



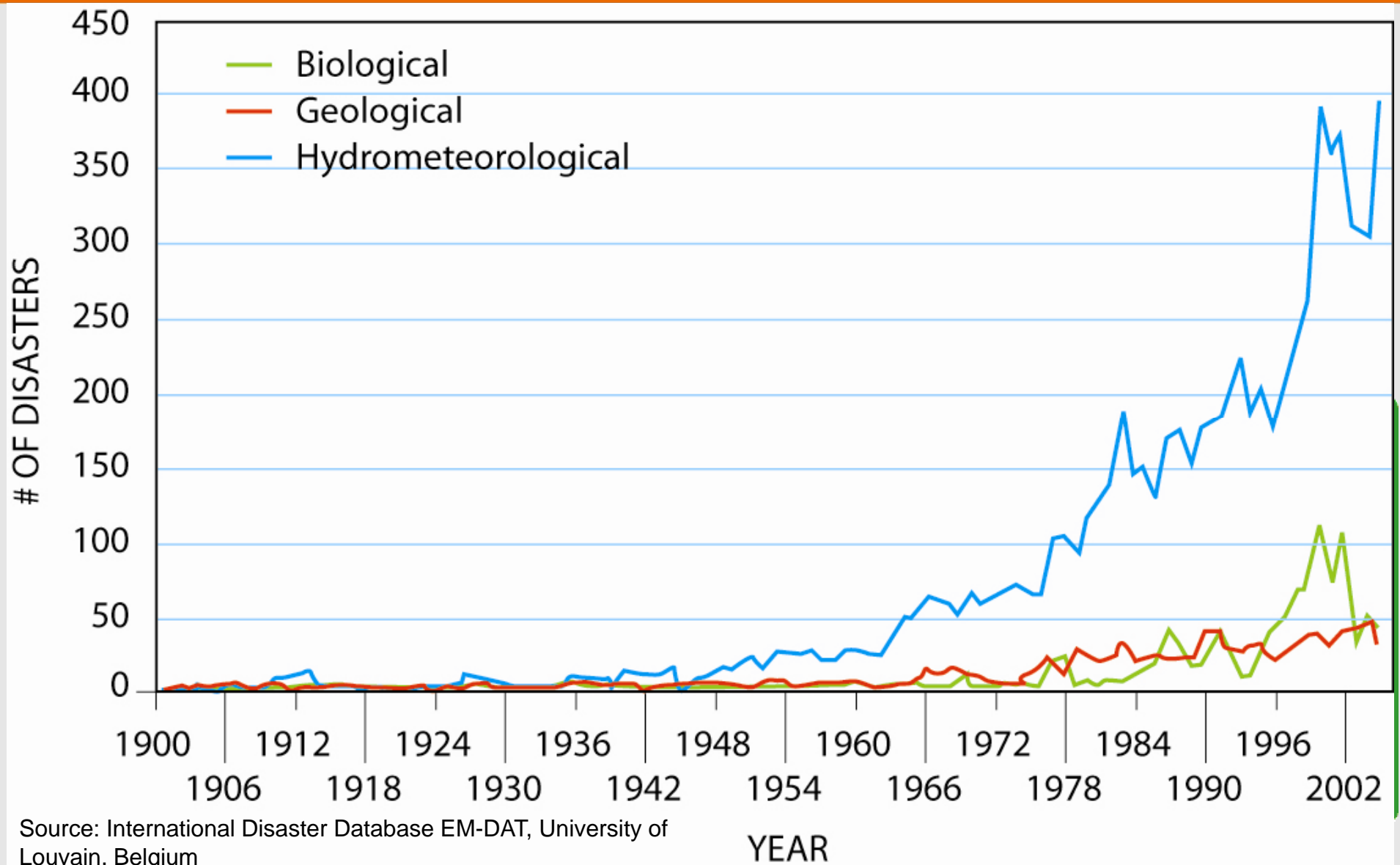
## **Urban Flood Management: Towards A Holistic Approach**

