STRATEGIC PHILANTHROPY BY DESIGN;
FINDING DESIGN SOLUTIONS TO HUMANITARIAN CRISSES

M.Sc. Thesis by
Mine Gökçe ÖZKAYNAK, B.Arch
(502031024)

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Supervisor (Chairman): Assist.Prof.Dr. Meltem AKSOY
Members of the Examining Committee
Assist.Prof.Dr. Hüseyin KAHVECİỌGLU (I.T.U.)
Assoc.Prof.Dr. Bülent TANJU (Y.T.U.)

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TASARIM YOLU İLE YAPILAN STRATEJİK FİLANTROPİ; KRİZ DURUMLARINDA TASARIMSAL ÇÖZÜMLER ÜRETME

YÜKSEK LİSANS TEZİ
Mim. Mine Gökçe ÖZKAYNAK
(502031024)

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Diğer Jüri Üyeleri Yrd.Doç. Hüseyin KAHVECİOĞLU (İ.T.Ü.)
                   Doç. Dr. Bülent TANJU (Y.T.Ü.)

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May, 2007

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<tr>
<td>NGO</td>
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<tr>
<td>ICT</td>
<td>Information and Communication Technologies</td>
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<td>SHG</td>
<td>Self Help Groups</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Navigation Satellite System</td>
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<td>AOL</td>
<td>America Online</td>
</tr>
<tr>
<td>IBM</td>
<td>International Business Machines Corporation</td>
</tr>
<tr>
<td>AT&amp;T</td>
<td>American Telephone and Telegraph Company</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>PVO</td>
<td>Private Voluntary Organization</td>
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<td>INGO</td>
<td>International Non-governmental Organization</td>
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<tr>
<td>BINGO</td>
<td>Business-oriented International Non-governmental Organization</td>
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<td>RINGO</td>
<td>Religious International Non-governmental Organization</td>
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<td>ENGO</td>
<td>Environmental Non-governmental Organization</td>
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<td>GONO</td>
<td>Government-operated Non-governmental Organization</td>
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<td>QUANGO</td>
<td>Quasi-autonomous Non-governmental Organization</td>
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<tr>
<td>ISO</td>
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<td>UNHCR</td>
<td>United Nations High Commissioner for Refugees</td>
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<tr>
<td>ARI</td>
<td>Acute Respiratory Infection</td>
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<td>CHV</td>
<td>Community Health Volunteer</td>
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ÖZET


Bu tezde “tasarım”ın ve özellikle “tasarım yolu ile yapılan stratejik filantropi” nin geleneksel hayırseverlik anlayışı olan parasal yardımı oranla ne kadar anlamlı, kalıcı ve yenilikçi çözümler getirdiğinin üzerinde durulmuştur. Stratejik filantropinin sadece çözüm değil; aynı zamanda tasarımçılar, sivil toplum örgütleri, kamu yararına çalışan ortaklar, yerel ve evrensel katılımcılara gibi çeşitli grupların yetenek ve bilgilerini birleştiren bir hizmetler sistemi olduğunu altını çizmektedir.

Tezin ikinci bölümünde “tasarım ve sürdürülebilirlik” kavramları üzerinde durulmuştur. Bu bölümde genel olarak “surdürülebilirlik” kavramının tanımı yapıldıktan sonra bu bölüm sürdürülebilirlik ve tasarımın ilişkisi ve bu bağlamda ortaya çıkan birbirleriyle bağlantılı ve birbirlerini destekleyen; ekonomik gelişim, sosyal eşitlik ve çevre koruma kavramlarını bütünleştiren “sürdürülebilir gelişim” ve “surdürülebilir yenilik” kavramlarını incelenmektedir.
Tezin üçüncü bölümü “sürdürülebilir tasarım” ile “stratègejik filantropi”nin nasıl bir araya geldiğini açıklamakta ve filantropinin anlam ve önemini vurgulamaktadır. Filantropinin farklı tipleri olan “müşterek filantropi” ve “stratejik filantropi”yi tanıttırken, “tasarım” ve “filantropi”nin nasıl ve kimler tarafından bir araya getirildiğini açıklamaktadır.

Dördüncü bölümde ise ikinci ve üçüncü bölümlerde tartışılan kavramların örneklerle irdelenmesi amaçlanmaktadır. Bu amaçla insan hayatını tehlikeye atan kriz ve afetler ve bunların doğurduğu sonuçlar genel olarak tanımlandıktan sonra okuyucunun “tasarım” yolu ile yapılan sosyal yardımların bu tür kriz ve afet durumlarında ne kadar etkili ve önemli bir çözüm kaynağı olabileceği; son yıllarda gerçekleştirdilmiş örnek yardımlar projeleriyle irdelenmeye çalışılmıştır.

Sonuç olarak bu tezin amacı tasarım dünyasında; tasarımın ve özellikle sürdürülebilir tasarımın filantropi projelerindeki olumlu etkilerini tartışmaktır. Yenilikçi malzeme tasarımını ve inşa teknolojilerinin kullanımının çevreyi olumlu yönde etkilediği ve milyonlarca insanın hayatını değiştirdiği ve geliştirdiği bilinmektedir. Tasarım her sorun için bir çözüm oluşturmasına da, sosyal sorumluluk içeren tasarım doğal ve yapay felaketlerden kaynaklanan ölüm riski ve hayati tahribati azaltarak ekonomik ve sosyal başarı sağlanmaktadır. Bu tezin gayesi aynı zamanda tasarım ve mimariyi günümüzde dünya nüfusunun yüzde birinden daha az bir kesimine hitap eden bir lüks olmaktan çıkartıp, Türkiye ve dünyada gönüllü olarak yapılan tasarım ve mimariyi destekleyerek ve halk arasında kullanım yüzdesini çoğaltarak herkesin faydalanabileceği hayatı bir gereksinim haline getirmeyi amaçlamaktadır.
SUMMARY

The challenge of the twenty-first century is to increase people’s quality of life, across all regions, while containing the overall consumption of natural resources. The worlds’ population is projected to reach 8 billion people by 2025, increasing pressure on resources and the environment, and there will be an ever-widening gap between the high and low income people. As a result, we must learn how to satisfy the needs and wants of an expanding population in a sustainable way.

This thesis is mainly on how “design” especially “strategic philanthropy by design” can deliver meaningful, permanent and innovative solutions in contrast to traditional philanthropy in the form of plain financial donations. It supports that strategic philanthropy provides not only the solution but also the service-system, which enables to combine the capabilities and knowledge of the different groups like designers, local and global players, non-profit partners and NGOs to reach the perfect solution.

Following the introduction of the thesis, the second part of the thesis is on “design and sustainability”. It starts with the description of sustainability in general and develops the term by combining sustainability with design. Then it describes new ideas of progress, which have emerged from sustainable design, “the sustainable development and the sustainable innovation”. Both interdependent and mutually supportive and integrate economical growth, social equity and environmental protection.

The third part of the thesis introduces “sustainable design” with “strategic philanthropy”. After explaining the meaning and importance of term “philanthropy” and the different types of “philanthropy” like “corporate philanthropy” and “strategic philanthropy”, the part focuses on the perfect combination of “strategic philanthropy” with “sustainable design”. And it tries to explain how the two expressions come together, and where we as designers or individuals should/could stand in this combination.
Fallowing the third chapter, the forth chapter tries to express the definitions discussed in the second and the third chapter with examples. It begins with the general overview of humanitarian crises and its consequences, to make the readers realize when and how “strategic philanthropy by design” can be effective. These examples are chosen to emphasize the importance and the advantages of “strategic philanthropy by design”, which took place recently in the real world after serious humanitarian crises.

The conclusion of the thesis tries to create more awareness in the world of design. A stronger understanding of the impact of design and construction on the environment and the use of innovative materials and building technologies has the potential to improve millions of lives. While design is not a solution for every thing, thoughtful design has been shown to generate greater economic prosperity, to reduce the risk of death and destruction from natural and man-made disasters and to generate a sense of dignity and pride.
1. INTRODUCTION

1.1. The purpose and scope of the thesis

Within the first hours of an earthquake disaster razing a town to the ground or a tsunami destroying a village, major corporations and gatherings around the world are donating money and services to help the victims. However they can never be sure whether the money is going to be spent on the victim’s real needs or the services will be sufficient to provide a relief on the scene. A great amount of the money given or checks written are spent on sudden, not well considered, temporary solutions, which can maybe provide a relief for a short time of period, but will be a hindrance in the future.

This study describes how “design” especially “strategic philanthropy by design” can deliver meaningful, permanent and innovative solutions in contrast to traditional philanthropy in the form of plain financial donations. It supports that strategic philanthropy provides not only the solution but also the service-system, which enables to combine the capabilities and knowledge of the different groups like designers, local and global players, non-profit partners and NGOs to reach the perfect solution.

This study intends to create more awareness in the world of design with more social, cultural and environmental challenges everyday; hoping to affect the designers/architects in their future work. We as designers and architects need to continue to create and innovate constantly; and make sure that our envisioned solutions are considering the broader context and up-to-date issues.
1.2. The methodology of the thesis

This study was conducted using a research methodology. The knowledge required to feed the process was acquired by addressing:

- a critical review of the literature dealing with the theoretical conceptualizations of new emerging business and design practices promoting product-design systems and strategic philanthropy.
- desk research (using specialized magazines, the internet and the proceedings of international conferences) intended to discover empirical examples of sustainable design and strategic philanthropy.
- case studies and examples developed for a better understanding of the importance of sustainable design and strategic philanthropy.

