

## **SOME ASPECTS OF SUSTAINABLE DEVELOPMENT IN AGRICULTURE WITH REFERENCE TO TOBACCO PRODUCTION AND ENVIRONMENTAL PROTECTION**

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### **ABSTRACT**

Sustainable development of agriculture cannot be imagined without economic capacity, environmental protection, social responsibility and ethical focusation. Economically capable agriculture implies application of new methods of economy, which also takes into account the aspect of environmental protection. Environmentally protected agriculture prefers rational use of natural resources, application of optimum-minimum amounts of fertilizers and agrochemical products for protection and special care for the environment, with genetic sustainability of plants and animals. Social responsibility is focused on engagement of agricultural workers, their motivation and dedication to ecologically clean agricultural production. Eco-ethics is a principle focused on many areas, including the mode of soil cultivation, crop breeding, treatment of plant and animal populations and care for the environment. Tobacco production is agricultural activity that engages about 10% of the population in the Republic of Macedonia. Its development must correspond to the intentions of the European Union and global world policy defined by various government and non-government organizations, which in practice means production of high quality tobacco, use of tobacco as a bioenergy crop, gradual decrease in tobacco consumption and its substitution with other crops, with continuous improvement in environmental protection. This paper determines the courses of the sustainable development of agricultural production with special reference to the dynamics of tobacco production development.

**Keywords:** sustainable development, tobacco, agriculture, areas, production

### **НЕКОИ АСПЕКТИ НА ОДРЖЛИВ РАЗВОЈ НА ЗЕМЈОДЕЛСТВОТО СО ОСВРТ НА ПРОИЗВОДСТВОТО НА ТУТУН И ЗАШТИТА НА ЖИВОТНАТА СРЕДИНА**

Одржливиот развој на земјоделството не може да се замисли без неговата економска способност, еколошка заштитеност, социјална одговорност и етичка фокусираност. Економски способно земјоделство подразбира примена на нови начини на стопанисување, што во своите калкулации го зема предвид и аспектот на заштита на животната средина. Еколошки заштитеното земјоделство преферира рационално користење на природните ресурси, примена на оптимално-минимална количина на ѓубрива и агрохемиски заштитни средства и водење на посебна грижа за зачувување на животната средина, со генетска одржливост на растителниот и животинскиот свет. Социјалната одговорност е насочена кон обезбедување на ангажираност на земјоделските работници, нивна мотивираност и посветеност кон еколошко -земјоделско производство. Еко-етиката е морално начело кое се фокусира на многу подрачја, вклучувајќи го и начинот на кој луѓето ја обработуваат почвата, начинот на производство на земјоделски култури, начинот на постапување со разновидниот растителен и животински свет и грижата за животната средина. Производството на тутун, како земјоделска активност со која се занимаваат околу 10% од населението во Р.Македонија, мора да

се одвива во согласност со интенциите на Европската унија и глобалната позитивна светска политика дефинирана од владини и невладини организации, што всушност значи производство на квалитетен тутун,негово користење за биоенергија и негово постепено намалување и заменување со други култури, притоа водејќи посебна грижа за заштитата на животната средина.Во овој труд е направен краток преглед кон насоките за одржлив развој на земјоделското производство, со посебен осврт на динамиката на развој на тутунопроизводството.

**Клучни зборови:** одржлив развој,тутун,земјоделие,реони,производство

## INTRODUCTION

Sustainable development is a globally accepted philosophy of development and progress and it summarizes the spiritual ideals of humanity into a single logical unit. Top advantages of sustainable development are equality, fairness, ethics and responsibility towards present and future generations. Fact is that mankind has always faced a number of choices related to the quality of life and environment. Each choice has an impact on the world we are leaving to future generations. Some of the choices will contribute to creating a world in which economic and social needs are balanced with the capacity of natural resources and ecosystems, others will lead to a world with devastated environment ruled by poverty and hunger. Through sustainable devel-

opment collective responsibility is taken for promoting economic development, social equity and environmental protection at local, national and global level.

