United Nations
Educational, Scientific and
Cultural Organization

Disaster Risk Reduction and Resilience for Sustainability

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under the auspices of UNESCO (ICHARM)

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Tsukuba, Japan

Indus Flood, Pakistan, July-Sep 2010
Deaths 1,985 Affected 20,185,000

<8 Aug 2010, BBC>


Great East Japan Earthquake and Tsunami, March 11, 2011
Dead/missing 18,559 <May 13, 2013 NPA> Loss 210 B USD
Oarai 23 Mar
Iwaki 10 Apr
2011 Japan
Nobiru 18 Apr
Ishinomaki 18 Apr


Chao Phraya Flood, Thailand, Aug-Nov 2011
815 deaths, 3.6 million affected. <DPMD, MI>
US$ 43 B lost. <Munich Re>
BKK 2011.11.14
Rojana 2011.11.13
BKK 2011.11.13
Rojana 2011.11.13
2011 Thailand

Super Typhoon Haiyan, November 8, 2013

Over 6300 death & $12B loss in $250B national economy.

Tacloban, Leyte province, Philippines.

(AFP PHOTO / TED ALJIBE), talkvietnam, November 12, 2013

Bandar Baru Bukit Mentok

Hulu Terengganu, 1,283 victims remain at 20 relief centers

Northeast Monsoon in Dec 2014 Worst in 30 years

(BBC)

In Kelantan & the East Coast, also hit Indonesia.

Dungun

2014 Malaysia

U Malaysia Kelantan students evacuating

All Photos' Source: **Astro AWANI**

Disasters in SDGs

Open Working Group's 17 Goals

- **Goal 1. End poverty in all its forms everywhere**
- 1.5 by 2030 build resilience of the poor and reduce their exposure to **disasters**

- **Goal 2. End hunger, achieve food security**
- 2.4 by 2030 ensure sustainable food production that strengthen capacity for climate change, **extreme weather, drought, flooding and other disasters**

- **Goal 11. Make cities resilient and sustainable**
- 11.5 by 2030 **significantly reduce the number of deaths and the number of affected people** and **decrease by y% the economic losses** relative to GDP caused by disasters, including water-related disasters, with the focus on protecting the poor and people in vulnerable situations
- 11.b by 2020, **increase by x% the number of cities and human settlements adopting and implementing integrated policies and plans** towards inclusion, resource efficiency, mitigation and adaptation to climate change, **resilience to disasters**, develop and implement in line with **the forthcoming Hyogo Framework holistic disaster risk management at all levels**

- **Goal 13. Combat climate change and its impacts ***
- 13.1 strengthen resilience and adaptive capacity to climate related hazards and **natural disasters** in all countries

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Sustainability

- The capacity to create and maintain conditions where **human** and **nature** can exist in productive harmony fulfilling **social**, **economic** and **environmental** needs of present and future generations. (modified from EPA)

⇕

human security & bio-diversity

- Sustainability ⇔ Global sustainability ⇔ Human sustainability
  - Social sustainability
  - Economic sustainability
  - Environmental sustainability

⇔ Sustainable Development

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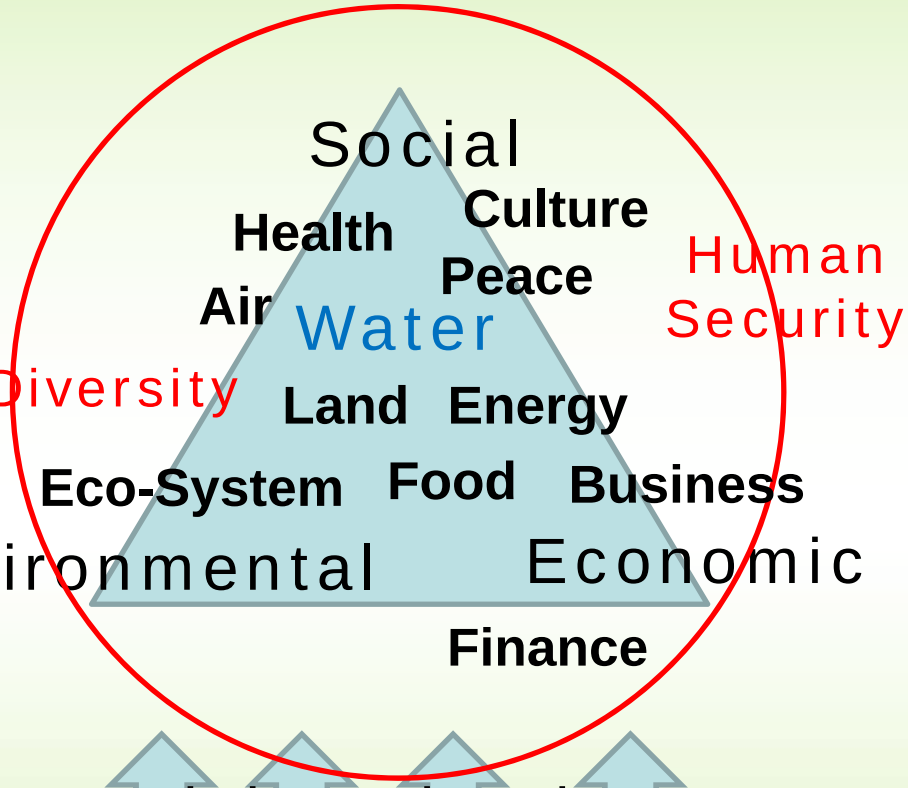
Global Sustainability

