International Journal of Research
Available at
https://journals.pen2print.org/index.php/ijr/
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 13
December 2019

Ecological Agricultural Improvement In India

Dr.R. GOPALAKRISHNAN
Assistant Professor
Department of Economics
Govt Arts College
C.Mutlur
Chidambaram

ABSTRACT - Starting with the reform of 1999 (named Agenda 2000), the Common Agricultural Policy has two main directions: market policy and sustainable development of rural zones. Since 2003, the environmental aspects were better integrated into the agricultural policy that included new measures or improvements of the existing ones, in order to promote the environment protection (new concept of the 'sustainable agricultural development'). The main instrument of market policy is eco-conditioning. Agenda 2000 has introduced the requirement for all EU member states to apply measures for the environment protection, in order to assure the quality of agricultural soils and production. If these measures are not observed, sanctions are applied that include reduction or even non-approval of direct subsidies for farmers. Thus, a minimum level of environment standards should be observed and the best agricultural practices should be applied so that the eco-efficiency and eco-equity be maintained and driven into the right direction for future generation and environment protection.

Key words: sustainable agricultural development, environment standards, eco-efficiency, eco-equity, eco-conditioning

INTRODUCTION

In the last decades, the development led to extremely limited levels of prosperity for the poor countries and even for developing ones. The development involves changes that lead to improvement or progress. As a result, the definition of development notion can be represented as a norm or a value problem, as well as the economic development (Ionescu et al., 1996; Zaharia, 2008a). The literature defines the economic development as the increase vs. time of the general level of the society prosperity, and the economic increase as the process of increasing the economy capacity to produce goods and services. The sustainable development represents the development that ensures the increase in welfare of actual generation, without leading to the decrease in welfare of the future generation. This means equity between generations and guarantees that welfare will never decrease in time.

The agriculture development represents a main factor that contributes to the environment pollution. The problem is of conciliating the demands of demographic increase, the desires for continuing the agriculture development and the necessity to protect the environment. Because of this, new methods of agriculture development must be identified, for both highly developed countries and poor states that will allow protecting the capacity of environment tolerability. Among the few means, there is the reduction of pollution, produced by agricultural, zootechnical and agro-industrial activities.

The agricultural development can be sustained only if the environment protection is guaranteed. Otherwise, the erosion or gradual soil degradation and, generally, of the environment leads to the impossibility of economic increase. In this context, the sustainable agricultural development represents a new approach of the agricultural development that allows the agriculture to ensure the economic and social benefits for the actual generation without compromising the capacity of the

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 13
December 2019

future generation to fulfil the proper agricultural demands and without injure the fundamental ecological process. This definition emphasizes the fact that any degradation or significant pollution of the environment and ecological processes, thanks to agriculture, must be not sustainable on long-time terms, but the permanent conditioning of soil quality and, generally, of the environment must be permanently had in view. For the achievement of sustainable agricultural development, the following three criteria must be fulfilled:

1.The protection of ecocapacity, that is maintaining the ecosystems capacity to work in spite of the presence of pollution;

2.The efficient use of natural, human, material and energy resources;

3.The guarantee of an equitable distribution between populations, both of the goods supplied by the agricultural development, and of the loads produced by the environment degradation.

MATERIALS AND METHODS

This scientific paper had in view to emphasize the importance of sustainable agriculture development in the large concept of sustainable development. In this context, a series of principles of sustainable agriculture development are presented, as well as a series of new concepts: eco-efficiency, eco-equity and eco-conditioning, together with measures and directions of the sustainable development of agriculture areas.

RESULTS AND DISCUSSION

Principles of sustainable agriculture development and the environment pollution. The main preoccupation of the sustainable agricultural development is the natural environment protection under conditions of a guarantee on the market for the requirements of agricultural produces and services for the whole population. This protection must be achieved in an efficient manner. Thus, if there are alternatives for maintaining the agriculture capacity of the natural environment, the solution that minimizes the inputs (i.e. inputs of energy and products for plant protection) on the unit of the agricultural produce or that maximizes the number of agricultural products for a specific input must be chosen. As it is attested by the economic history of a state, the economic development by the help of agriculture (agricultural productions and services) have constituted long- time ago the way against the high life quality standards. For this reason, the agricultural policies must ensure the achievement of the most efficient conversion of agricultural raw materials into agricultural products and services, under conditions of observing the environment quality and stability.