### **Synthesis: Why the need for a holistic approach?**

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# Global Trends



## Synthesis

- Engineering solutions are **NOT** sufficient
- Social dimensions have **NOT** been considered adequately
- Ecology matters



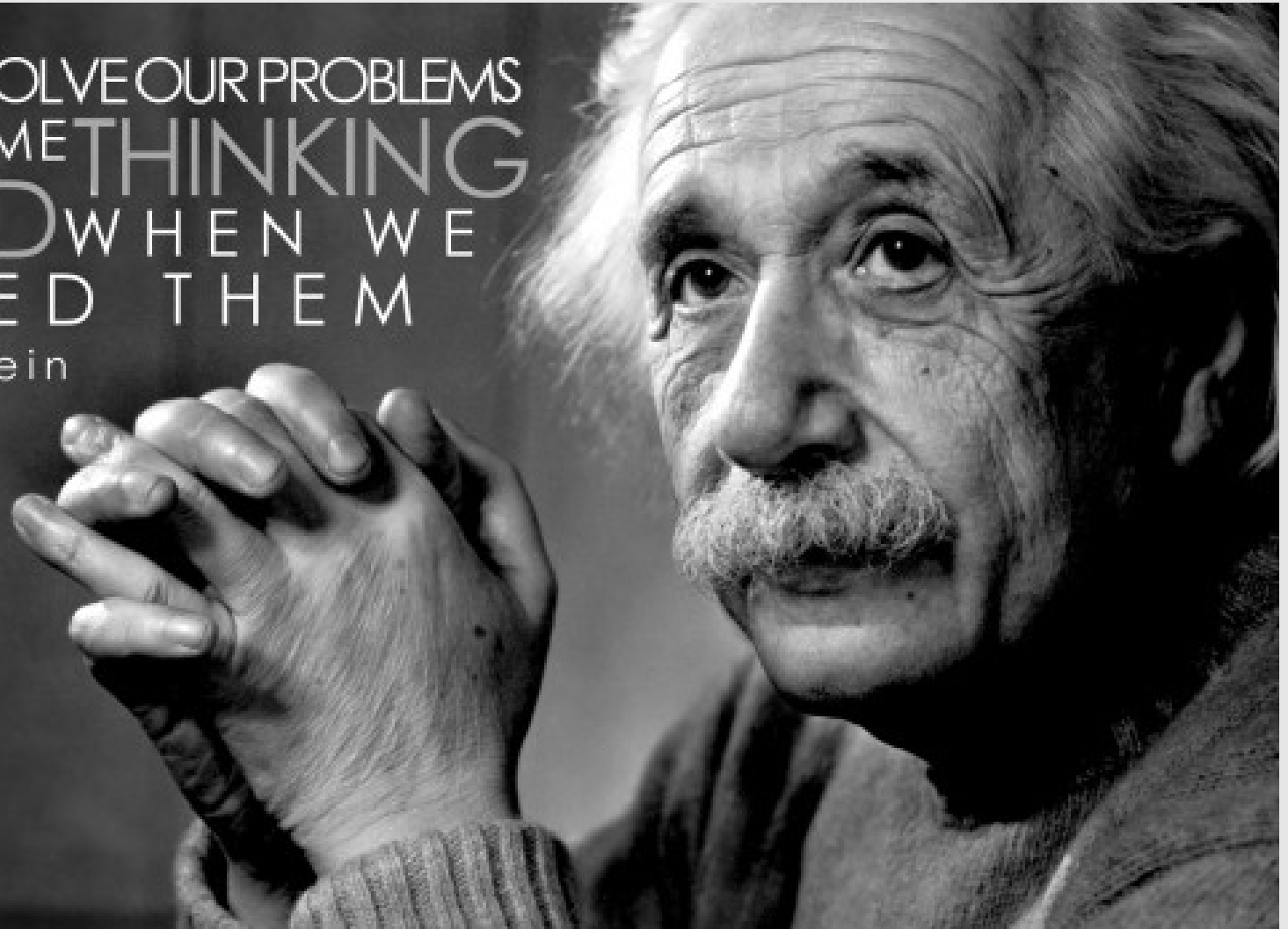
- The need for a paradigm shift!!!



