



Tropentag, September 14-16, 2010, Zurich

“World Food System —
A Contribution from Europe”

Food, Water and Poverty: Basin and Global Scale Patterns of Water Availability, Use and its Impacts on Rural Development

SIMON COOK¹, TASSILO TIEMANN², MYLES FISHER³, LARRY HARRINGTON⁴

¹*Agricultural Consultant, Australia*

²*CGIAR Challenge Program on Water and Food, Colombia*

³*Agricultural Consultant, Colombia*

⁴*CGIAR Challenge Program on Water and Food, Sri Lanka*

Abstract

Food and water systems are under increasing pressure to meet the demands of an ever-increasing global population. Since the vast majority (up to 90%) of global water fluxes through food systems, these two systems are tightly coupled, and together underpin nutritional food, income and environmental security for the future. Yet surprisingly little is known about the condition of this coupling, or the way it influences (and is influenced by) development.

We present detailed analysis of the food and water systems from 10 major river basins to explain conditions of water, food and poverty. We relate these conditions to development processes and indicate the types of interventions that promise improvement.

At a global scale, three factors seem crucial: increasing demand for food; increasing demand for water to meet other needs, and a finite supply of available water. These three factors are starting to collide in a crisis in which water or food is increasingly unavailable and in which rivers suffer from severe overuse putting at risk ecosystems and basin dependent livelihoods of millions. We find from our analysis that while physical water scarcity is the most ostensible problem, it applies only to some basins, while other problems are more widespread. These comprise lack of access (inequitable sharing of the water resource or benefits derived from its use); vulnerability to water-related hazards; and low water productivity (benefit per volume of water consumed). Low water productivity is of particular interest to scientists seeking to improve the food system because estimates suggest that - with few notable exceptions - it is typically less than one tenth of its biophysical potential over vast areas of different cropping systems. This suggests that improved eco-efficiency holds substantial promise to enable food systems to (i) meet future demand without compromising water systems further and (ii) foster rural development in some of the poorest regions of the world. We identified institutional weakness as one of the main reasons for unsustainable and unequal water management and low productivity and we are able to show the linkages between politically guided good practice water management and improved livelihood situations for rural smallholders.

Keywords: Basin focal projects, food systems, rural development, water productivity