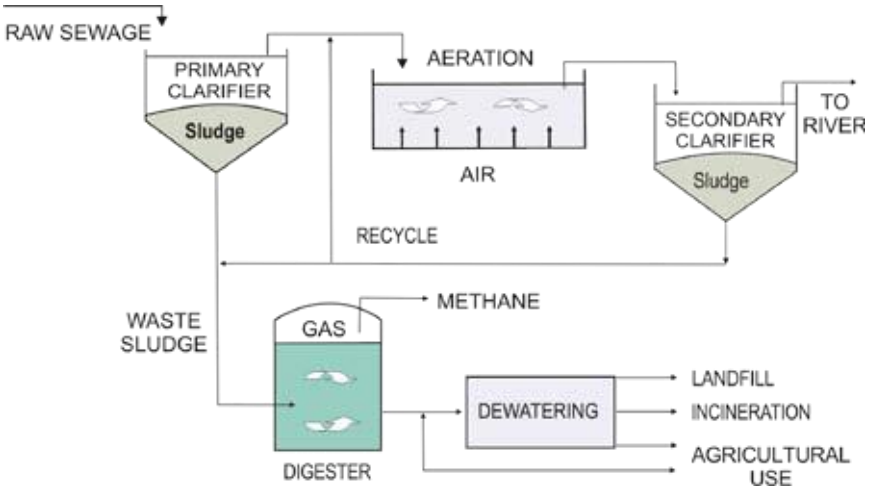

Fig. 1: Typical municipal wastewater plant
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The oil and grease, and sand are removed from raw wastewater prior the treatment. Primary settler allowing suspended solids with a higher specific gravity than water to settle as primary sludge. Secondary process removes either dissolved or colloidal in size organic material. Treated effluent from the aeration basins flows to secondary clarification. A portion of the secondary sludge from the clarifier is recycled to the aeration basins/reactors and the rest is withdrawn, or "wasted". The waste sludges are digested anaerobically and after that disposed by various methods. Anaerobic conditions promote the development of bacteria that biodegrade the sludge producing biogas - methane and carbon dioxide mixture. The biogas produced has an energetic value of about 6 kWh/ m3, and can be used for digester heating, producing steam or for generation of electricity. Anaerobic digestion of organic sludges reduces the need for subsequent addition of sludge dewatering chemicals. The costs associated with chemical conditioning exceed half of the sludge management and handling costs. Omissing this is another advantage of anaerobic digestion. The clarified effluent from secondary treatment is disinfected and discharged.

3. Results and discussion

All calculations were done on the base of common values characterizing such kind of wastewater treatment processes, presented in relevant literature (Gaćeša and Klašnja, 1994; Hicks, 2000; Hammer and Hammer, 2004). Efficiency of process with no coagulant in primary settler and with addition of alum or natural coagulant from common bean seed will be evaluated.

3.1. Efficiency of wastewater treatment with no coagulant

Well-designed and well-operated primary treatment should remove 50 to 70% of the suspended solids and 25 to 40% of the BOD. According to assumption that suspended solids removal is 60%, and BOD removal is 30%, than the water will go into the aeration basin with BOD of 185.5 mg/L and suspended solids of 98 mg/L. Secondary treatment typically removes 70 to 85% of the BOD entering with the primary effluent. For best removal, BOD in secondary effluent will be 27,8 mg/L, which is slightly higher than the value allowed by discharge regulation. It can be expected removal of total nitrogen and total phosphorus from 5 to 10% in primary settler, and in addition from 10 to 20% during secondary treatment. For the highest extent of removal, total nitrogen in secondary effluent will be 36.4 mg/L, and total phosphorus 6.3 mg/L. These values are too high in relation to the regulations (EU Directive 91/271/EEC). The solution is the introduction of additional steps of tertiary treatment for nitrification/denitrification and phosphorus removal. This requires significant investment and operational costs. Another, economically profitable solution is improvement of organics and nutrient removal in primary settler by addition of some coagulation aids.

It can be estimated that production will be around 3 m3/day of primary sludge with about 5% of total solids, and approximately 15 m3/day waste activated sludge with typically 1% of total solids. Influent in anaerobic digester is than 18 m3/ day of mixed sludges with 1.7% of total solids It can be expected that about 250 m3/ day of biogas can be obtained, which is equivalent with 1500 kWh/day. That quantity is probably enough to cover energy consumption needs of wastewater treatment plant.

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According to Municipal wastewater treatment plant energy baseline study (2003) energy consumption of wastewater treatment plant with air activated sludge process (without anaerobic treatment) vary from 0.45 to 1.13 kWh per m3 of treated wastewater. For a such wastewater flow of 630 m3/h, that is 285 to 710 kWh/day. Thus, the biogas produced would probably cover the energy needs of the whole plant.

3.2. Efficiency of wastewater treatment with alum

By addition of 80 mg/L of alum in influent (municipal wastewater) to primary settler, it can be enhance COD removal to about 80% and suspended solids removal up to 95% (Younis et al., 1998). In that case, effluent from primary settler has BOD of about 50 mg/L and suspended solids of 13 mg/L. This method also can reduce phosphorus to 1 mg/L and nitrogen in colloidal form, in some extent. After secondary treatment, BOD in the effluent can be reduced below 10 mg/L. Thus treated wastewater quality meets the requirements of regulation for main calculated parameters.

Activated sludge secondary treatment typically accounts for 30 to 60% of total plant energy consumption. There are significant differences in energy consumption even from similar secondary plants depending on their size, age, method of aeration etc. In any case, the reduced organic load of aerobic reactors by over 70% will lead to nearly as much reduction of aeration costs. This is very important because, after labor, electricity is the largest operating cost at wastewater treatment plants.

The volume of primary sludge will be enlarged, but volume of waste secondary sludge is likely to be reduced. Therefore, the volume of the obtained biogas will be probably the same. All the facts are in favor of alum addition in primary settler, except of quantity of alum used. For a given size treatment plant it is needed (7200 m3/day ・80 g of alum per m3) 576 kg of alum per day and, additionally, certain quantity of soda ash for pH adjustment. That amount of alum (converted to aluminum 33 kg/day) will be after treatment, as well as purified wastewater and treated sludge, occur in nature. Concentration of aluminum in digested sludge will be about 1.8 g/L. In addition, this amount of aluminum will adversely affect anaerobic digestion, although is usually not mentioned as a limiting factor.

3.3. Efficiency of wastewater treatment with natural coagulant

In certain conditions, the natural coagulants are showed good coagulation ability. However, natural coagulants are not as good as conventional ones, and mostly required a higher dose level (Pritchard et al., 2010). Besides, they have many advantages which are especially augmented if the plant from which the coagulant is extracted is indigenous and widespread in some region. The most investigated plants for these purposes are from tropical areas. An example of application of natural coagulants obtained from common bean which is easily grown in continental area as large number of varieties is considered below.

Optimal dose of natural coagulant is depended on its origin, extraction procedure, water composition, pH etc. For example, by natural coagulants from common bean removal efficiency for COD of 60% by dose of 5 mL per liter of molasses stilage at pH 5.4 (Prodanović et al., 2011), 68% from sugar beet extraction juice stilage by the same dose at pH 8.5 (Krstić, 2009) and 50% turbidity from model turbid water with Karoline by dose of 2 mL/L at pH 9 (Šćiban et al., 2010) can be achieved. For following calculations it is presumed that 5 mL of natural coagulants per litre of wastewater will be optimal for around 60% COD (and BOD) removal. This 5 mL is originated from 0.05 g of common bean and consequently, for a given size treatment plant is needed (7200 m3/day ・ 50 g/m3) 360 kg of bean seeds per day. This quantity of beans costs 36000 dinars in contrary to alum cost which is 14400 dinars.

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Therefore, the solid residue after common bean extraction can be used as a feed or can be anaerobically treated with other sludges. In both cases that is added value. Additionally, it will be no discharge aluminum in nature.

According to assumption that BOD removal by natural coagulant is 60%, than the wastewater after primary settler has BOD of 106 mg/L and after secondary treatment 16 mg/L. The removal of nutrients by natural coagulants is not investigated enough. Organic load of aerobic reactors is reduced by over 40% in comparison to treatment with no coagulant, and that significantly reduced aeration costs. Added natural coagulant, incorporated in primary sludge, occurs in anaerobic digester and enlarged biogas production.

Effectiveness of chemical coagulants is well-recognized. Implementation of alternative coagulants would require a detailed optimization thorough bench-scale and pilot-scale tests at different conditions, as well as detailed economic analysis of all costs and benefits.

4. Conclusions

On the base of conducted calculation and literature dates it is evident that application of natural coagulants has a favorable environmental impact.

Conventional treatment of municipal wastewater usually does not decrease organic matter and nutrient contents below maximum allowed concentration related to wastewater discharge regulation.

Addition of alum in primary settler could improve purification of wastewater to satisfactory level. As a result, a large quantity of aluminum will be discharged in nature, both as purified wastewater and treated sludge.