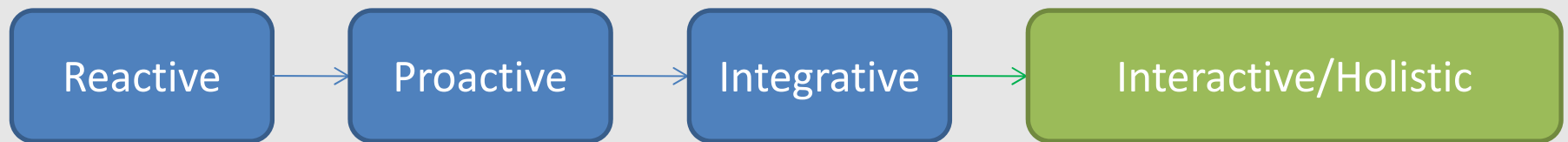
## A Paradigm Shift

WE CANNOT SOLVE OUR PROBLEMS  
WITH THE SAME THINKING  
WE USED WHEN WE  
CREATED THEM

- Albert Einstein



# Towards Holistic Paradigm



Reacting  
upon incidence

Defending from  
nature

Disciplinary

Predictions

Controlling the  
nature

Multidisciplinary

Many aspects

Learning to live  
with nature

Interdisciplinary

Sociotechnical interactions

Search for economically sound,  
ecologically sustainable, and  
socially just solutions

Transdisciplinary



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## A Paradigm Shift

**The need for a new holistic paradigm that can account for human, social, natural and material entities through their interactions.**



# A Paradigm Shift



Paradigms are accepted theories, values and practices within which a particular field operates.

They change with time and new paradigms always face great resistance.

Thomas Kuhn  
(1922 – 1996)

