

Design, Poverty, and Sustainable Development

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Introduction and Context

Design in a poor context, or for the alleviation of poverty, has received little or no attention. An informal discourse analysis shows that design and poverty have not been linked, the two being seen as mutually exclusive. This paper aims to examine the relationships between design and designers, poverty and the poor, and sustainable development, which aims to alleviate poverty. On the face of it, there would appear to be little that links them; however, this paper aims to identify specific design initiatives that relate to poor people in the southern hemisphere as producers and consumers of designed goods.¹ It briefly outlines definitions of poverty and sustainable development, then describes selected design interventions. It analyzes the contribution that these initiatives make to the reduction of poverty, and to the different aspects of sustainable development.

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- 1 The poorer nations of the world are given various labels: underdeveloped, less-developed, less-industrialized, developing, and the Third World. Like all labels, these mask huge differences between countries and within them; and, as Southeast Asia and China industrialize and develop at such a pace; they become increasingly misleading.
 - 2 Poverty: the facts. The Child Poverty Action Group Website: <http://www.cpag.org.uk> (accessed July 27, 2004) has clear definitions. *The Chronic Poverty Report 2004–05* (Manchester, UK: Chronic Poverty Research Centre, 2004) is a comprehensive source of information about the very poorest people in the world. Available online at: <http://www.chronicpoverty.org>.
 - 3 World Commission on Environment and Development, *Our Common Future* [The Bruntland Report] (Oxford: Oxford University Press, 1987) is considered to be the source of the concept of sustainable development.
 - 4 Ian Moffat, Nick Handley, and Mike Wilson, *Measuring and Modeling Sustainable Development* (Carnforth, UK: Parthenon Publishing, 2001) includes a useful discussion of the meanings of the term.
 - 5 Design, in the context of this paper, is the design of products and things that are used in everyday life including tools and equipment, textiles, and other consumer products such as clothes.

Defining the Key Terms: Poverty and Sustainable Development

Both of these terms are contested, and their meaning and the problem of defining them has been discussed extensively elsewhere.^{2,3} In the context of this paper, poverty is defined as living on less than \$1 dollar a day, a state affecting about 1.2 billion of the world's six billion people. Sustainable development is that development that considers social, environmental, and economic factors together in a systemic way over a period of time.⁴

Design in Poor Contexts: Some Examples

What is design's contribution⁵ to poverty reduction? I want to separate the discussion of design in poor economies into two parts: the *production* of goods that provide income and generate wealth for poor producers, and the *consumption* of goods in poor markets.

Production

Craft goods made for export are handicrafts made as part of income-generating or poverty-reduction schemes. The products, of all kinds, but typically such things as textiles, clothing, jewelry, pottery, paper goods, and the like reach developed world markets through several routes: first, by tourists visiting "Third World" countries; second, through expatriates temporarily living in the developing countries;

and, third, when exported directly. Examples of these craft goods are found across the developed world in fair trade catalogs and shops, such as Oxfam shops or other fair trade importers.⁶ The design element often consists of “traditional” emblems or motifs, but often adapted by developed world designers or advisers for the developed market. An example of these goods is the Tripura Tribal Scarf from the People Tree Catalog (Winter 2004–05), “a stunning lightweight scarf handwoven by the Tripura tribe in the hills of Bangladesh.”⁷ People Tree is a London-based fair trade fashion company that sells a wide range of clothing, accessories, and household goods through its Website and a mail order catalog. Other goods are designed or commissioned by importers, such as the line of jute bags made for People Tree by Action Bag Handicrafts in Bangladesh. “Their aim is to create long-term job opportunities for poor women, to develop business skills, and to produce high-quality goods using ecologically-sound materials.”⁸ Poor producer groups often do not have design capabilities in the conventional sense, and little or no knowledge of the market demands of the developed world. Producers, especially if female, usually have had little formal schooling and may be illiterate. This raises problems about communicating design and production requirements, and quality control issues. Despite the small size of this market in comparison to more mainstream trade, the money earned by poor individuals from participating in such schemes can be life changing, and much anecdotal support is given to this in the catalogs selling their goods. For example, the winter 2004–05 People Tree catalog provides information about the producers of their goods, including one of their knitwear suppliers, a school in Nepal that provides employment and other support.⁹ However, it must be noted that this market is precarious, since it largely is fashion-driven and dependent on the sale of ornamental or other nonessential goods. Therefore, it is vulnerable to wide market fluctuations. Design input often comes from the producers, themselves, who have an indigenous knowledge of their particular kind of production. But for continuing marketing success, especially for the export markets, external design input is needed— usually from an aid worker or NGO. The author’s work with the Kusona Kwemadzinai embroidery producer group in Zimbabwe showed that design innovation and product development, as well as market development, came from the foreign aid worker assigned to working with the women. Unfortunately, this was not sustainable despite efforts made to transfer skills, knowledge, and information to the members of the group.¹⁰ Design and product development, as well as marketing skills, for producers who often are illiterate probably is unrealistic but the long-term sustainability of this type of production must be considered. A systematic assessment of the economic benefits of these craft activities is difficult, and other forms of economic activity such as selling vegetables might be more profit-