Application of natural coagulants has a numerous advantages. Wastewater purification is good, production of biogas is enhanced and anaerobic sludge has not contained aluminum salts. Although the cost for common bean is higher than for alum, overall cost of wastewater treatment spokes in favor of application of natural coagulants. Its application represents important progress in sustainable environment technology.

5. Acknowledgement

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Green banking

Maja Drobnjaković, PhD student
University of Novi Sad, Serbia

Abstract. *There is an urgent need to march towards "low - carbon economy". Global challenges of diminishing fossil fuel reserves, climate change, environmental management and finite natural resources serving an expanding world population - these reasons mean that urgent action is required to transition to solutions which minimize environmental impact and are sustainable. We are at the start of the low - carbon revolution and those that have started on their low - carbon journey already are seeing benefits such as new markets and customers, improved economic, social and environmental performance, and reduced bills and risks. Green investment banks offer alternative financial services: green car loans, energy efficiency mortgages, alternative energy venture capital, eco - savings deposits and green credit cards. These items represent innovative financial products.*

Keywords: protecting nature, business environment management, low – carbon economy, responsible financial projects, current trends in green banking.

JEL Codes: Q56, Q58, G21, M10

1. Introduction

Why are companies increasingly trying to become more clean and "green"? For one company the reason may be a major industrial accident, another may have experienced pressure from consumers and a third company may have discovered new target markets. The loss of market shares to green competitors is a great stimulus to change. Top managers are beginning to consider the environment as an additional element on which to base their business decisions. Environmental business management means integration of nature protection into all business functions with the aim of reaching an optimum between the economic and ecological performance of a company. Environmental business management is a key parameter in achieving sustainable development of developing and industrialized countries.

While environmentally unconscious consumers may give managers the illusory feeling of not being threatened by the "green revolution", these enterprises may be trapped by companies which have already adjusted to the new challenge. Even though environmentally conscious consumers may cause a loss market share in the short run, in the long run they are the real supporters of sustainable economic growth.

As the environment is becoming a fashionable business topic, many companies paying services to environmental protection without taking meaningful actions to prove that they are really committed. It is not enough to be committed to the environment; a company needs to respond efficiently to the environment challenge. These environmental standards requiring the installation of complex pollution control equipment and all these processes need to be analyzed and monitored. Changes of products and services will occur more often. The green growth company will therefore be characterized by well - trained staff at all levels.

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Green companies have demonstrated that they are able to anticipate or react quickly to variable changes in the market and environmental regulations. Their growth is due to creativity in developing new products or modifying existing ones. If company has developed specific know - how, on how to substitute or recycle materials, and to reduce pollution or wastes, the selling of this knowledge as a consultancy service to other companies can be a new profitable area of business.

As major actors in the global economy, financial institutions should embrace a commitment to sustainability that reflects best practice from the corporate social responsibility movement.

2. The financial losses resulting from environment destruction

Environmental damage causes financial losses, along with the destruction of irreplaceable resources whose value cannot be expressed in money terms. This is challenge which industry is facing directly and indirectly: to restore the environment with the same momentum with which the European economy was rebuilt after the Second World War.

Most people prefer to take the easy way out and get on with their conventional business. In the light of this indifference and apathy, scientists have tried to express the degree of damage being done to the nature and environment. Examples of the damage which are simply not quantifiable are loss of natural habitats and of animal and plant species, non - compliance with overall environmental impact thresholds and the long - term effects of noxious and toxic transmissions released into the environment.

Just as the revitalization of our destroyed and unhealthy economies after the Second World War was made possible largely by the free and liberal market economy, so today we need the dynamic forces of free market competition to help us restore our ruined ecosystems. What we are so far lacking are politicians capable of altering the framework conditions of our free market economy such that economic success can only be maximized by maximizing the environmental acceptability of products and services. Environmentally responsible business activity must be made economically profitable to enable the dynamic forces of free competition to work to the advantage of the restoration of the environment.

The global economy is losing more money from the disappearance of forests than through the current banking crisis.[1] Today, we are once again the victims of a major destruction process, this time affecting our environment and our lives. The pollution of the air that we breathe and the contamination of soil and water may be less obvious than ruined cities and whole areas of land laid to waste, but their long - term effects are much more evident. Today, business community is once again facing a historic challenge.

[1] http://news.bbc.co.uk/2/hi/7662565.stm

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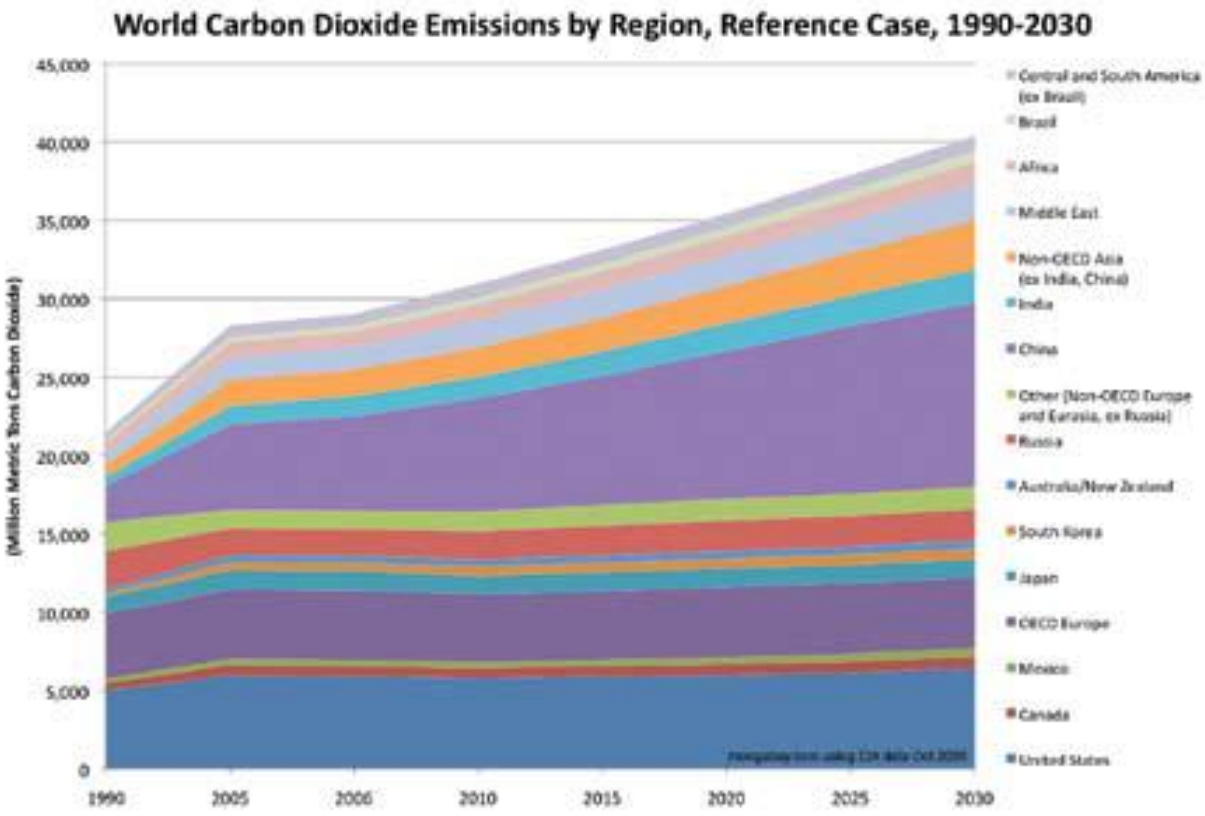

Fig.1: High - carbon economy
Scientific source for image: Rainforest information[1]

3. Sustainable green banking

Energy efficiency loans and mortgages, green auto loans, alternative energy venture capital, eco - savings deposits and green credit cards are items that represent "ethical" innovative financial products that are offered whole world around.[2]

The world is much more focused on economic growth and humanity has made great steps through that complex multilevel process. The side effects of the development process have also been significant: biodiversity crisis, global warming and climatic change, and environmental derogation. Social issues such as poverty eradication have also become more important as the world has progressed economically. *Banks and insurance companies* plays a very important role in promoting and supporting environmental

[1] http://rainforests.mongabay.com/09-carbon_emissions.htm

[2] http://www.unepfi.org/fileadmin/documents/greenprods_01.pdf

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development. The global reforms totally have changed the banking sector. The banks should go green and play a proactive role to take environmental and ecological aspects as an integral part of their business philosophy, which would force other industries to create funds for green investments and use appropriate technologies and management systems.

Banks that are serious about sustainable development put environmental principles at the heart of decision making. For example, an investment in a factory that pollutes heavily will have a higher financial rate of return than a factory that invests in expensive pollution reduction technology, as a result showing a lower rate of return.

