

Preparedness for extremely rare hazard events

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Jun Kanda, Nihon University

1. Preparedness for the threat of nature
2. Probabilistic hazard : Characteristics of Extremes
3. Application of Minimum total expected cost principle
4. How to consider and how to do

1. Preparedness for the threat of nature

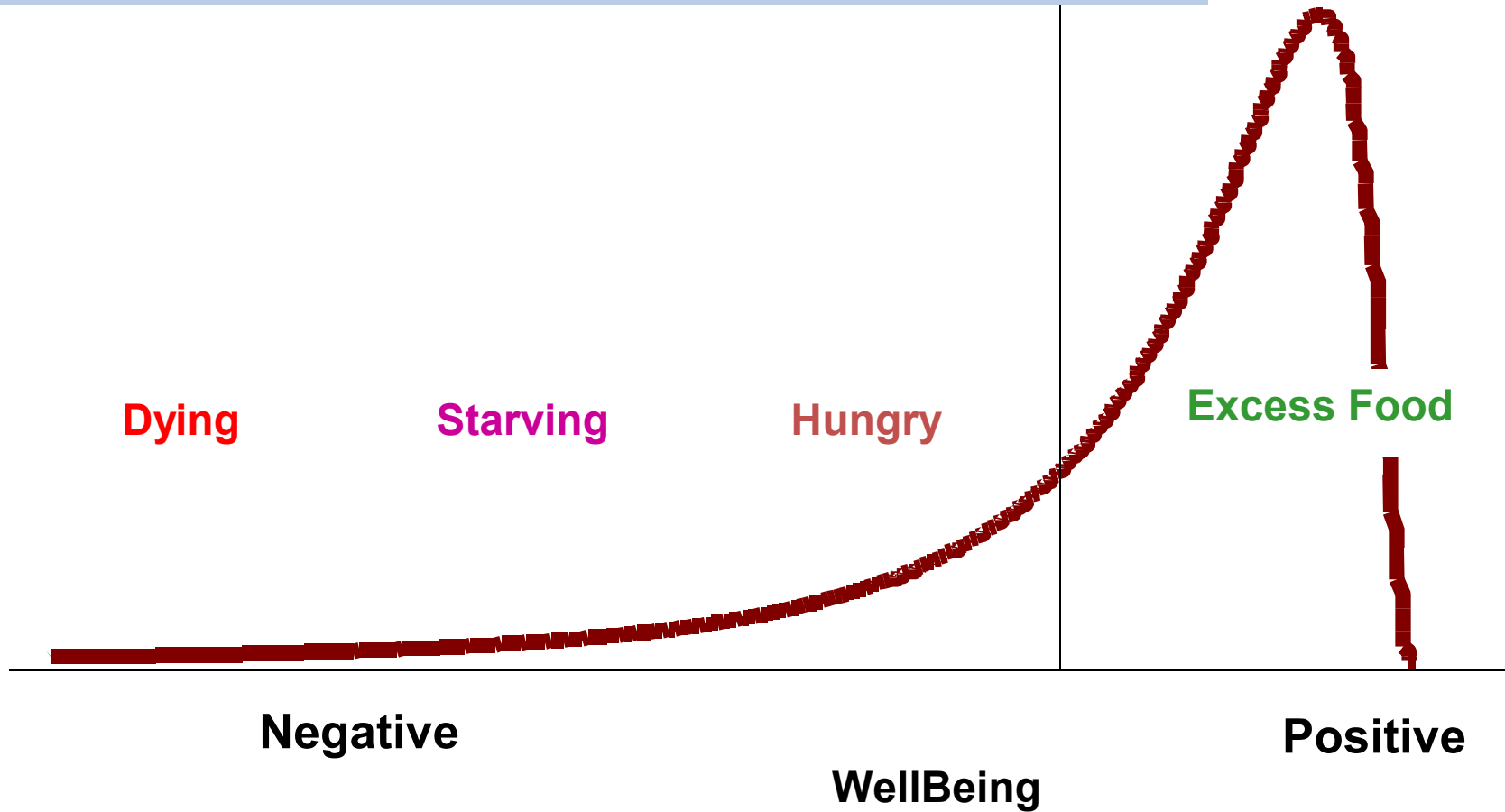
Managing Highly Capitalised Mitigated Disasters