6 For example, in the UK, the Natural Collection catalog and Website: <http://www.naturalcollection.com>; or People Tree: <http://www.peopletree.co.uk>.

7 People Tree catalog (Winter 2004/2005), 17.

8 *Ibid.*, 56.

9 *Ibid.*, 68.

10 Angharad Thomas, “Zimbabwean Embroideries: An Income-generating Project for Mothers of Disabled Children” in *Text: For the Study of Textile Art, Design, and History* 25 (Winter, 1997): 12–15.

able and sustainable, particularly for female producers.¹¹ However, under certain conditions, craft production can make a significant contribution to poverty alleviation.

Design and Production of Goods by Poor People for Poor People

The poor people of the undeveloped countries produce goods for consumption within their own communities. Goods of all kinds are made in the informal economies of poor countries, including furniture and household goods. Many producers have no design capacity, and copy from existing products. Sometimes, designs are imported, as in the case of baskets seen by the author in Zimbabwe made to a design from the UK. Copying, although a useful way of producing goods, does not allow the makers to develop design skills to improve their products.

In Brazil, the Grupo de Desenho Industrial e Desenvolvimento Sustentável (GDDS) at the Universidade Federal de Campina Grande, led by Dr. Luiz Guimarães, has worked with poor communities on several initiatives, which involve producers and consumers in the design process. The group's philosophy is:

We understand that designers should discard their peculiar presumptions if they are really serious about improving the low-income populations' situation. The experiences described show that we have to commit ourselves with these people because we have much to contribute with the solution of their problems. However, we have to be humble and recognize that we have much to learn by interacting with this community.¹²

The group, which includes academics and students from the University's product design course, works with the poorest of the local population in the region. The first case study reports on a project with washerwomen to develop a pedal-powered machine to ease the physical burden of their job.¹³ The project is unusual in its participatory approach to a low-status group of users doing manual work. Important insights were gained by working closely with the user group, and the washing equipment was redesigned in consultation with the washerwomen: "... with the users suggesting modifications and improvements related to the utilization of the equipment ... the washerwomen's involvement in the design process revealed problems that the [outside] investigation alone would not. Economic benefits were considered more important than health benefits"¹⁴

The second case study shows participative design using waste materials with waste collectors and sorters. In this project, in its early stages as reported,¹⁵ students from the University worked with low-income groups that collect rubbish to design goods that will add to the income of these people.

11 Personal communication from an aid worker in Zimbabwe, 1999.

12 Luiz Guimarães and Wagner Batista, "Industrial Design for Excluded Communities in the Northeastern Region of Brazil" (paper presented at the Conference of II Congresso Internacional de Pesquisa em Design, Rio de Janeiro, October 15–18, 2003).

13 Ibid.

14 Ibid.

15 Luiz Guimarães and Wagner Batista, "Education for Citizenship: Training Product Designers in Northeast Brazil" (paper presented at the Conference of International Council of Societies of Industrial Design, Hanover, Germany, 2003).

These Brazilian projects demonstrate that designers, design academics, and design students can contribute to the well-being and income-generating capacity of poor people, and contribute to poverty alleviation if their involvement is managed in an appropriate way.

Design for Poor Markets

The next two examples involve products designed for sale in poor or marginalized markets, and in which the design was initiated by designers/organizations in developed countries.

