Chapter 5

Sustainable Governance in the Integrated System "Environment–Agriculture–Health" through ICTs

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ABSTRACT

This chapter analyzes the role of ICTs in a sustainable governance model as fundamental tools to manage the integrated system "Environment, Agriculture and Health". Food production can determine a negative impact on the environment that then reverberates on the human health: intensive agricultural practices and farming are the principals responsible of the global emissions of greenhouses gases that, causing climate change, can impact human health. The study produced a survey with the purpose of appraising firms' propensity to use ICTs tools in order to enhance their strategies on climate change and environmental pollution and to work, through sustainable communication, towards an integrated system.

INTRODUCTION

Starting point of this study is to consider environment, health and food as factors of an integrated system in which both positive than negative interrelations are generated. These effects, in particular,

encourage reflections upon the appropriate approach to interpret and to define limits, functions and specificities of the system.

The definition of the characteristics of the integrated system "Environment - Agriculture - Health" and the opportunity to interpret the projection of each element on the other, depend largely on the ability to manage efficiently and

effectively the complex information resulting from interactions between the factors of the system.

From this point of view, the study examines the role of the ICTs as fundamental tools to manage the *integrated system* "Environment, Agriculture and Health" and to support a sustainable governance model by the management of information flows generated with the system of interrelations between environment, agriculture and health. Moreover, today is fundamental to look at the Information and Communication Technologies (ICTs) as powerful means of communication, because environmental emergencies, food scares and the increase of chronic illnesses push the consumers to seek informative channels often also "virtual" as a reassurance for their own health, for the salubriousness of food and above all as a direct channel with the enterprises. The digital revolution is by now taking place as a process in the more and more advanced realities of the agri-food system, where exactly, the ICTs are a drawing force and an undisputed paradigm of competitiveness on the markets, representing a vehicle of value over that one of information.

Based on these considerations, this study examines the interconnections between agriculture, climate change and health risks. In particular, it proposes a survey on the firms, with the purpose to highlight the need to steer farming and consumption systems into a more economic, social and environmental sustainable development patterns. As regards the firms, the study look over the farms, in order to investigate their propensity to adopt ICTs in their fight against climate change and to advance towards an integrated system, through a sustainable communication.

THE INTEGRATED SYSTEM "ENVIRONMENT-AGRICULTURE-HEALTH"

Environment, agriculture and health represent elements related between them, that define an *integrated system* that, often, and in two way communication, produce both direct than indirect effects.

Firstly, the study considers the relationships between health and agriculture, understood as the primary source of products for feeding. Subsequently, it considers the relationship between agriculture and climate change, as fundamental environmental matter.

Agriculture and Health

Agriculture output can determine both positive than negative effects on the health. As it regards the positive effects of feeding, by substances contained in food, on makes reference to the ability of this last to oppose the cellular degeneration and to protect some tissues like the vascular one and the bone one. Fruits, vegetables, integral cereals, vegetables and extra virgin olive oil are the most important foods for the protective role towards the aging and its illnesses. Besides, a balanced feeding represents the base of a diet to delay the aging and to maintain a good health state (Basile E., Cecchi C., 2006; Binello D., 2002; Cavazza N., Fischler C., 2003; De Giacomo P. et al. 2005; Pedrazzi P., 2005; Petit M., 1994).

Food, however, can also represent a danger for consumers' health because contaminated or for the consequences of a long period of an unbalanced diet. As regards this last, currently, the link between diet and chronic illnesses represents a central aspect within the connected matters to the public health. Besides the cost for the human health, such problems have a connected elevated economic and social cost related to the weakening of the work force with a consequent diminution of productivity, as for the public burden for the rehabilitation and the physical recovery of the sicks (Voller F., 2007; Mazzocchi M. and Traill WB, 2005). The chronic illnesses, in fact, are long duration and slow progression illnesses that are creating a real sanitary emergency. According to the World Health Organization, in fact, around

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