Human well-being
Freedom of choice
Health
Safety
Material needs
Social relation



Human Security

Attributes

Bio-Diversity

Security is a product of risk reduction & vice versa

Controllers

Risk Reduction & Resilience

Science & Technology

Governance

Human Empowerment

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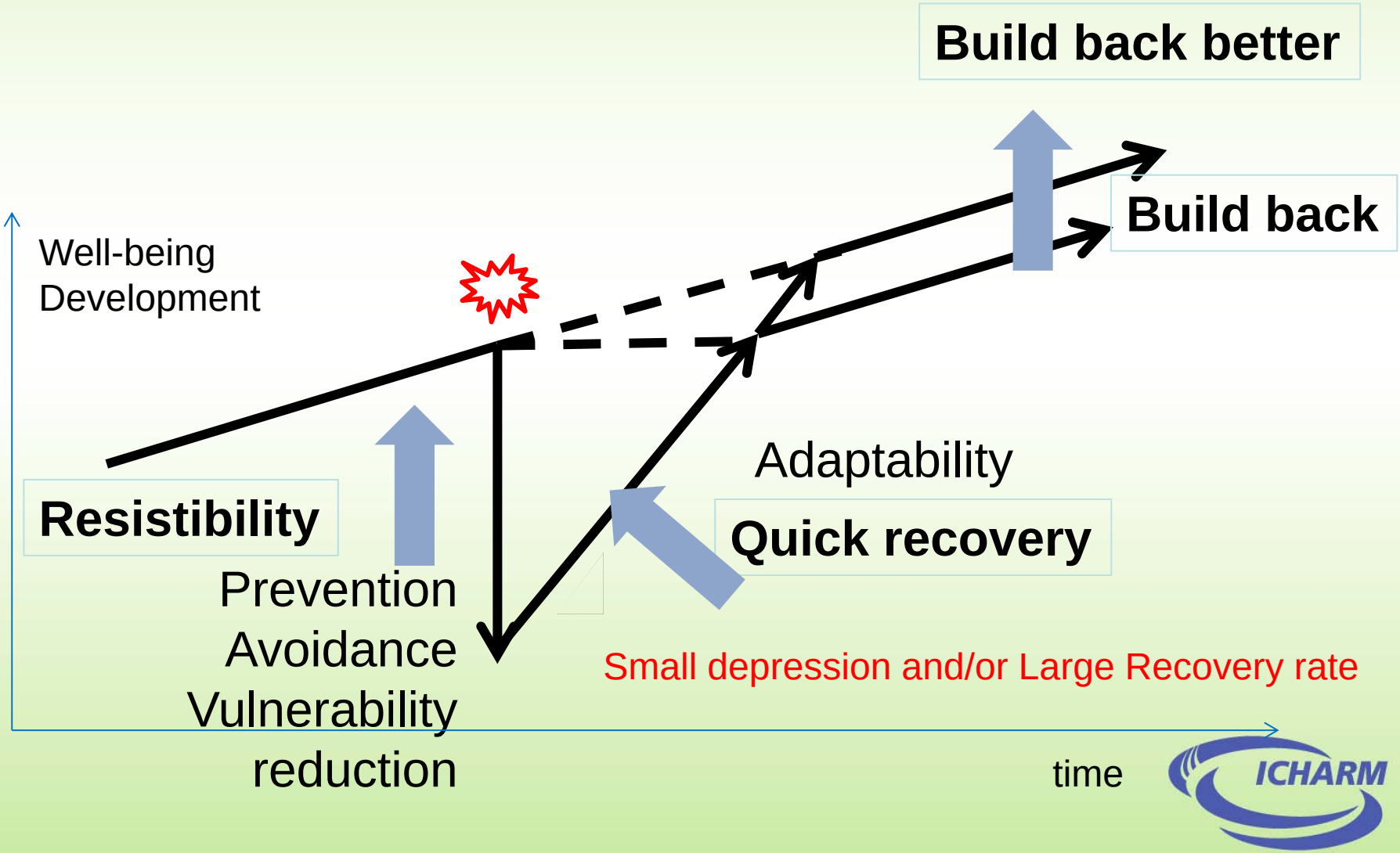
Resilience