The clockwork radio is a landmark product,¹⁶ and a good example of design for a poor, rural market. It was developed from an idea by Trevor Bayliss¹⁷ in the UK. It resulted from a series of fortuitous meetings both in the UK and South Africa between people who believed that it was a product that would make a difference in poor people's lives. In this situation, the inventor, Trevor Bayliss, the financier, and the manufacturers acted as change agents. The radio is manufactured by a company employing disabled workers. The innovative technology made the windup radio an appropriate communication tool for reaching a rural audience the South African government needed to alert to the AIDS epidemic. The technology has been refined, and now is in use in many situations where power supplies are not available or unreliable. The technology also has been extended and applied to powering flashlights and battery chargers.¹⁸

The second example of a company making products for a "Third World" market is the ExpLAN computer company, a UK firm making computers and power systems targeted at low-income economies. These are designed in the UK, but eventually will be manufactured under license in the consumer countries. According to the company's literature:

Intended Market: Developing Countries in Africa, Southern Asia and South America. Objectives: To provide a computer technology appropriate for the majority of needs within the Third World, using renewable energy resources and promoting sustainable development ideals.¹⁹

The company is developing a range of computers for use in remote locations with the specific objectives of encouraging trade, enabling enhanced communication both from and to the community, fostering educational links with schools in developed countries, and providing access to medical data including AIDS awareness.

The ExpLAN "Solo" computer is powered by a specially designed power source and storage unit, the "SPSU," which can use renewable sources as well as whatever electricity may be available. It can be used for other equipment in addition to the Solo computer. According to the company's literature: "The SPSU enables the use

16 "Clockwork Radio" (video recording) (QED) (London: BBC, 1996 videocassette).

17 Website: <http://www.windupradio.com/trevor.htm> (accessed January 6, 2005).

18 Website: <http://www.simplyfreeplay.co.uk> (accessed July 14, 2004).

19 Website: <http://www.explan.co.uk/solo/index.shtml> (accessed January 6, 2005).

of low-wattage electronic devices in remote areas that are not served by a mains electricity distribution network.”²⁰ The company plans to assemble the equipment through a series of “cottage industry-style manufacturing bases.” These will partner with ExpLAN for technical support. The ultimate goal of the project is to provide a “facilitating technology rather than one that controls or restricts opportunities.”²¹

Other products designed specifically for consumption by a poor market are those developed by the Intermediate Technology Development Group (ITDG),²² a UK-based nongovernmental organization (NGO) that promotes the development of enabling and sustainable machines and tools. Two of ITDG’s development projects are for fuel-efficient stoves and solar-powered lanterns, both in Kenya, and are documented in *Design Without Borders’s* “Experiences from Incorporating Industrial Design into Projects for Development and Humanitarian Aid.”²³

The design of the stove was developed in a participatory way with local users to ensure “that community-level needs are incorporated, and indigenous knowledge is used to full advantage.”²⁴ It has advantages for both its users and producers. Users need less fuel, and so save time and effort in collecting wood. The stove can recoup its purchase price in less than two months, depending on installation costs. It is safer and easier to use in the kitchen, and therefore contributes to family health because less smoke is produced than with a conventional stove. The risk of accidents also is lowered. The stove is produced by local women potters who have benefited both economically and socially, since they are able to make “decent incomes” from stove production. They also have received social benefits such as better family relationships because of the income gained, and increased self-esteem from taking part in activities associated with stove production such as training other potters and hosting visitors, national and international.²⁵

The second ITDG-led project is the design and development of a solar lantern.²⁶ This project arose from the need across the globe, for self-powered electric light sources, since one-third of the world’s population has no access to electricity from utilities.²⁷ In Kenya, where the solar lantern was researched and pilot-tested, ninety-six percent of households use paraffin for lighting. Solar-rechargeable lighting was identified as an appropriate source of low-cost and flexible lighting, so the solar lantern project was started. The design specification for this product was drawn up after consultation with rural communities about their needs, and their opinions of existing solar-powered lights and how they could be improved. Suitable technologies were chosen for manufacturing, and a number of prototype lanterns made. These were distributed to households for testing. The consumer reaction to the solar-powered lantern was very positive, and it now is in production. Although users were not

20 Ibid.

21 Ibid.

22 Recently renamed “Practical Action,” <http://www.itdg.org> (accessed August 31, 2005).

23 *Design without Borders*, A. K. Haugeto and S. A. Knutslien, eds. (Oslo: Norsk Form, 2004).