Green banking movements such as less paper is good for the environment where customers make paperless deposits, withdrawals and remittances. For example, statements and charges summaries will be delivered electronically (internet banking). The bank can concentrate on nature and environment by projects in the field of renewable energy, organic agriculture across the entire value chain including health food shops and environment technology such as recycling companies and nature conservation projects. As environmental issues gain greater attention, pressure is being placed on all industries, including financial services, to implement green initiatives.[3]

The easiest way to bank green is to start using the mobile banking and online banking services that are available. Benefits of online banking include less paperwork, less mail and less driving to branch offices, which all have a positive reflection on the environment. Online banking can also increase the efficiency and profitability of a bank. A bank can lower his costs that result from paper overload. Banks can also support eco - friendly organizations and raise money for local eco - friendly initiatives. Unfortunately, many banks claim to be more environmentally friendly and socially - conscious than their competitors, but actually they do little to support ecological initiatives with the money that people deposit.[4]

Luckily for the environment, more and more banks realize that ignoring social and environmental issues could considerably increase their exposure to credit, compliance and reputational risks.[5]

Modern green banks are dedicated to sustainability - based economic revitalization. Green mortgages or energy efficient mortgages provide retail customers with lower interest rates than market level for clients who purchase new energy efficient homes or invest in retrofits, energy efficient appliances or green power. Banks can also choose to provide green mortgages by covering the cost of switching a house from conventional to green power. Central features of the green credit card include the discounts and low borrowing rates provided to users when purchasing environmentally friendly products and services. Eco - securitization is differentiated from conventional securitization in its focus on environmental, as well as financial, returns. Based on the concept of debt - equity swaps in the financial sector, debt - for - nature swaps enable debtor countries to free up resources to implement environmental conservation activities. A bank that familiarizes its stakeholders, in general, and employees, in particular, with the complexities of the carbon market may improve its image and reputation, while ensuring that future carbon market opportunities are accurately identified and

[3] http://www.deueko.org/economic - banking/the - role - of - green - banking - in - environmental - management.html
[4] http://www.money-rates.com/basicguides/home/greenbanking.htm
[5] http://www.banktrack.org/download/the_dos_and_donts_of_sustainable_banking/061129_the_dos_and_donts_of_sustainable_banking_bt_manual.pdf

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pursued. All these green products and services are rated higher and worth more than traditional products and services.

Fig 2: Green banking

Bank's campaign such as "*Save a tree, conserve a forest*" can strongly affect on awareness about worldwide deforestation. A structured green branding approach, in which global business lines and brands are on one side and local branding strategy are on the other, will play crucial role in achieving customer loyalty, as well as ensure that such products are created for the specific needs and demands of

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local communities. Traditional banking and green banking could consider *family - branding* (modern banking umbrella - branding).[6]
Scientific source for image: IBM[7]

4. Reasons for environment business management

There are several main reasons why any business top manager with a sense of corporate responsibility should apply the concept of environment business management in his firm.

There are several main reasons why any business top manager with a sense of corporate responsibility should apply the concept of environment business management in his firm.

Without environment - minded companies there can be no environment - minded economy and without an environment - minded economy the human race cannot expect to survive for a life that is worth living. Without environment business management, managers cannot understand sensitive business processes and functions.

Without environment - minded companies there can be no public consensus with the business community and without a public consensus with the business community there can be no free market economy. Market liberalization can reduce agency costs.

Without environment business management there will be a loss of fast – growth market openings and a risk of the company being held liable for environmental damage for enormous sums of money, thus jeopardizing the future of the company and of all the jobs dependent on it. Without environment business management, a company cannot have competitive advantages.

Without environment business management, boards of directors, management executives, heads of department and other members of staff are more likely to risk liability for environmental damage, with the consequent affecting jobs and careers.

Without environment business management, business top manager will be in conflict with their consciences and without self - respect, there can be no real sense of identification with job.[8]

5. Environmental management principles

The *inclusion of environmental protection in the corporate mission statement* will be the first step to publicizing the commitment of a company, which will have to be followed by specific actions endorsed by the owners and managers of the company. Protection of natural environment cannot become a corporate priority if employees do not believe in it. Communications of the company objectives, programmes and practices to the employees, as well as their participation, is a crucial part of successful environment management system.

[6] http://www.unepfi.org/fileadmin/documents/greenprods_01.pdf
[7] http://www.ibm.com/smarterplanet/us/en/banking_technology/article/green_banks.html
[8] http://www.freshbusinessthinking.com/business_advice.php

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Each management function within a company is responsible for the implementation of an environmental responsibility policy. Production management must ensure that operations are efficient and as non - polluting as possible. Project management must ensure that projects are compatible and harmoniously integrated into the social and physical environment. Marketing management must ensure that products sold are safe and clean. Personnel management must ensure that all workers are aware of the need to protect the environment. Research and development management must develop new products and processes which are completely safe, non - polluting and efficient. Materials management provides recyclable and non - polluting materials. Financial management will assist in making pollution prevention pay. Occupational health and safety measures will have to protect workers from negative environmental conditions. *All these functions have to be integrated* by the appropriate organizational structures and processes on all management levels.

To be effective, the environmental management process must be systematic, detailed and integrated into all functional management decisions. Action plans and strategies should be set up to ensure continuous improvement of environmental performance of a company. The environmental quality management can be economic advantage to an organization, but its justification must be based on the recognition of these wider responsibilities. Creating this environmental awareness is the greatest challenge in developing environmental management system in a company. Successful environmental management, just like the development of positive policies regarding equal opportunities, employment or the creation of better working conditions, requires the extensive participations of employees and their representatives.

Education and training to raise awareness about environmental problems, to change attitudes and behavior and to provide the necessary skills to act in an environmentally responsible manner are important elements of environmental management which concern staff as well as management.

Environmental management is often associated with cleaning - up production processes and not so much with producing *environmentally friendly products*. Marketing management has to translate the consumers' desire for environmentally friendly products into a product concept. Materials management will have not only to purchase recyclable materials, but also to handle wastes and take back already used products and substances. Environmental management means managing the product life cycle. This also leads to changing links between companies and customers.

The label "environmentally friendly" has become a major *advertising argument*. In the light of the extended responsibility for its products, companies share a responsibility to make consumers environmentally literate, to explain why products are environmentally friendly and provide consumers adequate information for the appropriate selection and use of products. Environmental management also means developing an environmentally conscious and literate sales and marketing staff.[9]

Research and development creates a product portfolio for the future and plays an essential role in converting cleaning - up operations into fresh business opportunities. This gives strategic importance to a creative research and development team and short development cycles to meet changing consumer needs and environmental standards in a flexible way. Research and development carried out within the concept of environmental management aims at using renewable materials and reducing the

[9] http://www.dwa.gov.za/documents/IEM/Presentations/Module

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consumption of irreplaceable resources, as well as minimizing pollution and wastes associated with the manufacture, storage, use and disposal of the product.

Fig. 3: Green banking - Scientific source for image: Creative Brand Communications
http://www.creative-brand.com/bank-branding/greenbanking-we-can-see-right-through

Green companies have demonstrated that it often plays to be among the first to modify products and services before consumer pressure, before serious accidents happen or before environmental regulations have to be enforced. Companies taking a *precautionary approach* and will not start production of a new product or will discontinue an existing process if there are signals of adverse health effects on workers or the general population, or if environmental damage is caused. Environmental management in this sense means to act voluntarily in a preventive way without being forced by environmental regulations.

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An emergency or near emergency was, for a significant number of companies, the starting - point for their environmental management thinking. Green pressure groups and communities have become very sensitive to the inherent dangers of local industry. An environmentally conscious company not only needs to take all internal precautions to avoid emergencies, but also has to make the community and responsible authorities aware of hazards. The company, together with the community, should develop an *emergency response plan* and train the local residents on how to act in the event of an emergency.

The combination of an informed public, best business practice and environmentally responsible decisions will strengthen the case for environmental management. An informed public will also provide a framework for environmental management by setting the parameters of what is considered acceptable and the priority concerns of society. Employer dialogue on environmental issues should not be limited to company level, but should form part of a tripartite *dialogue* between employers associations, trade unions and government.

Environmental management is not just a specific kind of business philanthropy; it is a very important business strategy, the results of which have to be *measured* in economic and ecological terms. Experience has shown that hiding environmental effects will lead to a loss of credibility in the eyes of the public. To establish and maintain clean and green company reputation, the importance of a credible communication strategy cannot be underestimated.[10]

6. The philosophy of environment business management

The concept of environment business management can enrich and strengthen the corporate philosophy and help to attain the classic corporate aims. The crucial principles on which the long - term success of a properly and responsibly run company rests are quality, creativity, humanity, profitability, continuity and loyalty.

A product can only be said to be high - quality if it is produced in a way which is not inimical to the environment and can be used and disposed of without causing damage to the natural environment.

The creativity of workforce of the company can be encouraged by working conditions which take account of human biological needs, for example healthy air temperature and humidity levels, low - level noise and ergonomically designed office furniture and vitamin - rich and fresh canteen food.

The general working atmosphere can be made more humane by gearing the corporate aims, strategies and activities not only to the economic criteria, but also to a sense of responsibility for all forms of life.

Company profitability can be improved by adopting cost – reducing environmental protection measures covering such thing as raw materials and energy and water saving programmes, and by exploiting market openings for environmentally responsible products and services.