*The Structure of Scientific Revolution*



## Thinking beyond IUFM

### A New Paradigm Shift

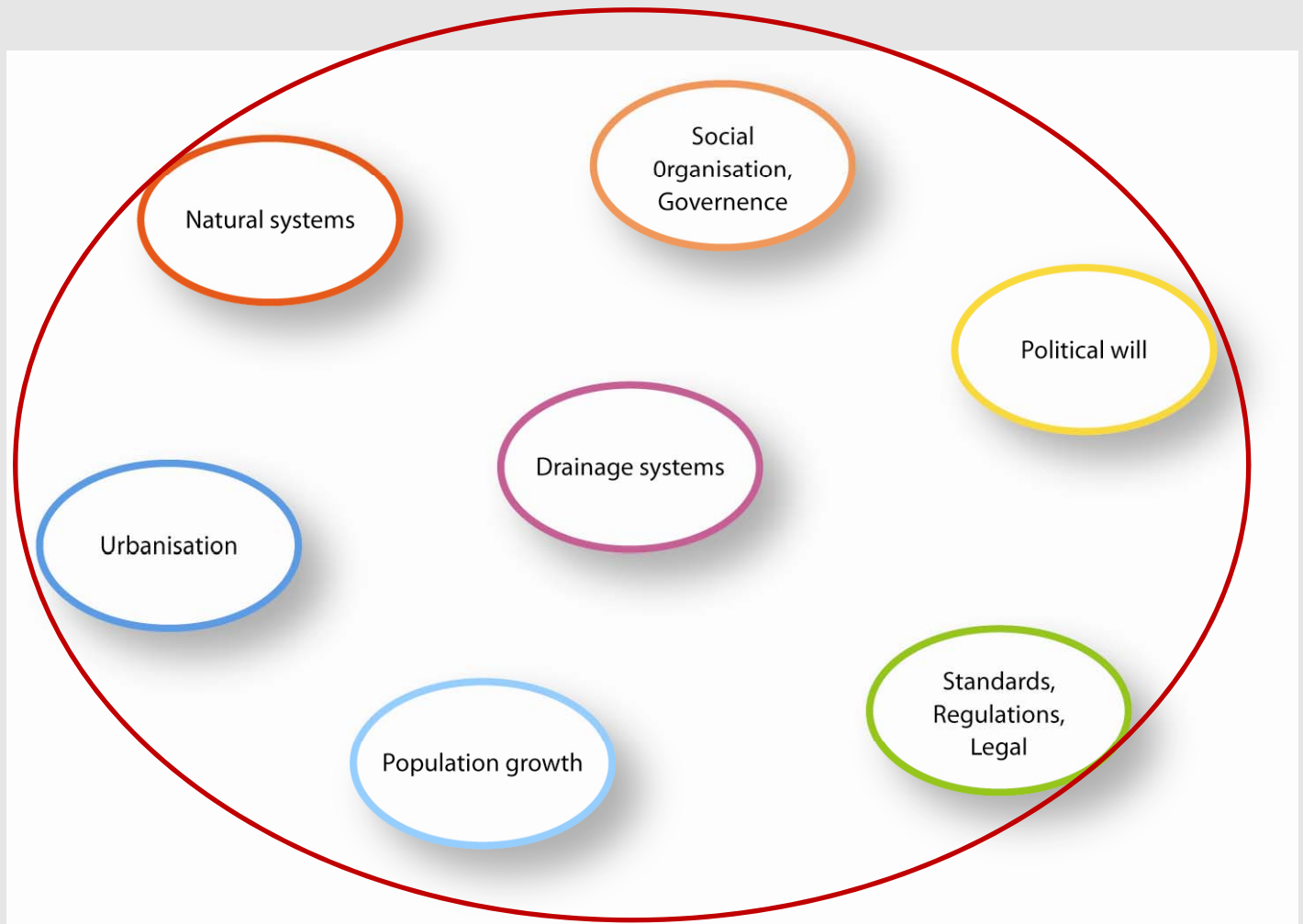
- **Integrated** – bringing all parts together into a whole;
- **Holistic** – emphasizing the importance of the whole through interactions of its parts;





# Thinking beyond IUFM

- **Integrated** – bringing all parts together into a whole;



# Thinking beyond IUFM

- **Holistic** – emphasizing the importance of the whole and the interactions of its parts;



# Traditional vs. Holistic

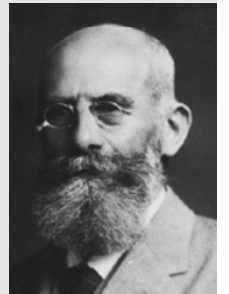
- Reductionist - parts
  - Existence
  - Inside-out
  - Quantitative
  - Doing the things right
  - Management solutions
- Holistic - interactions
  - Co-evolution
  - Outside-in
  - also Qualitative
  - Doing the right thing
  - Adaptive environments



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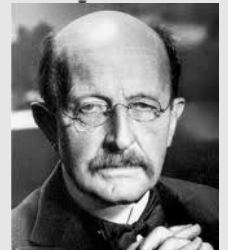
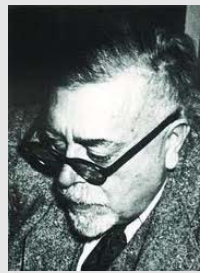
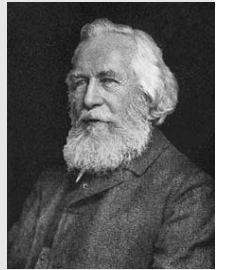
# The Rise of Holistic Thinking

- **Philosophy** (Kant, Husserl, Heidegger, Scheler, Merleau-Ponty, Sartre, Foucault, etc.);
- **Gestalt psychology** (Ehrenfels, Koffka, Wertheimer, Köhler, etc.);
- **Organismic biology** (Harrison, Henderson, Woodger, etc.);
- **Art and literature** (Blake, Goethe, etc.);