Sustainable development is defined as development that satisfies the needs of present generations without compromising the ability of future generations to satisfy theirs. The concept implies a new attitude towards the environment in which we act as if we have not inherited it from our ancestors, but we have borrowed it from our children. In other words, sustainable development is development which meets the needs of the present, without endangering the possibility of future generations to meet their own needs.

### Unsustainable development

Unsustainable development is an increase of poverty, destruction of natural resources, pollution effects on health. Unsustainable development is when trees are cut down without being replaced by other trees, when fish are caught in amounts that threaten their survival, exploitation of waters, plants, stones, mineral resources without responsibility for the future. Unsustainable development is when people buy and drive cars

which pollute the environment and release exhaust gas. Unsustainable development is also when too many pesticides are added in the soil on which crops used as a food are grown. Unsustainable trends in reflected in climate change, use of energy, poverty and social exclusion, demographic pressure and aging, threats to the public health, the use of natural resources and loss of biodiversity are processes that need urgent action.

## THE CONCEPT OF SUSTAINABLE DEVELOPMENT

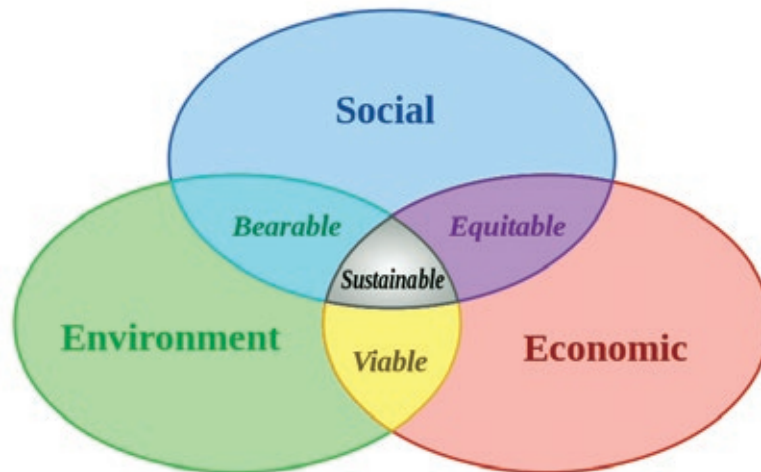
We live in a consumer society. Every day we buy and use a range of products, but what we rarely ask is how these products are produced and what impact they have on the environment. All manufactured products

consume large amount of natural resources, various harmful chemicals that are released into water and soil together with thousands tons of carbon dioxide and other greenhouse gases emitted into the atmosphere.

In other words, people take the resources from nature, they use them to create products they need and after some period of time they throw these materials and then burn them in landfills. This principle has long been considered acceptable until people realized that nature and natural resources are not found in unlimited quantities and that at some point the available resources will be significantly reduced and some will be completely exhausted. Faced with this problem, people developed the concept of sustainable development. **Sustainable development is development that meets the needs of present generations without compromising the ability of future generations to meet their own needs.** Sustainable development assumes collective responsibility for advancing the economic development, social equity and environmental protection at local, national and global level. The concept implies a new attitude towards the environment in which we act as if we have not inherited it from our ancestors, but we have borrowed it from our children. In other words, sustainable development is development which meets the needs of the present, without endangering the possibility of future generations to meet their own needs.