The future prediction is difficult; in exchange, the elaboration of a scenario for the achievement of sustainable agricultural development is possible. There is the concept of "clean production" and, implicitly, of "clean agricultural or industrial production", advanced from the earlier concepts of clean technology and technologies without wastes or with a reduced production of wastes (Zaharia, 2008a; Zaharia, 2010). The old concept of clean technology (Commission of European Communities, 1979) had three distinct and complementary targets:

1. Few pollutants emitted into the environment (water resource, air, soil);

2. Few wastes (technology without wastes or with reduced production of wastes);

3. Reduced demand of natural resources (water, energy and raw materials).

The clean agricultural production represents a global approach of the environment and agriculture protection that includes all the phases of the agricultural production process or the life cycle of agricultural produces, having as the main objective to prevent and minimize the risks of environment

and human health on long- and shorttime terms. From the technical and functional point of view, the term of clean agricultural production cannot be easily defined concerning the "cleanliness" or the quality of agricultural produces. Closing the cycle of agricultural produces will ask agriculture to manage the produces on their whole life cycle, beginning with the production and use of agricultural materials, until the final storage. The clean agricultural production is profitable for the environment, because it reduces pollution.

Each problem, which is related to sustainable agricultural development has in view the guarantee of agricultural production and services under conditions of nonpollution and/or minor pollution of the environment (Zaharia, 2003; Zaharia, 2005).

We noticed the fact that together with the development and modernization of socioeconomic life and of increasing pollution sources, the intensification and diversification of environment took place in all the components. The pollution of air, water and soil is becoming a threat for people life and health, has dangerous effects on agricultural production, flora and fauna and makes more difficult the normal progress of production process and services in agriculture. The crops that follow the type of preventive approach of pollution have some direct profits such as:

1. Achievement of an economy of costs by the reduction of waste of raw materials and energy;

2. Improvement of functioning efficiency of the agricultural units;

3. Achievement of a better quality of the agricultural products, because of an easier anticipatory unit functioning;

4. Recovery of some wasted agricultural materials.

The clean agricultural production requires application of high-qualified examination; improvement of agricultural production technology and change of attitude.

Among the general principles agreed as basis of the environmental management or ecological management into the agricultural production activities and agricultural services in concordance with the national strategy of environment protection, there are (Law of Environment Protection no. 265/2006) (Zaharia, 2008):

Principle of pollution prevention– it is easier and less expensive to prevent the pollution than to repair, respectively, to rebuild the ecological equilibrium; it involves the application of agricultural technologies that are less pollutant, and also establishes the hierarchy of agricultural activities and services;

Principle of the best agricultural practice – it establishes that any activity must have in view the actual state of technology development, demands of environment protection, choosing and application of reliable measures from economic and environmental point of view, etc.;

Principle of the conservation of natural conditions for human health – imposes the guarantee for the consumption of quality agricultural products and services;

Principle of precaution in taking decision –agricultural units must be cautious in all the modifications that they undertake as concerns the strategies and production processes, in order to maintain under control their unpredictable effects against the environment;

Principle of conservation of biodiversity and specific ecosystems from the natural biogeographically frame – the development of a national network of protected area for the maintenance of the favourable conservation state of natural habitats of wild species of flora and fauna;

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 13
December 2019

Sustainable use of natural resources – the maintenance of possibilities and life conditions for the future generation, of natural renewable resources at least at the level of the existing ones for the actual generation, as well as the amelioration of the environmental factors affected by the agricultural pollution;

Principle of "polluter pays" – correlated with the principle of manufacturer and user responsibility – it establishes the necessity of a specific legislative and economic frame, so that the costs for pollution should be supported by producers (i.e.generators). Concept of eco-capacity. The specialists in this field (Ionescu et al., 1996) consider two important aspects concerning the concept of ecocapacity, namely:

1. The elasticity of agricultural system, that is the capacity to maintain behavioural models against the external disturbances;

2. The stability of agricultural system that is the capacity to maintain the equilibrium, as a response of the environment fluctuations.

The environment protection against pollution generated by agriculture (purveyor of the main food sources for population) represents a fundamental criterion for sustainable development.

Because of the complexity of environment protection problems, there are two main protection strategies:

Maintaining annual emissions and evacuations of wastes produced by different agricultural activities within the limits imposed by the environmental standards – minimization, treatment and valorisation of the agricultural wastes.