In the interests of continuity, it is becoming more and more important to make sure that the company is not adversely affected by liability risks under the increasingly stringent environmental legislation and by the market risks resulting from the reduced level of demand for environmentally damaging products and services.

[10] http://www.iccmex.mx/intranet/documentos/CHARTER.pdf

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The top managers and staff of a company can only be loyal to the laws and aims of the state if the sentiment is a genuinely felt one and that in turn is only possible as long as the country has not sacrificed its inner value to the forces of environmental derogation.[11]

7. Conclusion

It may take time before investments in environmentally friendly products, services and processes pay off. Companies may feel threatened by the fact that they will have to put money into "green funds" without being able to define precisely the pay - back periods of these investments. Still, it is possible to reach an economic and ecological balance and equilibrium. Managers should cooperate with the relevant authorities to develop a predictable, coherent, market - oriented and well - enforced system of environmental regulations as the basis for environmental regulations as the basis for an environmental management which is able to turn threats into business opportunities.

Companies that take the environment seriously find themselves changing not only their products, services and their processes, but also the way they run themselves. Often, such changes go hand in hand with improvements in the general quality of management. Badly managed companies are rarely kind to the environment; conversely, the companies who try hardest to reduce the damage they do to the environment are usually well managed. Green companies have an open - minded, committed and highly skilled management and staff.

Work is perceived as being meaningful when it is not only a means of earning money, but also and primarily serves to enhance the well - being of the country and its people. In an environmentally oriented company, the work process regains its old status as a means of enhancing the well - being of the community as a whole. Companies which can give its employees a sense of doing the right thing can also expect a better business performance. Bay making work meaningful, the company is strengthening the classic virtues in both conventional and environmental work terms. It is up to us to create meaningful jobs by applying the environmentalist management technique and it is up to us to consolidate the standard of living of people while at the same time respecting and conserving the natural basis of all types of life.

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"Green Pack" in Function of Green Marketing as a Form of Social Responsibility in Serbia

Saša Raletić, MSc; Dragana Beljanski, MSc
Vocational colleges of business communications and management,
Sremski Karlovci, Serbia

Abstract. *Green marketing is defined as a partnership of all interested stakeholders to sustainable development. This form of marketing is a relatively new form of social responsibility in Serbia and as such it is subject of this paper. The necessity of integration of green marketing in a social responsible behavior is justified by the fact that purely commercial marketing business ignores the possible conflict between short-term desires and long-term benefits of market entities and society, with regard to global environmental problems. The laws are the lower limits of business and the community social responsibility, which includes green marketing, a higher level. Whereas the National Assembly of the Republic of Serbia in May 2009 adopted 16 laws on environmental protection, that is called the "Green Package". Laws were passed with the aim of regulating the business and social responsibility and green marketing and development. The aim of this analysis is the "Green Package" as a basis for application of green marketing in Serbia. The work will result in efficiencies that are realized by applying the law of "green package" and point to existing gaps.*

Keywords: green marketing, "Green Pack", social responsibility

JEL Codes: Q5, Q28, Q56, Q58

1. Introduction

If we compare man's environment (social, environmental and economic) and patterns of behavior of market operators, it can be concluded that the behavior is closely connected with the state of the environment and that the damage to the environment is mainly the result of social and irresponsible behavior of market actors. For example, the consumer basket includes the different kinds of detergents, acids and chemicals, as well as plenty of non-biodegradable packaging. Social responsibility is behavior means of increasing the positive impact and reduces the negative effects on society, usually related to company. So, for example, often puts an accent on necessity of knowledge of consumer rights while rarely given the importance of consumer responsibility. This one-dimensional observation of social responsibility is a paradox, with regard to that the social responsibility and sustainable development puts an accent on principle of joint responsibility with differentiated.

The necessity of the integration of social responsibility and marketing is justified by the fact that clean commercial marketing ignores the potential conflict between short-term desire of market subjects and long-term benefit of society, considering to the global environmental, economic and social problems. The importance of the synergy of marketing and social responsibility behavior confirm the fact that the UK in the state paper on public health marketing spoken as a powerful social tool that effectively influence to the development of awareness and behavior change, recently. One of a kind of "sustainable marketing" is a green marketing. Green marketing, in the narrow sense, refers to the exchange between market subjects based on the products favorable to the environment. The wider meaning of green

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marketing includes the socially responsible behavior that is beneficial to the environment, and as such it is subject of this paper.

"The law is the bottom line of business while a socially responsible marketing business is higher level of legal" (Siropolis, 1995, pp.607), is common to all subjects in the market and for all markets. The law governs the way of business and imposes mandatory business framework as such as sanctioned the socially unacceptable behavior. As such as, it is base of construction of socially behavior of all market players. Today, the laws require that to overcome the limits of "traditional law" and that the term "marketing subject" replaced with the term "citizen", who is interested to achieve the utility not only for them but for society as a whole. And if the first ball seems that the goals of the law in different areas are different, we can conclude that basically there is no single objective which is reflected in the behavior of market subjects in a way that is economically, socially and environmentally sustainable, and behavior based on the principle of sustainable development (Wilhelmsson , 1998). In May 2009 The National Assembly of the Republic of Serbia, at the suggestion of the Ministry of Environment, Mining and Spatial Planning, adopted a "Green Package" which includes 16 laws on environmental protection. "Green Package" necessarily inside the principle of sustainable development. The aim of this paper is to examine how "Green Package" influences the development of green marketing in Serbia. That is, how the laws of the "Green Package" influence to the development of social responsibility which is reflected in the behavior favorable to the environment. The work will result in utility that is achieved by applying the law of "green package" and point out the shortcomings of the current authors.

The paper consists of three parts. The first concerns is about the green marketing as a social behavior that includes protection of the environment and behavior based on the principle of sustainable development. The second section deals "Green Pack" as an institutional basis for progressing civilization social responsibility towards the environment in which we live. The third part is a conclusion that is by seeing how "Green Package" influences the development of social responsibility which is reflected in the behavior favorable to the environment.

2. Green marketing

The first theoretical discussion about green marketing emerged in the early seventies. The American Marketing Association (AMA) is the first defined green marketing as "the study of positive and negative aspects of the marketing activities of destruction, the depletion of energy and non-energy resources" (Prakash, 2002, pp.286). Green marketing was defined as "a set of activities designed to generate and facilitate exchange intended for satisfy the needs and desires of consumers with minimal negative impact on the environment" by Stanton and Futrell 1987 years. (Strizhakova, Coulter, Price, 2010.). Narrower definition of green marketing was created by Pride and Ferrell 1993 years. They defined it as "the process of designing, promoting, pricing and distributing products that will not harm the environment" (Strizhakova, Coulter, Price, 2010.). In other words, is defined as the actions to the principles of (environmental) sustainability of all concerned stakeholders.

The development of awareness of environmental social responsibility has experienced boom nineties, because of that, that the period is called the "decade of environment" and the "decade of Earth". Green marketing is both a cause and consequence of the development of social awareness on environmental. Green marketing came from the concept of social responsibility in marketing. Green

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marketing belongs to types of marketing "Marketing to the social order"[1] and "Socially responsible marketing"[2]. The most common synonyms for green marketing are Eco Marketing and Environmental Marketing. However, today the majority of consumers based their purchasing decisions on the quality of products, brands, physical accessibility or prices. The ecology as a factor plays significant role in purchasing decisions only at a small number of consumers. In the U.S., 70% of the consumer prefers products that are currently useful instead of "environmentally responsible" products (Wilhelmsson, 1998, pp.70). Fifty-three percent of consumers would not be paying higher prices for products that are "environmentally responsible" (Wilhelmsson, 1998, pp.70).

Socially and environmentally irresponsible behavior creates opportunity cost. Opportunity cost can be reflected in: increased government expenditures in clean water, air, in the treatment of epidemics, in the repair of damages caused by natural disasters; to reduce the company's income due to reduced purchasing environmentally irresponsible products, etc..

Green marketing is based on the personalized activities of market subjects. "People give to get something in return. The participation of market players in the green marketing is not a transfer, it is the transaction. Subjects give to get a reaction, the recognition, fix the social pressure or felt caring" (Kotler, Kartajaya, Setiawen, 2010, p.183). Participation in the green marketing is a form of pro-social behavior[3], through which market subjects achieve satisfaction, through the positive action on the environment. If the market subjects are more familiarize with ecology problems, the environmental factors will more influence as a factor of buying. Green Marketing is a micro approach to solving problems macro problems.

Conventional marketing concept is exclusively oriented to the consumer, with the aim of construction of the long-term partnerships between consumers and companies, as a source of profit companies. The new paradigm of social responsibility has led that the marketing turns to consumers which satisfies their needs, desires and solve problems based on the principle of sustainable consumption. Today, some authors believe that the integration of social responsibility and marketing one of the principles of the marketing concept. So, production, distribution, purchase, consumption, etc. should be environmentally sustainable.