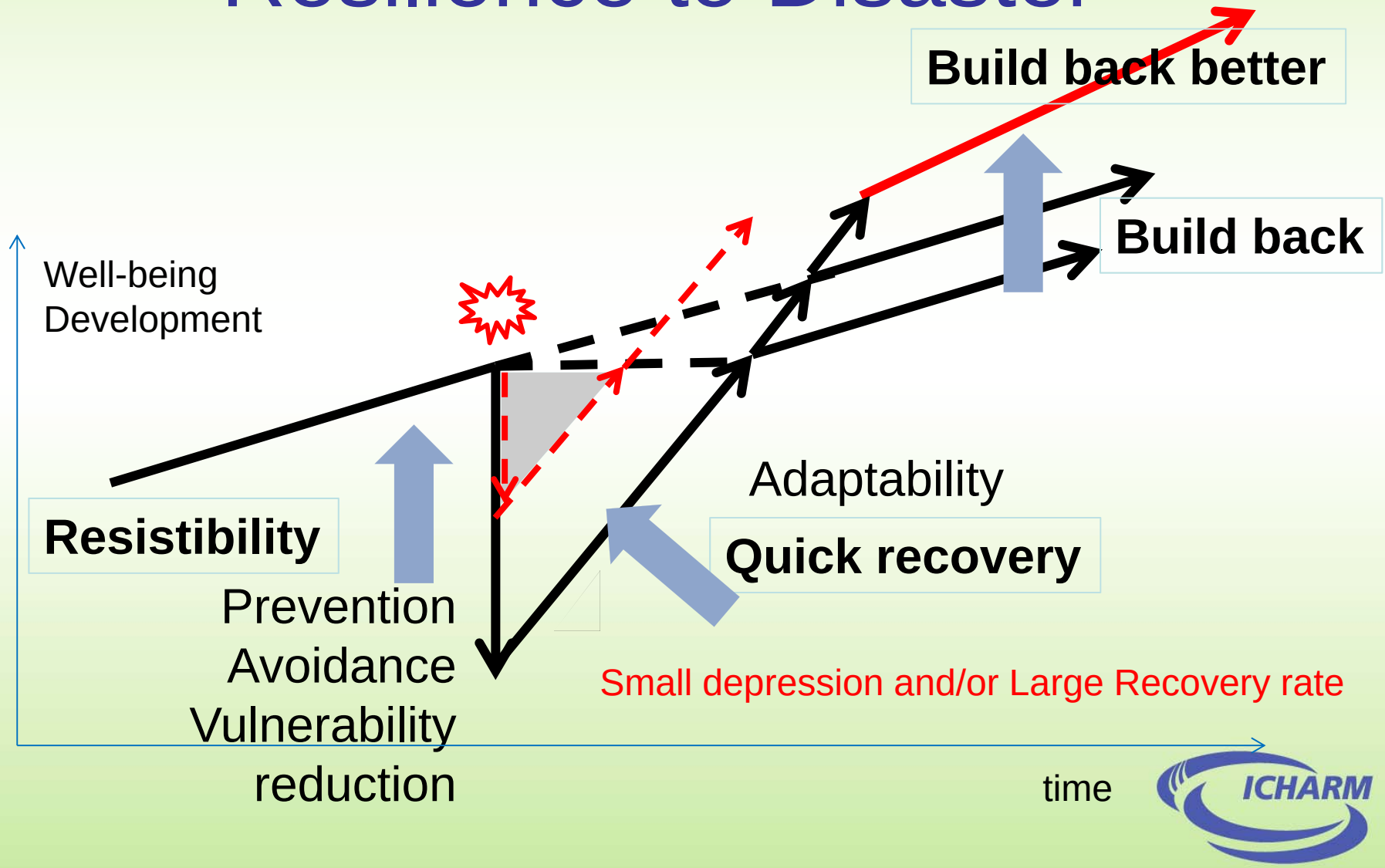
- Capacity of a system to **maintain** its core function under serious disturbances and, if the core function is disrupted, quickly **recover** it under new changed circumstances.

