



# Future Design

## UCB-RIHN Workshop

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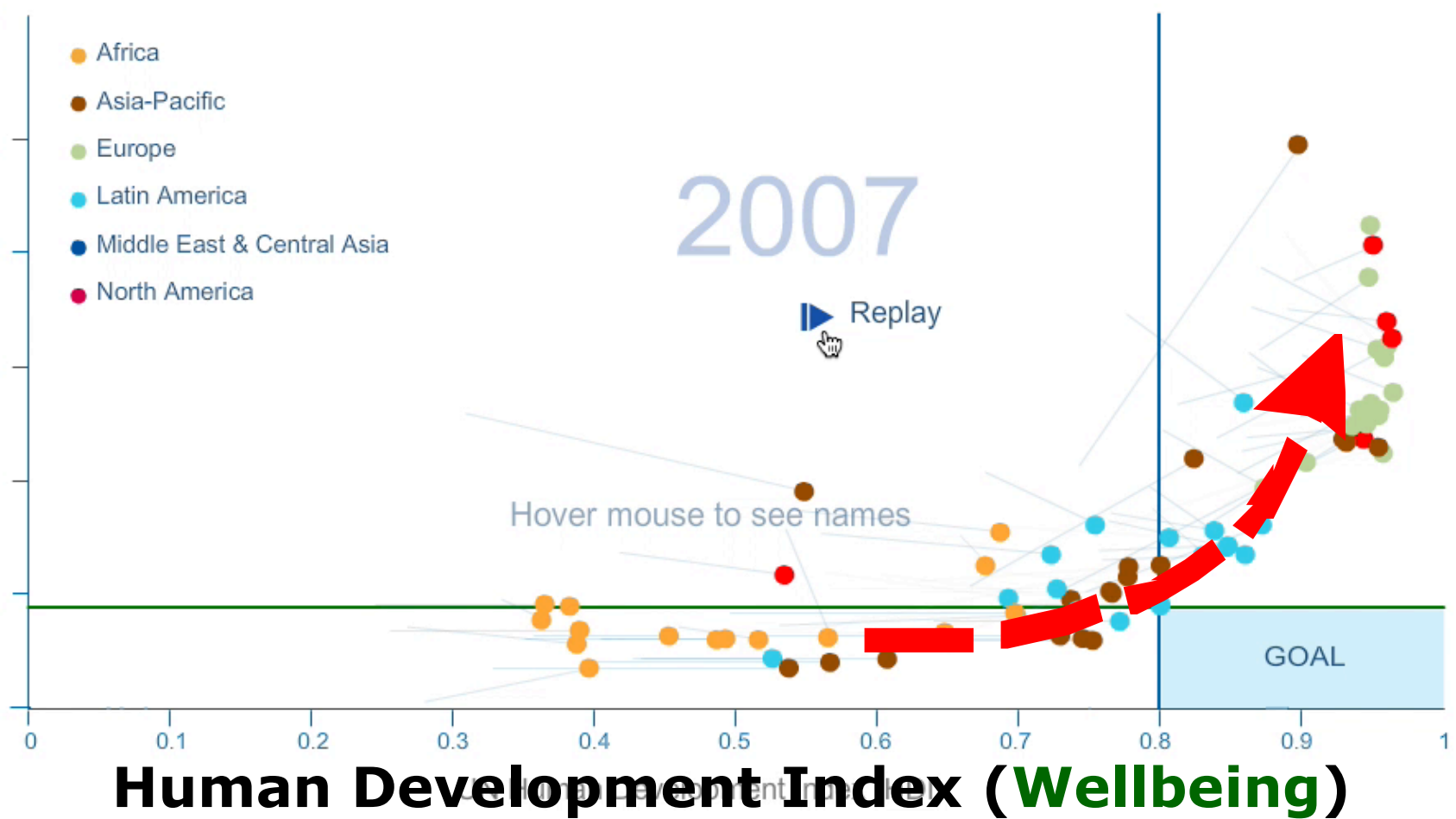
**What have we  
been doing?**

# HDI and Ecological Footprint

SUSTAINABLE DEVELOPMENT: 1980-2007

Human Development Index and Ecological Footprint of Nations

Ecological Footprint per capita  
(Sustainability)



**Why did these  
drastic changes  
occur?**

**What is going to  
happen?**

# Human Oddities

- Three human characteristics by Robert Sapolsky (2012), a neuroscientist at Stanford.
- **Contrast**: Our brain is more interested in *contrasts* than absolutes.
- **Sociality**: We are intensely *social*, and our fanciest types of intelligence are *social skills*.