George Walker

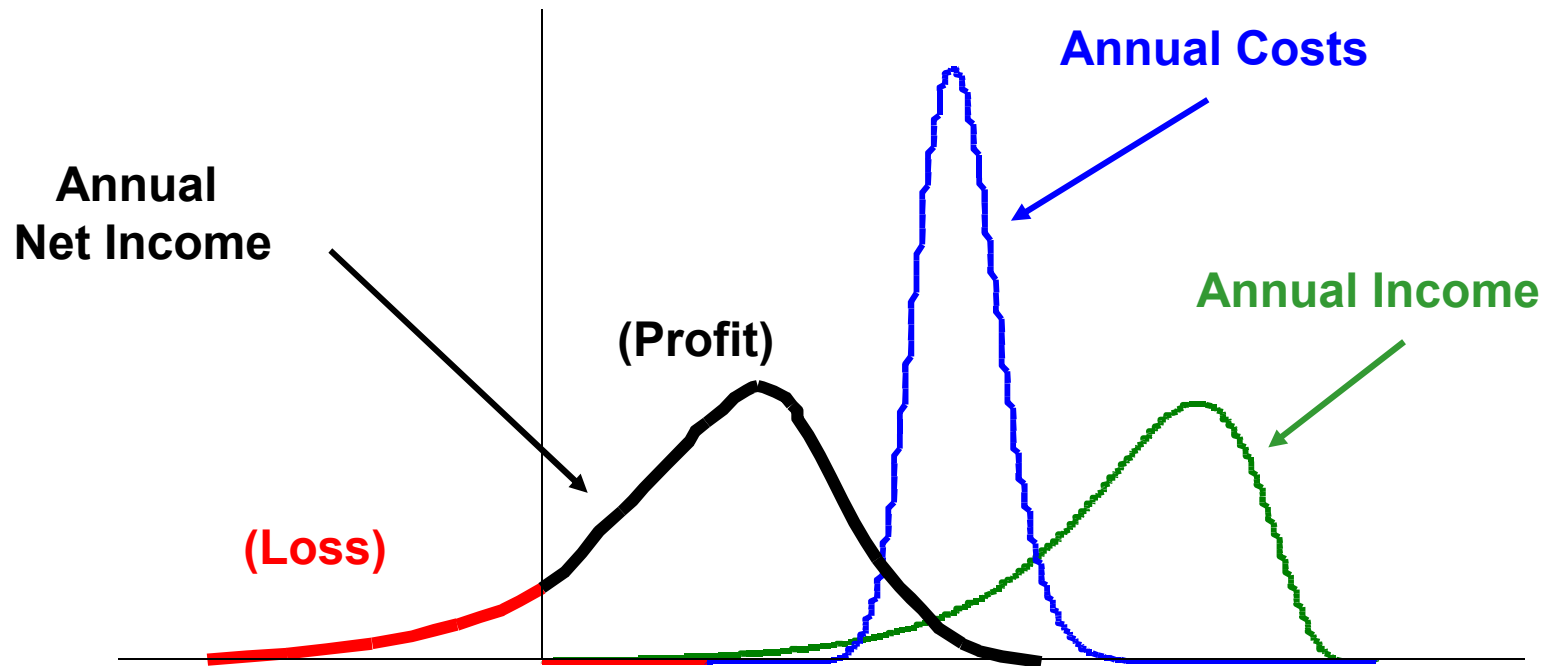
Senior Risk Analyst, Aon Re Asia Pacific