The use of fertilizers, pesticides, produces for plant protection and improvement of soil quality (agents of soil conditioning) may generate emissions or evacuations in the environment (air, water resources, soil and subsoil) of compounds from the category of the dangerous or main dangerous (toxics) that have polluting action when the maximum admissible concentration is exceeded or have accumulating effects in time.

Substances for the protection of crops will be used, the environmental standards being observed. The environmental standards are completed by emission standards, designing standards and product standards, all of these being included into the category of imperative means for environment protection (Zaharia, 2003; Zaharia, 2005; Zaharia, 2008).

2.The stabilization and reduction of total loads with pollutants of regional and local importance.

This strategy has in view the global and regional environmental problems. Pollutants are associated with global and regional problems such as the deterioration of aquatic ecosystems, especially because of heavy metals and chlorinated carbon hydrides, pollution of soil and water resources with heavy metals, pesticides, nitrates, different other dangerous compounds, etc. The elaboration of standards for the total loads with pollutants has in view, as the main target the reduction of environmental pollutant load to a lower level as the one imposed by the environment standards.

The achievement of sustainable agricultural development involves the continuous reduction of pollutant emissions per unit of agricultural produce, but this fact is not enough or sufficient. On long-term, the massive substitution of non-renewable (conventional) resources of raw materials and energy with renewable resources is necessary and closing the cycles of agricultural materials and produces by means of optimal processes and products.

Concept of eco-equity. The equity is represented by the righteousness with what the income or prosperity is distributed inside the society. In this context, the equity can be treated inside the same generation or between generations.

The eco-equity will be represented by the righteousness of natural capital (assets) consumption and reproduction into the same generation.

The eco-equity into the same generation. A constant or increased reserve of natural capital is able to ensure the righteousness of income and prosperity distribution into the same generation, both inside a state, but also between states. Examples of eco-equity in case of the same generation include the dependence of: a – Biomass as fuel agent, such as burning wood, agricultural and animal wastes;

b – Manure (organic materials) for maintaining soil quality; stocks of untreated waters; c – Crops and fodder;

d – Hunting produces for proteins etc.

The protection of natural environment leads implicitly to the protection of this dependence and contributes to the population health and prosperity. On the other side, maintaining the natural capital imposes costs for the poor people, their obligation to pay for conservation of the necessary values. In this context, the natural resources can be substituted.

Environment became a good consumer, and the consumption products that had an environmental reduced impact (i.e. agricultural produces) tend to increase with the income increase. Consequently, the rich people will be encouraged for a higher consumption, but this fact does not mean that the poor people have interdiction to consume.

In the developing countries, improvements of environment protection are in accordance with the goal of achieving eco-equity in the case of each generation. In these states, diminishing material welfare (poverty) leads to environment degradation for obtaining immediate stocks of food and natural exchange raw materials. As the environment is affecting, the perspectives for subsistence for the future generations are diminished. For the rich countries, the evidence of the positive function of eco-equity is not conclusive.

2. Eco-equity between generations. The definition of sustainable development means equity between generations.

The sustainable agricultural development involves the concept of eco-equity that supposes the sustainable agricultural production and sustainable agricultural consumption. The actual generations will produce and consume agricultural produces in a sustainable manner, will offer sustainable agricultural services so that the opportunities of production and consumption by the future generation would be not in danger. This means in fact the righteousness with what is consuming and reproducing the natural agricultural capital inside a generation.

The justice for the future generations means assuring the fact that the welfare does not diminish in time, and a simple overlapping of projects cannot identify the sustainable agricultural development or policies to an evaluation of cost - benefit type. In this context, there are necessary compensations between generations that can be achieved in two manners:

1.By creating a fund between generations (conservation of some natural resources);

2.Ensuring stocks of natural non-diminishing capital (renewable natural resources).

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 06 Issue 13
December 2019

The process of real compensation is right for the future generation with the obligation that the future generation does not defectively manage the transferred natural capital.

In this manner, it is ensured the fact that the future generation will have not a worst life style as the actual one. Actually, this represents the notion of eco-equity between generations.