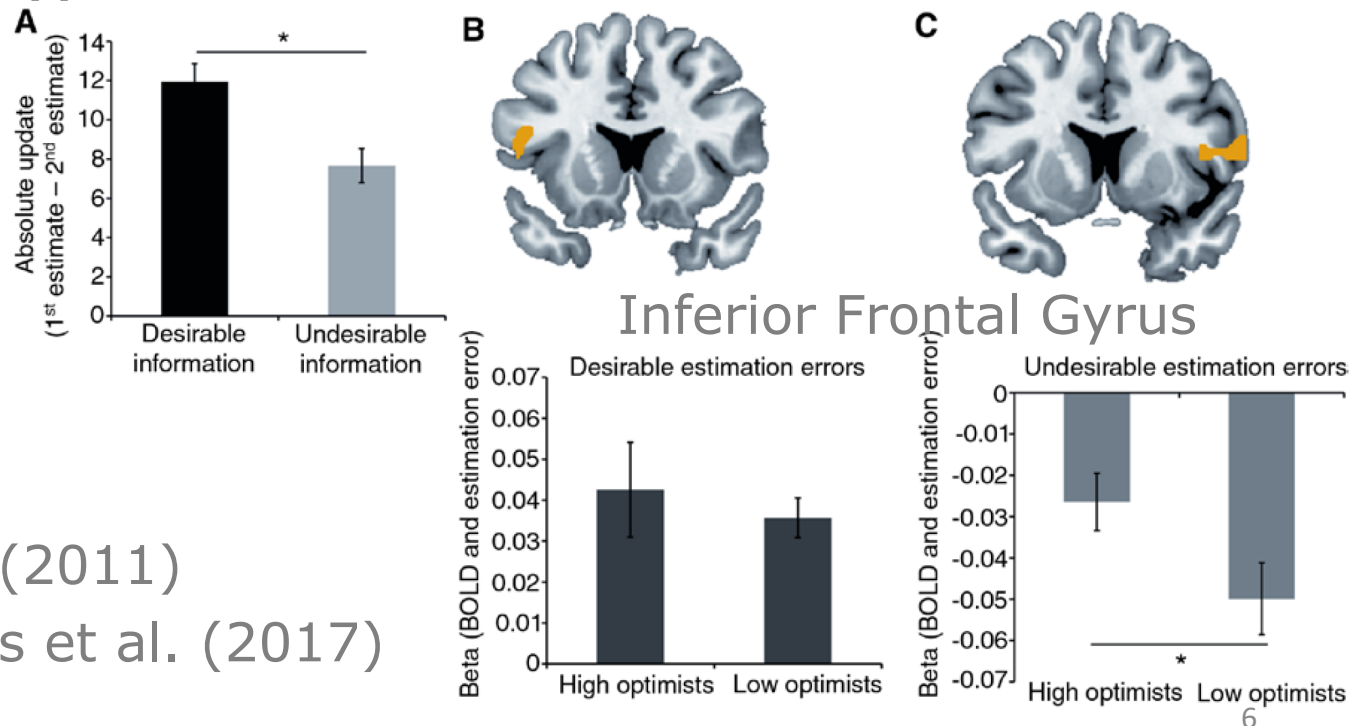
- **Impulse**: The dopamine reward pathways in our brain light up on brain-imaging tests when we go for the *impulsive immediate reward*.

- **Optimism**



# Optimism

- We are creatures who **forget something awful in the past, pursue pleasure now, and consider the future optimistically** in order to increase survival probabilities in the process of our evolution (e.g., Sharot (2011)).



Sharot et al.