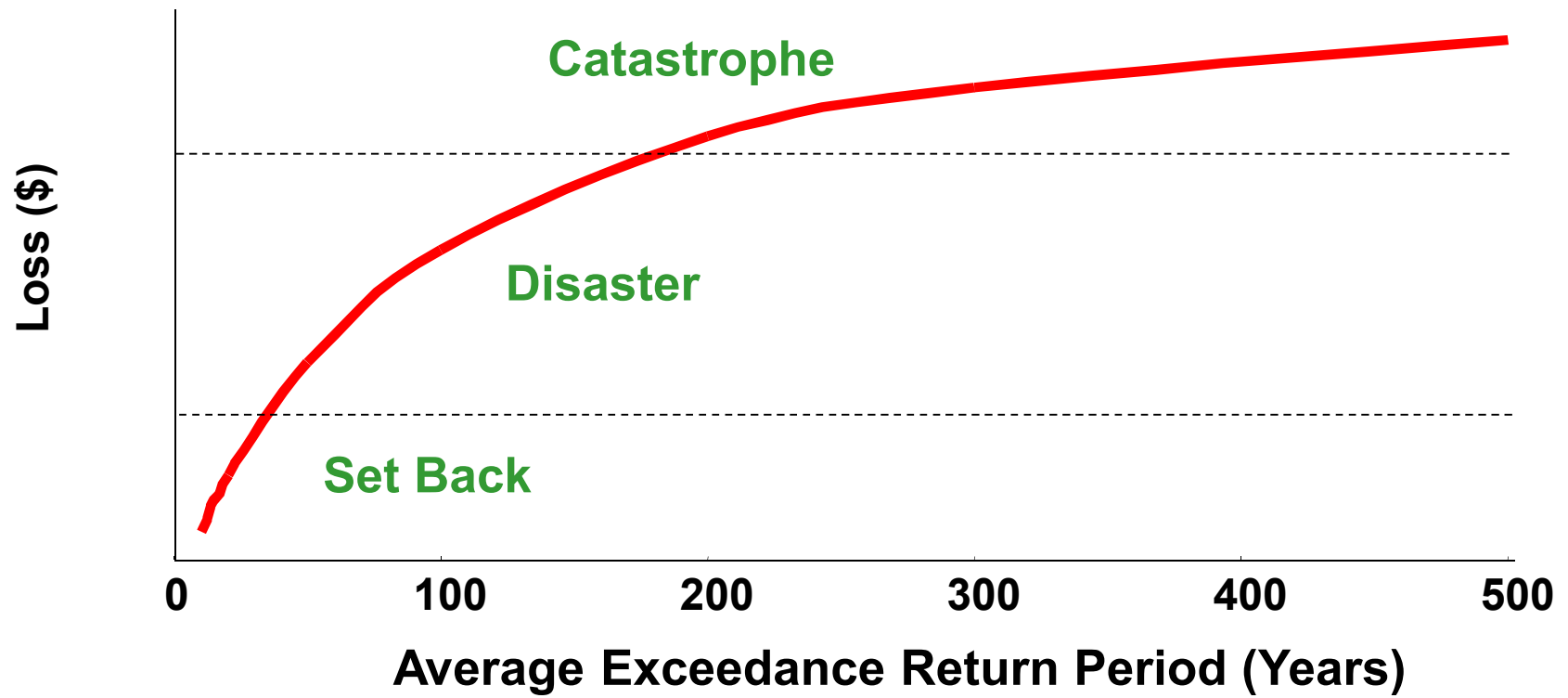
Presented at IFED2007 in Shoul Bay, Australia

Threat of nature to agricultural production



- ❖ Disasters now primarily financial
- ❖ Management a financial risk management problem