24 Rob Aley, “Appropriate Technology and Sustainable Human Development” in *Design without Borders*, A. K. Haugeto and S. A. Knutslien, eds. (Oslo: Norsk Form, 2004), 51–60.

25 Ibid., 53.

26 Ibid., 54.

27 Ibid., 54.

directly involved with the design of the lamp, their needs were taken into account when the specifications were drawn up, and again in user testing of the product. The designers were able to fulfil the needs of a poor market.

Analysis: How Is Design Making a Contribution to Poverty Reduction and Sustainable Development?

This section analyses the contribution made by each design intervention to poverty reduction and four aspects of sustainable development: economic, social, environmental, and institutional. Comments on each of these are tabulated below.

Table 1

Table showing each design intervention and its impact on poverty reduction and aspects of sustainable development.

Example and design source	Benefit to poor people	Economically sustainable	Environmentally sustainable	Socially sustainable	Institutionally sustainable
Craft goods made for export External design input	Enables income generation	Dependent on fashion, and difficult to please consumers in distant markets. Non-essential goods	Yes, in some cases. May use available natural resources, may recycle, or may be very light on resource input.	Also social development and support can be given between group members: a meal may be produced at the workplace.	Probably not. Depends on the design of the project itself. Often reliant on a single person whose input and leadership is necessary to drive the project.
Craft production, informal economy Internal design input	Income generation	Depends on local market	Elements of environmental sustainability (e.g., if re-cycled materials are used)	Social development between group members	Possibly, if no NGO or donor-funded involvement, but reliant on personal organization.
GDDS, Brazil. Design input external, but participative	Income generation; health benefits	Yes	Yes, this is considered in the design of the goods.	Social development	Depends on specialist input of design academics and students
The clockwork radio External design input	Income generation for producers. Access to information.	Yes	Makes a contribution to environmental sustainability, by not needing batteries.	Contributes to social development: media can act as focus for communities.	Commercial production linked with institutions supporting disabled workforce
ExplAN computer External design input	Access to computing and information	Yes	Yes	Aims to encourage social development	Will depend on how the setup is done at the user end
Stove designed participatively	Income for producers	Yes, producers make a living	Reduces wood consumption	Social benefits for producers	Producer groups set up
Solar light External design input	Improved light at reduced cost	Tension between development/commercial needs	Uses solar technology	Allows for increased social interaction	Depends if it goes into commercial production

Throughout these examples, the design input is either from an external source or, if it is from a local source, is of low quality since local design capabilities are not developed. This is because there is little design education or training available in poor countries, and especially to the rural poor.

Comment: Craft Goods Made for Export

Craft production has been shown as a first step in development that is linked to the industrialization of the manufacturing process,²⁸ although it can be argued that it is a sustainable means of production for many types of goods for mass markets.²⁹ Craft production is strongly favored by the fair trade sector, which often is supported by local or international NGOs, but can be susceptible to changing market and fashion trends. Most of these goods are nonessential ornamental or gift items that are dispensable or able to be made elsewhere at a lower price. To be able to compete, a good design input—ensuring that goods are produced in colors that will sell, or of appropriate sizes—is very important. This market also is typically oversupplied with far more poor producer groups wanting to supply goods than the market will support.³⁰ Although both the producer groups and the organization importing them both aim for sustainability, particularly economic sustainability, it is unlikely to happen in the short term because the design and market input usually comes from single individuals who champion the work of the group. When the champion moves on, the organization can find itself in decline. Examples of this are common throughout southern Africa.³¹ Therefore, this type of activity very often is unsustainable, both economically and institutionally. Some projects set themselves up with environmental sustainability as a goal, and these may succeed on this criteria—paper-making from the bark of a shrub that has to be pollarded to encourage biodiversity,³² projects that reuse materials in their production, and those that use organic or non-environmentally damaging dyestuffs will succeed here. With an appropriate design input, many more goods could be designed to integrate elements of environmental sustainability.