Green marketing can be represented as a formula "3R's" (reduce - reuse - recycle):

- Reduce (reduce)-reduced use of natural resources (for example, replacement non-renewable natural resources witch renewable natural resources).
- Reused (reuse)- again use product packaging or their parts.
- Recycled (recycle)-organized collection of used products or its packaging and process of recycling.

It should be noted that environmental awareness is not just knowledge about the relationship between nature and society, the disruption of ecological balance and the need to protect the

[1] Marketing to the social order has aims to change attitudes, beliefs and behaviors of individuals or organizations for social welfare.
[2] Socially responsible marketing refers to the responsible marketing practices.
[3] Under the pro-social behavior are considered different aspects of behavior, which is directed towards the welfare of the community, cooperation and helping others, which involves understanding the problems of others, cooperation and together work. Parenthood, friendship, compassion, and solidarity are just some of the forms of this type of behavior.

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environment, but also the conscience and the willingness of individuals and society as a whole to engage in such protection and that a responsible and environmentally justified relating to the environment in which they live. Today, the green marketing criticized because of: a lack of credibility and confidence of stakeholders; confusion regarding the promotion of green and sustainable products, potential reputation risk of "false claims", the risk of so-called "green washing a"; higher prices of (environmental) products, etc.

In the Republic of Serbia is underdeveloped environmental awareness. In order to green marketing could be applied in practice and to develop environmental awareness and environmental behavior, it is necessary to meet certain conditions, which are divided into internal and external. Under the internal conditions are considered the awareness of managers about the importance of marketing environment and the sensitivity of company to changes in the enterprise environment. The exterior includes: consumer sensitivity to environmental issues, the intensity of competition, the level of legislation, education at the state level, justified environmental investment, and so on.

3. Legal aspects of environmental protection

Given that the legislation falls outside the terms of development of ecological awareness, it is the subject of our further work. In May 2009 The National Assembly of the Republic of Serbia, at the suggestion of the Ministry of Environment, Mining and Spatial Planning, adopted a "Green Package" which includes 16 laws on environmental protection. Adopted laws are in line with EU directives. These laws govern the management of waste disposal and improve the already existing Law on Environmental Protection. Goals of "Green Package" law are the protection of all segments of the environment and the edition of fields of proper use and storage of hazardous chemicals, waste storage, maintenance and disposal of all that in any way threatens the environment and human health, animals and plants. The Laws of environmental protection give greater powers and responsibilities in environmental protection to local authorities.

3.1. The Law on Environmental Protection

The law on environmental protection is a basic law that regulates the field of environmental protection. This law regulates the internal system of environmental protection that ensures the realization of the human right to live and develop in a healthy environment and a balanced relationship between economic development and environmental protection in the Republic. According to this law, the subjects of environmental protection systems in addition to the Republic, autonomous province and local governments are also every company, scientific and other public services and citizens. They need to preserve and enhance the environment. The law provides the basic principles of environmental protection such as: the principle of integrity, the principle of prevention and precaution, preservation of natural resources, sustainable development, the principle of responsibility of polluters and their successor etc. The law regulates the management of natural resources and their protection, preventive measures to protect the environment, measures to protect against hazardous materials, elements of the National Programme and Action Plan for Environmental Protection, as well as the rehabilitation plan adopted by the Government, environmental monitoring by the Republic, autonomous provinces and

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local governments. The law obligates the Serbian government to give in an annual report on the environmental situation in Serbia to Parliament, and appoints competent authorities to inform the public about the state of the environment. Supervision and control of environmental are performed by the Ministry of Environment, Mining and Spatial Planning, i.e. within it Inspectorates for Environmental Protection. The law prescribes the duties, powers and responsibilities of the inspector for environmental protection. The law also regulates the liability for environmental pollution by making the polluter responsible for the damage done by the principle of strict liability. For environmental pollution are responsible legal bodies and natural person whose illegal or improper actions enable or allow pollution of the environment. Polluter is responsible for economic crimes and violations committed. The sanctions in this law are fines.

3.2. Waste Management Law

Waste management is an activity of general interest. The aim of this law is to enable a larger volume of recycling all types of waste, not only at national but also at local government level. Law on Waste Management determinates the types and classifications of waste, waste management planning, waste management operators, responsibilities and obligations in waste management, management of specific waste streams, and conditions permitting, cross-border movement of waste, the financing of waste management, monitoring, and other issues relevant to waste management. The goal of adoption of this law is to provide and ensure the conditions for reducing waste (the development of cleaner technologies and more efficient use of natural resources), re-use and recycling, separation of recyclable materials from waste, use waste as fuel, and proper waste disposal. (Official Gazette of the Republic of Serbia, No. 36/09, May 15, 2009)

3.3. Law on Packaging and Packaging Waste

The main objectives of the Law on Packaging and Packaging Waste are to ensure the conservation of natural resources, environmental protection, development of modern technologies of production of packaging, and the establishment of the management of packaging and packaging waste. (“Official Gazette of the Republic of Serbia, No. 36/09, May 15, 2009)

3.4. Air Protection Act

For efficient management of air quality a unified system of monitoring and controlling the level of air pollution and maintaining a database on air quality is introduced. Prescribed measures to improve air quality include: prescribing limits emissions of pollutants from stationary and mobile sources of pollution, regulation of allowable amounts of certain pollutants in certain products, reduce emissions of greenhouse gases, a gradual reduction of the use of substances that deplete the ozone layer, as and other measures to prevent and reduce pollution and establish accountability for implementing the measures. (“Official Gazette of the Republic of Serbia, no. 36/09, May 15, 2009)

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3.5. Law on Chemicals

The main objective of this legislation is to improve traffic safety of chemicals. The regulation governs the manufacture, import and use chemicals in a manner that is safe for human health and the environment. A particular aim is to improve traffic safety of chemicals with other countries, as well as encouraging the development of safe replacement for high-risk chemical products. Implementation of this improvement will be felt first by workers who handle hazardous chemicals, due to law provides them receiving more information about the substances they use in their work. The law provides establishment of Chemicals Agency and a joint body for the integrated management of chemicals, which will be used as two independent bodies to deal with efficient and safe management of chemicals and biocide products. (Official Gazette of the Republic of Serbia ", no. 36/09, May 15, 2009)

3.6. Act on Biocide Products

Act on Biocide products should establish and improve a unique system of marketing and use of biocide products on the territory of the Republic of Serbia, with adequate notification of users about how to use them. Biocide products are chemical substances and mixtures composed of chemicals and microbes, fungi and viruses, which is common to have a negative effect on the unwanted organisms. This law provides a higher level of protection of human health and the environment as well as improving the free circulation of biocide products with Member States and other countries. This law allows using the preventive measures to risk during the use of biocide products has been reduced to a minimum. (Official Gazette of the Republic of Serbia ", no. 36/09, May 15, 2009)

3.7. The Law on Environmental Protection

Law on Environmental Protection foresees adoption of the National Strategy for Sustainable Use of Natural Resources and National Environment Programme. This law is running category of "areas of special state interest in protecting the environment" and determined that the Government shall prescribe the criteria and measures the area of special state interest in protecting the environment, and the amount and method of payment for environmental pollution in these areas. (Official Gazette of the Republic of Serbia ", no. 36/09, May 15, 2009)

3.8. Impact Assessment Act on Environment

This law regulates the procedure of impact assessment for projects that can have significant impacts on the environment, the contents of the EIA Study on the environment, participation of authorities and organizations and the public, cross-border notification of projects that can have significant impacts on the environment of another state, control and other issues of importance to assess the impact on the environment.

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3.9. Nature Conservation Act

Nature Conservation Act provides the identification and assessment of the situation in nature, protection of natural resources, establishing a system of monitoring natural resources and protected areas, nature conservation and landscape in regional plans and project documentation, making effective management of natural resources and raising awareness of the need to protect nature the educational process. (Official Gazette of the Republic of Serbia", no. 36/09, May 15, 2009)

3.10. Law on Protection against Ionizing Radiation and Nuclear Safety

The main reason for the enactment of this Act is the need for harmonization of regulations in this area with those of the European Union and for tightening the regime of nuclear and Radiation security in Serbia and the achievement level that can respond to the increasing demands of security that have arisen as a result of significant changes in the world during the last decade. The law envisages the establishment of the Agency for Radiation Protection and Nuclear Safety of Serbia, thereby increasing the efficiency of control and supervision over the safe use of ionizing radiation. (Official Gazette of the Republic of Serbia ", no. 36/09, May 15, 2009)

3.11. Law on Non-Ionizing Radiation Protection

This Act provides the decentralization of the establishing measures, conditions and supervision by competent authorities at all levels, while using non-ionizing radiation sources by different operators. This will lead to more effective enforcement measures for protection against non-ionizing radiation and oversight by local governments, provinces and ministries. (Official Gazette of the Republic of Serbia ", no. 36/09, May 15, 2009)