This study tries to describe an effective path not to just solve the humanitarian problem, but also to look at the consequences; values and behaviors related to the problem and then develop solutions to improve people's quality of life. Starting from sustainability, linking sustainability with design and creating the excellent alternative “strategic philanthropy by design” instead of traditional charity projects in the form of financial donations, this study tries to describe the importance of design, through which members of the design community, socially conscious individuals, local governments, businesses and non-profit organizations can address social concerns and create smart solutions.

In a philanthropic event “Sense and Simplicity” of Philips Design personally involved in 2005 and participated in the workshop for creating solutions for the current educational, social and health problems of the world, which were selected before by Philips Design and several non-governmental organizations. 4 selected designers tried to create sustainable innovative solutions for “pneumonia diagnosis on the field” in one day. After the workshop the meeting concerning in the visualization and evaluation process of the results of the workshop were also attended. The research analysis and benchmarking for some specific results and health issues, which also contains several workshops with internal departments and non-governmental organizations were also participated.
Today for a growing number of designers, social issues and crises resonate beyond newspaper headlines. Concerns from unemployment to the AIDS epidemic are inspiring design philanthropists to roll up their sleeves and get to work; creating a new wave of humanitarian designers. The personal experience gained in Philips Design and also a detailed literature survey is helped to find related examples to emphasize the importance and effectiveness of “strategic philanthropy by design”, which took place recently after serious humanitarian crises.
2. DESIGN AND SUSTAINABILITY

While the world population is increasing the overall quantity of natural resources is decreasing. While the rich are becoming richer, the poor become poorer. The challenge of this century is to increase people’s quality of life across all regions while decreasing the overall consumption of natural resources.

It is estimated that the world’s population will almost double from the present 6.2 billion to around 8 to 10 billion by 2025 and, as a consequence, will increase both the demand on resources as well as the environmental impact resulting from human activities (United Nations, 2002). Since the earth is a closed ecosystem, it will not be possible to support such an exponentially increasing population within the traditional growth-oriented economic models. Therefore, a shift in the current economic and socio-cultural framework is required: a transition from a traditional material and product paradigm to an emerging knowledge and service paradigm; a transition in which the research into sustainability shifts from a technological and product-related innovation process to a broader techno-socio-cultural process (Andersen, 2000).

2.1. Definitions of Sustainability

The term sustainability has an extending meaning. Today it is used in different areas having a common sense, according to World Business Council for Sustainable Development the proper definition for sustainability is: “Sustainability implies a system of production able to assure a greater equity, quality of life and environmental well-being today and for the future generations.” (WBCSD, 1999).

As we specify sustainability like sustainable design, sustainable architecture or sustainable development the core of the meaning stays the same but the meaning in general acquire a different character:

Sustainable design stands for a holistic creative process, which “seeks to translate and embody global and regional socio-environmental concerns into products and
services at a local level. This necessarily demands a system view of design …” (Gertsakis, Lewis, 2001).

**Sustainable Architecture**, also known as "Green Architecture" or "Green Building," is an approach to architectural design that emphasizes the place of buildings within both local ecosystems and the global environment. Sustainable architecture seeks to minimize the negative environmental impact of buildings by enhancing efficiency and moderation in the use of materials, energy, and development space. Another basic definition for sustainable architecture is an architecture that meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Sustainable development**, which is considered the path to sustainability, is the simultaneous pursuit of economic prosperity, environmental quality and social equity.

The meaning of “sustainability” or “sustainable development” has changed over the years. In the past, the definition of “sustainable” has seen as virtually interchangeable with “green”, “ecological” or “environmentally friendly”. Today, the term has assumed more socio-economic connotations. It encompasses not only environmental issues, but also questions of social equity and economic viability.

2.2. Economic development and sustainability

Wealth is distributed very unevenly in our world. This is reflected in the use of energy. The western world, with 1 billion inhabitants, accounts for three-quarters of the global consumption, while the last quarter is distributed over the other 5 billion people. Due to the way in which mankind produces and uses energy we are damaging the environment as never before. In the coming decades the demand of energy will double; this growth will be generated almost exclusively in the developing countries, which not only have an increasing population but also need to catch up with the West and thus require more energy, economy and the environment-the global energy problem- is in fact all-embracing (Andersen, 2000).

This is why a drastic increase of the eco-efficiency of the current economic patterns needs to be addressed.
In the coming decades, companies will have to learn how to compete while decreasing the total production and consumption of physical goods, and advanced societies will have to learn how to compete while decreasing the total production and consumption of physical goods, and advanced societies will have to learn how to live while relying on only 10% of the environmental resources that are being used (per capita) today.

While primarily an environmental challenge, this is also a socio-cultural, economic and political challenge. Indeed, to be eco-efficient merely by optimizing the level of industrial production processes is, although a required change, insufficient to satisfy in a sustainable manner- the ‘needs’ and the ‘wants’ of 8 to 10 billion people in the years to come. Production and consumption systems should give more attention to values, elementary human needs, product and service functions and local conditions. Indeed, sustainability does not imply only an environmental status. Thanks to two worldwide summits on the subject (the Rio Summit in 1992 and the Johannesburg Summit in 2002), sustainability is now broadly recognized as a comprehensive concept that implies ‘a desire for greater equity, quality of life and environmental well being today and for future generations’ (United Nations, 2002). It is, ultimately, a scheme to improve our habitat.

In this scheme, companies will be seen increasingly to play a crucial role: they can become powerful engines of innovation able to provide solutions that enable people to live better while consuming less environmental resources. In other words, they can offer alternative solutions that are environmentally valuable as well as socially and economically attractive; solutions that will be successful if new and more sustainable combinations of products and services are recognized by users as offering a better approach to personal, social and environmental problems than the existing ones (Rocchi, 2005).

2.3. Sustainability in the business market

‘Hard’ environmental and socio-economic factors (for example, material consumption, pollution, population growth, diffusion of information and communication technologies (ICT), globalization and inequity) are changing the competitive landscape for corporations. Sustainability is becoming a new point of entry into the market for companies and brands that wish to be competitive in the
coming years. Many signs of this are emerging, and many forces are already pushing corporations to behave in an ethical and responsible manner.

A few enterprises have already started to embrace sustainability as a framework for driving growth, increasing shareholder value, heightening stakeholder satisfaction and protecting and enhancing corporate brand reputation. Accordingly, they have started to look for new approaches to innovation that go beyond ‘technology push’ or ‘market pull’ to address both.

Considering sustainability as a creative process of change, ‘sustainable enterprises’ are increasingly shifting from the application of traditional eco-efficient practices, mainly focused on reducing the risks of operating in the market, to the exploration of new patterns of production and consumption that can open up new market opportunities. They are shifting from an approach based on ‘linear thinking’, focused on the generation of continuous incremental improvements on an environmental and socio-economic level, to an approach based on ‘system thinking’, aimed at the generation of radical new solutions.

In doing so, they are often breaking down traditional value chains- in which, usually, a single company provides stand-alone products- and beginning to operate in partnerships for the co-creation of sustainable product-services mixes that offer benefits and functionalities rather than hardware.

“A form of new capitalism is emerging where environmental and social performance is embedded in the competitive strategy of the firm. Unlike their predecessors, ‘sustainable enterprises’ use business as an instrument of social development and environmental improvement- generating growth and profits in the process” (Hart, 2005).

Looking back at the origin of the environmental debate, in the 60s and 70s, concerns were centered on the finite nature of fossil fuel energy, mineral and other non-renewable resources. In the 80s and 90s, the debate shifted to other potentially limiting factors. Local and global environmental stress included persistent pollution in terms of an accumulation of waste and emissions in the environment, water contamination, climate change and the loss of bio-diversity. In this framework, a growing awareness that the earth is a closed eco-system, and the estimation that the world’s population will almost double from the present 6.2 billion to around 10
billion inhabitants in 2050, raised the question of the long-term viability of traditional growth-oriented industrial models. Slowly, it became apparent that becoming eco-efficient, by optimizing the industrial innovation provided necessary but insufficient conditions to guarantee a certain quality of life to an increasingly global population. In order to drastically reduce environmental degradation, raise social equity and guarantee economic stability, social innovation must be equally important. Therefore, more attention must be paid to new production and consumption patterns, addressing both the supply and demand sides of the economy.

In this perspective, sustainability has matured into a new idea of progress, one that integrates economic prosperity, social equity and environmental protection as both inter-dependent and mutually supportive elements of long-term development.

2.4. Eco-design and Sustainable Development

Traditional eco-design methods, which generate environmental incremental product’s improvements by technical changes, are necessary but not sufficient instruments to stimulate the creation of sustainable solutions. Companies exploring the path to develop sustainability-based business propositions require different instruments. They require design methods able to go beyond “eco-efficient” results towards environmental, and social-economic “effective” results.