Sustainable development, as a global concept, is a challenge for everyone. Its main goal is to meet current needs without compromising the needs of future generations. Realization of this goal means creation of economy with full employment and highly qualified employees, high quality health care, social and territorial cohesion and environmental protection, all this in conditions of peace and security throughout the world. Active participation of Europe in the global process of sustainable development discussed at the conference in Rio de Janeiro in 1992 resulted in adoption of the first Sustainable Development Strategy (SDS) of the EU in Gothenburg in 2001, revised in 2006 by the European Council. Present generation has a duty to preserve and support

our planet's diversity and to ensure its sustainable development. The overall aim of the revised strategy is to establish a set of measures and actions that will allow continuous improvement of quality of life of present and future generations through the creation of sustainable communities able to manage and use resources efficiently, able to develop the ecological and social innovation potential of the economy and able to ensure prosperity, environmental protection and social cohesion. The renewed Sustainable Development Strategy (EU SDS) concerns the global nature of sustainable development and the need for global solidarity, inclusion of all countries, particularly those with rapid development which have a significant impact on global growth. This strategy complements the Lisbon Declaration and largely corresponds to the Millennium Development Goals (MDGs). The key objectives of EU SDS are related to environmental protection, social equity and cohesion, economic prosperity and fulfillment of international obligations. This concept implies a new attitude towards the environment in which we act as if we have not inherited it from our ancestors, but we have borrowed it from our children. In other words, sustainable development is development which meets the needs of the present, without endangering the possibility of future generations to meet their own needs. Sustainable development is a harmonious relationship between ecology and economy, natural resources and the idea of preserving our planet for future generations. It is a collection of methods to create and sustain development which seeks to reduce poverty, create equitable standards of living, satisfy the basic needs of all peoples and establish sustainable political practices, all while taking the steps necessary to avoid irreversible damages to natural capital. Sustainable development can be conceptually divided into four pillars: environmental, economic, social and political sustainability (Fig. 1).



**Figure 1. Pillars of sustainable development**

Sustainable development is a harmonious relationship between ecology and economy, natural resources and preservation of our planet for future generations. Sustainable development is a set of methods to produce sustainable growth which aims to eradicate

poverty and provide equal living standards, satisfying the basic needs of all people and establishing sustainable political practices, while taking all the steps necessary to avoid irreversible damages to natural capital.

### **SUSTAINABLE DEVELOPMENT– A CHALLENGE TO THE PRESENCE AND THE FUTURE**

„We do not inherit the Earth from our ancestors, we borrow it from our children“

Lacota Indians

In the last decades, the concept of sustainable development has been accepted as a way of life in harmony with the environment. One of the definitions on sustainable development is that of the World Commission on Environment and Development (Brundtland Commission): “Sustainable development is development that meets the needs of the present, not compromising the ability of future generations to meet their own needs.” At the Earth Summit on Environment and Development (UNCED) held in Rio de Janeiro, 1992, world leaders established Agenda 21, which provides recommendations on sustainable management of land, water and forest resources in the 21st century. Sustainable development, as a global concept, is a challenge to every man and every country in the world. Its main goal is to secure continuous improve-

ment of quality of life and prosperity of the country and to ensure sustainable development for present and for future generations. Unsustainable trends reflected in climate change, use of energy, poverty and social exclusion, demographic pressure and aging, threats to the public health, the use of natural resources and loss of biodiversity are processes that need urgent action.

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„The greatest threat to humanity comes not from its wrongs, but from its success“

Ernest Friedrich

How can humans continue their civilization on Earth without destroying the nature and themselves? Certainly not with ruthless development conceived as mere piling up of material wealth, followed by profligate use of natural resources through which all countries compete and take care only of their GDP (gross domestic product), as a measure of their success and development, blind to the price the nature pays for their progress. The answer to the question lies in implementation of the concept of sustainable development. Sustainable development means improving the quality of life within the capacity of existing systems. It is a development that provides basic environmental, social and economic services to all members of the community, without threatening the vitality of natural, artificial

and social systems on which those services depend. The core principal of sustainable development is the belief that social and economic goals and goals related to environmental protection should be mutually complemented and interrelated throughout the whole process of development. Hence, sustainable development should be treated as an issue based on the integration of economic and social development in the context of high quality environmental management. In this respect, it is necessary to implement the strategy of sustainable development. The Sustainable Development Strategy is an important document which defines the courses for optimum development of the local community, taking into account the characteristics, advantages and limitations of the environment.