Craft Production in the Informal Economy

This type of production also can bring benefits to poor producers; allowing them to have a livelihood while producing useful goods. Craft production in the informal sector without any donor or NGO support may be economically sustainable if a market is available; say for shopping baskets or for household goods and implements. It also can contribute to environmental sustainability if materials are recycled, such as those used in the production of the Zimbabwean shopping baskets. Institutionally, this sort of small-scale enterprise is sensitive to individual inputs, and may be completely informal. Socially, as with any group activity, interpersonal relationships can hinder or stop production. A design input can give goods a market advantage in terms of appearance, functionality, or price if it enables, for example, fewer materials to be used in their manufacture. There have been examples of professionally-trained designers working with producer groups in the informal economy. One such collaboration produced stylish and fashionable furniture that sold well in Zimbabwe in the 1990s.³³ This type of input is hard to maintain

28 Gavin Kitching, *Development and Underdevelopment in Historical Perspective* (London: Methuen, 1982), Chapter 1.

29 John Ballyn, independent consultant on craft production, Network of Development Researchers Gregynog Colloquium, University of Wales, argues that craft or artisan production can make a large contribution to manufacturing output (personal communication, May 2004).

30 Author's own experience 1994–1999 bringing goods from Zimbabwe to UK Fair Trade organizations.

31 Weya and Kusona Kwemadzimal women visited by author in Zimbabwe in late-1990s.

32 For example, Mountain Giftwrap from One Village: <http://www.onevillage.org/cards-giftwrap.htm> (accessed August 21, 2005).

33 Author's observations in Zimbabwe, 1996.

since the arrangements for collaboration often are only temporary and voluntary. It also is very difficult to, and unreasonable to expect that, design skills can be transferred, in a limited period of time, to otherwise untrained workers.

Work of Grupo de Desenho Industrial e Desenvolvimento Sustentável, Brazil

The work of this group is specifically aimed at benefiting the poor communities with which it works. Projects aim to be economically beneficial, because income comes from selling the goods, so this is built into the design of the project. Wherever possible, and this is an economic decision as much as an environmental one, materials are recycled or reused, making the production environmentally sustainable. Since the projects are dependent on a particular group of staff and students from the local university, they are, at this moment in their development, unsustainable. These links will need to be strengthened and institutionalized to ensure sustainability and continued development. To help ensure this, the authors recommend a participatory approach to any intervention and the identification of local innovators in order to develop or create the community's innovative capability.³⁴ A range of skills will have to be learned by the producer groups before these activities are sustainable without an external input but, at the same time, the designer must be prepared to have a "wider understanding of the socio-economic context and of human relationships."³⁵ The same is true for many poor producer groups, but if a process of education and capacity-building is undertaken, then this might be feasible. The GDDS is aware of these longer-term problems of sustainability, and makes comprehensive recommendations about how design interventions with poor communities should be approached, some of which have been mentioned above.

The Clockwork Radio

This has had obvious benefits for many people, including those employed in its manufacture and those who are able to receive radio broadcasts without having to use unreliable or expensive sources of electricity.³⁶ The development of the clockwork radio depended on several fortuitous events—the inventor learning that there was a need for radios in rural Africa, as well as the acceptance of the project by a sympathetic manufacturer. It is now economically sustainable and in commercial production. It is environmentally sustainable in use because of its wind-up technology, but the environmental impact of its manufacture it is not clear. The role of design in the form of invention, innovation, problem-solving, and manufacture has been crucial in making the clockwork radio a reality, although only a part of the overall picture. Design continues to contribute to the sustainability of the project, since new models of the radio have been produced that are smaller and lighter than the original and

34 Luiz Guimarães and Wagner Batista, "Industrial Design for Excluded Communities in the Northeastern Region of Brazil" (paper presented at the Conference of II Congresso Internacional de Pesquisa em Design, Rio de Janeiro, October 15–18, 2003).

35 Ibid.

36 Ibid. and QED video, "The Clockwork Radio."

available in different colors. The product line also has been expanded to include other clockwork equipment such as flashlights and cellular phone chargers.³⁷ Design input is enabling the Baygen Company and its associated nonprofit, the Freeplay Foundation,³⁸ to contribute to sustainable economic growth and to social and humanitarian outcomes for producers and consumers.

ExpLAN Computers Ltd.