*Nat. Neurosci.* (2011)

See also Rogers et al. (2017)

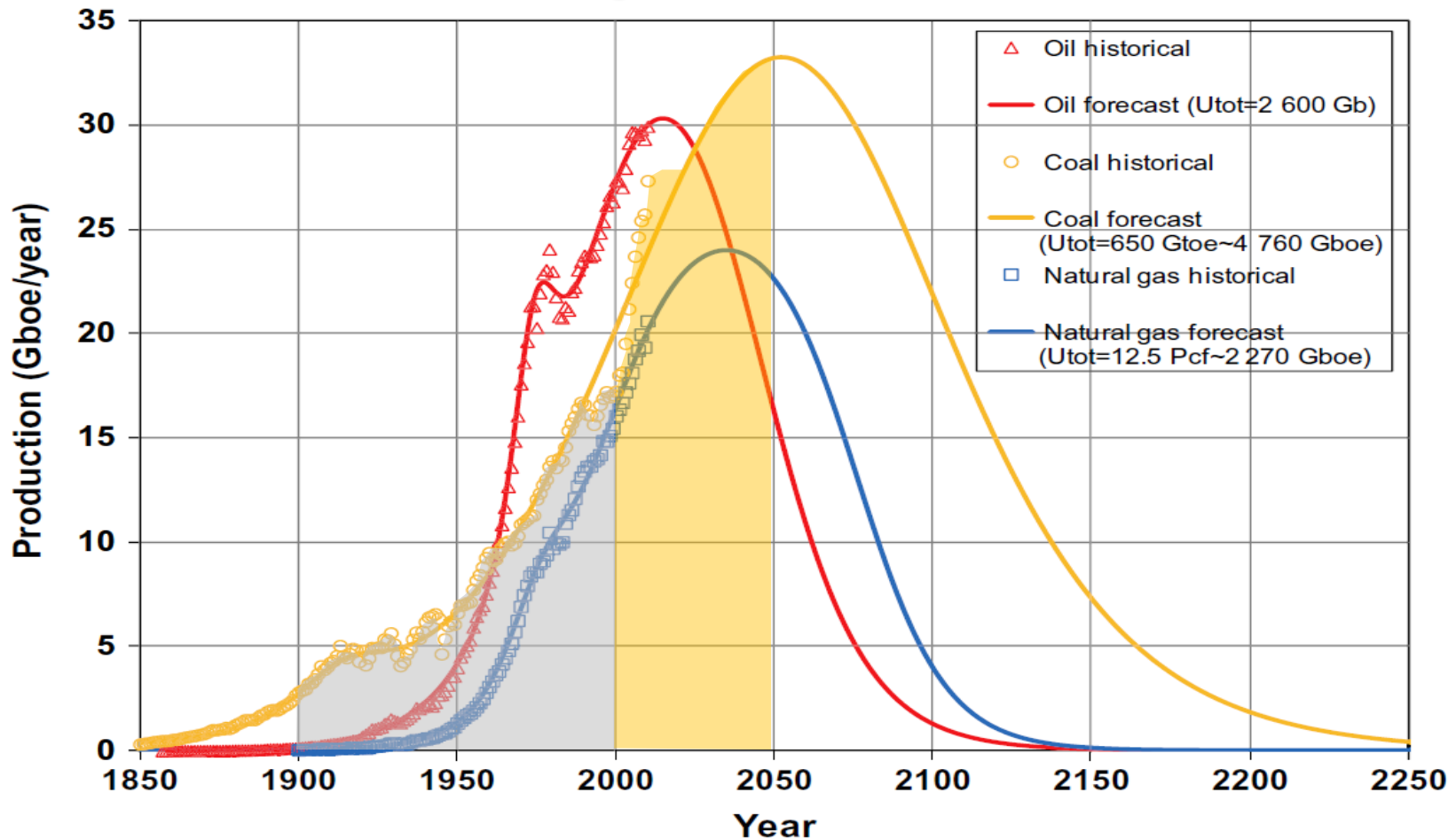
# These Human Oddities created Market and Democracy

- **Market** is “an excellent device to realize short-run desire of people,” but not a device to allocate resources with future generations in mind (e.g., Krutilla (1967)).
- **Democracy** is a device to realize benefit for currently living people, but not a device to include future generations. (e.g., Pigou (1952)).



- **Fossil Fuels** ignited Industrial Revolution and innovation under market and democracy.
- **Future Failures** such as global warming, loss of biodiversity, huge budget deficit etc.
- **We**, current generation, deprive future g. various resources and possibility of without remorse.

# Fossil Fuels : Coal • Oil • Gas – Past, Present & Future



Maggio, Gaetano, and Gaetano Cacciola. "When will oil, natural gas, and coal peak?" *Fuel* 98 (2012): 111-123.





