



Health and the Ecosystem Approach in Brazil

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Editorial

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Editorial

Once again, a new year begins with news of fires, floods and droughts in various parts of the world, events that are directly related to public health. Ecosystems can regulate diseases, as they limit the spread of pathogens, provided they are in balance. However, human activities, such as climate change and loss of biodiversity, have upset this balance. According to the WHO, around 24% of the global burden of disease and 23% of premature deaths are attributable to modifiable environmental factors. Rains and floods can cause Leptospirosis, Hepatitis A, Acute Diarrheal Diseases, Accidental Tetanus, Cholera, Typhoid Fever, Giardiasis, Amebiasis, Schistosomiasis; exposure to smoke from fires can cause various respiratory and cardiovascular diseases, as well as poisoning. This shows the complexity of the relationship between the environment and public health. In addition, new ways of life, together with changes in working and living conditions, have increased human exposure to chemical substances and other destructive processes, resulting in new pathologies. The destruction of natural habitats, such as tropical forests, can increase the risk of emerging diseases; the expansion of human activities, such as deforestation for agriculture or logging, can lead to the exposure of humans to wild animals and new pathogens, as close contact with wild animals in live animal markets also increases the risk of transmission of zoonotic diseases [1].

Economic growth, often based on unsustainable practices, has put pressure on natural stocks of ecosystem services, resulting in the degradation of natural resources and increasing social inequalities. In March 2005, the World

Health Organization published the Millennium Ecosystem Assessment, with the aim of evaluating the consequences of changes in ecosystems for human well-being and the scientific basis for the actions needed to improve the preservation and sustainable use of these ecosystems and their contribution to human well-being. Three of the most significant results were related to the degradation of ecosystem services (water and food production, among others), a greater likelihood of non-linear changes (abrupt occurrence of natural disasters, climate change) and exacerbation of poverty for some populations, all of which are related to socio-environmental changes that have a direct impact on human health [2].

As public health aims to study and solve problems that impact on the health and quality of life of the population, it must take into account the socio-cultural, environmental and economic systems. Various studies involving health, work and environmental problems, particularly in the field of public health in Brazil, have come up against vulnerable population groups exposed to various serious occupational and environmental risks. The finding of significant disparities in living and working conditions, differentiated access to care services, unequal distribution of health resources and their repercussions on morbidity and mortality among different social groups is consolidated under the label of 'social determinants of health' (SDH). In this way, the process of social and economic development has repercussions on the relationships that occur in ecosystems, generating impacts on the health of human beings, making it essential for the health sector to overcome the model of Health Surveillance focused only on health problems and to incorporate environmental issues into public health practices for a more integrated approach [3].

Environmental Health Surveillance consists of a set of actions that provide knowledge and detection of changes in the determining and conditioning factors of the environment



that interfere with human health, with the aim of identifying measures to prevent and control environmental risk factors related to diseases or other health problems [4]. This form of surveillance identifies environmental problems and their relationship with the community affected by their effects, as well as developing methodologies to eliminate the sources of disturbance or, at least, to minimize their adverse impacts [5]. Brazil, with its diverse landscape and continental dimensions, has scenarios that vary in their susceptibility to environmental risks and diseases, so that health problems arise and reappear correlated to the constantly changing environment. Understanding these risks requires approaches that take into account the complexity of environmental systems.

The ecosystem approach to health proposes a set of methodologies and concepts to better understand the complex interactions between the various components of ecosystems (biophysical, socio-economic and cultural) and how these interactions influence the health of human populations. It is a holistic approach that recognizes health as part of biological and social systems with varying levels of complexity. It also seeks to identify ecosystem management strategies for the participatory construction of integrated solutions that promote improvements in the health and living conditions of populations and the sustainability of ecosystems. This approach explores the relationships between the various components of these systems in order to define and evaluate the determinants of human health and the sustainability of the ecosystem, allowing the study of different levels of society: the micro-social (individual, family and community) and the macro-social (city, region, country), since all health problems are related to these levels. The approach is based on three methodological pillars: trans disciplinary research, participation by all the actors involved and social and gender equity [6]. This approach aims to develop new knowledge about the relationship between health and the environment, in concrete realities, in order to enable appropriate and healthy actions by the people who live there. According to this concept, ecosystem management must be linked to individual and collective responsibility for health [7].

In November 1978, in Ottawa, the United States and Canada ratified an agreement to restore and protect the quality of the waters of the Great Lakes, one of the largest freshwater reservoirs in the world, covering some 244,304 km². The preliminary agreement was reached in 1972, with the creation of the International Joint Commission, which sought to develop integrative approaches to cleaning up the Great Lakes. This initiative brought a new perspective to dealing with water pollution, requiring an ecosystem analysis. The approach was presented in the Special Report of the Great Lakes Research Advisory Council in 1978 and

continues to be developed. It is important to note that this agreement took place six years after the World Environment Conference in Stockholm and in the same year as the International Conference on Primary Health Care in Alma-Ata. These events defined concepts and guidelines for public policies in the field of the environment and public health. Philosophy had already been developing concepts about the interrelationships between the environment and health for decades. Understanding social processes in human development began to integrate the environment, production/work, the economy, health and culture, among other factors, more systemically. The ecosystem approach proposed for the Great Lakes was based on the concept of the human being as part of a system, contrary to the dominant approach that prevailed until 1972, which believed that the environmental system was external to the human being [8].

Ecosystem approaches to health have also made a significant contribution to understanding the determinants of food security and mercury exposure in riverine populations in the Brazilian Amazon, as well as to building sustainable participatory solutions. Understanding the role of gender relations, social participation and community networks has made it possible to implement changes in the diet of riverine populations in order to maximize food security and the benefits associated with fish consumption, while minimizing the risks of mercury exposure. The ecosystem approach has also made it possible to study and promote equity in the distribution of research benefits [8].

The Ecosystem Approach to Human Health has the potential to reveal points of convergence and dialog between the fields of health and the environment, and appears to be a conceptual and methodological alternative for this purpose, since the principles that govern the functioning of the Brazilian Unified Health System (SUS) are similar in many respects to the foundations of this approach, and there is an identification between the principles and guidelines of the SUS (universality, integrality, equity, participation) and the pillars of the ecosystem approach. Therefore, in order to carry out work from an ecosystem perspective, it is essential to involve the main stakeholders in order to form different knowledge bases, demonstrating that the practical, social and institutional dimensions are just as important as the scientific ones [9]. From this perspective, we start from the premise that the solution to environmental health problems depends not only on the use of technology, but mainly on analysis and intervention to understand and resolve the conflicts involved.

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