

Redefining appropriate technology concept for Sustainable transition

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Abstract

Modern technology that dominates almost all aspects of the society with its convenience has also been causing a variety of technical disasters, which is becoming critical for the sustainability of the modern society. Although the appropriateness and legitimacy of the modern technology has been questioned in many situations, the concept of ‘appropriateness’ has been restricted only in the field of technology transfer to developing countries.

In this talk the previous thinking on appropriate technology mostly focused on developing countries is reviewed briefly to confirm such thinking is valid and necessary in developed countries as well. Then, starting from an essential definition of technology and reviewing the social aspects of technology with some case studies, a set of universal requirements for ‘appropriate technology’ is redefined as fitness to local situations and fairness including sustainability.

However, the appropriateness of a particular technology has to be changed in accordance with the changes in social situations. Then we have at present two serious questions:

- (1) For the sustainable transition to the zero carbon society how the redefined appropriate technology concepts can work in assigning the direction of technical system of the society.
- (2) How to make innovative changes in social consensus for the appropriateness, and how to make interventions and modifications on the present technical systems which is operated by economy with a present value system.

Finally, discussions are made on institutional structures necessary to democratically, but with sufficient professional certainty, review and reshape technologies as well as to evaluate new technological proposals from the view point of ‘appropriate technology’.

Background: Since the 1990s I have more and more got involved in not only energy issues but also environmental issues of a wide spectrum. Particularly in the waste management in Japan I have encountered many irrational policies and technical actions that stress big burden on municipalities’ budget. However due to the balance of public awareness, business interest and institutional habits these have not been overcome even though many professionals are aware of them.

For renewable energy issues the appropriateness of them in Japan has been in a critical situation after the introduction of Japan’s FIT.

Hydrogen technology booming, CCS policy, etc. we have many controversial issues relevant to appropriateness.

These issues are also related to local cultural and economic independence that can survive in the circumstances of big industries and global economy.

I think it is worth for us to exchange ideas on these issues to pursue our work further as professional scientists and engineers for our society’s future.