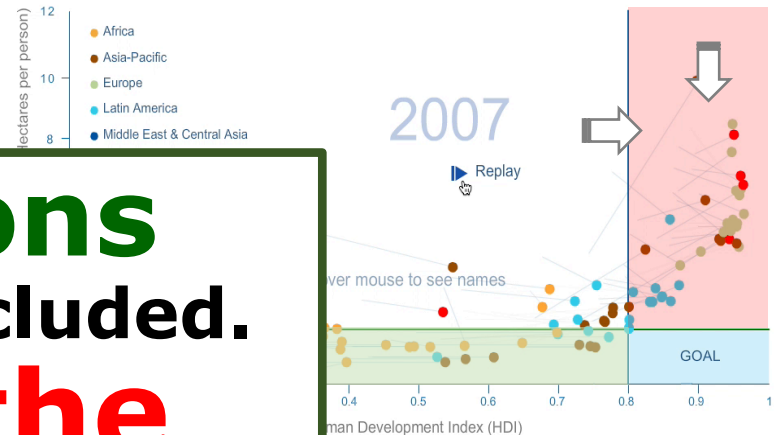
# Problems in Transdisciplinary Research

Both stakeholders and scientists are members of the **current generation**. No real incentives to design **sustainable future**.



**Future Generations** are stakeholders to be included. The **behavior of the current generation** is the target to be changed.

Human Development Index and Ecological Footprint of Nations



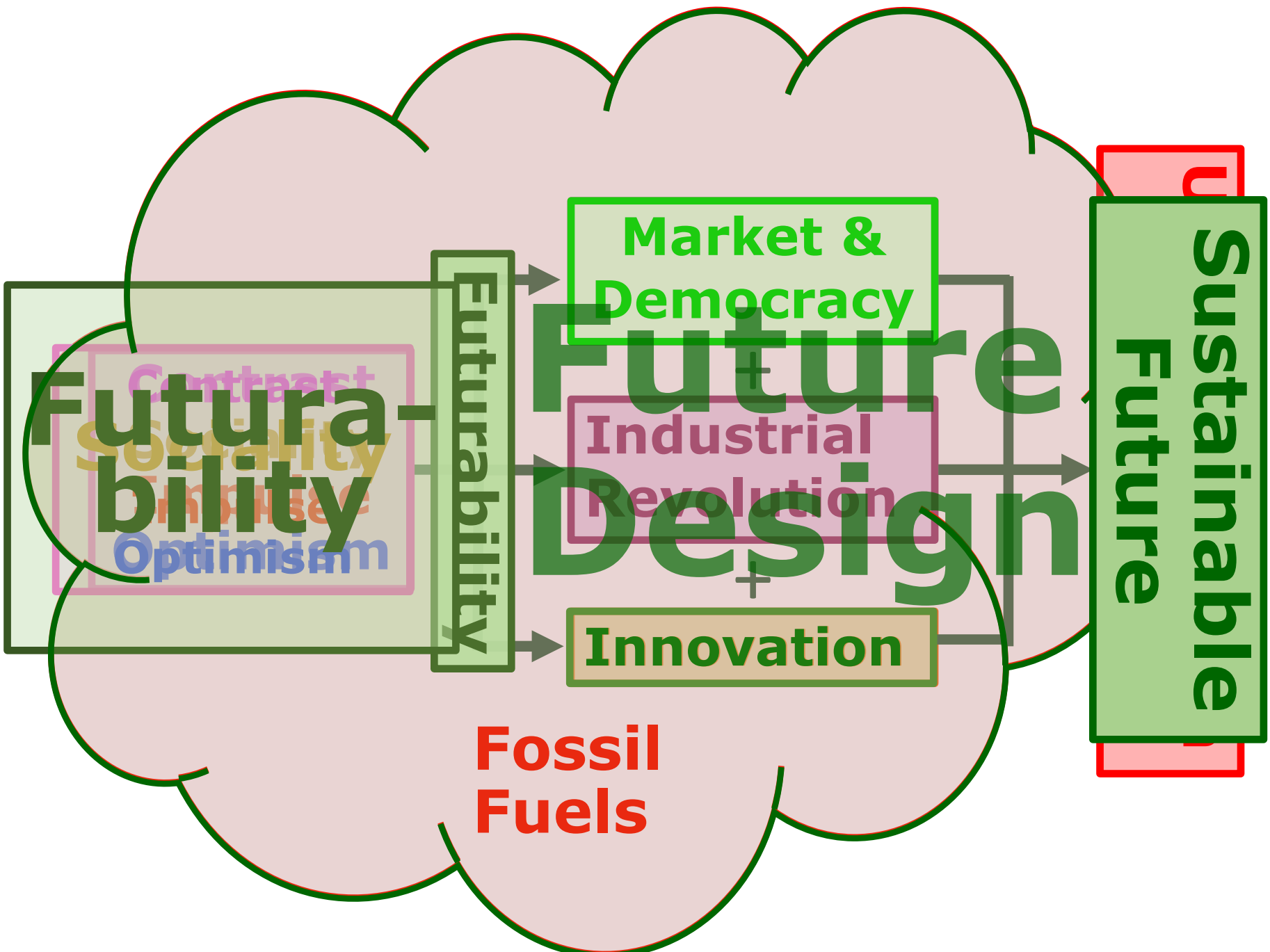
# “Futurability”