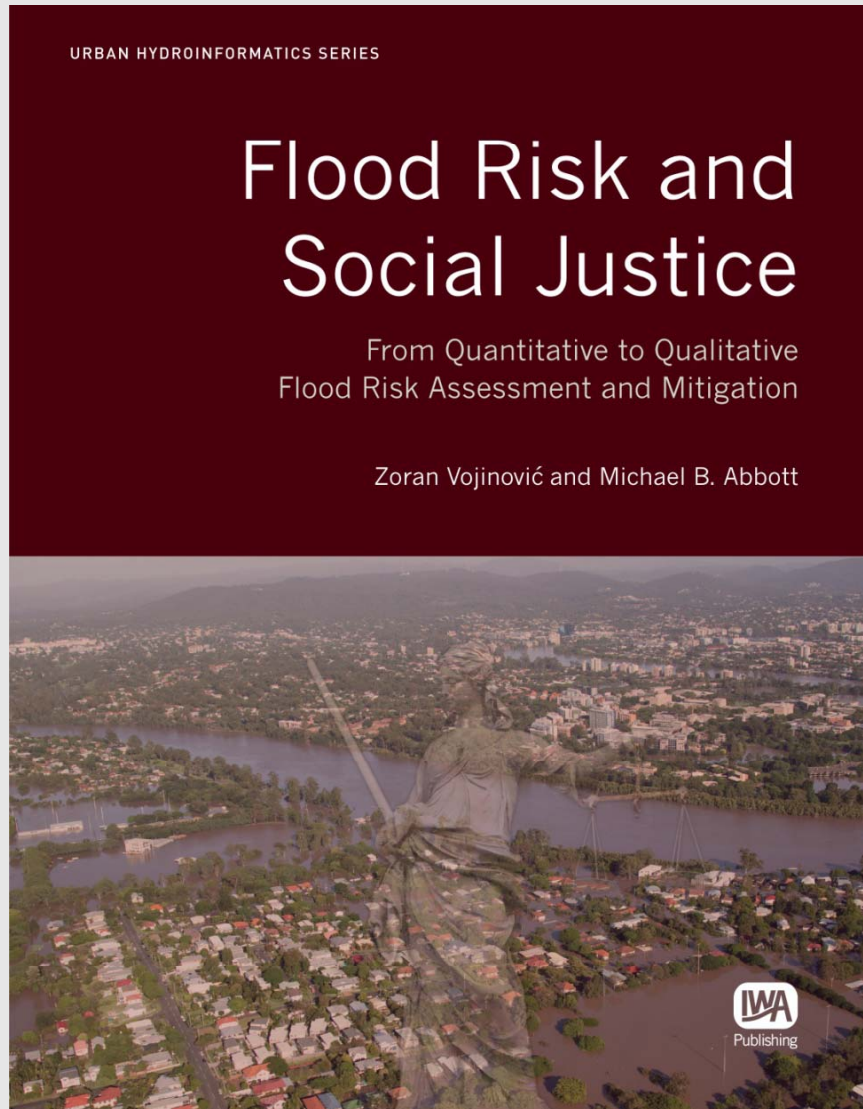


# The Rise of Holistic Thinking

- **Ecology** (Haeckel, von Uexküll, Lovelock, Patten etc.);
- **General system theory** (von Bertalanffy, etc.);
- **Cybernetics** (Wiener, Forrester, etc.);
- **Quantum physics** (Planck, Heisenberg, Bohm, etc.);



# The Rise of Holistic Thinking



- In flood management



## Holistic Approach - Focus

- Co-evolutionary view of risk;
- Transdisciplinary analysis of risk;
- Combination of quantitative and qualitative aspects;
- Risk governance through meaningful stakeholder participation;
- Moving towards eco-system solutions;
- Adaptive environments;





