

16. LOOKING FORWARD: OVERCOMING THE GENETIC DIVIDE THROUGH INFORMATION TECHNOLOGY

One of the striking characteristics of contemporary technologies is that different types of technology have a way of being dependent on one another, so much so that these different technologies may merge together. Take biotechnology and information technology for example. The two are clearly very different from each other. Biotechnology lies in the hands of life scientists; information technology, on the other hand, emerged from the work of computer scientists and engineers. One field deals with moist living tissues; the other deals with dry and totally lifeless pieces of silicon and abstract logic. However, it is clear that these two fields are merging. The decoding of the genome shows that life itself can be looked at as transmitted information. The building blocks of life consist neatly of four values that are permuted far beyond mere human calculation. The structure underlying the working of the brain, a living organ, is taken as a model for the working of computers.

The analogy does not stop at the level of purely technical considerations. These two technologies are also very powerful as wealth creation engines. One can simply look at giant companies such as Microsoft or Novartis for examples. The power of these technologies to create wealth also carries with it a 'divide' between those who are in the position to enjoy the fruits of these technologies and those who are not so fortunate. There is the digital divide and the genetic divide between those who can benefit from information and life technologies respectively. As these technologies become more and more powerful, these divides are poised to become wider and wider, creating imbalances and insecurity for the whole world. As powers to create wealth and solve problems, these technologies are able, at least in part, to solve the problems facing the poor and the disenfranchised in the world. One merely has to find a way to an effective use of them so that everyone is equally entitled to benefit from them.

One way is to look at yet another area in which biotechnology and information technology can cooperate. The focus here is on how the fruits of biotechnology can be beneficial to a wider sector of the world's population through an effective use of information and communication technologies. My proposal is that, in order for these two types of technologies to be of direct and immediate benefit to the rural poor, in Thailand or elsewhere, the capacities of these remote communities to appropriate the technologies must be built up and enhanced. This can be done through a development of the knowledge system latent in the community so that it becomes more effective in dealing with the contemporary situation through the use of information and communication technologies to link various communities together so that they can learn from one another. The traditional knowledge and skills involved in making rice wine have been around for centuries. Producing and marketing the wine is a very good source of income for the villagers whose lives are always centred on rice planting. Making good rice wine clearly requires skilled knowledge of biotechnology. Modern techniques can be introduced to the villagers in the first place, through education and demonstration. But the main point is not just to transfer the technology, or worse just its products, to the farmers. The point is that the farmers learn how to appropriate the technology, to integrate it into their lives, so that the technology becomes one of the tools within their repertoire in making good rice wine, or any other products and crops according to the locality.

The information and communication technologies can obviously help by disseminating the information needed. Here the role of the technologies in teaching and learning on line is of tremendous importance. But one needs to be reminded that this is not the whole picture. The villagers can also use the information technologies to build up networks of their peers. The idea is that the villagers also learn by trial and error and from one another. They do actually need the help of experts who may

come to them from the capital city, but these experts should act more as guides or coaches rather than as ruling administrators, as has been the case in Thailand for the past five or six decades.

This merging of the uses of biotechnology and information technology clearly requires a lot more thinking and fleshing out of details than is available here. However, I am convinced that only through the initiatives and capacity building effort stemming from the villagers themselves can a more equitable and sustainable world be realized. I would like to end by congratulating the Biotechnology and Development Monitor for its effort in this regard and wishing that the journal could serve the world better by acting as a node in the network of those who are concerned with the role of biotechnology in development, as well as of those who share the taste for Thai rice wine.

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