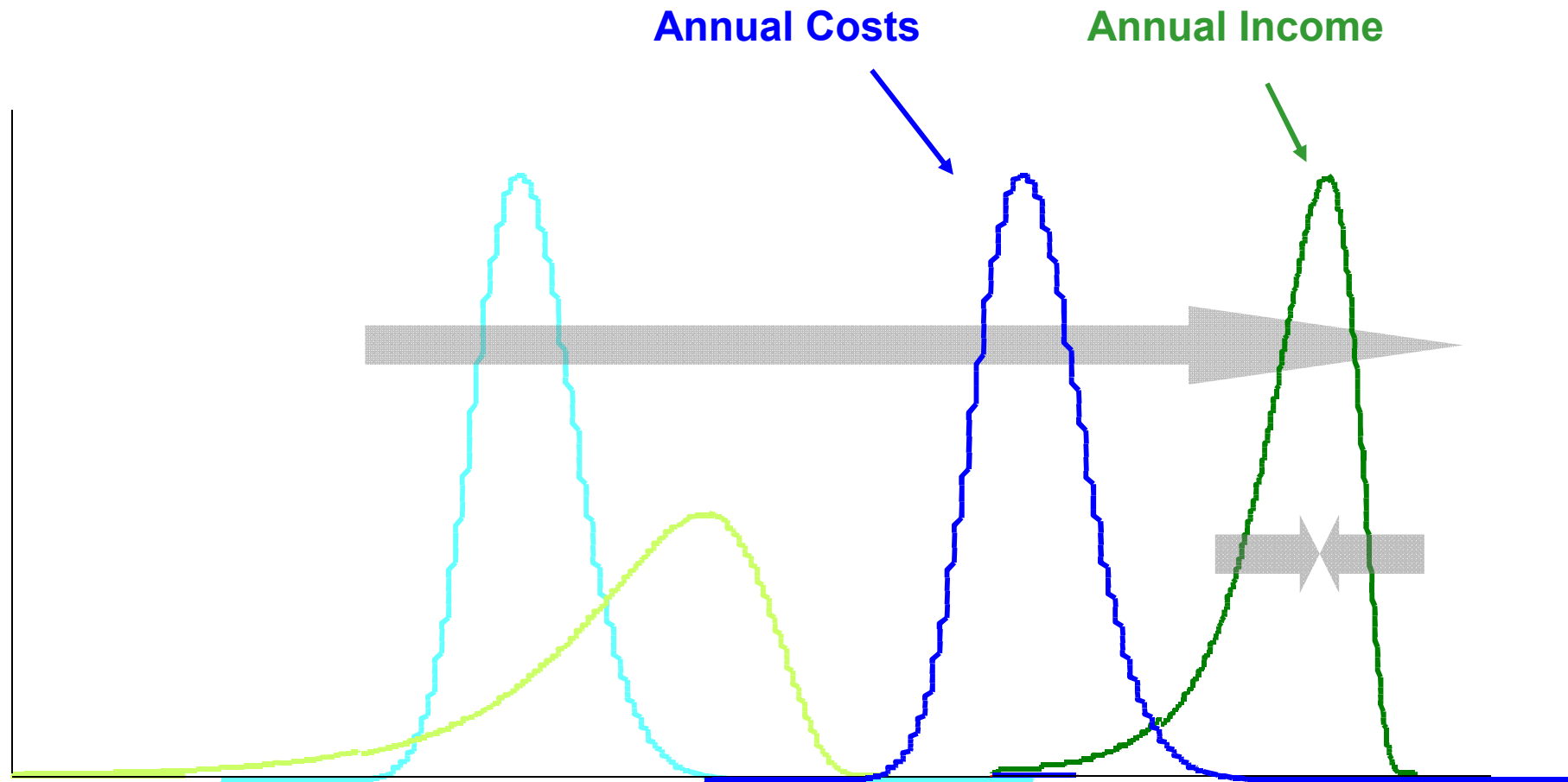


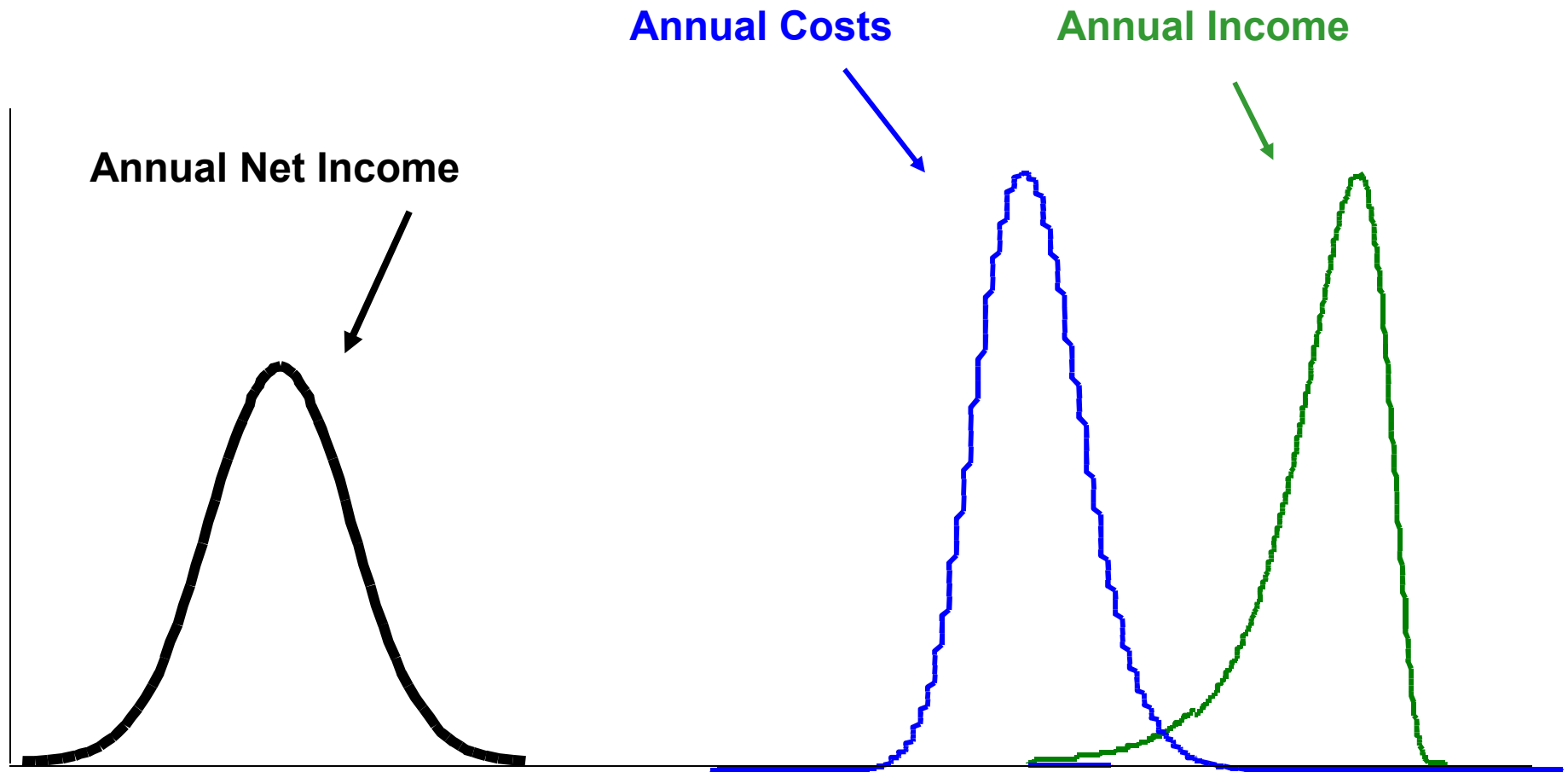