Can resist & can recover

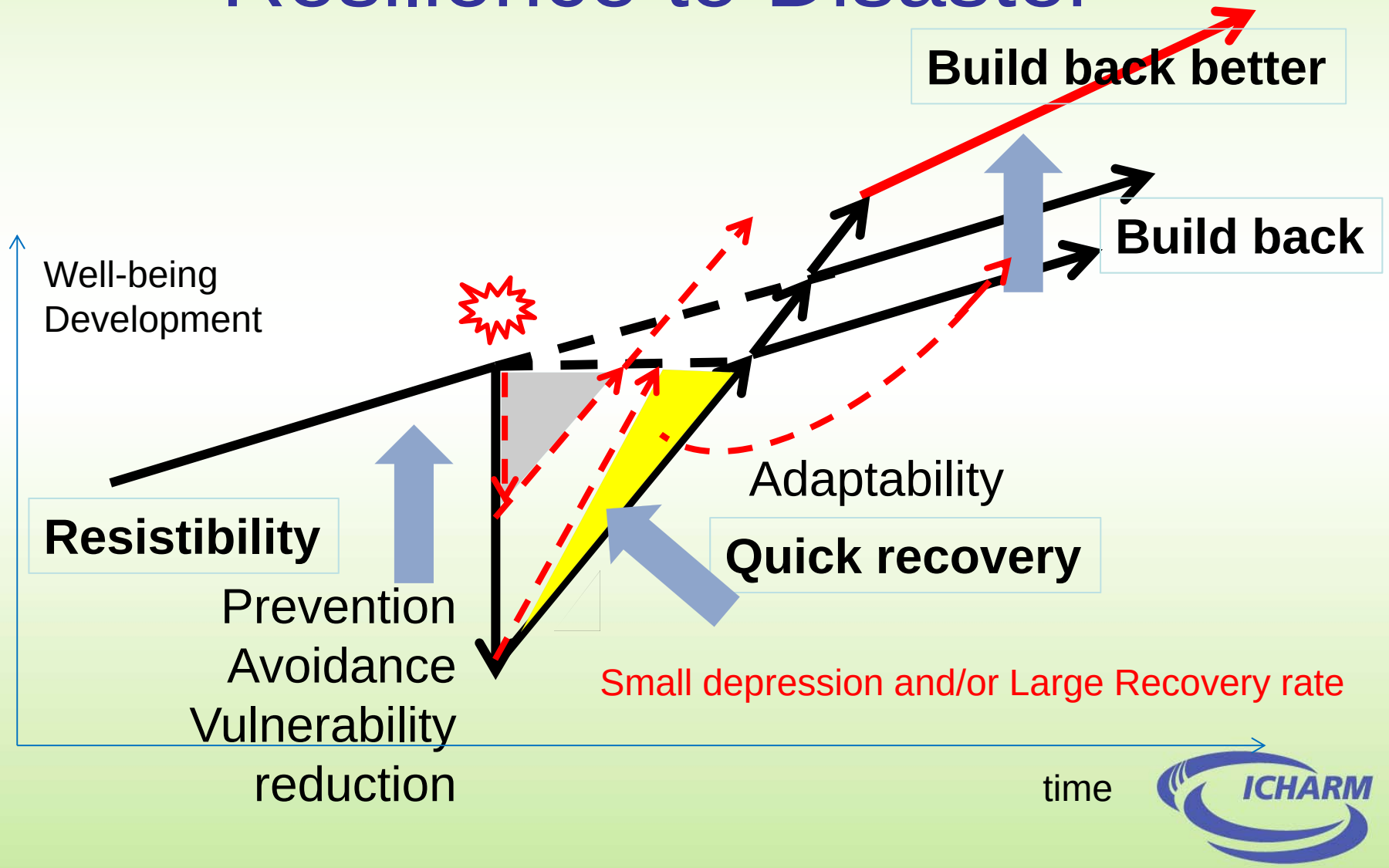
Resilience to Disaster



Resilience to Disaster



Resilience to Disaster




Banda Aceh, Nov 11, 2009


Banda Aceh, Nov 11, 2009


Kamaishi, Jan 13, 2013

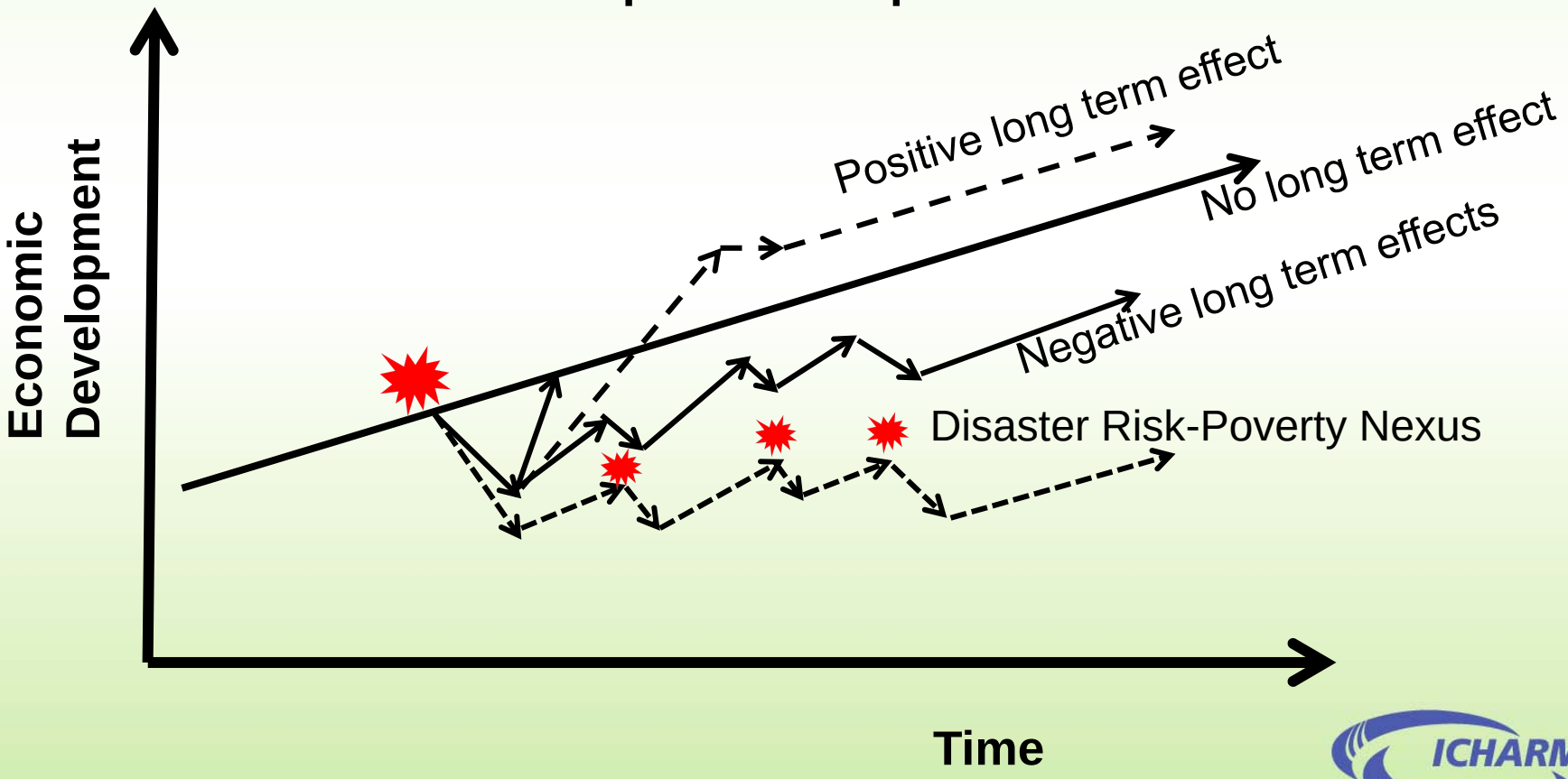

Yuriage, May 13, 2014

Resilience is an accelerator of sustainable development.

If **resistibility** is too small against hazards and/or **recovery capability** is too low with disasters, *sustainable development* is impossible and a nation falls into the *disaster risk-poverty nexus*.

Disaster Risk-Poverty Nexus

If a nation cannot resist *frequent small to medium scale hazards* and cannot build back better, it cannot break the nexus and economic development is impossible.



Protection against frequent small to medium scale hazards

for economic development

- All societies are living with nature but their capacity of accumulating wealth depends on their resistibility to hazards.
- Level of physical protection determines the potential economic activity of the land.

photo: MLIT
Sep 2000 Fukuoka Station

photo: Shafiqul Islam
1 Aug 2007 Sirajgong District, Bangladesh
http://gphoto.exblog.jp/6031088/

Conclusions

- **Disaster triggered by natural hazards are the major threat to sustainability.**
- **Sustainability** needs risk reduction and resilience building
- Resilience is a capacity of **resistibility** against hazards and **quick recovery** from disasters.
- Both resistibility and quick recovery are the key to **build back better**.
- In order to break the disaster risk-poverty nexus and take off economic development, **prevention** against frequent small to medium scale hazards and **build back better** are indispensable.


Success in Sendai!
Disaster targets in SDGs!
Implement together!
Thank you!