For the users, the ExpLAN computer will not make a direct contribution to poverty reduction. It will, however, enable poor people access to communication and information via the personal computer. However, plans call for production of the units in the countries where they will be used, and this will generate local jobs. For the users, having access to the ExpLAN computer therefore should contribute to sustainable development. The ExpLAN computer has sustainability designed into it. It will be economically sustainable, use energy sources that are sustainable, and have sustainable social development built into the project.³⁹ Plans are in place to ensure that production is local and sustainable, and institutionalized in local production units. However, it is run by a company with a desire for equitable social change that perhaps makes it vulnerable to personnel changes. It appears to be sustainable in every aspect, although longer-term evaluation will be needed to see if this is the case. Ironically, there is no formal design input because the company does not employ or use a designer. All of the personnel involved in the project come from the technical side of personal computing.⁴⁰

Work Done by the Intermediate Technology Development Group

The fuel-efficient stove development, led by the ITDG, fulfils all the requirements of sustainable development. It has led to its producers earning viable incomes, thereby contributing to poverty reduction and therefore is economically sustainable. And it has reduced wood consumption and uses local materials, so it is environmentally sustainable. The project is socially sustainable since the producers work in groups, and also have received significant social benefits themselves from being involved in the stove production. The production has been institutionalized in the setting up of formal producer groups. Since a participatory approach was used in the development of the design and manufacture of the stove, the benefits to users have been maximized and the project seems to be making a real contribution to sustainable development.⁴¹

The participation of communities in (appropriate technology) development initiatives can help ensure that results will be sustainable after external agencies withdraw—economically and in terms of human capacity and commitment.⁴²

37 Website: <http://www.freeplayenergy.com/index.php?section=products> (accessed August 31, 2005).

38 Website: <http://www.freeplayfoundation.org> (accessed November 8, 2005).

39 Information from company Website.

40 Personal communication, 2005.

41 Rob Aley, "Appropriate Technology and Sustainable Human Development" in *Design without Borders*, A. K. Haugeto and S. A. Knutslien, eds. (Oslo: Norsk Form, 2004), 53.

42 *Ibid.*, 54.

The solar light, also led by the ITDG, is now in production with “demand growing rapidly.”⁴³ It appears to be economically sustainable, although a conflict has been noted between the needs of the development and the commercial sectors in terms of production methods. Over the long term, the institutionalization of the production may be jeopardized if this is not resolved. In environmental terms, it uses solar technology and thus reduces environmentally-damaging battery usage; although other aspects of its manufacture have not been environmentally assessed for their impact. Industrial designers were able to make a significant contribution to the development of the lamp by drawing up a comprehensive design brief in consultation with potential users, by studying existing solar lamps, and by using this data in designing their lamp. Subsequent feedback from test users was very positive. Designers have been able to contribute to an aspect of sustainable development.

Designing for Sustainable Development and Poverty Reduction

I now want to look across these examples at each aspect of sustainable development: economic, environmental, and social in order to assess the potential challenges facing designers who wish to make a contribution to sustainable development and poverty reduction. For designers to have an impact on reducing poverty, the goods they design must be *economically* viable. In many small-scale ventures, this is the hardest criterion to meet. Comprehensive knowledge of markets and lifestyles is needed when designing goods for export markets. Large commercial organizations have the resources to provide this information at the point of design and manufacture. The fair trade or NGO sectors often do not have this capability, and products from this sector can reflect this lack of input. However, many of the organizations involved in designing for poverty reduction have *environmental* sustainability at their heart. All of the seven examples given have at least an element of environmental sustainability, and several have more than that. Most projects do not have the benefit of measured environmental impact or life-cycle analysis, even though this would be the ideal. All of the design initiatives documented have social benefits for the participants. It is impossible to tell, without a long-term study, what the effects of this will be, and whether or not it will be sustainable over the longer term, say ten to fifteen years. Designing for *institutional* sustainability is harder to measure, and it seems that many of the examples may not be institutionally sustainable because they depend on a particular person or group of people for their existence and continuation. These people are value-driven, and believe strongly in what they are doing. Unless there are plans for the future, organizations can become vulnerable if these driving forces are no longer available to work with them.

43 Ibid., 57.

Conclusions

Apart from the few exceptions documented, the extremely poor do not constitute a market for designed or designer goods. To live on \$1 a day, which I take as the definition of absolute poverty, and on which 1.2 billion people currently are surviving globally, precludes any choice of goods. Contrast this with someone of means in the developed world where it is possible to have all sorts of material goods designed to one's personal desires: houses, clothes, appliances, automobiles, and all types of luxury consumer goods. The very poor may work to produce goods that are designed for consumption in the developed world. They also may use goods that have been designed and discarded by the developed world. And they may, through the actions of an NGO, use tools that have been designed to alleviate their poverty. The poor are not without design and designed goods, but their choice of them is severely curtailed. The examples given in this paper show that, used in appropriate ways by designers and others, as agents of change, design can be brought into the lives of poor people and improve their livelihoods by increasing income and making available to them better goods, products, and equipment.