The matter is not just to improve what already exist in the company’s product portfolio, but to re-think the business offer by considering:

- a deep understanding of people’s values and needs in their local living conditions
- the possibility of creating the most appropriate market propositions together with partners having complementary capabilities and expertise.

The overall goal is to develop a flexible and practical methodological design approach to envisioning innovative product-service systems that are able to figure out economic value for business, as well as environmental and social benefits for society (Rocchi, 2005).
The nature and the process of an environmentally conscious design culture are therefore changing. From eco-design, as a product-oriented design process aimed to minimize the environmental impact of the product along its material life-cycle, to design-for-sustainability: a solution-oriented design process aimed stimulating technological change and social innovation in the current system of production and consumption, in order to decrease the use of environmental resources and enhance quality of life.

Companies addressing the challenge of radical innovation and sustainability must also question the traditional eco-design practices developed and implemented since the early 1990s. Nowadays, these practices have produced necessary and important results, but such results are not sufficient for a society that- if it is to be sustainable – needs to learn how to live better while decreasing the use of environmental resources by a factor 10 or 20 of eco-efficiency within 50 years. Their limitations stay in the field of intervention, which is mainly the production side: eco-design, it is essence, is the integration of environmental criteria into the product development process. And, as such, it promotes incremental, continuous (but limited) product improvements by the use of different environmental strategies that modify physical assets to answer conventional consumption patterns. Design strategies applied within this framework can be roughly classified as follows (Manzini, 1995):

- **Design for reduced consumption of resources**: The aim is to reduce the quantity of energy or materials normally used, while selecting recyclable or renewable resources.

- **Design for product-life-time extension**: The aim is to consider the durability of the material, as well as the ease with which components can be replaced, in order to discourage too quick a replacement.

- **Design for recycling**: The aim is to use materials that can be recovered (recycled, regenerated, reutilized), avoiding those ones that are harmful to the environment.

- **Design for disassembling**: The aim is to enable, after disposal, an easy separation of components and materials to encourage rapid recycling and reutilization, or correct ecological disposal.
Two product examples are given, which fit the sustainable design strategies given above as design for reduced consumption of resources, product-life-time extension, recycling and disassembling.

**Example 1: Portable Radio by Philips**

Philips India is promoting an initiative that aims to increase access to information and entertainment in collaboration with Myrada, a Non Governmental Organization (NGO) that works to raise the living standards of rural population around Bangalore. In 2004, Philips and Innovation Center employees adopted 200 wind-up radios free of batteries and introduced them to villagers via Self-Help-Groups (SHGs) of women selected by the NGO Myrada. Considering that rural villages have power for only one or two hours a day, the introduction of this low-tech solution (a robust, human powered radio + a new service of distribution to reach isolated communities) offers a practical way to get news, music, crop process information, etc.

![Figure 2.1 Free-powered radio (Philips, 2004)](image)

The features of Free-powered radio of Philips are (Philips, 2004):
- It has an AM/FM radio with built-in high efficiency power generator, which provides the ultimate in functional portability.
- It require no batteries or external power source for operation, so it is ideal for use on camping trips and other situations where conventional power sources are not available.
- Turning the power generator for 1 minute of charging equals 30 minutes of listening, maximum charge of 1 hour equals 15 hours of continuous use.
- It provides a visible indication of optimum charge rate for the most efficient use of the built-in charging system and can also be operated using back up batteries.
• Free powered radio has a carrying strap, rugged design and a dial light for a comfortable use.

**Example 2: Juice Bags**

Juice Bags are bags using flexible ballistic nylon solar panels and not glass/crystal solid panels. From mobile phones to iPods, GPS units, portable games and AA/AAA battery chargers, Juice Bags charge almost any 12v electronic device using the power of the sun.

The features of the juice bags are:

- In direct sunlight, Juice Bags will charge as quickly as the mains.
- It can be used as a shoulder bag or as a backpack with hideaway rucksack straps. It has a large main space and padded laptop sleeve inside.
- It includes 12 Volt car charger socket.

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2.5. **Effectiveness and efficiency of a sustainable product**

Sustainability theories argue that eco-efficiency is a necessary, although not in itself completely sufficient, condition for the construction of a healthy society in the future. In particular, some theories assert that technology alone, even an environmentally friendly technology, cannot create sustainable value for 8 to 10
billion people in the years to come. And environmental product improvements using such eco-design criteria as energy and material saving, renewable resources, and so on can lose their benefits when the offer does not answer effectively to the customer’s needs, wants and specific requirements. Only those solutions able to tackle concrete needs and problems in the best possible way, over time, have a chance of staying longer in the market and contributing consistently to triple bottom line achievements. Therefore, before thinking of new business value propositions, it is vital to fully understand (Rocchi, 2005):

- hidden or explicit customers’ demands;
- local socio-cultural values and physical infrastructures where such a demand takes form and is manifested;
- understanding customers’ needs, aspirations and requirements.

### 2.6. Sustainable innovation

The successful economic exploitation of new ideas regarding ways of production, marketing, distribution, and above all use able to create personal meaning, social value, and environmental quality (Rocchi, 2005).

Sustainable Innovation is a pattern of social learning and problem solving that is, itself, sustainable, independent of the sustainability of its outcomes. The sustainability of outcomes, however, is dependent upon the sustainability of innovation.

Sustainable innovation, then, is a necessary condition for sustainability in social patterns of behavior and outcomes, such as how societies and organizations function, the ways they organize, the energy and resources they use, the wastes they produce, and the products and services they make.

To be sustainable, learning and innovation processes in societies and organizations must:

1. enhance their ability to adapt and to conduct their affairs in sustainable ways.
2. be internally authentic, meaning that they must be consistent with the predisposition manner in which people in societies and organizations self-organize around problem detection and resolution when left to their own devices.
According to the criteria above, contemporary forms of innovation (not to mention Innovation Management) in most societies and organizations are not sustainable. This prevents people from learning effectively, from recognizing and solving their problems, and from operating in sustainable ways. It is arguably why societies, businesses, and industries around the world are so unsustainable, and why effecting change or reform within them is so difficult.

### 2.7. The contribution of design in the sustainable development

Design can play a key role in the creation of a sustainable future. Design can integrate ecological requirements in the business creation process and go far beyond it. Acting as a bridge between people, technology and business, design can facilitate the systematic integration of economical, social and environmental parameters in the framework of new and more sustainable patterns of production, marketing, distribution and use.

Design can become a powerful engine for suitable innovation. It can help business in generating solutions able to stimulate new social behaviors (e.g. accessibility versus ownership, sharing versus individual use, up-grad ability versus substitution) whilst still supporting economic societal needs. In this way, it complies with the change that in the complex world is required from design culture; from eco-design to sustainable design.

Sustainable design goes beyond the proposition of stand-alone products, towards the promotion of a richer combination of products and services of a different nature (e.g. digital services, infrastructural services etc.), which can stimulate different patterns of consumption (Philips Design, 2005).

### 2.7.1. The mediation of design in creating solutions

Design, as an intrinsic part of the business value creation process, has to face the complexity of today’s markets directly. It has to question ‘what’ to shape, in terms of tangible and intangible aspects of a solution, and ‘how’ to do that, in terms of approaches, tools and kind of competencies involved.

Originally introduced to compensate for the absence of art in the forms of industrially produced products, design has long been “the mediator between the
natural, artificial and commercial worlds, concerning itself with the interdependencies of people, habitats, technologies and commerce, while simultaneously exploring its own meaning, purpose and future.” (Kyffin, 2003)

Nevertheless, in people’s minds, this discipline has been often related to two simplified common assumptions: it is a technical and engineering process that focuses on a product’s function; it is a styling exercise needed only to choose colors and materials that make a product more appealing to the eyes of customers. Time has changed, however. In the last decade, companies have realized that design can help them create competitive propositions, and people have come to appreciate that a well-designed solution can simplify their everyday activities. Its recognition in terms of business strategic asset has been now broadly accepted by many Corporate Chief Executive Officers, and its importance becomes clearer if the following few considerations are studied (Peters, 2003):

- Many current products present an ever-increasing number of functions and technologies. Digital products, in particular, are too often overloaded with technical specifications difficult to understand for end-users. Design, in this case, can become the key offering differentiator by virtue of its capacity to simplify and develop easy-to-use interfaces: that is, intuitive and distinguished solutions that adopt a familiar communication language directed at people who want to be ‘empowered’ and not ‘overpowered’ in the performance of their everyday activities.

- Aware of markets’ requirements and also sensitive to emerging social and cultural manifestations of people’s needs, design is able to translate technological potentialities in to commercial value propositions. By nature, it has the capacity to:
  - convert neutral technologies in to recognizable and attractive physical assets or services able to satisfy customer’s needs by speaking a language that the target audience can understand.
  - provide new social significance to, and derive personal and cultural meanings from, applications that could originally have been intended for different purposes.
Design has the power to make tangible and appealing the intangible by searching the aesthetic-linguistic of the immaterial and by finding ways of externalizing and communicating the functions, meanings and values of a service performance. This is an aspect that becomes crucial in the proposition of new product service systems, where the intangible components start to assume the same importance as the tangible elements during the customers, decision-making process before a purchase.

