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ENVIRONMENTAL PROTECTION OF BIODIVERSITY WITH IMPLICATION IN COMPARATIVE ECOPATOLOGY

Iudith IPATE[1], Alexandru BOGDAN[1], Constanța STRASSER[2] , Simona IVANA[2], Horatiu STRASSER[2], Janos SEREGI[3],Nicolae IPATE[1], Gabriela DAVID[4], Janos TOSSENBERGER[3]

[1]Romanian Academy-Centre of Study and Research for Agrobiodiversity , 13 September Blvd, Bucharest, Romania, Email: ipate.iudith@gmail.com, alecutbogdan@yahoo.com,
[2]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăşti Blvd, District 1, 011464, Bucharest, Romania, Email: simonaivana@yahoo.com,
[3]University of Kaposvar, Hungary, Email: seregij@t-online.hu, Email: tossenberger.janos@ke.hu.
[4]"Vasile Goldiş" West University of Arad, 94-96 Revoluției Blvd., Arad City

Corresponding author email: : ipate.iudith@gmail.com

Abstract
United Nations (UN) has designated the period 2011-2020 as the "United Nations Decade dedicated to biodiversity". The main implications on health status in relation to biodiversity include: health and nutrition security, infectious diseases, medical science and resource development of drugs at social and psychological health and spiritual well-being. Bio-security of natural resources is a major need food as a sustainable economy must respect "offer" ecosystems. Requests exceeded global sustainable productivity of natural systems with over 50% of humanity consumes more natural resources since 2007. Food poisoning is a re-emerging health problem, according to reports of drug prevention and control the national and European of communicable diseases which shows an increase in the number of foodborne illnesses caused by microorganisms such as Salmonella, Campylobacter, Escherichia coli, parasites. Such re-emerging disease is caused by a complex of factors acting as a result of the rapid changes taking place globally, including demographic changes, new practices intensive animal husbandry, extensive proliferation of systems for preparing and distributing food, changing eating habits and so on lead to less common pathogen infection and rapid spread and the geographic scope of pathogens already recognized representative.

Key words*: biodiversity, eco-pathology, food poisoning, bio-security*

INTRODUCTION

Consumption is influenced particularly existing the bio-resources. It places particular emphasis on the protection and conservation of bio-resources and for future generations. Environmental destruction is produced for economic reasons: the forests are exploited for providing raw material resources, natural habitats are converted to cropland because food consumption has increased and is increasing.

It was proposed to include in the calculation of Gross Domestic Product (GDP) and indicators which show the development and natural resource losses as unproductive and unsustainable economic activities increase the GDP but they are destructive in the long term. Natural resources like air, water, soil, plant and animal species, special landscapes are considered to be common resources that are common throughout society. The biodiversity is not associated with a monetary value. Economy, use and degrade these resources without paying only symbolic or anything. When people and organizations will pay for these goods will decline and environmental degradation. Biodiversity is possible options for future human needs, aesthetic benefits priceless, spiritual and educational. No less important are the subtle benefits as a wide range of environmental services. Ecosystems of coastal wetlands, consisting of various species of plants and animals are able to drain the water polluting substances and provide conditions for spawning of fish and shellfish, commercially important. In similar way, forest ecosystems regulate the water regime, influence the frequency of floods and water available during the dry season. These ecosystems and other local climate influences. Each species has their background characteristics determined by genes specifically structured in relation to their genetic system that includes intra-specific genetic diversity. The management of this

diversity is important, especially in small populations and domesticated species. Over the years, thousands of years, man has used genetic diversity to create domestic varieties of plants and animals for use in agriculture, livestock, forestry and aquaculture. Only in agriculture in the United States, it is estimated that the annual value added production of a billion dollars through breeding programs based on genetic diversity (OTA, 1987).

Significant and prolonged loss of biodiversity in Europe reflects the continuing decline of ecosystems and natural potential and their ability to perform control functions. A project called The Economics of Ecosystems and Biodiversity aims to calculate the costs incurred by the degradation of nature. Has already caused the deficit approximate yearly loss of forests. It would be an amount between 2,000 and 5,000 billion dollars worldwide. These signals are based on a statistical alarm dramatic.