3.12. Law on Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction

Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, the Republic of Serbia joined the 2000th year. States Parties to this Convention have pledged to disarm by destroying all stocks of chemical weapons and have all the facilities for their production, including the abandoned weapons. Serbia is through the enactment of this Act implemented the Convention into its legislation and allowed its implementation. Specifically, the jurisdiction of implementing the Convention is given to the two bodies. In the part relating to the manufacture and use of chemical substances for military purposes permitted by the Convention jurisdiction for implementing is given to the Ministry of Defense, and when these substances are used for other purposes (industrial, agricultural, medical and pharmaceutical) the Ministry of Environment, Mining and Spatial Planning is the authority. (Official Gazette of the Republic of Serbia ", no. 36/09, May 15, 2009)

3.13. Law on the Protection of Environmental Noise

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Law on Protection from noise regulates: subjects of protection against noise in the environment, measures and conditions of environmental noise, measurement noise in the environment, access to information about noise, supervision and other issues of importance to environmental protection and health. (Official Gazette of the Republic of Serbia ", no. 36/09 May 15, 2009)

3.14. Law on Protection and Sustainable Use of Fishery Resources

Law on Protection and Sustainable Use of Fishing Resources aims to achieve the following objectives: management of fish resources in the fishing waters, which includes the protection and sustainable use, catch, utilization and trade of fish, sustainable use of fisheries resources that contribute to the conservation of biodiversity, establishing the conditions for commercial, recreational and sports, like fishing for scientific and research purposes and electro-fishing; establishing the conditions for trafficking fish, the establishment of effective oversight, which includes the rights, duties and powers of inspectors; tightened penal policy. (Official Gazette of the Republic of Serbia", no. 36/09, May 15, 2009).

3.15. Law on Ratification of Amendment to Annex B of the Kyoto Protocol to the United Nations Framework Convention on Climate Change

With ratification of this amendment to the Kyoto Protocol, the Republic of Serbia has contributed to its effectiveness, and to the accession countries of Belarus in Annex B of the Kyoto Protocol, and determining the obligations of meeting quantified emission reduction of greenhouse gas emissions. (Official Gazette of the Republic of Serbia - International Treaties no. 38/09, May 25, 2009)

3.16. Rotterdam Convention on the Consent of prior notification for certain Hazardous Chemicals and Pesticides in International Trade

The main objective of the Rotterdam Convention is to establish a shared responsibility and cooperation in the international trade of certain hazardous chemicals, all in the purpose of correct handling of hazardous chemicals, in order to protect human health and the environment (through the exchange of information about the properties of these chemicals). Rotterdam Convention protects the country importing dangerous chemicals. (Official Gazette of the Republic of Serbia - International Treaties no. 38/09, May 25, 2009).

3.17. Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters (Arches Convention)

The Aarhus Convention is an international agreement in the environmental field that links human rights with the procedures and instruments of modern politics and law in the environmental field. The Convention sets out specific obligations for Member States in terms of three sets of issues: access to environmental information, public participation in decisions concerning the environment and the right to legal protection in the field of environment. Arches Convention defines public participation especially in the following cases: in making decisions on whether to authorize the deliberate release of genetically modified organisms into the environment in developing plans, programs and policies in relation to the

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environment, during the preparation of executive regulations and /or generally applicable legally binding normative instruments. (Official Gazette of the Republic of Serbia - International Treaties no. 38/09, May 25, 2009)

4. Conclusion

Comprehensive regulation of environmental protection through the laws should bring the awareness of the need of environmental protection to a higher level than it was before. Adoption and publication of laws on environmental protection include not only obligation for the citizens of Serbia to respect the Law, but also their responsibility to know it. The goal of enacting these laws is to regulate the field of environmental protection but also to impact on the social awareness of citizens of Serbia and the bring citizens themselves realize the importance and benefits of a healthy environment for them with further aim to adjust their behavior to preserve the environment. Thus, legislation affecting the development of awareness of market forces for the protection of the environment and the Profiles of conduct for sustainable development which is a green marketing.

Although the issue "Green Package Code" provides fines for polluters who violate legal provisions of these laws, the importance of these laws is not only in their sanctioning and penal character. The fact that man is part of nature and that man's survival and quality of life on earth depend on man's relation with nature, and the more common examples of negative impact of human behavior to a healthy environment, resulted in the fact that Serbian citizens understand the importance of environmental protection. As a positive example of the influence we enacted legislation to emphasize action "Clean up Serbia", which this year conducted June 4, 2011 to commemorate World Environment Day, which is June 05. In this action, Serbian citizens have found themselves in the role of volunteers and in a big number responded to the call in an effort to contribute, cleaning their surroundings.

Authors believe that the fines envisaged by the aforesaid laws for polluters, are not effective enough punishment for them. Specifically, fines are directly dependent on the height of fine and costs of care. If the cost of punishment is lower than the cost of preserving the environment through the means of protection or a more expensive raw materials and processes, companies will probably opt for paying the fine, and vice versa. Also, fines are a revenue budget of Serbia, which can be used for other purposes, which aftereffect that the environment and pollution still remain. Authors believe that beside monetary sanctions, polluters should impose a measure of the community, since in that way they would participate in cleaning the environment that they, among others, polluted. Also, authors believe that Serbia should hire more inspectors that would control the application of these laws. Revenue generated from fines should be used to improve the environment, to create a landfill, to purchase cleaner technologies... Also, the law should obligate the Government to more frequently report on the state of the environment to Parliament, at least quarterly, as the Government is now obligated to submit only once annually.

The authors believe that the promotion of the law will significantly contributed that the low perform its function and increases awareness of social responsibility. From the promotion mix are proposed: Public Relations, direct marketing and advertising. Education for the development of social responsibility also is a very important part. As the most effective educational activity, that is aimed at young consumers, the author stands, learning in schools. Seminars, forums, workshops and courses are just some of the educational activities, aimed at all market segments, and whose educational impact should not be ignored.

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Marketing Sustainable Retail Development

Mr Dragan Ilić[1], MSc Jasmina Stanković[1], Doc. Stanko Ilić[2], PhD
[1]EDUCONS University, Serbia, [2]The University Business Academy, Serbia

Abstract.
One of the primary benefits of sustainable retail over the long run has to be the marketing gain from having something other competitors do not: lower operating costs, a more socially responsible public profile, ease of gaining planning approval for new projects, better access to certain investment pools, higher rents (in the case of developers), ease of recruiting and retaining key people. Each of these benefits needs marketing and public relations support; each benefits from a clear and consistent corporate message that promotes sustainable retail.
To date, there are very few retailers or developers who have championed sustainability long enough, consistently enough and with enough actual demonstration of changes in standard operations to gain the benefits of green marketing, but the very paucity of examples serves to underscore the point: the green marketing space is wide open for large retailers and developers.
What would be the marketing steps that a company could take to benefit from its "sustainability focus?" The key to any marketing program is to differentiate a company's actions from those of competitors and to do it along lines that its various stakeholders care about. This practice of differentiation is often expressed as "finding a difference that makes a difference, to someone who makes difference to you."
For retail developers, the first differentiator should be to attract more and better tenants to all of their centers, tenants who value lower operating costs and the developer's program of sustainable development and corporate social responsibility.

Keywords: marketing, sustainable retail, environmental protection, development

JEL Codes: Q56, L81, O12

1. Understanding sustainable retail organizations

Sustainable retail organizations are a work in progress. There are few companies to which one can point and say, "They have the perfect program." But one thing is clear: Without a commitment to get started, an organization will see itself lagging farther behind with each passing year. Without being competitive in the marketplace for "good people", especially in the mature economies, it is almost impossible to grow revenues and profits on a consistent basis over the long haul. We might have our own "save the Earth" reasons for wanting to promote sustainability, but the most important reason is permanent need for balance between economy, environmental protection and equity concerns.

There are many ways that retail developers and retailers can create a meaningful sustainability program. A developer's detailed approach needs to be different from that of a retail store operator, yet common themes emerge in each program. In this paper, we provide a framework for corporate sustainability efforts in the retail sector. The five common themes among the programs highlighted in this paper are these: CEO leadership, internal and external communications, knowledge management, education and training, and corporate operations (walking the talk). These common themes contribute

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to the achievements of all retail sustainability programs and also underpin the successful approaches taken in other business sectors.

Sustainable retail organizations are a work in progress. There are few companies to which one can point and say, that they have the perfect program. But one thing is clear: Without a commitment to get started, an organization will see itself lagging farther behind with each passing year. Without being competitive in the marketplace for "good people", especially in the mature economies, it is almost impossible to grow revenues and profits on a consistent basis over the long haul. We might have our own "save the Earth" reasons for wanting to promote sustainability, but the most important reason is permanent need for balance between economy, environmental protection and equity concerns.

CEO leadership: is essential to any sustainability program. Without top-level leadership, nothing much happens beyond the operational adjustments that many firms are making to respond to higher energy prices and the greater focus of local governments on green building issues. Particularly in this time of retrenchment in the development industry, it is important for employees and stakeholders to know that the CEO regards sustainability as essential to the organization's future and that they should be paying attention to this initiative.

