The Relevance of Appropriate Technology[1]

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The first technologies ever developed, whether the club as a tool, the spear or fire, were tools appropriate to satisfy the needs of the community and enhance the community's ability and capability to survive and endure. Since the beginning of the human-technology relationship, the development of technology and the purposes and the needs these technological developments served have become increasingly complex from that early dawn. In the late twentieth century and as we enter the closing years of the first decade of the twenty-first century, today's world of globalized and increasingly privatized resource and capital flows, the notion that an appropriate technology can be defined and characterized may seem increasingly improbable and unlikely. However, as recent market and economic dysfunction have amply demonstrated, globalized privatization and unregulated transnational capital and resource flows with little government and state oversight, also means globalized and almost ubiquitous economic difficulties across diverse national economies and socio-techno-economic systems. Whether there is a need for appropriate technology in such a context is a valid question and the answer must take into account economic and livelihood realities of local communities, especially those in the countries of the global south.

The complexity of this socio-technological relationship must be seen in the context of over two thousand years of social and technological development which have resulted in some of the wealthiest and most prosperous of times for certain members of the global population. However, at this late stage in human civilization's development, of the six and a half billion people who inhabit this planet, almost a half, have no regular and consistent access to clean, potable water. These same communities also lack access to hygienic and sanitary waste and sewage disposal systems. Almost two-thirds lack access to the world-wide web and are left on the wrong side of the digital divide – effectively being left out of the conversation and cut off from the immense wealth of resources available on-line.

This disconnect, between the harsh realities of inequitable resource distribution and access to technology, and the amazing and extraordinary technological developments and advances of the previous two centuries, speaks clearly to a desperate need for a renewed focus and emphasis on technology that is appropriate to the establishment of a just, equitable and fair global social order. This must be a global social order defined by a human-technology relationship that seeks to harness the immense creativity of the human species in their ability to respond to their environment and engineer it to their benefit for a sustainable existence within their own socio-geographical spaces.

Although E. F. Shumaker introduced into the western scientific and rational consciousness the notion of small as beautiful and technologies that responded to human communities at scales that were manageable, controllable and appropriate to the context of its development and application, indigenous peoples from across the globe have developed and implemented technological solutions relevant to their time and space; indeed relevant and appropriate to their socio-economic and socio-ecological niches and habitats. These repositories of indigenous knowledge have ranged from the oral (such as the oral traditions of the Native

[1] As appeared in *Proc. 3rd International Conference on Appropriate Technology, Kigali, Rwanda, Nov 2008*, Tharakan and Trimble (eds), Published in Kigali, Rwanda, ISBN 978-1-60725-559-8, Nov. 2008.

American Indians and various African tribes and nations) to the documented and written (such as technological and scientific handbooks from India, China and the Arab nations), and these can provide a rich resource for current practitioner~~'~~s as we seek to develop solutions to problems that have grown as complex as some of the proposed solutions.

Clearly, then, the relevance of appropriate technology cannot be disputed. In the context of the 21st century, the principles and criteria that define and determine appropriateness of technologies must be re-articulated and under scored. Appropriate technology means many different things to different people. Generic searches on the internet reveal thousands of sites that respond to the search engines calling, revealing that meanings can often be elusive and illusory.

Nevertheless, although appropriate technology, or AT, is difficult to define and its development and implementation have been a source of debate for some time [1], there is general agreement on some of the governing characteristic of appropriate technology. It is clear that AT should normally require only small amounts of capital. AT must emphasize, wherever possible, the use of local materials. Implementation of AT's should focus on relatively labor intensive technological solutions that individual~~'~~s in communities~~y'~~s can participate in. This suggests that AT should tend~~s~~ towards the smaller scale and be affordable.

The community~~-~~–based nature of AT requires that the technological solutions being developed should be understandable, controllable and maintainable without unduly high levels of education and training; at the same time, AT should be adaptable and include local communities in innovation and implementation. Finally, adverse impacts on the environment should be avoided and the sustainable nature of the technological solution should be emphasized [2]. Naturally, given the huge divide in resource access and availability, AT will encompass diverse sets of tools, processes and technologies, but will be focused on sustainable development.

The rationale of AT resides in its empowerment of people at the grass roots community level. Development professionals agree that local needs can be met more effectively with the community working to address their own problems. The rationale is also grounded in minimization of financial, transportation, education, advertising, management and energy services and costs with the goal of engendering self-sustaining and expanding reservoirs of skills within a community. The result is a lowering of economic, social and political dependency, and a move towards sustainable development that is focused on people's needs and is grounded in empowerment through education, technology transfer, capacity building and local control.

AT could never have been more relevant. The diverse set of technologies that are part of the different focus areas of the conference demonstrates the variegated needs that appropriate technologies can be developed and implemented in a sustainable manner, and speaks to the ever-present need to develop and extend these efforts. In concluding, it must be emphasized that appropriate technologies will then necessarily range from the basic and "primitive" technologies required for water supply and sanitation to the more sophisticated and complex including alternative energy technologies focused on renewable ~~resroucres~~ resources to the wireless rural internet that enable villagers to be valued participants in the global economy.

REFERENCES

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[2]Darrow and Saxenian, *Appropriate Technology Sourcebook*, Volunteers in Asia, Stanford, CA (1986).