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The impact of the 2011 floods in Thailand on world economy using resilience concept

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In fall 2011, Thailand suffered from floods in the area of Bangkok, where 30% of the world production of hard disks (HD) was located. This event had a great impact on HD production, which decreased drastically.
In analysing the market price evolution of HDs throughout time after the event, the market price for HDs returned to a “normal” after one year. This variable can be considered as an index that recovers its normal value, similar to an indicator of resilience, when defined as « the efficiency required to return to a normal state during a given period of time ». In other words, it describes how efficiently world HD production returned to "business as usual". This presentation aims to provide a further analysis of resilience as relates to the overall cost of recovery after disasters and an element that should be included in a more comprehensive analysis of risk.
To further analyse the concept of resilience, instantaneous resilience is defined: integration over time permits to obtain the total impact of this flood event on the world HD business based on the market prices. In the present approach we consider the direct cost of a disaster as the result of the standard risk (R) equation (R = H x V x Exp x W) including the vulnerability (V) which describes the direct impact of a disaster taking into account the elements at risk’s value or number (W), the exposure (Exp) and the hazard (H). The total impact of a disaster (Impact total = R + DRE) is the sum of R and cost post disaster (DRE), which corresponds to the indirect costs of the disaster and depends on resilience. The resilience is then the capacity of a variable to reach a value similar to its pre-event value over a period of time. Its unit is then %. Regarding the Thai event, over one year, resilience is estimated at 69%, which leads to a negative impact of the flood of around 31% on the HD price or approximately 10 billion US$ globally. This result is similar to other estimations.
This approach underlines two aspects: resilience has to be considered for a defined period of time, and it can be used in a way similar to resistance, which is used to quantify direct costs of disaster. Resilience applies to indirect costs generated by a disaster, while vulnerability (resistance) applies to direct costs i.e. risk. This means that standard risks estimations (R) usually only include losses (killed, destroyed objects) and not indirect costs of disasters. This suggests a more comprehensive estimation of disaster impacts including variables that recover over time, which are linked to the resilience of systems.