

Global Implications

ANTONIO EMBID IRUJO
CATEDRÁTICO DE DERECHO ADMINISTRATIVO
UNIVERSIDAD DE ZARAGOZA. ESPAÑA.

HIGH LEVEL PANEL “WATER-ENERGY-FOOD NEXUS”
CANCUN MEXICO XVI WORLD WATER CONGRESS 1-6-2017

INTRODUCTION

This presentation is one part of the book:

El nexo entre el agua, la energía y la alimentación en América Latina y el Caribe. Planificación, marco normativo e identificación de interconexiones prioritarias, (Santiago de Chile, 2017)

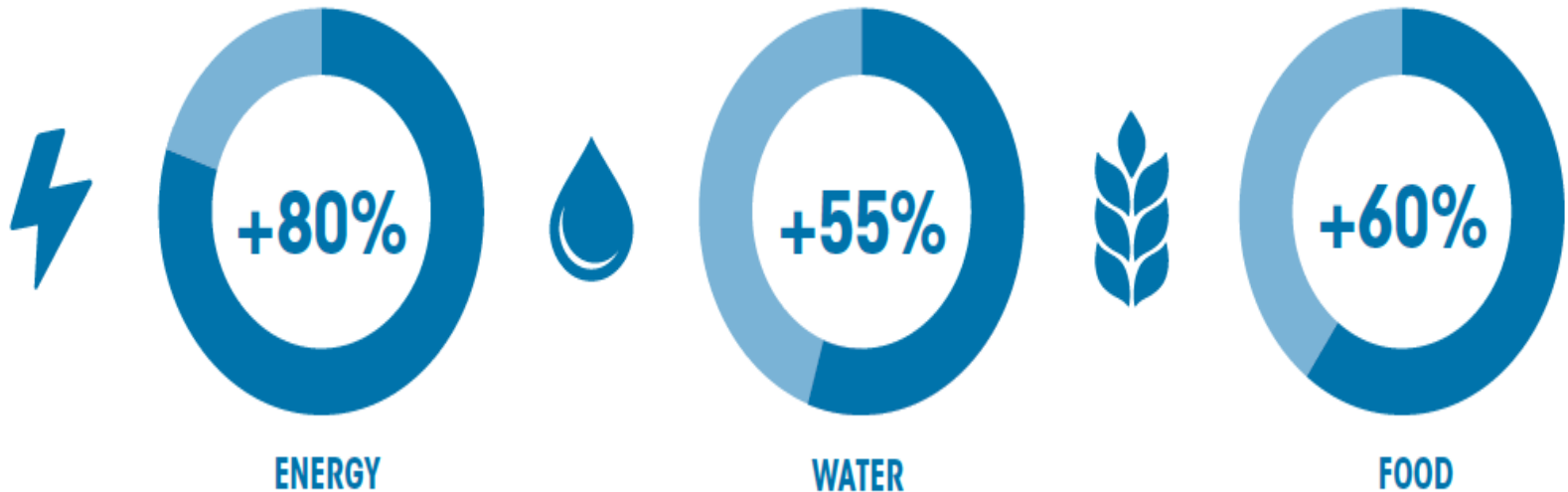
(Nexus between water, energy and food in Latin America and Caribbean countries. Planning, Law and priority interrelations).

The book is published by the Economic Commission for Latin America and the Caribbean (CEPAL) with funds of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

THE NEXUS. IRENA (2015), p. 23

Estimated increase in water, energy and food demand by 2050

By
2050



Source: OECD-FAO, 2012

INTERRELATIONS BETWEEN WATER AND ENERGY

-**Use of water to produce energy.** Traditional approach to hydropower and in cooling nuclear power plants and thermal plants.

-**15% of worldwide water abstraction is used in energy production.** (It's a very important amount).

-**Interrelations too:** by hydrocarbon extraction ("fracking" in non-conventional hydrocarbons). Great controversy (Precautionary principle).

-**Use of water and mining:** Water use in mining has major problems in arid countries.

INTERRELATIONS BETWEEN ENERGY AND WATER

-Essential role of energy in seawater desalination, pumping of groundwater and irrigation modernization.

In **desalination**, the main concern is environmental: the dumping of brines but also the energy consumption is very important.

In **pumping of water**, there is a serious problem when the price of energy is subsidized. This increases water consumption.

The **modernization of irrigation systems** greatly increases energy consumption, although it can reduce water consumption

-The agrifood chain is estimated to consume around 30% of worldwide energy.

INTERRELATIONS BETWEEN WATER AND FOOD

- Water is used to produce food: irrigation and aquaculture.
- Water uses percentages: it depends on the country. It can range from 70 to 90%.
- The returns the water to the cycle do not usually exceed 20-30%.

It is necessary to line channels to reduce water consumption.

-Usually water enjoys a privileged position in countries whose legislation is based on a hierarchy of uses. Only human consumption of water is ahead of irrigation.

INTERRELATIONS BETWEEN WATER, ENERGY AND FOOD

- The best example of these interrelation: biomass production.
- In recent years a growth of this phenomenon in some geographical areas can be appreciated: Argentina, Brasil.
- This production can involve a decrease in food production; if the biomass is forest waste, the ecological funcion of the forest can be affected.
- There is also a possible increase in food prices. Although this is not proven.

The nexus approach can help avoid the drawbacks of these interrelationships

OTHER CONSIDERATIONS BY WAY OF CONCLUSION

- interrelations between water, energy and food should be taken into account in all public policies.
- The central element in the nexus is water. Water should be a relevant issue in the future.
- The environment must be the element underlying all interrelationships.
- Human rights can not be forgotten in the considerations of the nexus.