An individual exhibits *futurability* when (s)he experiences an increase in happiness as a result of deciding and acting to forego current benefits as long as it enriches future generations.



***Future Design*** is the praxis of activating futurability through designing social systems.

Saijo, T. (ed.) (2017). *Future Design: Incorporating Preferences of Future Generations for Sustainability*, forthcoming from Springer.



Contrast  
Sustainability  
Influence  
Optimism

**Futurability**

**Market & Democracy**

**Industrial Revolution**

**Innovation**

**Future Design**

**Fossil Fuels**

**Sustainable Future**

# **An institutional transformation: Imaginary future generations**

# Intergenerational Sustainability Dilemma Game Experiments

- A group of three persons consists of one generation.
- A group can talk up to 10 min., make a decision between **A** (\$36) and **B** (\$27) and then divide the reward among the three.
- They can see previous decision(s).
- When they choose **A**, the amount of money of the next group on **A** and **B** will be reduced by nine.
- If **B**, no change in the next group.

**G1**

A 36

B 27

# Imaginary Future Generations

- Choose **subject alpha** among the three randomly.
- Give the following info to every subject including **subject alpha**:

Subject alpha is supposed to negotiate with the other two subjects representing subjects who belong to later groups. However, the monetary payoff that subject alpha receives is determined by the negotiation of the three subjects.



- Imagining ourselves as members of **the future generations** might enable us to activate **futurability** avoiding future failures.

# Imaginary Future Generations

- **Iroquois**: Whenever they decide something important, they imagine themselves as members of **the seven generations in the future**.
- **Amami Island in Japan**: **the seven generations**
- **John Rawls (1971)**: **the veil of ignorance**
- **Theory of Mind**: We imagine ourselves in someone else's mind, or pretend like someone else.
- **Voting**: Limited Voting = >



- Imagine ourselves as members of **the future generations**. This might enable us to create **futurability** avoiding future failures.



# Students at Kochitech

G1

B

B

B

B

B

A

A

- 1) Conducting several **field experiments** in urban and rural areas in **Bangladesh** and **Nepal**,
- 2) Designing many other **mechanisms** with or without imaginary future generations,
- 3) Creating **scenarios** and applying the case method to them, and many more.



Kamijo, Komiya, Mifune and Saijo, (2017) "Negotiating with the future: Incorporating imaginary future generations into negotiations," *Sustainability Science*.  
Shahrier, Kotani and Saijo, (2017) "Intergenerational sustainability dilemma and the degree of capitalism in societies: a field experiment," *Sustainability Science*.  
Shahrier et al. *PLoS ONE*, (2016).

**Practices at Yahaba  
town in Iwate  
Prefecture:  
Keishiro Hara,  
Research Leader**

# Practices of FD

The **Current G.** negotiates with the **I.F.G.** Then they can make decision to overcome the generational conflicts.