## OBJECTIVE OF THE SUSTAINABLE DEVELOPMENT

„... Through a jointed and timely action of morality and knowledge sustainable development is possible, because scientific truth is marvelous, but moral truth is divine...“

Horace Mann

The main objectives of the EU Sustainable Development Strategy are to ensure, environmental protection, social equity and co-

hesion, economic prosperity and fulfillment of international obligations. The key challenges are:

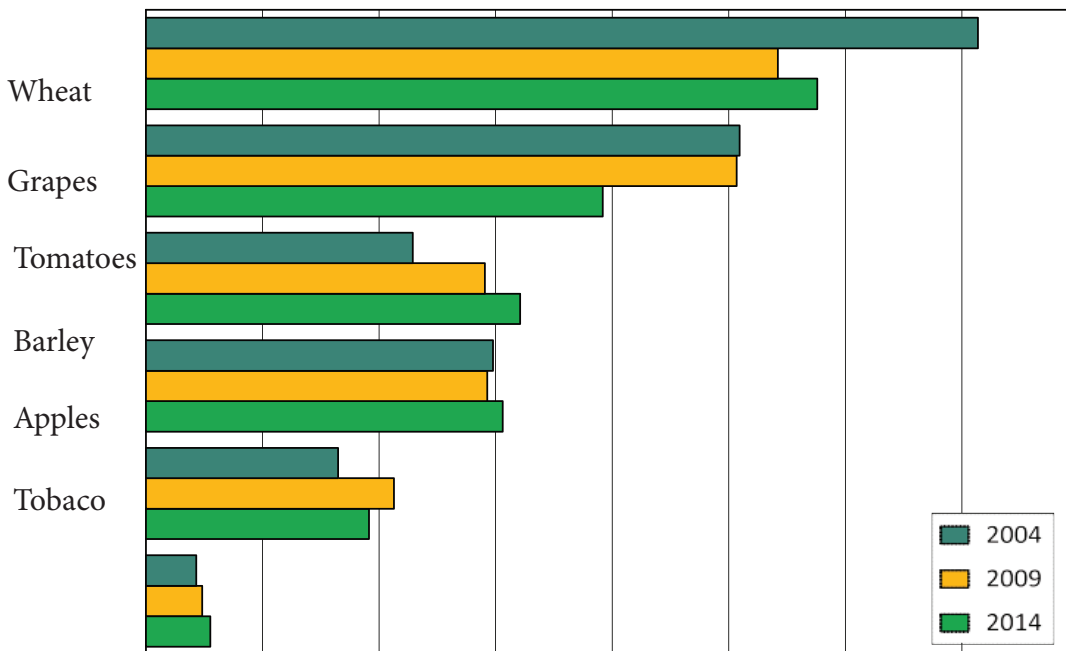
- Climate change and clean energy - to limit climate change and its costs and negative effects to society and the environment;
- Sustainable transport – to meet the community needs for traffic whilst minimising its undesirable impacts on the economy, society and the environment
- Sustainable consumption and production- to divide the economic growth from degradation of the environment
- Conservation and management of natural resources - to avoid over-exploitation of natural resources

- Public Health – to secure equal access to a good-quality healthcare and to improve protection against health threats
- Social inclusion, demography and migration – to increase the quality of life of citizens as a precondition for lasting individual well-being
- Global poverty and sustainable development challenges – to reduce poverty, to promote sustainable development and to ensure that the internal and external policies are consistent with global sustainable development and its international commitments.

The progress in realization of the objectives of sustainable development is monitored by a set of indicators defined by the European Commission. The sum of indicators is organized into major themes following the economic, social, environmental and institutional dimension of sustainable development. The indicators are organized into three levels according to the subgroup to which they belong.