It is particularly with regard to this last consideration that the design paradigm must today respond to an economic model that supports the provision of converged and connected solutions, combining products, services and content to suit individual and collective needs in their specific socio-cultural contexts. Here the challenge is to find the right balance between material and immaterial aspects, global standard technologies and local specific resources-mobilized inside and outside a company- in order to create the facilitator of a value creation process able to integrate the different competencies that cross a company’s boundaries. Indeed, as stated more than once, competitive product-service systems can hardly be created by a single business department / unit or one company in isolation: they require knowledge sharing among different actors, as well as creativity and multidisciplinary skills from the beginning of the research. Within this framework, the design activity is no longer an isolated and independent process- steered by a visionary design director- for the generation of ideas, but rather a team effort nourished by researches, designers, engineers, marketers and strategists, all of whom collaborate within the creative sessions. The stakeholders are not only all involved but they are all also essential contributors to the creation process of the new solution.

2.7.2. Going from product design thinking to system design thinking

Aiming to create sustainable product-service systems requires moving from ‘product design thinking’ to ‘system design thinking’, from downstream ‘as usual’ eco-design practices to up stream activities able to integrate and translate a variety of inputs and information into a competitive and sustainable value propositions. Viewed from this perspective, the design paradigm changes; design cannot any longer be considered an activity reducible, for instance, to a ‘make-up’ exercise related to the choice of materials and colors, or to the ‘engineering’ phase of a solution. Nor can it be
considered an activity taking place in isolation from the business value creation process. Design becomes instead an integral part of the business innovation process, with a key role to play in envisioning effective answers for actual or future demands by using information about society, technology and specific customers’ requirements and expectations. Designers also become facilitators in a concept creation process involving different stakeholders. Seen from this viewpoint, design activities are increasingly characterized by the use of (Johnson, 2003):

-a holistic approach that combines different expertise and know-how at a very early stage of the creative process
-a multidisciplinary team, including product and interaction designers, researchers, sociocultural trends analysts, technology experts, marketing and business strategists
-a framework able to steer the creative process towards triple bottom line results through the use of design-related sustainability principles, criteria and tools
-an attitude to use and/or re-use currently available products and infrastructures ‘enhancing sustainable innovation by design’

Aware that the path towards a more sustainable society requires a ‘de-materialization’ of our production and consumption systems, new solutions can be researched within an emerging knowledge and service economy (Andersen, 2000). Indeed, in many cases, what customers really need today is not a physical ‘product’ but rather the ‘result’ that a tangible asset provides: an answer to a specific demand. In other words, what we are seeing is a growing realization that people do not value physical goods- or ownership of them- for their own sake. On the contrary, the goods seem merely a means to an end, to satisfying a customer’s needs (Leadbeater, 2001). From this perspective, corporations that were traditionally product-oriented have started to look for new offer-systems ‘…revolutionizing product design to reflect the new emphasis on services instead of thinking of products as fixed items with set features and a one-time sales value.’ (Rifkin, 2000)
3. SUSTAINABLE DESIGN AND STRATEGIC PHILANTHROPY

Within hours of the terrorist attack on New York and Washington, major corporations were donating money and services to help the victims. The services were directly connected to immediate needs: metal cutters and spreaders to aid the search for survivors, work boots, coffee, energy bars, and even aspirin. The sums donated were substantial—General Electric, Microsoft, Pfizer and Daimler Chrysler each pledged $10 million while AOL Time Warner, Cisco, DuPont and Merck pledged at least $5 million.

While the social initiatives, significant though they were, seemed appropriate and natural, they should not be viewed in isolation. Instead they are part of a broader movement toward more community involvement.

Increasingly, many leading U.S. and global firms are devoting significant time and resources in support of community involvement projects. These projects encompass a variety of forms and points of focus, ranging from corporate support for training and educating adults and youth in local communities, to nationwide programs helping welfare recipients get jobs, to globally focused efforts providing aid to developing countries.

Many of these new corporate social initiatives are taking on aspects more commonly associated with corporate strategy than community relation; they are grounded in the core of competencies of the firm and related to the firm’s long-term strategy. Moreover, many firms are becoming key providers of aid to civil society.

For instance, there are examples that include the transfer of knowledge and direct support for education. Intel employees provide science education to elementary and high school students in the Philippines and other developing countries. Combined with Intel-donated computers, the provision of tutors enables these children to understand and appreciate technology. These experiences allow the students to attain jobs and higher education that would not otherwise be possible. Similarly, IBM’s
Reinventing Education and Wired for Learning programs use company technology and the time of its researchers to help public schools develop solutions to problems ranging from assessing student progress consistently to improving communication among teachers, students, and parents.

The innovative programs of Intel and IBM have clear antecedents. Over the past half century, corporate community outreach has evolved into more complex forms with ever-broadening impact. Initially, the most common form of corporate philanthropy was relatively passive, after-profit direct cash donations. Over time, philanthropy became more directly related to firm strategy and marketing. In the 1980s, corporations developed and refined the notion of ‘strategic philanthropy’. Based on the idea that ‘competing on price and corporate citizenship is smarter than competing on price alone’, firms developed giving plans that were linked to the firm’s overall strategy. For example, book and newspaper publishers began promoting causes to increase literacy. To improve its image as an innovator and to attract upscale customers, AT&T developed a giving program in support of creative new artists. With American Express’s plan to support the restoration of the Statute of Liberty (donating one cent to the cause every time someone used their credit card), ‘cause-related marketing’ was born and is used today by many companies to associate their image with popular social endeavors.

Today, corporate philanthropy has evolved into a new form with the business-like description of ‘corporate community involvement’. A recent Ford Foundation Report describes corporate investment in community development as a new paradigm likely to ‘result in a healthier economy and positive business outcomes’. Rosabeth Moss Kanter has identified numerous companies in the vanguard of this new paradigm. Such firms ‘view community needs as opportunities to develop ideas and demonstrate business technologies, to find and serve new markets, and to solve long-standing business problems’. Structured volunteer programs for corporate employees are a wide spread example of this new phenomenon demonstrating the mutually beneficial nature of such programs. While the community benefits from the donation of the employee’s time and talent, the company benefits from more loyal employees, aid in recruiting and the teaching of teamwork skills to employees (Kanter 1999).
3.1. Corporate philanthropy

The word philanthropy is derived from the Greek language, meaning ‘active effort to promote human welfare’. Corporate philanthropy refers to the giving by a for-profit company directly to charitable organizations from the corporation or to individuals in need with the intention of improving the quality of life. The expense incurred through voluntary grant making is typically planned as part of the company's annual budgeting process. Corporate philanthropy is a key component of a corporation's broader social responsibility and includes cash gifts, product donations, and employee volunteerism. It serves as a major link between the corporation and the communities it serves. Today, corporations want to measure value and accomplishment, not based on corporate resources provided to improve society, but by actual outcomes achieved. Corporations view grants as strategic investments intended to achieve measurable charitable returns. (Porter, Kramer, 2002)

Benefits that corporate philanthropy provides

Corporate philanthropy has moved beyond grant making and check writing. It is now regarded as a sound business practice that is in the best interest of shareholders and stakeholders alike, and it is often included as a part of a company's mission and business practices. Corporate philanthropy can benefit companies in a number of ways:

Benefits to the business:

- Enhances corporate reputation;
- Improves relations with government, the community, and key stakeholder groups;
- Supports a company's strategic business goals;
- Enhances brand recognition;
- Attracts better employees and increases retention;
- Helps create healthier communities for business viability;
- Increases employee and customer loyalty;
- Strengthens relationships with customer, clients, and vendors;
- Provides human and capital resources to nonprofit organizations that may be helping employees and their families.
Benefits to stakeholders (employees, management team, shareholders, etc.):

- Builds employee morale and engagement;
- Develops future workforce contributing to a sustainable company;
- Provides employee/management training and skill building (e.g. project and time-management, leadership opportunities, teamwork activities, etc.);
- Increases understanding of co-workers and appreciation for diversity;
- Enlarges sense of community and social obligation;
- Encourages appreciation for contributions from all levels within the organization;
- Increases pride and responsibility.

Benefits to the community (local and global):

- Improves quality of life for community members;
- Provides human and capital resources to nonprofit organizations that may be helping employees and their families;
- Assists in alleviating community social issues;
- Enhances the impact of monetary contributions directed into the community;
- Creates healthier communities.

3.2. Strategic Philanthropy

The word “strategic philanthropy” means in the corporate context some connection between the charitable contribution and the company’s business. Often this connection is only semantic, enabling the company to rationalize its contributions in public reports and press releases.

In fact, most corporate giving programs have nothing to do with a company’s strategy. They are primarily aimed at generating goodwill and positive publicity and boosting employee morale.

Cause-related marketing, through which a company concentrates its giving on a single cause or admired organization, was one of the earliest practices cited as “strategic philanthropy” and it is a step above diffuse corporate contributions. At its most sophisticated, cause related marketing can improve the reputation of a company by linking its identity with the admired qualities of a chosen nonprofit partner or a
popular cause. Companies that sponsor the Olympics, for example, gain not only wide exposure but also an association with the pursuit of excellence. And by concentrating funding through a deliberate selection process, cause related marketing has the potential to create more impact than unfocused giving would provide.