- **Suita city and Yahaba town: Future plan for 2060**

**C.G:**

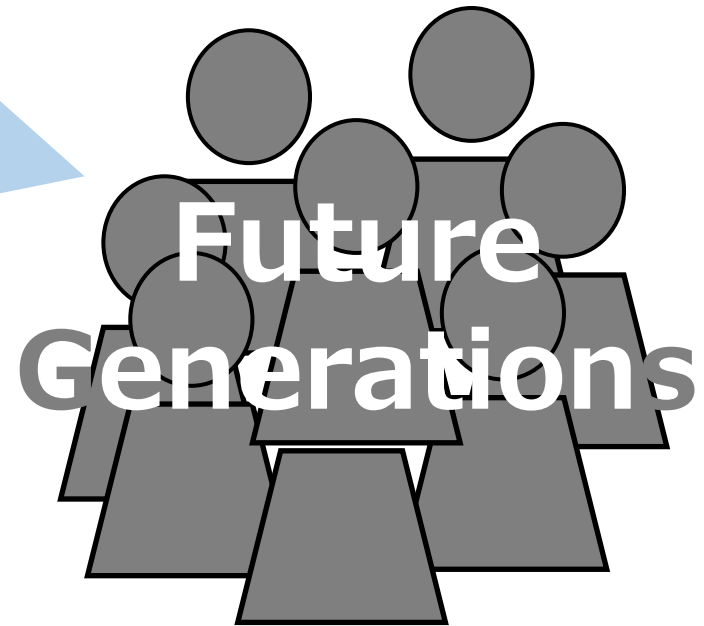
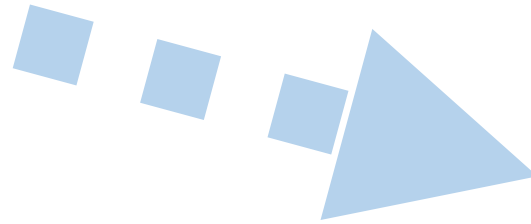
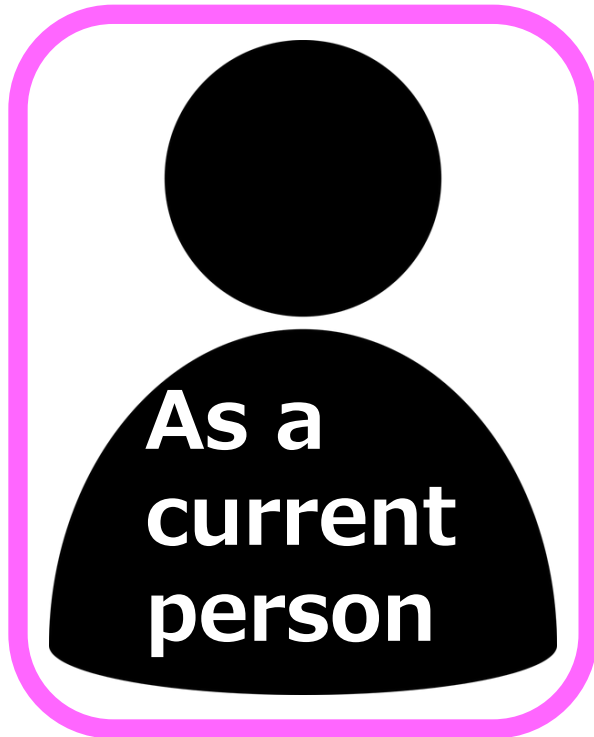
**"Now"**  
as  
**"Future"**

**I.F.G:**

**"Creative"**  
Challenge problems  
complicated & time-  
consuming

Hara, Yoshioka, Kuroda, Kurimoto, and Saijo, (2017) "Reconciling intergenerational conflicts with imaginary future generations - Evidence from a participatory deliberation practice in a municipality in Japan -," in prep.

# Looking at Future G. from Current Generation?



Nakagawa, Hara, and Saijo (2017) "Becoming Sympathetic to the Needs of Future Generations: A Phenomenological Study of Participation in Future Design Workshops," in prep.

# Interview with I.F. persons after half a year



Internal impartial  
spectator (Adam  
Smith, 1759)

- Thinking as an imaginary future person = Joy
- Thinking as an imaginary future person even after sessions (**robustness**).

As a  
current  
person

As a  
future  
person

# The Emergence of the Future Division

## Institute for Future 22

- Matsumoto city in Nagano Pref.
- Yosano town in Kyoto Pref.
- Suita city in Osaka Pref. and so on.

# Future Design: Methodology

Including  
**Future  
Generations**

PET/fMRI  
Lab. Exp.  
**Surveys & Experiments**  
Deliberative Exp. Field Exp.

Including  
**Future  
Generations**

Psychology  
Poli.Sci. History  
**Theories**  
Engineering  
Philosophy  
Econ. Neuroscience  
Env. Sci. Biology

Including  
**Future  
Generations**

China  
Myanmar  
Philippine Niger  
**Practices** India  
Sri Lanka Katmandu  
Dhaka  
Okinawa





**Thank you!**  
**Please join us.**