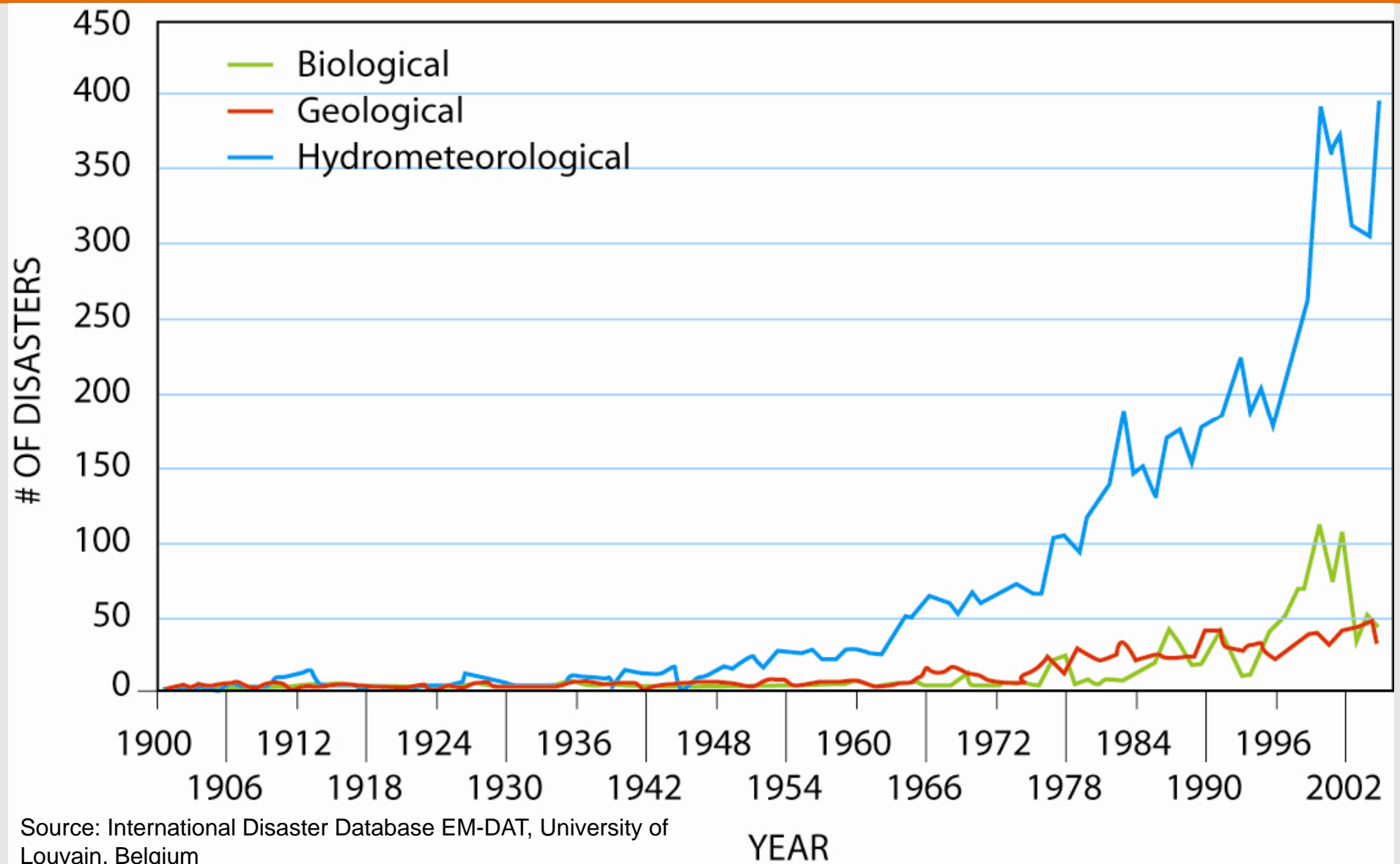
# Holistic Approach - Focus

- **Adaptive Environments;**





## To Conclude



# Thank You



*If we want things to stay as they are,  
things will have to change.*

Giuseppe Tomasi di Lampedusa  
(1896 – 1957)