In support of these valuable ideas, the authors of this paper believe that economists, ecologists, biologists, physicists, chemists, experts in biodiversity, together with experts in the field of quality management, veterinarians and other experts from various fields related to life, must work with all diplomats representing international business relations and flag voice nations of the world in international relations, the future of the planet. The links between the economy and the natural environment was born with human society and its economy. The interaction between man and nature, many relationships and correlations that this interaction resulted, and results were expressed and manifested gave some branches and sub content's new scientific knowledge and to specific types of human activities. Human labor itself has always been, is now and in the future will be a subsystem of relations, a process between man and nature, a process in which man mediates, regulates and controls the exchange of substances own work, energy and matter between him and nature.

Develop a new model of development of human society requires a change of old concepts, especially economic ones and their connection to specific management environment. The basic components of the concept of sustainable development are: economy and environment. Eco-economic field must develop mechanisms, criteria, tools, models of social development. Finding optimal alternatives between economy and environment depends on the ability of decision makers to choose and use financial and economic instruments to promote environmental protection activities: taxes (taxes) that can be promoted in the form of tax differentiation; subsidies that encourage change in attitude and funding available to stop pollution; introduction of new mechanisms of market economy (trade emission rights, insurance); incentives for financial consolidation etc.

In the results and economic consequences of sustainable development, because there is no long term experience in applying this concept, the consequences can be intuited: improving service quality; development of energy-intensive sectors and resources for technology "cleaner" `and user fewer resources; development of new types of concerns, jobs, activities; resource depletion and environmental emergencies, especially their effects. It is necessary to improve regulation and incentives to practice sustainable management of water, soil and biodiversity. The aim is to stop the overexploitation and degradation of ecological systems to support food production..

MATERIALS AND METHODS

Data collection method will be particularly quantitative because it is an objective method, deductive and generalized. These quantitative approaches will be made in the methods concerned. Numerous bibliographical sources were analyzed by experts in the field, FAO expert reports, scientific papers and documents of the Official Monitor, Bio-era, etc

It will use both sequential methods, each method (quantitative or qualitative) research will be addressed at the same time, as well as theoretical and methodological triangulation method for determining the factors implicate in change the ecosystem equilibrium. The main health issues closely linked to biodiversity include: health and nutrition security, infectious diseases, medical science and resource development of drugs at social and psychological health and spiritual well-being.

RESULTS AND DISCUSSIONS

One Health is about managing health threats at the interface between biodiversity and ecosystem health, animal health and human health. It is recognizes that the health of people, animals and the ecosystem of which we are a part interconnected. The most important connection between biodiversity and human health is to purchase food (fig.1)

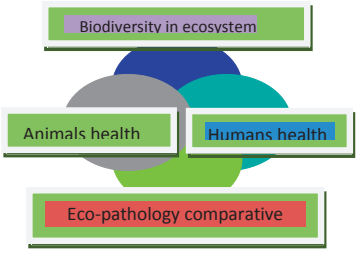

Fig.1 Interconnected relation in one medicine

To manage the minimum needs of the growing population, it is estimated that food production would have to double in the next 30-40 years. Natural resources for production of these additional needs - such as soil, water and biodiversity - are limited and are likely degradation. The management of the biodiversity is important, especially in small populations and domesticated species. Over the years, thousands of years, man has used genetic diversity to create domestic varieties of plants and animals for use in agriculture, livestock, forestry and aquaculture. According to the UN, biodiversity helps people in four key ways: supply, adjustment function - reducing pollution or rainfall frequency adjustment, cultural function - the veneration of sacred places or relax in the countryside and, not least, the support function for crops. Even knowing this stuff, most world governments have failed to prevent unprecedented populating the list of species of plants and animals in danger of extinction, "21% of all mammals, 30% of amphibians, 12% of the population of birds and 27 % of areas occupied by coral barriers are on the list ", says Deputy Director General of the International Union for Nature Convservarea, Bill Jackson.

Millennium Ecosystem Assessment (2010) assessed biodiversity loss as one of the facets of the degradation of ecosystem services: 60% of the ecosystems were found degraded or used unsustainably. In 2000, the Conference of Parties to the Convention on Biological Diversity adopted a supplementary agreement to the Convention known as the Cartagena Protocol on Biosafety.

Of the 1400 infectious agents of humans, over 60% (868) have an animal origin.

Of the 175 emerging human pathogens, 132 (75%) were zoonotic and the majority came from wildlife.