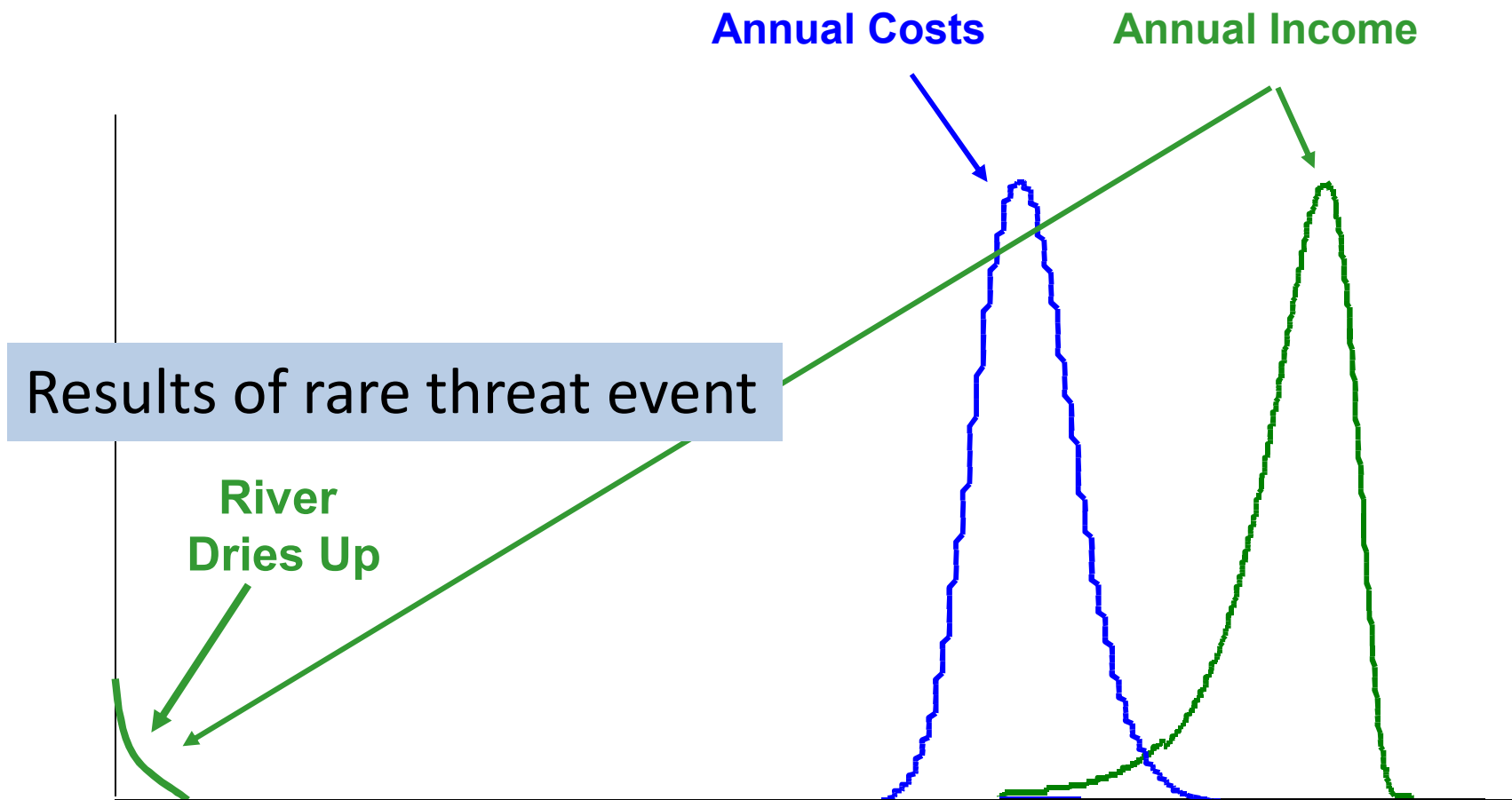
Characteristic Feature