However cause-related marketing falls far short of truly strategic philanthropy. Its emphasis remains on publicity rather than social impact. The desired benefit is enhanced goodwill, not improvement in a company’s ability to compete. True strategic giving, by contrast, addresses important social and economic goals simultaneously targeting areas of competitive context where the company and society both benefit because the firm brings unique assets and expertise (Eilinghoff, 2005).

3.3. A new concept beyond corporate and strategic philanthropy: Social Innovation

In the late 1990s, some companies are now seen moving beyond traditional corporate philanthropy and strategic philanthropy. A new concept has emerged, called “corporate social innovation” or just “social innovation”, in which companies now view the needs of their communities as opportunities rather than just problems. Rather than looking at the act of dispensing aid and assistance as a one-way process, with a company giving money with no expectation of a return or other benefit, social innovation projects produce benefits for all the involved parties. The keys to these programs are the results that are produced: profitable and sustainable change for all the involved parties.

Rosabeth Moss Kanter, describes the “social innovation” process in an article she wrote for the May/Jun 1999 Harvard Business Review titled “From spare change to real change” In the article, she describes how a “new paradigm for innovation is emerging”. As an outgrowth from corporate billions spent each year to continually innovate, or “identify opportunities for innovation-unsolved problems or unmet needs,” Kanter describes how several corporations have found the problems of the inner-city to be a powerful resource to stimulate business innovation(Kanter 1999).

Kanter suggests that “tackling social sector problems forces companies to stretch their capabilities to produce innovations that have business as well as community
payoffs. By focusing on social problems, like any other problem that the company may face, the company is able to use the situation as a type of research and development, to which it can apply the full range of its core competencies and resources (Kanter 1999).

3.4. Linking Philanthropy with Sustainable Design

The challenge of the twenty-first century is to increase people's quality of life, across all regions, while containing the overall consumption of natural resources. The world's population is projected to reach 8 billion people by 2025, increasing pressure on resources and the environment, and there will be an ever-widening gap between high income and low income people. As a result, we must learn how to satisfy the needs and wants of an expanding population in a sustainable way.

Sustainable design approaches this problem by paying attention to regional as well as local community needs. "We also need to make the solutions relevant by focusing on the social and cultural requirements of the people, as well as the various contexts of applications. This means developing sustainable solutions that extend the lifetime of a product, minimize the materials used in its construction and consume energy efficiently in a way that works for people locally. But global solutions will not always work for everyone; they must be customized to specific contexts to be environmentally friendly, socially effective, and economically valuable. Otherwise they'll never be truly sustainable (Philips Design 2004).

Design has a valuable role to play in sustainability because of its ability to overcome tough problems with measured creativity. Design explores the new and is the bridge between technology, society and business. It is sensitive to cultural conditions, social trends and the potential of new technology, and is able to translate this into valuable propositions for business by envisioning solutions grounded in new ways of production and consumption.

In contrast to traditional philanthropy in the form of financial donations, strategic philanthropy by design can deliver products and solutions based on real people's needs and their different manifestations; solutions that reduce the burden on the environment and are easy-to-access, simple to install, use, maintain and upgrade over time.
Examples of universal companies for linking Philanthropy with Sustainable Design

I-communities by Hewitt Packard

In the last couple of years, HP started to use ICT products and services to find ways of closing economic and social divides around the world. By matching its global-citizenship program with its business strategy, and by building public-private partnerships, HP aims to promote solutions able to create opportunities for long term sustainable growth in new emerging markets, while also raising the standard of living of people at the bottom of the economic pyramid. With the e-inclusion program, the company is piloting several projects to connect rural remote or sub-urban areas with no connectivity in Eastern and Central Europe, India, Africa, and Central America to the rest of the world. To do this, it is using common points of digital access and Internet kiosks called “i-community” centers. These centers provide on-line services that focus on health information and literacy programmes, information for farmers and local dealers, and assistance for people applying for government subsidies and micro-credits.

The business rationale underpinning these initiatives is that local communities pay for each use of the services, while the business venture established by HP keeps the ownership of equipment and handles the maintenance and upgrading of the “i-community” centers. In this way, even people with very low incomes will have the chance to be empowered at different levels. Provided with information, training and financial support, they can create and expand their own local business and become economically self-sustaining. Hp sees the “i-community” centers as instruments of local socio-economic development: by providing the benefits of networked-based solutions to all, regardless of location, age, language, income or level of education, these centers are able to revitalize marginalized or undeveloped areas and communities. At the same time, they are also considered potential powerful instruments for unlocking the markets of the future; as soon as the demand appears, HP will be ready to extend its offer.

The success of these projects and their related strategies could have tremendous positive effects in environmental terms, either in the way in which new solutions are used, or in the way new solutions are powered. It maximizes the service output per
minimum unit of material product and relieves the local economy and society from the environmental impact resulting from the logistical operations of moving people and goods.

**Wind-up Radios by Philips**

The Philips Innovation Campus in Bangalore, India, launched a pilot project in June 2004 to sell Philips products in villages. They used the services of Self Help Groups (SHGs) to create a new sales channel. The SHG concept is popular in developing countries. In India SHGs manage and lend their accumulated savings and externally leveraged funds to their members. Self help groups cover more than 8 million families, with women representing 90% of the membership.

Collaborating with Myrada, an NGO that works to raise the living standards of rural populations around Bangalore using the SHG concept, Philips has been working with self help groups to sell wind-up radios. Considering that rural villages have power for only one or two hours a day, these radios offer a practical way to get news, music, crop prices and more.

The SHG quickly sold 200 radios to villagers at a cost of about EUR 13 payable in six monthly installments. The required upfront capital, funded by Philips and Innovation Center employees, who ‘adopted a radio,’ was promptly repaid by the SHG. (Philips Design, 2004).

![Figure 3.1 Philips wind-up radios & the SHGs](Philips Design, 2004)
3.5. Developing sustainable design strategies

There are few things that need to be considered, when sustainable design ideas are exposed (Philips Design 2005):

- Designed around you: Solutions appropriate to the users’ socio cultural and physical conditions
- Easy to experience: Solutions accessible to people, regardless of their situation and technological knowledge
- Advanced: Solutions making the most appropriate use of technology and not necessarily new technologies, for a tangible improvement

Once a sustainable solution is framed, an appropriate design strategy needs to be developed; the table below (Table 3.1.) gives some tips on “how design strategies can be developed”.

**Table 3.1. Tips for developing design strategies**

<table>
<thead>
<tr>
<th>Outstanding points</th>
<th>Proposed design strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-life-lasting</td>
<td>How to design for longevity?</td>
</tr>
<tr>
<td>Balancing product-function service value and aesthetics</td>
<td>The aim is to increase the lifetime of product or same of its components via aesthetic &amp; functional up-grading, modularity and scalability, durability, recovery in its various forms.</td>
</tr>
<tr>
<td>Values first</td>
<td>How to design for dematerialization?</td>
</tr>
<tr>
<td>Creating solutions that communicate values beyond functions</td>
<td>The aim is to reduce the use of materials along the solution life cycle via miniaturization, integration and multi-functionality, virtualization, biodegradability.</td>
</tr>
<tr>
<td>Contextualization</td>
<td>How to design for cultural diversity?</td>
</tr>
<tr>
<td>Translating global ideas to local contexts</td>
<td>The aim is to add value to local resources, make use of appropriate technologies to the context of application, respect traditional habits, enhance individual and community empowerment.</td>
</tr>
<tr>
<td>Multiple energy</td>
<td>How to design for efficient and clean energy?</td>
</tr>
<tr>
<td>Using renewable energy sources</td>
<td>The aim is to reduce the amount of energy used while selecting renewable resources such as solar/wind power, human power, hydrogen power, hybrid systems.</td>
</tr>
<tr>
<td>Sharing</td>
<td>How to design for sharing?</td>
</tr>
<tr>
<td>Enabling the spirit of sharing</td>
<td>The aim is to stimulate social relations and save resources via solutions enhancing the common use of space, assets, time or knowledge.</td>
</tr>
</tbody>
</table>
3.6. Tool providers and main actors in strategic philanthropy by design

3.6.1. Tool Providers

In most of the philanthropic projects the tool providers are big, universal companies, who made strategic philanthropy a main part of their business strategy or in some cases big organizations like the United Nations or some universal NGOs can play the part of a tool provider.

3.6.2. Non-governmental organizations

A non-governmental organization (NGO) is an organization that is not part of a government and was not founded by states. NGOs are therefore typically independent of governments. Although the definition can technically include for-profit corporations, the term is generally restricted to social, cultural, legal, and environmental advocacy groups having goals that are primarily noncommercial. NGOs are usually non-profit organizations that gain at least a portion of their funding from private sources. Current usage of the term is generally associated with the United Nations and authentic NGOs are those that are so designated by the UN. Because the label "NGO" is considered too broad by some, as it might cover anything that is non-governmental, many NGOs now prefer the term private voluntary organization (PVO).

A 1995 UN report on global governance estimated that there are nearly 29,000 international NGOs. National numbers are even higher: The United States has an estimated 2 million NGOs, most of them formed in the past 30 years. Russia has 65,000 NGOs. Dozens are created daily. In Kenya alone, some 240 NGOs come into existence every year (United Nations, 2002).

