

2050 Dreams Come True: Great Responsibility of Science and Education  
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2050, the middle of the 21<sup>st</sup> century, is coming to us after about 31 years and 2 months, or 11385 days. It's not too long, compare to the industry revolution history. It is not too short, compare to the outbreak of the global financial crisis.

In 2050, will our human-earth system get better or worse compare to today? Will we share a good dream or a bad dream than may come to us?

Let's image a bad dream first for ease of reading. Greed and competition out of order drive human society to ignore the knowledge of science and technology provided us. Human beings purely pursue maximum economic benefits and material wealth without care of the climate, environment and ecosystem, without care of poverty, unemployment and scarce resources. The average surface temperature of earth rises 2-4 degrees. The heat waves, hurricanes, droughts become more and more intensive while more and more frequent. The climate extremes result in a significant increase in disasters and the loss of lives and properties of mankind. The war risk increases due to lack of the basic needs for life such as food, clothing and shelter in a lot of regions that affected by huge disasters related to global change. The growth of economy depending on the emission of GHGs can not afford the rising loss due to the hazards associated to climate variability and climate change...that's a world scenario in 2050 that we really don't want to come.

After the imagination of the bad dream of the future of human-earth system, let's have a visit to a desirable 2050 of good dream. We greatly developed human-earth system science and applied the theory, methodology and technology to our practices. Most of human being is well educated for the science and at least the skill of correctly living in earth. We, humans, understand that the life-support system in the earth is very fragile and limited although earth system is huge and has a life of 4,500,000,000 years. We, humans, understand that spiritual happiness is unlimited while physical happiness grows very slow and very little if the basic needs for life are satisfied. We, humans, understand that when we overtake and overuse without any constrains the natural resources from mother earth, the human-earth system will be damaged and can't last long, and our mother earth will become aged sooner and even died at her youth. If the science and education can fulfill their missions mentioned above, we, humans, no matter in developed countries or developing countries, no matter in Europe, America or Asia and Africa, no matter being policy makers, journalists, or scientists, publics, no matter at elders, youths or childhoods, we all know that the responsibility of ourselves for maintaining a well-run human-earth system. We all can play our roles and contribute our own unique shares to keep our mother earth healthy and young. And thus, we will have a good dream – more

harmonious human-earth system, increased happiness, alleviated poverty, reduced unemployment, mitigated climate change, improved environment, recovered degraded-ecosystem and above all smiled mother earth—that comes in reality in 2050.

Now, two questions emerged out? How can we make our good dream becoming true? What's the pathway towards a desirable future?

There are several to hundreds answers and/or options, but in view of limited space and time here, in this statement we will give two, as we think the science and education are essential and fundamental.

### 1. Science

We need to build a new, or at least to transform the current earth system science to, science of earth-living science, which studies how can human beings live in earth in a good way, act in orderly human activity and human-earth system runs harmoniously and smoothly, so that we can keep our mother earth healthy and young in a long future. The earth living science is different from today's earth system science, climate change science, global change science and sustainability science. It should focus on:

1. What kind of value system of human beings should be established so that human beings can faithfully take care of mother earth and get long-term welfare from a harmonious human-earth system?
2. At different level, global, regional, national, local and individual, how can human beings well get along with the earth through science and technology innovation?
3. How can human society correctly apply the state-of-the-art earth system science to their practice at variety of the scales mentioned above?
4. Based on recognizing of the difference and diversity of incomes, nations, ages, education levels, living standards, how can science community to develop a practicable and adoptable science and technology for human beings' living in the earth?

Above all, now it is time for scientific community to create a science to study how human beings harmoniously live in earth, just same as we should develop science and technology on how to live in the moon before we send our gastronomist to the moon. If one says we should study on how to live in moon, no one will be doubt on it. But if one says development of a science of living in earth, most of people will surprise at it. We have lived on earth some millions of years. Sure, we have. However, we had very a little influence on earth system before since science and technology were less developed hundred years ago while rapid progress have taken during recent decades which made human beings became a important and powerful driver of environmental change today. If we live in the earth without any additional care to earth now, we must have encountered a lot of problems and will face a terrible future.

### 2. Education

While we developed earth-system science we should propagate the knowledge to all human societies in the earth at same time. The situation is so serious and urgent so that the earth system could not leave a long time for us. Climate and environment could not help to wait for since no one in the earth knows the exact time of the

turning point of climate abrupt change. And if it really comes, we have no way to push it back!

We should interpret our earth-living science to a handbook, manual, textbook, TV program, internet based course that those people who have not had a background of earth system science or global change science can easily read, access and practice. Such publications, no matter in the form of paper or electronic media, should not focus on the theory of understanding the interaction among the components of the earth system, rather directly tell the readers how to take action and clearly specify what kind of behavior is beneficial to society and environment and what not. Such publications should edit and publish in different languages, styles and contents for different reader's groups. The handbook for policymakers can be used during making decisions. The handbook for kids can be used when they choose a way to play. The handbook for wealth people can be used before they make a plan on how to spend their holidays. The handbook for people under poverty line can understand the way that they get basic needs of life at an environment friendly manner...The UN, ICSU, ESSP, IGBP, IHDP, DIVERSITAT, WCRP, IPCC and UNFCCC should play a leading role in such a global education transformation system. They could urge, persuade and even advocate to legislate the governments or education administrations internationally, regionally, nationally and locally to take the earth-living education as the basic and preliminary one as same as language or mathematics. The earth-living course should be the fundamental subject for all student and popular training course for policymakers and publics.