The fate of future generations lies in the hands of the present generation - we have a

duty to preserve the Earth’s capacity to support life in all its diversity and to ensure sustainable development. Agriculture in Republic of Macedonia is tending towards application of the principles of sustainable development. In context of sustainable model of production and consumption, statistical data on the production, area and yields of various crops, including tobacco, in a period of ten years (2004-2014) are presented in this paper (Graph 1, Table 1 and 2).



**Graph 1. Realized production of agricultural crops**

Table 1 shows some oscillations in the areas planted with barley, tobacco and tomatoes from 2004 to 2014, but there is still some stability in the use of these crops. Higher oscillations and significant reduction (24635 ha less) was recorded in the area

planted with wheat - from 101321 down to 76686 ha.

The oscillations were more stable in the number of fruit-bearing apple trees and grape vines.



**Table 1. Area and production of agricultural crops**

	2004	2009	2014
Wheat	101321	88151	76686
Barley	44739	48622	41157
Tobacco	17716	17800	17756
Tomato	5972	5731	5720
Apples (No. of fruit-bearing trees in 000)	3625	4049	3776
Grapes (No. of fruit-bearing vines in 000)	88840	75228	84481

Data on the average yields of above crops are presented in Table 2. The table gives data on the average yield of crops over a 10-years period represented by 2004, 2009 and 2014.

It can be seen that there are also significant oscillations in the average yield, with a rise in 2014. It can be also noted that the average yield of tomatoes and tobacco showed an upward movement in 2009 and 2014. This is primarily due to the varietal structure of oriental tobaccos - primarily of the type Prilep, and to the climate conditions and applied cultural practices.

**Table 2. Average yields of agricultural crops**

	Unit	2004	2009	2014
Wheat	kg/ha	3522	3076	3755
Barley	kg/ha	3328	3010	3719
Tobacco	kg/ha	1221	1355	1553
Tomatoes	kg/ha	19171	25370	28065
Apples	kg/tree	23	26	25
Grapes	kg/vine	3	3	2

The concern for sustainable development The fate of future generations is in the hands of current, which have a duty to preserve the planet's capacity to support life in its overall diversity and ensure sustainable development. Thus, care for sustainable development is in the hands of current and future generations and it should be encompassed by science and, with even greater magnitude, by practice. The present generations should understand that they have an obligation to use rea-

sonably all that they inherited from previous generations, to spend it but also to renew it and pass on to future generations. Science through its research, debates and creativity should regularly refer to sustainable development in all areas in their countries and in the world, not endangering the stability of the cosmos. The practice through its practical actions should make a reasonable use of the limited resources, in order to secure the human and biological survival.

## CONCLUSIONS

Sustainable development, as a global concept, is a challenge to every man and every country in the world. Its main goal is to secure continuous improvement of quality of life and prosperity of the country and to ensure sustainable development for present and for future generations. Unsustainable trends reflected in climate change, utiliza-

tion of energy, poverty and social exclusion, demographic pressure and aging, threats to the public health and loss of biodiversity are processes that need urgent action. The fate of future generations lies in the hands of the present generation, which has a duty to preserve the Earth's capacity to support life in all its diversity and to ensure sus-

tainable development. Sustainable development offers a harmonious relationship between human and natural resources and a model of just and progressive world. It implies harmonization of economic, social and environmental aims, their integration whenever it is possible through creating mutually supportive policies and practices and making compromises when the integration between opposite aims is not possible. National Strategy for Demographic Development of the Republic of Macedonia is a basic document that identifies priority areas and tasks in formulating demographic policy. The aim of these priorities and tasks is to develop a trend of long-term stabilization of population growth, increasing birth rate

and reducing mortality rate and the rapid aging of the population by enabling a high quality of the human capital, better quality of life for every Macedonian citizen and family and creating conditions for progress towards a socially cohesive community of citizens. Sustainable development is a development that satisfies the needs of present generations without compromising the ability of future generations to satisfy theirs. Realization of this goal means creation of economy with full employment and highly qualified employees, high quality health care, social and territorial cohesion and environmental protection, all this in conditions of peace and security throughout the world

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