History of NGOs

Though voluntary associations of citizens have existed throughout history, NGOs along the lines seen today, especially on the international level, have developed in the past two centuries. One of the first such organizations, the International Committee of the Red Cross, was founded in 1863.

The phrase non-governmental organization came into use with the establishment of the United Nations in 1945. The definition of international NGO (INGO) is first
NGOs exist for a variety of purposes, usually to further the political or social goals of their members. Examples include improving the state of the natural environment, encouraging the observance of human rights, improving the welfare of the disadvantaged, or representing a corporate agenda. However, there are a huge number of such organizations and their goals cover a broad range of political and philosophical positions. This can also easily be applied to private schools and athletic organizations.

Methods of NGOs

NGOs vary in their methods. Some act primarily as lobbyists, while others conduct programs and activities primarily. For instance, such an NGO as Oxfam, concerned with poverty alleviation, might provide needy people with the equipment and skills they need to find food and clean drinking water.

The global and local dimension

Philanthropy can be most effective when it takes into account the global and local aspects of a problem and when it matches its resources and abilities to existing needs.
3.6.3. Community design centers

Community design is a movement focused on the creation and management of environments for people. This process promotes change to the built environment from the neighborhood to regional scale, and aims to meet community needs through participatory decision-making at all levels.

Community design centers are dedicated to the provision of planning, design and development services in low- and moderate-income communities. These centers have proven to be a unique vehicle through which a crucial array of services in community development marketplace has been made available.

The role of the community designers

Practitioners of community design identify and solve social, economic, and political problems, as they relate to the built environment.

The advantage of community design

Community design helps to establish active partnerships with community residents and institutions, to advocate and develop strategies for improving quality of life. A commitment to diversity and listening to the different voices in a community are core values of community design.

Types of community design centers

There are over 40 community design centers in the U.S. alone, and affiliates all over the world. Community design centers include university-based centers, full service planning and design practices, NGO’s, and nonprofit organizations.

3.6.4. Architects

The socio-conscious role of an architect

A stronger understanding of the impact of design and construction on the environment, smarter siting and the use of innovative materials and building technologies has the potential to improve millions of lives. While architecture is not a solution for every thing, thoughtful design has been shown to generate greater economic prosperity, to reduce the risk of death and destruction from natural and man-made disasters and to generate a sense of dignity and pride. Unfortunately,
architects, engineers and other design professionals are needed most where they can least be afforded.

Within the next few years the world’s population will be predominantly urban for the first time in human history. According to the latest Global Report on Human settlements, 43 percent of the urban populations in developing regions live in slums. In the least developed countries, as many as 78 percent of people live in substandard living conditions. The statistics are staggering (Architecture for Humanity, 2006):

• The United Nations Human Settlements Programme estimates that 1 in 6 people live in slums. If no action is taken, the agency estimates that number could grow to 1 in 3 by the year 2020. (“The Challenge of Slums” The United Nations Human Settlements Programme, 2003)

• Simple household water treatment systems could meet basic needs for clean water. Yet more than one billion people still have no access to safe water and 2.6 billion people lack access to sanitation according to the 2005 UN Human Development Report.

• As of 2004 there were 25 million internally displaced persons in at least 49 countries, according to the UNHCR. As many as 70 to 80 percent of all internally displaced people are women and children, another 9.2 million refugees were displaced by war or conflict.

• The Red Cross estimates that in the past two decades on average more than 75,000 people have been killed annually by natural and manmade disasters and another 211 million people have been affected by disaster each year. What’s more the agency reports that the number of disasters and the number of people affected by disasters has risen dramatically in the last decade and is expected to continue to rise.

• Furthermore, most slums and settlements are located on sites not planned for housing exposing residents to industrial pollution, hazardous wastes and contributing to the environmental degradation of communities.

• Although the built environment impacts every aspect of our lives less than 5 percent of the world’s structures are built with the aid of a design professional.

Architecture as a social art should be positioned to address these needs. By pursuing a participatory or community design model, architecture could empower
communities to improve the built environment. This could bring funders together with designers to assist community groups in designing and building sustainable, innovative and appropriate structures.

**Benefits of architecture as a community design**

The practice of participatory planning and architecture is often called “community design.” Whether neighborhood-based or on a city-wide or regional level, it is the expression of a community’s vision for change. The process encourages community groups to set goals and work together to achieve them. The benefits of pursuing a community design approach are wide reaching. They include:

- Environmentally and culturally appropriate design.
- Universal housing opportunities for low-income residents, the homeless, renters and other marginalized groups that embrace and reflect the diversity of the community.
- A wide variety of ideas to deal with complex issues and express the collective wisdom of a community.
- The prioritization of issues by and with those most affected by the decision-making process.
- The removal of typical barriers to participation, such as formal hearings or inconvenient locations and times for meetings.
- The ability to convey ideas to expert and non-expert participants alike through the use of graphics and 3-D models and other visual presentations.
- Access to expert resources in order to formulate strong proposals to put forward to municipal authorities, funders and others.
- Social engagement and a sense of community through face-to-face interaction.
- The distribution of community resources in a more efficient manner.
- Opportunities for skills training and advancement.
- Greater local capacity for decision making and economic development.
- Communication between different sectors and interests in the community, including government organizations, religious organizations and individuals.

Organizations such as the Aga Khan Development Network, Architects Without Frontiers, Architecture + Development, Architectes de’l Urgence, the Buckminster Fuller Institute, Builders Without Borders, Building and Social Housing Foundation,
Association for Community Design, Architects/Designers/Planners for Social Responsibility, the Enterprise Foundation, Design Corps, Design Matters, Public Architecture, Shelter Associates, shelterproject, World Shelters, the Volunteer Architects Network, and many others have emerged, promising a more innovative and inclusive approach to socially conscious design.
4. CASE STUDIES/ EXAMPLES

4.1. Humanitarian Crises; General overview

A humanitarian crisis is an event or series of events which represents a critical threat to the health, safety, security or wellbeing of a community or other large group of people, usually over a wide area. **Sudden, catastrophic events** -such as earthquakes, hurricanes, flooding, or industrial incidents; **complex, continuing emergencies**—including armed conflicts and the many millions of people displaced as a result; **slow onset disasters**—such as widespread arsenic poisoning in the Ganges delta, the increasing prevalence of HIV infection and AIDS, or economic collapse and other major emergencies may all involve or lead to a humanitarian crisis.

As many as two billion people are at risk of or exposed to crisis conditions, and some 20 million people live in such conditions.

Recent humanitarian crises include; the 2004 Indian Ocean earthquake (Asian tsunami), the 2005 Kashmir earthquake, Hurricane Katrina in August 2005, Rwanda genocide, Sri Lankan civil war, Israeli-Palestinian conflict, Afghan Civil War, Darfur Conflict, and Iraq War.

Communities are exposed to crisis conditions when local and national systems are overwhelmed and are unable to meet their basic needs. This may be because of a sudden increase in demand (when food and water are in short supply) or because the institutions that support communities are weak (when government and local services collapse because of staff shortages or lack of funds) (Redmond, 2005).

4.2. Main types of humanitarian crises

**Sudden, catastrophic events**

**Natural disasters:** These are the sudden onset crises which appear to be caused by natural forces like floods and earthquakes. But they are not the biggest killers.
Technological disasters: The purest form of man-made disasters. The best-known of these are the nuclear meltdown at Chernobyl (Ukraine) of 1986 and the Bhopal (India) chemical poisoning of 1984.

Complex, continuing emergencies

Conflict: At any one time there are many conflicts raging, most receiving little media attention. While deaths from conflict are, comparatively speaking, few, the number of people affected is huge.

Among the people fleeing conflict, refugees are legally defined as those who go to another country, while internally displaced people are those who are forced to leave their homes but do not cross an internationally recognized border.

Slow onset disasters

Disease: This is the biggest killer. AIDS, diarrhea, tuberculosis and malaria are just the top four in a long list of lethal epidemics and communicable diseases which disproportionately impact the least developed countries.

Famine/drought: Food and water shortages may not be as deadly as disease but they affect huge swathes of the global population. Hunger is often caused by bad distribution or government mismanagement, rather than production shortages, so a lot of aid specialists argue that famine is rarely an entirely natural disaster.

The Table 4.1. shows, which disasters have the biggest impact around the world. The Table 4.2. shows the main types of natural disasters and the affected population. What the annual averages conceal is the severity of individual natural disasters. The Table 4.3. shows some of the worst disasters ever recorded.

