

Agriculture, food and climate change

THURSDAY, 13 OCTOBER 2016

Concept Note

To achieve the Sustainable Development Goals a new approach to development should aim at ensuring human rights for all and a sustainable integrated rural development. A priority should be to provide rural areas with basic services such as, among others, safe drinking water, access to education and health.

However, mankind is also rapidly modifying the Earth like the great forces of nature. To emphasize the radical structural changes that human activities are producing on the Planet, scientists have created a new term: Anthropocene. The best-known example is given by the consequences notably on global climate of the massive and rapid use of fossil fuel and due to ecosystem mismanagements.

Food production while being a contributor to climate change, could also be managed to provide carbon absorption on agricultural lands, and we can revert the current situation in which the agricultural sector consumes 70% of the Planet freshwater, more than twice that of industry (23%)¹. Farming is consistently responsible for human-generated greenhouse gas (GHG) emission².

At the same time, agriculture is severely affected by climate change. By 2050, 22% of cultivated areas are expected to suffer³. Climate change will reduce agricultural production by 2% every decade, while demand will increase by 14% every decade until 2050. Yields of major crops will face an average decline of 8% for Africa and South Asia by 2050. Regarding fisheries, over much of the oceans higher temperature and acidification can lead to disruption of complex food webs, coral bleaching, species loss, altered fish distribution and decline in stocks (as a consequence also of overexploitation, 85% of these stocks are already under stress). 12% of the world population depends on oceans for its livelihoods, and 17% of proteins consumed by mankind come from fisheries and aquaculture.

Climate change is threatening biodiversity in the wild and on the farm. The same plants that are crucial to adapt agriculture to new climatic conditions - such as wild plant species related to crops, known as crop wild relatives - are at risk. In Europe, 27-42% of crop wild relatives are predicted to be lost by 2080 due to climate change.

One of the main challenges that farmers have to face is unpredictability accompanied by extreme meteorological phenomena. Farmers can no longer rely on the timing of seasons and availability of rainfall. Also higher temperature are influencing the epidemiology of diseases and pests, and will also affect food hygiene.

¹ Jason Clay – 2004 - World Agriculture and the Environment: A Commodity-by-Commodity Guide to Impacts and Practices Island Press

² FAO, 2006. Livestock's long shadow – Environmental issues and options, ed. by H. Steinfeld, P. J. Gerber, T. Wassenaar, V. Castel, M. Rosales, C. de Haan. FAO, Rome.

³ Campbell B., Mann W., Meléndez-Ortiz R., Streck C., Tennigkeit T. June 2011. Agriculture and Climate Change A Scoping Report. <http://www.climate-agriculture.org/~media/Files/Projects/CCAg%20microsite/Agriculture%20and%20Climate%20Change%20Scoping%20Report.pdf>

There is a need, therefore, to clearly define how we can meet the growing food demand while preserving the environment and how we can reduce the impact of climate change while building up system and community resilience⁴.

The new global development framework provided by the 2030 Agenda for Sustainable Development, which puts sustainability at the centre of our development efforts and highlights the importance of environmental, social and food issues, offers a great opportunity. The links and interactions between climate change, food security and sustainable agriculture are crucial in the Agenda 2030 new global framework for development and have been recognized in the recent United Nations Climate Change Conference – COP21.

Food Security and Nutrition and Sustainable Agriculture are central to fight poverty, generate employment, and encourage a proper and durable use of natural resources both at local and global level. However, the magnitude and speed of expected changes over the next decades raises serious questions about how much agriculture can adapt to new climate, how quickly and at what cost farmers will be able to manage new risks and strengthen their resilience. The double issue of food security and environment preservation can determine growing instability and insecurity in human livelihoods.

In order to meet these urgent challenges, we need to work globally and locally, acknowledging the specificity of the agro-ecosystems and their interconnection. Building partnerships and sharing best practices among countries and communities is an important driver of positive change.

The Italian Cooperation has acknowledged well in advance these needs and challenges. For example, it has contributed to establishing the Mountain Partnership⁵, a voluntary alliance of governments and organizations committed to working together to achieve sustainable mountain development around the world. Another example is the Global Island Partnership, with distinct attention to fragile Small Islands Development States (SIDS)⁶. Mountain and small island communities are particularly and directly affected by climate change.

The Mediterranean basin, which hosts a great variety of ecosystems, cultures and economies, remains a unique crossroad where these dynamics are taking place and innovative solutions are being developed. It is predicted that the Region will become drier and hotter with a higher frequency of extreme events and drought. Also sea levels will rise. In Egypt, even limited rise could flood significant areas and salinize the Nile Delta, affecting part of the country's population and subtracting part of its arable land⁷. Arid areas will expand, reducing crop productivity, and agriculture could also suffer from shorter growing seasons and erratic rains. Extreme climatic events, such as torrential rains will increase erosion and flash flooding, decreasing slope stability and groundwater recharge.

Besides climate change, also political instabilities, poor economic development, demographic growth, urbanization, as well as the depletion of natural resources and loss of biodiversity will contribute to put pressure on the Mediterranean region's capacity to feed its population, potentially contributing to social upheavals and unrest. There is an urgent need to design and

⁴ Ghirotti M., 2016 . Looking forward – Veterinary Public Health contribution to meeting the global development challenges .. Journal of the Italian Society of Tropical Medicine. 1, 1-13.

⁵ <http://www.mountainpartnership.org/>

⁶ <http://www.glispa.org/>

⁷ Pandi Zdruli 2011 - Desertification in the Mediterranean Region http://www.iemed.org/observatori-en/arees-danalisi/arxius-adjunts/anuari/med.2011/Zdrulli_en.pdf

implement strategies that support a positive transformation of local food systems. In this perspective, the reduction of food waste and losses could contribute to reduce the stress on natural resources.

The Italian event celebrating the 2016 World Food Day, “Agriculture, food and climate change”, is an opportunity to better understand the linkages among these three factors, their impact on the sustainability of human activities and the main challenges that the Planet is facing.