Sustainable development of the agricultural area. For ensuring a sustainable agriculture development, the central authorities have elaborated programmes and strategies of the agricultural development that have in view:

a) A code of good agricultural practices for the use of farmers, that will be subdue to updating as a function of progress in the field and discovering new agricultural technologies and practices with reduced environmental impact;

b) A programme that will include the adaptive expectations of farmers training and information in order to promote the Code of good agricultural practices.

For the achievement of the anticipated objectives, the vulnerable areas to pollution were established and the action programmes for the protection of vulnerable areas against pollution. Thus, action programmes were drawn up and updated for the ensemble of vulnerable zones as concerns the agricultural pollution on the whole country land, as well as different programmes for some specific vulnerable zones or for parts of vulnerable zones. The following were taken into account:

a) Available scientific and technical data, referring to the contribution of pollutants of agricultural sources and other sources;

b) Environmental conditions from the reference regions. These zones will be continuously monitored in the supervision, investigation and control sections/sectors.

A code of good agricultural practices has as main objectives:

The reduction of pollution (i.e. pollution with nitrates, pesticides, PAHs, PCBs);

Rationalizing and optimization of the use of fertilizers containing nitrogen, phosphorus compounds, etc. according to the conditions from different regions of the state;

Management of the land use, including the rotation system of crops and proportion between the land areas meant for permanent crops;

Maintaining on the land of a minimum quantity of vegetation that is covering the land into the raining periods;

Establishing the fertilization plans according to each crop and registering the fertilizer use for each variety;

Preventing water pollution from surface leakage (stream) and water stream into the systems of irrigated crops.

The application of modern agricultural technologies with respect to the quality conditions of environment and agricultural consumption produces is one of the requirements of sustainable agricultural development.

CONCLUSIONS

Under conditions of world scientific and technological revolution, the society incapacity to satisfy vital needs of food becomes unjustified. Agriculture will remain the main source of food. Cropping

and exploited ecosystems ensure for humanity more than 90% of the consumed energy as foodstuffs, produced on 10–11% land used for agricultural practice, under conditions of constant diminution of cropping area and continuously increase of population (Horoba et al., 2001; Suteu and Horoba, 2008). The agricultural development will encourage agriculture to be lower intensive, reductions of surpluses, programmes for an ecological agriculture and afforestation activities.

Farmers will need to respect a minimum level of environmental standards for obtaining direct payments for the production (ecoconditioning) and to supply the agricultural services that must respect more than the good agricultural practices by agro-environment measures.

REFERENCES

Horoba E., Cristian Gh., Horoba Liliana, 2001 – Tehnologii de valorificare a produselor naturale (Technologies of valorisation of the natural products), Edit. Corson, Iasi

Ionescu Cristina, Manoliu M., Nistoran Daniela, 1996 – Conceptul de dezvoltare durabilă (Concept of sustainable development (Course notes), "Politehnica" University Ed., Bucureşti

Şuteu Daniela, Horoba E., 2008 – Quality of food products – between product competitiveness and costumers' protections, Bul.I.P.I, secţia: Machine Constructions, tLIV (LVIII), f. 3, 277-284

Zaharia Carmen, 2003 – Legislation on environment protection (in

Romanian), "Al.I.Cuza" University Ed. Iaşi

Zaharia Carmen, 2005 – Legislaţia pentru protecţia mediului (Juridical protection of the environment), Ecozone Ed., Iaşi

Zaharia Carmen, 2008 – Protecţia juridică a mediului (Legislation for environment protection), Politehnium Ed., Iaşi

Zaharia Carmen, 2008a – Dezvoltarea industrială durabilă – principii, ecocapacitate, eco-eficienţă, ecoechitate, eco-condiţionalitate, (Sustainable industrial development – principles, eco-capacity, ecoefficiency, eco-equity,ecoconditioning), Volume of scientific papers, National Conference – Days of Faculty of Chemical Engineering and Environment Protection, V-th Edition, 19-21 November, 2008, Iaşi, 491-496

Zaharia Carmen, 2010 – Environmental legislation and management applied into a machine-tools manufacturing plant, Proceeding of the 14th ModTech International Conference –

New Face of T.M.C.R., 20-22 may, 2010, Slănic Moldova, 691-694

Zaharia Carmen, 2007 – Industrial wastewater reuse - new environmental perspectives and reglementations, Proceedings of the 5th International Conference – MTC, 25-27 august 2007, Alexandroupolis, Grecia, vol.2, 525-530