Communications: if a tree falls in a forest and there's no one around to hear it, did it make a sound? If the CEO wants to rapidly transform the organization toward sustainable ends, will anyone notice without an active and effective communications program? So the second facet of this pentagonal program comprises internal and external communications plans, programs, strategies and tactics. (see fig. 1)

Fig. 1: Corporate sustainability programs
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All of the companies have been active at getting their employee-associates committed to the program and equally adept in getting external recognition for their sustainable achievements, especially through awards programs, sustainability reporting schemes and green building certifications. Internal and external communications need to reinforce a company's commitment to green design and sustainable practices. At the beginning, it can be hard on the marketing staff to tell the company's story because they may not really know what it is. As a result, an early activity should be to develop coherent statements about its approach to sustainable design, construction and operations, with a compelling story about commitment, process and achievements. Once a company makes a strong commitment to communicating its interest in and commitment to sustainability, it's amazing how many opportunities arise to present them to current and prospective tenants, public officials and other key stakeholders. People inside the organization are also eager to hear this message, so it's important that the company use all internal communication avenues, with frequent postings of interesting news and links about sustainability in general, as well as the ongoing story of the company's actual achievements.

Education and training: the third facet has to do with developing the skills, knowledge and aptitude for sustainability inside the organization, through a strong commitment to education and training of employees. In the case of the retail developers we've profiled, each company has a point person responsible for the success of its sustainability initiatives.

Extensive training may also be required in the development group, when a retailer or developer commits to a specific green building certification program. Beyond training to get stores built, there's also the issue of operating them correctly. We have also found that when store managers and others engaged in store operations understand and appreciate that the company is building healthier and more efficient workplaces, they can effectively communicate the benefits of green building to all employees, which in turn, helps them to communicate to the customer base.

Knowledge management: the fourth facet of the sustainability program requires the organization to be determined from the beginning to capture the lessons learned, as a developer, for example, through its attempts to build certified centers and to create green operations programs for existing centers. The organization needs to capture cost data and determine which of its existing design teams, contractors and vendors are most cooperative and knowledgeable about sustainability issues.

For a retail store builder and operator, the ENERGY STAR program in the U.S., EPBD in the EU, LEED, BREEAM and Green Star programs offer clear opportunities for objective evaluations of achievements in store design and operations. In this case, capturing cost and performance data from various green building measures, such as weather-controlled irrigation systems, green roofs, offers opportunities to learn from each project and develop a new prototype store that will perform at a much higher environmental level. Many larger firms have hired sustainability coordinators, managers and directors in the past few years, people whose main job is to maintain all of the information flowing through the firm about green products, green specifications, green design methods, new building systems and similar items. Often these people have technical backgrounds, but sometimes they do not. One key aspect of knowledge management is capturing the lessons learned from each project, whether or not the firm decides on a LEED certification. Some firms keep a LEED scorecard internally and ask both internal and external design teams to prepare documentation, so that they can judge how well the company is doing in its commitment to sustainable design. That way, it becomes easier to move the entire firm along and to present to management the cost and performance implications of their proposed project. In a large company, of course, this process can also set off a healthy internal competition between, for example,

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different regions of a large developer to be the most sustainable design group, or between different design consultants for a large retailer. The key with knowledge management is to capture the institutional learning, so that future projects can benefit from new technologies, systems or products or document mistakes on current projects that can be corrected in the future.

Corporate operations: finally, the company needs to "green" its own operations. This includes such activities as engaging employees in "personal sustainability" projects, reducing overall fuel use, buying carbon offsets for travel (or reducing it through video conferencing and other means), implementing environmentally preferable purchasing (EPP) programs, supporting employee car sharing and public transit use and a host of other programs that show a strong corporate commitment to sustainability.

Typical sustainable operations involve such areas as recycling, transit subsidies, purchasing policies, and analyzing overall use of paper products, green housekeeping and using the office as a laboratory for practices that can be brought to clients' projects. More adventurous firms also have begun contributing their new expertise to the community by serving on advisory boards and commissions, getting involved with local schools and similar activities. But a company can always do even more, if the corporate leadership and senior staff are fully committed. For example, look at what one 80-person design firm, SERA Architects in Portland, Oregon, has done [1]. Through a commitment to the "Natural Step" principles for sustainability, beginning in 1997, the firm engaged in a decade-long internal study of how to make their own operations conform to these principles. The Natural Step framework encourages dialogue, consensus-building and systems thinking (which are all key processes of organizational learning) and creates the conditions for profound change to occur. From a business perspective, the Natural Step framework enables corporations to intelligently, and profitably, integrate environmental considerations into strategic decisions and daily operations.

Briefly stated, the Natural Step "system conditions" ask four key questions:

- Can the earth replace what I take in the form of resources?
- Am I poisoning the earth, water or air with my activities?
- Do I respect the biodiversity of flora and fauna, with both my project work and my daily activities?
- Are the choices I make fair and equitable—in other words, does everyone benefit from them?

Taken seriously, these seemingly innocuous questions can cause a revolution at any company. Beginning in 2003, SERA Architects created an action plan that encompassed nine major areas: energy, chemicals, materials use, travel, paper, food, furniture/finishes/equipment, the firm's design library and human resources.

Choosing to pick the "low hanging fruit" made the actions more understandable to the firm's staff and led to early "wins" that encouraged the process to continue.

As a result, SERA matured as a sustainable design firm and began to win new business [2].

Interface, Inc. is the world's largest manufacturer of modular carpet. After ten years of applied sustainable thinking on the part of the entire organization, Founder and Chairman Ray C. Anderson stated the business case for sustainable corporate operations simply, profoundly and forcefully [3]:

Costs are down, not up, dispelling a myth and exposing the false choice between the economy and the environment; products are the best they have ever been, because sustainable design has provided an unexpected wellspring of innovation; people are galvanized around a shared higher purpose; better people are applying, the best people are staying and working with a purpose; the goodwill in the

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marketplace generated by our focus on sustainability far exceeds that which any amount of advertising or marketing expenditure could have generated—this company believes it has found a better way to a bigger and more legitimate profit—a better business model.

2. The long-term benefit

Sometimes, in the daily busy-ness of our business, we forget that the real purpose of our sustainability programs is to bring about a better world for ourselves and for our descendants. We forget how many people we influence through what we say, what we do and what we say about what we do. People need sustainability education, and the retail developer and retailer are in unique positions to provide this information and perspective for their customers. Crispin Burridge, head of sustainable construction at Marks &Spencer, puts the opportunity in these terms:

"We've got approximately 35,000 product lines and, as you cascade down, there are 2,500 factories, approximately 20,000 farms and 250,000 workers directly involved in producing those 35,000 product lines. We have about 75,000 employees and we see 20 million customers a week. You can imagine that if you could shift even 1% of all of those people, move their hearts and minds and the way that they run their own lives, the scope of influence is quite large."

Creating a sustainability program: one of the hallmarks of corporate sustainability in the retail sector is that it keeps evolving rapidly. What worked two years ago to keep a company at the leading edge is no longer seen that way today. But there are certain core principles and activities that must be addressed in any sustainability program. Here is one example from a consulting client of Yudelson Associates, Edens & Avant, a midsize developer of grocery-anchored shopping centers, primarily focused on the Eastern Seaboard of the U.S., from Massachusetts to Florida. Led by President Jodie McLean, the in-house corporate task force engaged all corporate departments in a wide-ranging.

Each functional area presents specific and usually distinct operations issues for sustainability planning. Each requires communication both within and outside the organization, something that typically engages the skills of a corporate marketing group.

As ideas are tried out, it's important to start gathering lessons learned into a coherent framework. This information would typically be collected by both the development staff and the center or retail store operations staff; it needs to be "normalized" to apply to all future activities, for example by putting cost data into a coherent format that recognizes changing building costs over time and in multiple regions.

Finally, employees need a continuing education program. In the case of Edens & Avant, there is a commitment to having about 5% of the staff becomes formally certified as LEED Accredited Professionals. Other key people in the organization will look for similar accreditations in their fields of specialization.

Sustainable retail organizations are a work in progress. There are few companies to which one can point and say, "They have the perfect program." But one thing is clear: Without a commitment to get started, an organization will see itself lagging farther behind with each passing year.

Without being competitive in the marketplace for good people, especially in the mature economies, it is almost impossible to grow revenues and profits on a consistent basis over the long haul. You might have your own "save the earth" reasons for wanting to promote sustainability, but the underlying reason must be to remain a competitive enterprise, as sustainability always balances economy, ecology and equity concerns, the triple bottom line.

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3. Key marketing steps for sustainable retail

Differentiation: differentiation is an approach to marketing strategy that takes decisions regarding segmentation, targeting and positioning variables and focuses them on particular markets. This approach must be coupled with a specific project type: geographic (urban versus suburban); greenfield versus renovation/refurbishment; or other focus.

Differentiation is the primary marketing approach recommended by most experts. The main green building differentiators for developers and retail store operators are:

- Successful certified LEED, BREEAM, Green Star or ENERGY STAR projects.
- Demonstrated corporate commitment to sustainability, through participation in accepted reporting organizations such as the Global Reporting Initiative.
- Reduction in the company's carbon footprint by a significant amount each year.
- For a developer, the demonstrated ability to deliver green retail projects on conventional budgets so that rents are competitive, but operating costs are lower.