Recently, there has been an articulation of awareness that the poor can form a significant market for goods and services. This argument is made by C. K. Prahalad in *The Fortune at the Bottom of the Pyramid*.⁴⁴ Although design is a component of many of the case studies presented by Prahalad, such as the development of the Jaipur Foot, a prosthetic lower limb that is provided and serviced free to those who need it, design inputs are not identified or included in the analysis, although design must have taken place during its development. There is a need for design to be recognized and identified in these situations, so that it can be credited for what it enables people to do, and applied again in other contexts as in the Brazilian example quoted earlier in this paper.

Although not in the majority of the "design world," some designers are prepared and interested to take on work for minorities or for social good. In graphic design and advertising, sectors of the design world most highly commercialized, there has long been a tradition of *pro bono* work in which design for charities or campaigns is done free of charge or at reduced rates. In "The Weaving of Design and Community," Julie Bagnet⁴⁵ gives examples of designers in the State of Minnesota in the U.S. working on projects that benefit a variety of local communities. Other interventions have been documented in *Conscientious Objectives: Designing for an Ethical Message*,⁴⁶ although only one of the examples given is directly relevant to the global alleviation of poverty, and that only of historical interest.⁴⁷ However, there is the general sense that the world is facing very massive problems, and that the design community is not addressing them in the way that it might. There are both UK and global groups interested in design in a developmental context, as well as active constituencies of eco-designers. If these groups can raise awareness

44 Coimbatore Krishna Prahalad, *The Fortune at the Bottom of the Pyramid: Eradicating Poverty through Profits* (Upper Saddle River, NJ: Wharton School Publishing, 2005).

45 Julie Bagnet, "The Weaving of Design and Community" in *Citizen Designer: Perspectives on Design Responsibility*, S. Heller and V. Vienne, eds. (New York: Allworth Press, 2003), 95–99.

46 John Cranmer and Yolanda Zappaterra, *Conscientious Objectives: Designing for an Ethical Message* (Mies, Switzerland: RotoVision, 2003).

47 The example of a birth control campaign for illiterate people in Bangladesh dating from the 1970s is presented by Studio Dunbar, Holland.

among the global design world, and especially at a design education level, the dominant consumer culture of design could be challenged. Within the context of global capitalism, there are niche markets and means of production that can alleviate the lot of the extremely poor; and the existence and growth of the fair trade⁴⁸ initiatives is evidence of this. Although activity in this sector is mainly in foodstuffs, there still is an opportunity for design input, for example, in packaging. Designers who do work in these niches are far removed from the “designer as star” world of design-driven consumption.⁴⁹ Designers who are value-driven need to link with each other to share their experiences and projects. This is happening in the UK with the formation of the Cardiff Group,⁵⁰ and on the Internet in discussion groups such as the designindevelopment one hosted by Yahoo, and Think Cycle, Open and Collaborative Design,⁵¹ and in Norway with the nongovernmental organization Norsk Form.⁵² There will be a UK seminar series during 2005–07 entitled: “Educating Designers for Global Citizenship,” in which design educators and practitioners from Brazil, Southern Africa, India, the U.S., and the UK will be able to network and share ideas about the role of the designer in enabling sustainable development; and how design education can contribute to raising the awareness of design students of global challenges. The author’s own work in design education indicates that students are interested in the ways in which design can contribute to the common good.

Schemes such as the RSA Design competitions in the UK, in which student designers are challenged with briefs for designing around social issues including climate change and emergency relief, indicates that this is the case.⁵³ Value-driven designers need networks and support mechanisms in the design industry so that they can share their ideas and work more effectively in support of the ideals in which they believe.

48 Fair Trade Foundation: <http://www.fairtrade.org.uk> (accessed August 31, 2005).

49 Typified by the London Festival of Design, September 2005: <http://www.londondesignfestival.com> (accessed August 31, 2005).

50 Website: <http://www.thecardiffgroup.org.uk>.

51 Website: <http://www.thinkcycle.org/home> (accessed November 8, 2005).

52 Website: <http://www.norskfoorm.no> (accessed August 31, 2005).

53 Website: <http://www.thersa.org.uk/rsadesign/designdirections/index.html> (accessed November 8, 2005).