Emerging pathogens evolution is influenced the climate change and disequilibrium of ecosystem.Over the years increased incidence of viral diseases. The situation pathogens over the years reveals the following: 1976 Crytosporidium parvum;1977 Ebola (Congo); 1977 Hataan virus (Korea) ;1977 Campylobacter jejuni;1982 E. coli 0157:H7; 1982 Borrelia burgdorfi (Lyme Disease) ;1983 Human Immuodeficiency Virus (HIV) ;1983 & 1997 Avian Influenza A H5N2 (USA &Italy);1984 Escherichia coli O157: H7 (USA); 1985- Vancomycin - Resistant Enterococcus (USA/UK); 1987 - Methicillin-Resistant Staphylococcus(USA);1988 Hepatitis E;1989 Ehrlichia chaffeensis; 1989 Venezuelan Hemmorrhagic Fever (Venezuela); 1989 Barmah Forest Virus (Western Australia); 1991 Guanarito virus (Venezuela);1991 & 1997 Avian Influenza A H5N1 (UK &China); 1992 Bartonella henselae (cat scratch disease); 1993 Sin nombre virus (USA);1993 & 1995 Avian Influenza A H5N2 (Mexico); 1994 Hendra Virus (Australia); Sabia virus (Brasil);1996 Bovine Spongiform Encephalopathy (UK); 1996 Laguna Negra Virus (Paraguay/Bolivia); 1996 Australian Bat Lyssavirus (Australia); 1996 Vancomycin-Resistant Staphylococcus (Japan) ;1997 Menangle Virus (Australia) ;1997 H5N1 flu (Hong Kong) ;1998 Nipah Virus (Malaysia) ;1999 Choclo Virus (Panama) ;1999 & 2007 Avian Influenza A (Italy &Netherlands) ;2002 Monkeypox (USA) ;2002 & 2004 Avian Influenza A H7N3 (Chile &Canada) ;2002 & 2007 Avian Influenza H7N2 (USA & UK) ; 2003 Severe Acute Respiratory Syndrome - SARS (China); 2003 Avian Influenza A H5N1 (China &Vietnam);2004 – 2008 Methicillin-Resistant Staphylococcus aureus CC398;2007 & 2008 Avian Influenza A H5N2 (Nigeria);2009

Pandemic Influenza virus A H1N1(Mexico & USA) ;*2009-2011 Escherichia coli* O104:H4 (STEC O104:H4) (Georgia & Germany).

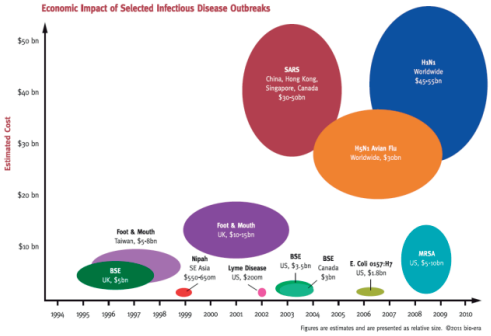

Figure 2.Economic impact of infectious disease
Sources: bio-era

Animal diseases cause the productivity and economic risks of markets and human health with inducing the pandemic disease, endemic disease and food borne illness. Al this influence the human well-being.

The full potential of linking animal and human health information to provide early warning of shared disease risks from environmental hazards has not been realised. The One Health concept holds promise for improved sentinel event coordination in order to detect and reduce environmental health threats shared between humans and animals. Increasingly talking about animals sentinels in detecting bioterrorism events. Sentinels animals could provide an early warning to humans if clinical signs could be detected before human illness emerged or soon enough to allow preventive measures to be initiated. This early detection could because an animal species had increased susceptibility to a particular agent, because the disease caused by the agent had a shorter incubation period, or because animals were exposed sooner (or at more intense and continuous levels) than the human population. The simultaneous appearance of disease signs and symptoms in animals may contribute to the more rapid identification of a biological warfare agent that was producing nonspecific effects in nearby persons. If a released biological agent persists in the environment (such as air, water, or soil), active surveillance for sporadic illness in animals could help detect ongoing exposure risks. The geographic pattern of sick or dead animals could indicate the persistence of a biological threat.

In the context of measures bio-prevention, special responsibility and veterinary authorities and sanitary quality assurance of food and drinking water. Food bio-security involves a series of steps spelled out by national and international regulations concerning health condition (microbial) source and process food processing, handling and storage of food to the consumer. The national networks of veterinary and food quality control and drinking water bears responsibility in this area bio-prevention bio-security. Current preventive measures through decontamination planned and extensive food over the years with the intention to reduce or eliminate the risk of food such as thermal processing is applied in industrial processing with extremely high costs. New procedures, such as low-dose irradiation is applied increasingly frequently, especially foods that depreciates by heat. Securing and control current circuit during food processing are essential elements of food safety.