A developer or retail operator usually needs to show high levels of attainment on several of these key variables to secure recognition for being a leader in sustainability in highly competitive situations.

Developers can find one or more approaches on this list that will successfully differentiate their services over a three- to six-year period in the green development business industry. Research shows that the leading companies are particularly adept at using differentiation strategies such as advertising, public relations, new visual identities and attracting key people. Improving or evolving the company's services typically takes place over the course of several green building projects.

Become a low-cost provider of green retail stores: given the tight budgets of many building projects and competitive environment in most urban areas, the ability of developers and retailers to compete on price is a valuable asset. These costs may be based on prior project experience, accurate product knowledge, good research, local or state incentives or a willingness to pay to get the experience. Low cost of operations does not necessarily mean low profitability; instead, it gives a company more flexibility to negotiate profitable green building projects, even in a very competitive environment.

For example, the ability to be creative with green building value engineering for energy and water savings, along with high levels of indoor air quality, might help an engineering company to create far more valuable green buildings for the same cost as a more conventional company. For example, David De Vos at Kohl's cites the benefits of rapid learning about cost management that occurred by putting dozens of new stores through the LEED for Retail Volume Certification program in a relatively short period of time.

Low-cost advantages might be even more sustainable than branding as a way to compete in the marketplace, but most companies do not have the discipline to operate in this fashion. A good example of the competitive advantage of lower cost of operations is the almost unblemished success record of Southwest Airlines. For Southwest, the low prices made possible by lower operating costs have become

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the primary brand, along with fun. Southwest has been profitable almost every year since 1972, a record unmatched in the airline industry. Southwest succeeds by being very focused on their point-to-point routes, not trying to be all things to all people, but offering simple air transportation to budget-conscious business and leisure travelers [4]. This approach may not work for every developer or retailer, but neither should it be dismissed out of hand.

Focused differentiation: when embarking on a program of focused differentiation, remember that existing tenants or retail consumers already know your company and appreciate its strengths.

Communicating a new message about green building or sustainability should not be at the expense of these relationships; instead, it needs to reinforce current perceptions of the developer or retailer as a cost-conscious, schedule-conscious, customer-focused organization. Key relationship managers need to be detailed to meet with existing tenants, for example, and explain how the new people were hired, the newly accredited LEED professionals and the new green development focus of the development will benefit them. In turn, this requirement implies a need for strong internal communications before embarking on new green building marketing initiatives, so that everyone inside the organization understands how to communicate the benefits of the new direction.

The essence of marketing wisdom lies in knowing which markets to compete in and which to ignore, which customers a company wants to keep and which it does not. Without proper focus, a developer often will try to serve too many potential tenants, at the expense of not securing the tenants it really wants. To derive an effective strategy, marketers need to combine a laser-like focus on market segments and key targets within those segments, with either low cost or differentiation. Points of focused differentiation can include:

• Regional versus national focus. Many developers operate regionally and only in certain project size ranges or by trying to dominate a local niche. Firms that are focused locally are often able to compete against much larger national firms or else to team with them on larger projects where there is room for more than one developer.

• Building or project types (or vertical markets) such as enclosed malls, lifestyle centers and big-box retail stores. These building types might be good candidates for energy efficiency investments, particularly in states or in utility service areas with significant incentives for energy upgrades. Therefore, a green developer can identify such project sites, make energy-efficient or zero-carbon operations a major marketing focus and direct most of its communications to that aspect of their business.

• Signature green measures, such as green roofs, that a developer or retailer commits to bring into play on each project. While it can be risky for developers and retailers to always bring certain technologies to their projects, it is more dangerous not to be known for anything in particular.

Branding a company in the green building arena with specific technology solutions for particular building types and sizes can be an effective marketing measure, allowing such companies to secure other marketing and public relations benefits, as well as providing political cover against antidevelopment forces.

Project size can also be a focus, allowing smaller developers, for example, to compete with larger and more capable competitors. An example might be a focus on maintenance and operations costs for existing centers, allowing one to accurately judge how much they can be cut and then to use that as a marketing tool for prospective tenants.

A particular method of differentiation lies in the ability of a shopping center developer or retailer to develop a particular approach to sustainability and then “put a box around it,” label it and claim that label for itself. For example, a commitment to zero-net carbon development or retailing could eventually

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translate into “Planet Friendly” or “Net Zero” labels. A major commitment to solar power at all centers could lead a developer to claim that they are the “Solar Center.” A developer focused on existing properties could pursue a LEED for Existing Buildings Operations and Maintenance certification for each center (this is easier for an enclosed mall) and then develop a claim that it is the only “Eco Center.”

Build a brand image: in today’s commercial world, the fifth major task is to create a brand that incorporates the key differences in a developer or retailer that make a difference in the mind of a tenant or consumer. A retailer and consumer electronics company like Apple might want to be thought of as a leading-edge designer and technology company or as dominating a large product category (such as Nike), to broaden its market appeal but at the same time sharply defining itself to consumers who value that experience or approach.

To understand the branding opportunity, consider the following statement: “All marketers are liars” [5]. One way to read this statement is to understand that businesses are all creating stories about projects, capabilities, values and interests for themselves and their customers on a regular basis. The story about the green development project or green building is already manifesting in the minds of all project participants, readers of new stories about the project and the general client base (“It’s only a LEED Silver project, what’s the big deal?”). And it will continue to be permuted, just like a message in the parlor game of Rumor, if you don’t proactively shape it. Therefore, you must tell a story about your project:

If it is significantly different from the contractor’s experience and the architect’s experience and the occupant’s experience, then one of you is a liar! The point is that green building branding is best done when it is a story about project successes and lessons learned.

The essence of a brand is incorporated in how you deliver your services, in your company’s personality and core values (which in turn determine who you hire and who you encourage to seek another place to work), your culture (collaborative or confrontational, or something in between) and all the promises you want your client to believe (for example, clear and frequent communications on each project and the highest level of expertise and technological competence). A brand is something that creates a strong personal and professional relationship between your staff and the client’s staff, to build loyalty and lasting relationships.

The marketing benefits of branding are multiple. It can shorten the decision cycle of a client and reduce your cost of marketing. If you’re always shortlisted by certain clients and client types, you have a brand. It gives you some pricing flexibility; after all, if they really want you, they’ll pay for all the special things you bring to the project, within reason. It helps you attract the kind of people who in turn reinforce the brand.

This point deserves even stronger emphasis: Marketing and recruiting are two sides of the same coin. The same values and branding attributes that attract tenants and consumers attract good people, and a modern corporation is nothing if not a talent agency. Without talented people, you won’t be innovative, you won’t grow revenues and you will never be a market leader.

You can see, therefore, that this is a positive feedback loop. The clearer you are about your sustainability positioning and corporate social values, the more likely you are to attract the talent that will help you grow market share and dominate various green development and green retail niches. And the successful execution of your brand promises also generates loyal tenants and customers, who in turn build your business. Since many tenants, for example, perceive retail developments as a commodity, and

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since many developers deliver them as a commodity (think of how much each shopping mall or lifestyle center resembles the competition, both nearby and nationally), a brand differentiates your projects in a significant way from those of the also-ran competitors.

4. What makes a brand in the green building marketplace?

- A brand is a story told between marketer and consumer, between developer and tenant. The story must resonate with the tenant or buyer to be effective. The storytelling focuses on specific features of the project, but translates those features into benefits that the recipient can clearly appreciate.
- A brand sells an experience or a series of benefits to the consumer. People must be led from understanding the value of the features to understanding how they will benefit from them. For example Starbucks sells a commodity product, coffee, you can buy in hundreds of locations in any big town, and at a significant price multiple around USA. Starbucks has managed to create more than 10,000 permutations on the basic "cuppa java," to give you a unique taste experience.
- A brand delivers on its promises. For example, in LEED Gold-certified apartment building in Portland, the presence of a trash room with recycling bins, just down the hall, and on every floor, and the enforcement of the required "no smoking" policy, both reinforced daily the promise that the green building experience will be something different.
- A brand "walks the talk." Consumers expect sellers to live by the values of what they are selling. A green retailer or developer should have offices in a green building. A green developer or retailer should craft a LEED-EB or LEED-CI certification for its own offices. A green design developer or retailer should be promoting sustainability in all its activities, not just in a few projects here and there.

5. Conclusion

Developers and retailers need to understand how their sustainability marketing must evolve in order to compete effectively:

They must choose a strategy that incorporates higher levels of differentiation or lower overall operating costs (to attract tenants), with explicit focus on particular market segments that might include geographic location, project type, owner type, project size, specific technological approach or signature green measures.

This strategy must be reinforced internally and externally so that it becomes recognizable as a brand identity. Internal reinforcement includes training and certification of employees as LEED Accredited Professionals, for example; external reinforcement includes activities to increase the visibility of the company and its key executives in the chosen market niches.

Design firms must form close working alliances with contractors and clients to ensure that their green building projects will actually get built within prevailing budget, time, technology options and resource constraints.

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