Table 4.1. The impacts of different disasters (World Health Report, 2002)

<table>
<thead>
<tr>
<th>Disaster</th>
<th>Deaths per year</th>
<th>People affected per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease</td>
<td>7,400,000 for top 4 diseases</td>
<td></td>
</tr>
<tr>
<td>Famine/drought</td>
<td>475,000</td>
<td>4,000,000</td>
</tr>
<tr>
<td>Conflict</td>
<td>200,000</td>
<td>16,000,000 refugees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25,000,000 displaced</td>
</tr>
<tr>
<td>Natural disasters</td>
<td>30,000</td>
<td>174,000,000</td>
</tr>
<tr>
<td>Technological disasters</td>
<td>9,000</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 4.2. The main types of natural disasters (World Disasters Report, 2004)

<table>
<thead>
<tr>
<th>Type of hazard</th>
<th>Annual deaths 94-03</th>
<th>Population affected annually 94-03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooding</td>
<td>9350</td>
<td>140 million</td>
</tr>
<tr>
<td>Windstorms</td>
<td>6100</td>
<td>31 million</td>
</tr>
<tr>
<td>Earthquakes</td>
<td>7500</td>
<td>3.4 million</td>
</tr>
<tr>
<td>Extreme temperatures</td>
<td>1250</td>
<td>630,000</td>
</tr>
<tr>
<td>Avalanches/mudslides</td>
<td>950</td>
<td>280,000</td>
</tr>
<tr>
<td>Volcanic eruptions</td>
<td>50</td>
<td>98,000</td>
</tr>
</tbody>
</table>

Table 4.3. The severity of individual natural disasters (Reuters, 2005)

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Location</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1887</td>
<td>Flood</td>
<td>China, Huang He</td>
<td>1 million</td>
</tr>
<tr>
<td>1556</td>
<td>Quake</td>
<td>China, Shaansi</td>
<td>830,000</td>
</tr>
<tr>
<td>1737</td>
<td>Quake</td>
<td>India, Calcutta</td>
<td>300,000</td>
</tr>
<tr>
<td>1970</td>
<td>Cyclone</td>
<td>East Pakistan (Bangladesh)</td>
<td>300,000</td>
</tr>
<tr>
<td>1976</td>
<td>Quake</td>
<td>China, Tangshan</td>
<td>255,000</td>
</tr>
<tr>
<td>1138</td>
<td>Quake</td>
<td>Syria, Aleppo</td>
<td>230,000</td>
</tr>
<tr>
<td>2004</td>
<td>Tsunami</td>
<td>Indian Ocean</td>
<td>226,000</td>
</tr>
<tr>
<td>1920</td>
<td>Quake</td>
<td>China, Gansu</td>
<td>200,000</td>
</tr>
<tr>
<td>c893</td>
<td>Quake</td>
<td>Iran, Ardabil</td>
<td>150,000</td>
</tr>
<tr>
<td>1923</td>
<td>Quake</td>
<td>Japan, Kanto</td>
<td>143,000</td>
</tr>
<tr>
<td>1991</td>
<td>Cyclone</td>
<td>Bangladesh</td>
<td>138,000</td>
</tr>
<tr>
<td>1948</td>
<td>Quake</td>
<td>Turkmenistan</td>
<td>110,000</td>
</tr>
<tr>
<td>1908</td>
<td>Quake/Floods</td>
<td>Italy, Messina</td>
<td>100,000</td>
</tr>
<tr>
<td>1815</td>
<td>Eruption</td>
<td>Indonesia, Tambora volcano</td>
<td>92,000</td>
</tr>
<tr>
<td>1902</td>
<td>Eruption</td>
<td>Martinique, Mt. Pelee</td>
<td>35-40,000</td>
</tr>
<tr>
<td>1883</td>
<td>Eruption/Tsunami</td>
<td>Indonesia, Krakatoa</td>
<td>36,000</td>
</tr>
<tr>
<td>2003</td>
<td>Quake</td>
<td>Iran, Bam</td>
<td>31,000</td>
</tr>
</tbody>
</table>
4.3. Main issues after the disasters:

**Housing:**

The effects on social infrastructure, particularly housing, must be assessed at an early stage and permanent shelter established as soon as possible. “Temporary housing” is rarely replaced and should be avoided. The minimum floor area for a human to live in dignity is 3.5 m² per person. Clothing is often sent to stricken areas, but its transport is expensive and its storage can be difficult and costly. Financial support to larger agencies is usually the better way of addressing such needs.

**Community:**

*Medical needs*—The most important medical issues will be infectious diseases. Children, younger than 5 years, are most vulnerable. Foreign emergency medical aid is often required, but usually in the form of materials rather than people. World Health Organization emergency health kits can be dispatched quickly and are available to match populations of varying size. Although primary care needs are paramount, limited support to secondary care is sometimes appropriate.

*International search and rescue teams*—The publicity such teams attract can mask their limitations, and their uninvited arrival diverts precious resources. The survivors of a disaster can provide most rescue effort and that survival from entrapment declines rapidly after 24-36 hours.

**Resources:**

*Food*—The minimum maintenance level of food energy intake is accepted internationally as 2100 kcal (8.8 MJ) per person per day. When this falls below 1500 kcal (6.3 MJ) a day mortality rises rapidly in populations already stressed. Locally prepared food with local ingredients is best received and therefore of greatest use. Moreover, the purchase of local ingredients by local and international agencies supports the local economy and is sustainable. If food cannot be obtained locally then the provision of dried imported food still allows local preparation.

*Drinking water*—People die of thirst long before they starve. The greatest immediate threat is always lack of adequate drinking water. Because humans require so much water, its quality must be balanced against its quantity: an adequate quantity of reasonably safe water is preferable to a smaller quantity of pure water. For most
aspects of emergency relief, it is important to avoid “temporary” holding measures, which often fail to be replaced and become inadequate longer term measures. However, the urgency of supplying water is so great that temporary systems to meet immediate needs must often be installed, to be improved or replaced later.

Sanitation—After water, the greatest need is for sanitation. Once again, pragmatism dictates that the swift provision of a basic system will save more lives than the delayed provision of a perfect system. Ensure there is at least one latrine seat for every 20 people and that each dwelling is no more than one minute’s walk from a toilet. For every 500 people there must be at least one communal refuse pit measuring $2 \times 5 \times 2$ m.

4.4. Examples

After giving short information about the humanitarian crises and the main issues, some examples will be given in the field of design and architecture, which took place after serious humanitarian crises and provide sustainable solutions beyond financial sponsorships. The examples are chosen to emphasize the importance of creative design, its potential to improve lives and create solutions to communities in need in case of emergencies.

The first example is more of a design solution; a philanthropic action of Philips Design; the workshop “Design for sense and simplicity” which took place in 2005 in Philips Design Eindhoven, the Netherlands.

The second and the third examples are sustainable architectural solutions to housing problems, which occurred after several humanitarian crises like earthquakes and displacement.

4.5. Example1: Respiratory rate counter for diagnosing pneumonia

In September 2005 Philips Design creative group including the designers around the world came together to explore the topic in a workshop titled “Design for sense and simplicity.”

Held in Eindhoven, the workshop addressed sustainable development to support personal empowerment and local community development through partnership with non-governmental organizations (NGOs). Participants explored the Philips themes
for social investment – access to health and education – indicating directions for innovative social responsibility within the framework of sponsorship projects. By linking sustainable development with design concepts were generated to indicate directions and opportunities for new Philips philanthropic propositions.

In contrast to traditional philanthropy with social or environmental claims in the form of financial donations, the workshop focused on leveraging the internal capabilities, technology and know-how to envision innovative sustainable solutions – solutions that might assist NGOs with emergency relief, or in their continuous efforts to enhance personal empowerment and local community development. Exploration took place according to the Philips themes of social investments – access to healthcare and education - in order to outline directions for sponsorship projects able to provide societal benefits while increasing brand image and corporate reputation. (Table 4.4.)

Table 4.4. Workshop’s focus area: social investments

<table>
<thead>
<tr>
<th>Social Investments in a philanthropic action</th>
<th>Social Investments in the philanthropic action of Philips</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Philanthropy</strong> (Social Responsibility - Sponsorships)</td>
<td><strong>Philanthropy as a strategy</strong> (Social Responsibility – Sponsorship initiative)</td>
</tr>
<tr>
<td><strong>Meta-themes</strong></td>
<td><strong>Meta-themes</strong></td>
</tr>
<tr>
<td>Meta-themes Access to Healthcare and Education</td>
<td>Access to Healthcare and Education leveraging on company mission and strategy, company capabilities and current / new technologies</td>
</tr>
<tr>
<td><strong>Approach</strong></td>
<td><strong>Approach</strong></td>
</tr>
<tr>
<td>Approach Financial donations to Non-Governmental-Organizations (NGOs) and Universities</td>
<td>Provision of products / solutions to NGOs (e.g. Doctors without Borders, Save the Children, etc.) to relieve and/or empower people.</td>
</tr>
</tbody>
</table>

The workshop challenged the Philips Design community to move sustainability forward with creativity. Contacts from NGOs, such as “Doctors Without Borders” and “Save the Children”, helped to identify people and communities’ priority needs and issues to be tackled. Research for qualitative and quantitative data gathering focused on the regions where they operate: North and Latin America, Europe and Asia Pacific. Topics of attention were defined for advanced, emerging and developing socio-economic contexts, where distinction is made by standard of living, income and lifestyles, independently from geographical areas.
There were 275 designers from around the world were involved in the workshop, and have generated more than 70 concepts. In this chapter the concept “respiratory rate counter” generated for diagnosing pneumonia will be mentioned as an example for strategic philanthropy by design.

**The Brief of “Save The Children”: Respiratory Rate Timer**

**Overview**

Pneumonia is one of the leading causes of the nearly 11 million annual deaths in children under five. Since the late 1980s, the classification of pneumonia in children with signs of cough or difficult breathing, in settings without access to x-ray, has depended on a single sign – fast breathing. All health workers treating children for pneumonia in these settings, where the vast majority of deaths occur, require two items to effectively assess, classify, and treat children with pneumonia: appropriate antibiotics, and a timing device to allow them to accurately determine whether or not children have fast breathing.