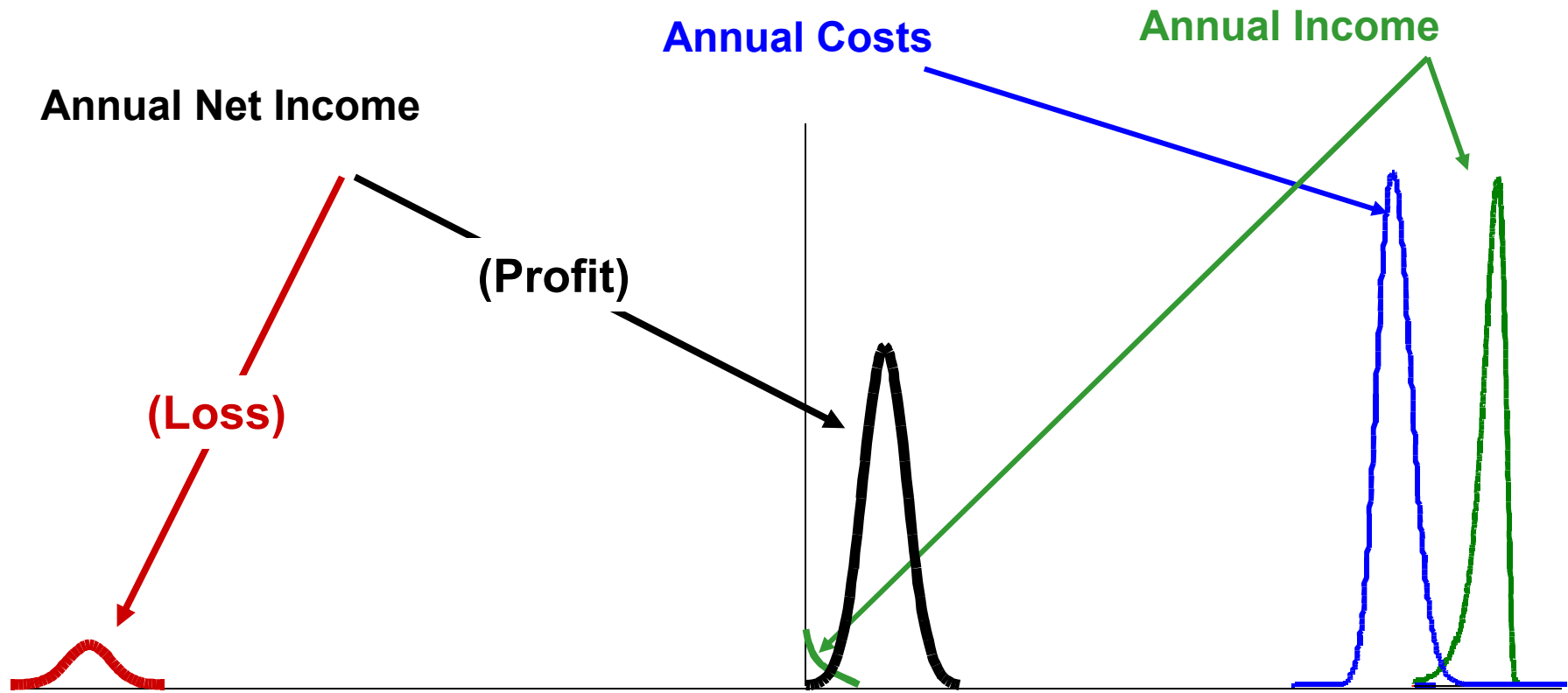
Small losses more frequent than large losses

