

FOOD SCARCITY UNAVOIDABLE BY 2100 ?

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Food for everyone is a **humanistic objective**, however by far not reached yet and the balance projected to the end of the 21st century is **not quite optimistic**. One of the major reasons lies in : the planetary **demographic expansion** of some three additional billion individuals, plus the still undernourished of about one billion people and the **global warming** and **extreme weather** phenomena. Both occur simultaneously in the 21st century and call for an **overarching world governance institution**, which mission is vital for the human species .

*The research project makes use of the **Climate Classification System** from **Wladimir Köppen** and **Rudolf Geiger**. It addresses climate phenomena independently from legal borders; about 25 terrestrial Climate Zones are used.*

*The **demographic increase** requires to look in a different way to the significance for the survival of the human species. The data are taken from UN ECOSOC Population Division and cover the period 1950-2300 for the continents.*

*The **New Sciences of Networks** emerged some decades ago and have not used for analyzing the food 'problématique'. The 'open source' software **Gephi** (The Open Graph Viz Platform) and the program language, **R**, for statistical analyses are applied. The diagrams: **adjacency matrix**, **dendrograms**, **decision trees** and the **Kamada Kawei algorithm** describe the correlations among Climate Zones and the agricultural parameters: crops, meat, arable land and fresh water. **Agricultural output** will have to provide food for some >10 billion people, meaning some 3-4 billion more than today, including the undernourished.*

*The new approaches focus on the urgent need for a global approach over a long period of time, and formulate practical possible agricultural action domains. Special focus is given to the situation in some parts of the planet. Globally : **Optimism is not enough!***