The microbiological quality is prerequisite for food security. Quality assurance is but a long process to be monitored throughout the producer (primary source of animal / plant) to the consumer, quality certificate based on fairness maneuvers processing and finally, the quality control that includes a requirement basic "microbiological quality" prevention. Clashes microbiology laboratories with an increasing volume of inquires and requirements of quick decisions for perishable foodstuffs and the costs of increasingly large supplies, equipment and labor have led to the introduction of alternative methodologies widely as either pathogen detection products directly or after a prior enrichment. Thus examination of conventional (classical) is restricted only to products that were detected pathogens or those with uncertain results obtained by alternative methodologies for screening. In the current investigation methodologies microbiological diagnostic procedures and criteria are defined through expert advice on succession rules and procedures.

The adoption of alternative methodologies to consider technological and scientific developments and, first of molecular biology.

In the context of virus investigation of the alternative methodology and toxins are taken separate paths based on the detection of their methodology or by morphological methods (virus - electron-optic detection) or antigenic investigation techniques (most commonly used) or by molecular biology techniques (viruses, genetic of toxin factors).

Table I. - bacterial etiologies reported more frequently in food poisoning

To collect		Etiology
ANIMAL FOOD, FOOD TRADE	Meat poultry and derivatives	- *Salmonella* spp. - *E. coli* - *Campylobacter* spp.
	Meat (pork, mutton, beef) and derivatives	- *Salmonella* spp. - *E. coli* - *Yersinia* spp.
	Fish and seafood Molluscs (farmed)	- *Vibrio parahaemolyticus*, *Vibrio cholerae* (O1, O139) - *Salmonella* spp. - *Shigella* spp. - *E. coli*
	Milk and dairy products fresh cheeses, including pasteurized milk or milk powder	- *Salmonella* spp. - *Campylobacter* spp. - *E. coli* - *Citrobacter* spp.
	Eggs (shell, pasteurized or dust), foods with egg	- *Salmonella* spp. - *Shigella* spp. - *E. coli* - *Campylobacter* spp.
	vegetables , raw food , spices	- *E. coli* - *Salmonella* spp. - *Shigella* spp.
	Complex food (pastries , ice cream , cakes , sauces , salads different)	- *Salmonella* spp. - *Shigella* sp. - *E. coli* - *Campylobacter* spp.

The microbiological investigation of molecular genetics methods has greatly expanded so has become indispensable in some cases diagnosis or epidemiological investigation. In particular, slow growing etiologic agents that require identification laborious and difficult aggression factors showed phenotypic (toxins, pathogen factors or antibiotic resistance) have genetic detection methods.

Rapid diagnostic methods based on detection of antigenic structures or specific metabolites as genetic molecular methods are acceptable alternatives for economic reasons both for efficiency and reducing microbiological investigation of the control period which materializes in industrial products (scale) by reducing costs storage "quarantine".

The system "microbiological control" food quality regulations are harmonized national European regulations for which compliance is mandatory for award certificate (attestation) quality. As I mentioned pathogens recognized as aggressive to humans - toxins, viruses, bacteria, fungi, parasites - outcome of the investigation is expressed by "absent" / "present" / investigation unit volume (ml / g / l). Findings of the sanitary quality of food is expressed by the total bacterial load / fungal. The result is formulated in this case by "the number of colony forming units / unit volume investigated" or appropriate decision / inappropriate. Most commercial systems for the detection of enteric pathogens in food is based on immunological reactions of recognizing antigenic structures characteristic or if toxins on their antigenicity .

The second area of counter-terrorism measures of protection Bio-safety refers to activities : promoting and organizing rapid detection of contamination bio-aggressive to humans, animals, food and the environment and ensure hospital and quarantine capabilities.

Cooperation between veterinarians and human doctors is very important because after the release of a pathogen such as anthrax spores this agent pathogen can survive for several years in the environment (soil).It is exist number of agents, including *Brucella* spp., *Coxiella burnetii*, and hantavirus,infection in animals is either asymptomatic or develops so slowly that recognizable human cases seem certain to precede animal cases if the agents are released as an aerosol. The illnesses caused by some agents appear to have shorter incubation times in animals, in the 12-hour incubation period.

CONCLUSIONS

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Doctors of Veterinary Medicine (DVMs) and as a result: Doctors of Very Many Species (DVMs) and as a result: Doctors of Very Many Situations (DVMs) and as a result Determiners of Very Many Scenarios (DVMs).

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