Preparation to threat of nature and Productivity









A widely spaced double hump probability distribution

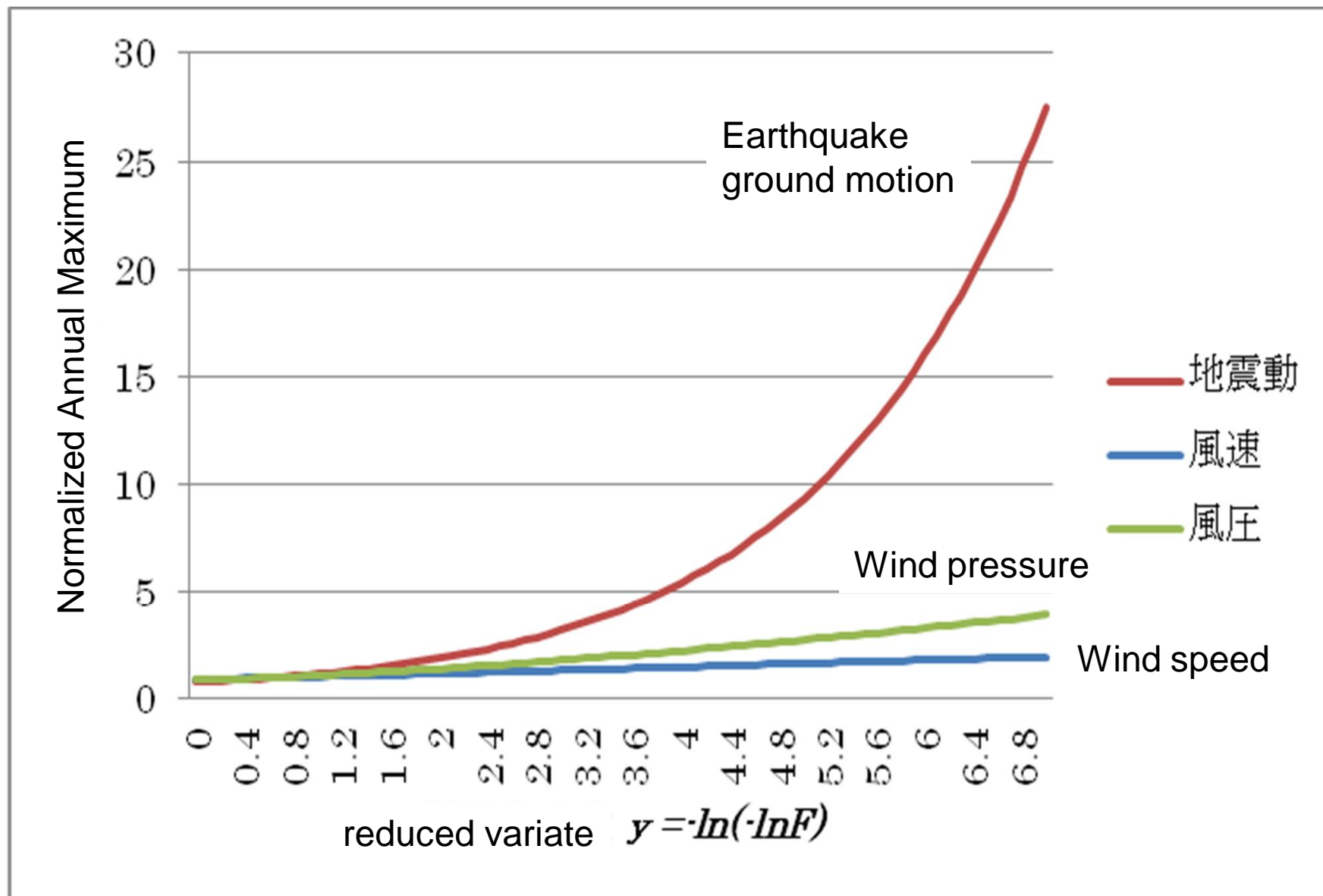
2. Probabilistic hazard : Characteristics of Extremes

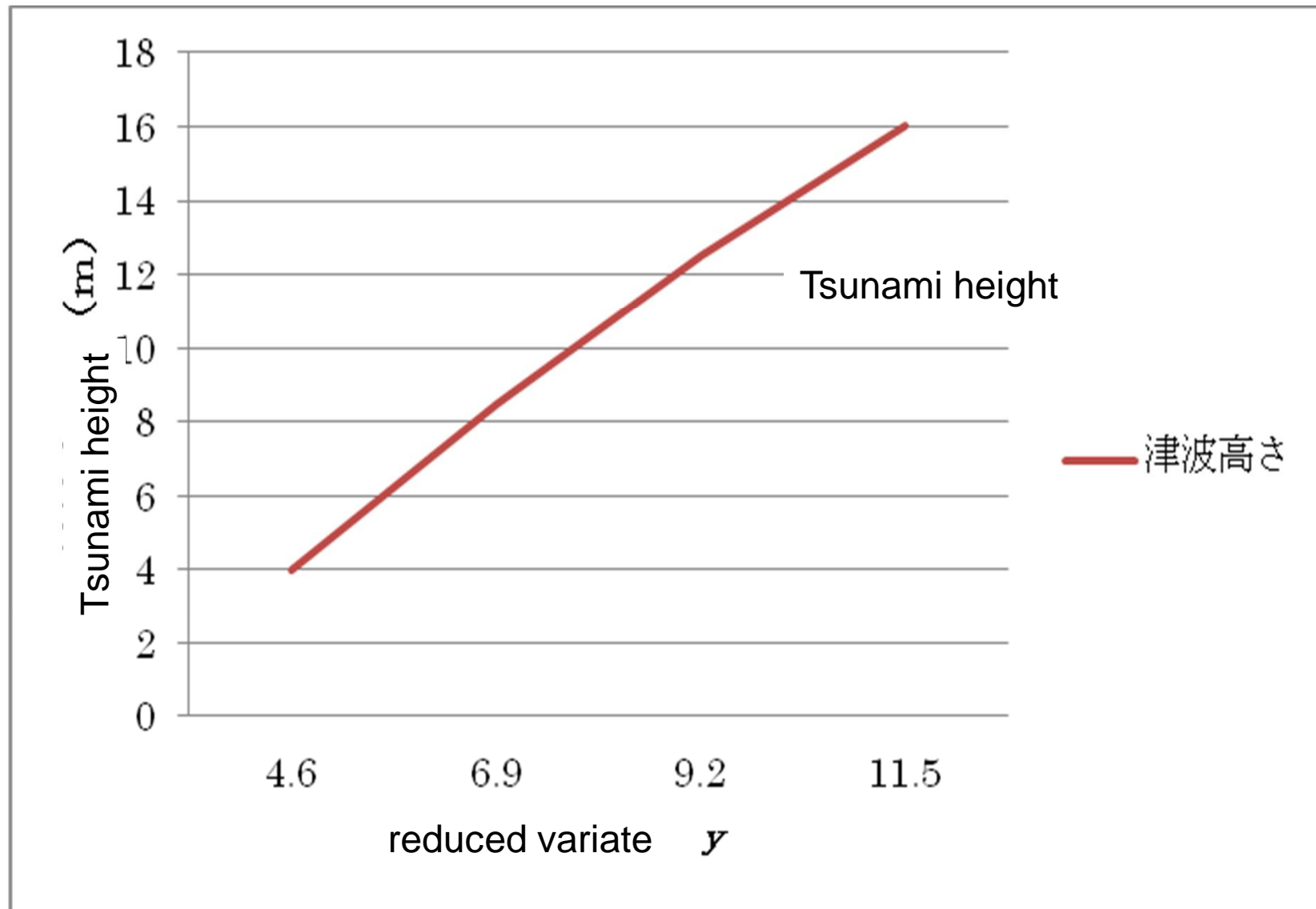
Gumbel Distribution

$$F(x) = \exp\{-\exp[-a(x-b)]\}$$

Frechet Distribution

$$F(x) = \exp\left\{-\left(\frac{c}{x-\varepsilon}\right)^\gamma\right\}$$





3. Application of Minimum total expected cost principle

$$C_T = C_I + \sum_i P_{fi} C_{fi} + C_{ins} - \sum_j P_{fj} C_{fj}$$

P_{fi} : i -level probability of failure

C_{fi} : i -level failure cost

C_{ins} : insurance fee (risk transfer)

4. How to consider and how to do

“ Problem of recognition

Who can explain the future event ?

Can the scientist tell the truth ?

“ Problem of social system

Who pay for the preparedness cost ?

Regulation and responsibility