Although watches and clocks, particularly those with second hands, are appropriate timing devices for taking respiratory rates, many health workers, particularly auxiliaries at first-level facilities and community health workers in resource-limited settings, lack appropriate watches and clocks. What is needed by health workers treating children for pneumonia in resource-constrained settings the world over, is a durable, inexpensive, audible one-minute timer, which does not require batteries, or with very long-lasting batteries suitable for hot and humid settings.

**Current Implementation Methods and Processes**

When a sick child appears with respiratory complaints, the trained community health volunteers (CHVs) follow the World Health Organization guidelines and counts respiratory rate in a minute to classify whether child is having pneumonia. The current practice of the CHV is to count the rate of respiration using an acute respiratory infection (ARI) timer that gives a beep sound after 30 seconds and three or more sounds after 60 seconds. She starts counting the breaths of the child immediately after turning the ARI Timer on and ends her counting with the 60 second’s beep. Based on her counting respiratory rate in this way, the CHV can then classify the disease status and suggests management for the sick child.
Children with a respiratory rate that is more than 50 breaths per minute, no chest retractions, and no signs of severe disease, are classified as pneumonia cases. Severe pneumonia is diagnosed when children have chest retractions or other signs of severe disease with respiratory rate more than 50 breaths per minute. Infants below two months with any signs of pneumonia are treated as severe cases.

**Gap Analysis**

In the late 1980s, the Nepal Acute Respiratory Infection Intervention in the northwestern mountains of Nepal had beeping battery-powered timers specifically made for this purpose. These audible timers, which allowed the community health workers to focus their attention on the child while counting the respiratory rate, were admired by WHO staff visiting the study site, and ultimately led to similar devices becoming available through UNICEF’s supply division. However, the batteries are not replaceable and to ensure maximum battery life, storage in a cool, dry place is required. In hot, humid countries, refrigerator storage is recommended. Unfortunately, refrigeration is often unavailable in many of the resource-poor communities in which we work.

Sand timers from several manufacturers have also been used for this purpose, but they have been found to be inaccurate.

In addition, the accuracy of the disease classification is subject to the skill of individual CHV. If by any chance, the CHV misses one or two breathing to count—as she counts by watching to the child’s chest—wrong result of respiratory rate may lead to misclassification and mismanagement of the disease, jeopardizing the child’s health—even survival (Philips Design, 2005).

**4.5.1. Solution descriptions**

**Low-tech solution description**

Durable, inexpensive, audible one-minute timers, that could be made easily available and become widely used by health workers who treat children with pneumonia. These timers would either not require batteries, or would have very long-lasting batteries suitable for hot and humid settings.
Rapid access is essential to prevent mortality from pneumonia in children. Lack of antibiotic treatments is an important reason for the high mortality rates from pneumonia in developing countries. In the intervention study in the United Republic of Tanzania, 46.6% of children who died from pneumonia in the control area and 46.6% in the intervention area had not received any antibiotic treatment before death; 50% of the deaths occurred within three days of the onset of symptoms.

Registered from WHO programme for the control of pneumonia.

Figure 4.1. Philips workshops’ newsletter about Pneumonia (Philips Design 2005)
**High tech solution description**

A simple strap/tape is to be fixed surrounding the chest wall of the sick child. Then with each of the breath – this device would digitally count the breath rate and would stop counting with a beep sound at the end of a minute. The digital display on the tape would show the respiratory rate. The tape has to be made of non-allergic, non-metal, soft material – to ensure no irritation of the site on chest wall.

**4.5.2. Solution Proposals**

5 designers come together for the workshop and tried in one day to create different solutions for the problem diagnosing pneumonia according to the brief of Save the Children. (Figure 4.3)

Throughout the created ideas in the workshop, two of them (one low-tech and one high-tech solution) are selected to be carried on developing according to their congruency to the brief of Save the Children. Further selections of the solutions will be done after the general features of the solutions are completed and discussed with different departments within Philips (like appliance technologies, domestic appliances etc.) and Save the Children.

**Interaction Storyboard**

The storyboard shows the daily life of a volunteer female health worker. (Figure 4.2) The solutions will help her (on the 3rd picture) by the phase of diagnosing pneumonia on the field. Both solutions (high-tech and low-tech) are designed to use on the field by volunteer health workers under their local conditions.
Figure 4.2 “Diagnosing pneumonia” interaction storyboard
(Philips Design, 2005)
Figure 4.3 “Diagnosing pneumonia” workshop sketch (Philips Design, 2005)
Low-tech Solution Proposal; Analog pull-down breathe counter

Durable, inexpensive, audible one-minute timer, that could be made easily available and become widely used by health workers who treat children with pneumonia to diagnose the disease. These timers would not require batteries, the energy is provided by a pull down mechanism. It is user- and patient-friendly, easy to use by local people and resistant to the weather conditions. (Figure 4.4)

![Analog pull-down breathe counter](Philips Design, 2005)

Figure 4.4 Analog pull-down breathe counter

High-tech Solution Proposal; Digital pneumonia diagnose belt

The diagnose belt is a simple strap/tape to be fixed surrounding the chest wall of the sick child. (Figure 4.5) Then with each of the breath – this device would digitally count the breath rate and would stop counting with a beep sound at the end of 60 seconds. The digital display on the tape would show the respiratory rate. The strap is made of non-allergic, non-metal, soft material – to ensure no irritation of the site on chest wall.
The pneumonia diagnosis kit proposal

This kit is also a proposal to give to the volunteer health worker with the breath counter to ease and improve her daily work on the field. (Figure 4.6)
Advantages and Disadvantages of High and Low Tech Solutions

Table 4.5. Advantages and disadvantages of high and low tech solutions

<table>
<thead>
<tr>
<th></th>
<th>Low-tech solution (pull-down breath counter)</th>
<th>High-tech solution (digital diagnose belt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>accuracy</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>resistance to weather conditions</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>longer life expectancy</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>saving time</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>lower price</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>user-friendliness for local people</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>user-friendly for the patient</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>self powered (solar, kinetic etc.)</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>memorizing data</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>measuring more than one body signal</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>using existent technology</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>easy to repair</td>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>

4.6. Example 2: Disaster Relief Project in Kaynaşlı, Turkey

The destructive Düzce- Kaynaşlı earthquake has occurred at 18:57 local time in Turkey on 12 November 1999. The magnitude of the earthquake was 7.2 and the earthquake has affected the areas between Düzce and Kaynaşlı in 30 seconds, which are located on western part of the North Anatolian Fault Zone. The surface was ruptured between Düzce and Kaynaşlı throughout and has a length of about 35 km. More than 800 persons were killed and more than 3000 people were injured by the effects of this event.

Number of death: 845
Number of injured: 4948
Number of collapsed building: 3395
Number of damaged buildings: 12939
The Brief of the Turkish Government

The Turkish Government has ordered 15,853 prefabricated houses. The Prime Minister’s office in Ankara has launched a programme in which 16 Turkish cities are requested to each plan for, build and install 100 prefabricated houses in Duzce. Some cities have already started their assessment of the situation. The prefabricated houses should be delivered as soon as possible, according the Governor of Bolu.

The following list of urgently needed materials and equipment was received from the Ministry of Foreign Affairs on 19 November:

- Winterized tents
- Containers (to be used as temporary shelters)
- Gasoline stoves
- Sleeping bags
- Blankets
- Raincoats and boots
According to the Center for International Disaster Information, on 19 and 20 of November, the Governor of Bolu exchange information on needs. It was agreed that the priority needs are winterized tents, sanitation and cash. The Governor of Bolu, who is coordinating relief activities in Duzce, Bolu and Kaynasli, has requested 25,000 winterized tents, 10,000 mattresses, 10,000 gas stoves, 5,000 blankets, 25,000 sleeping bags and winter clothes. He emphasized that the average size of Turkish families is 4 to 5 persons; therefore family tents for 5 persons are required. An overall plan on the location of tent cities will be available soon. Regarding sanitation, the Governor stressed that there was a need for portable toilets with septic tanks and not chemical toilets.

![Emergency shelters](http://www.kaynasli.gov.tr/deprem/index.html)

**Figure 4.8** Emergency shelters

The situation after the emergency call

After the emergency call lots of contemporary housing constructions been made, but most of the prefabric houses which have been constructed on the area were not recyclable or maintainable. This kind of housing has irretrievably destroyed the arable land on which it was built. It is providing shelter no better than winter tents in which earth quake victims are condemned to live for an indefinite period. This has resulted in the migration of skilled manpower from the region and unavailability of the knowledge and expertise required to improve conditions in the region, despite thousands of volunteers.
4.6.3 Solution Descriptions

Quickly constructible, transportable, compact, cheap, temporary shelters offering all necessary fittings and facilities stored in a minimum of space; suitable for manufacturing in advance, minimum impact on the environment and being dismantled for reuse.

4.6.4 Solution Proposals

As the United Nations was dealing with the temporary shelter problem, the Japanese architect Shigeru Ban, known for his sculptural arbors and galleries made from paper tubes, approaches the agency with a proposal to construct emergency shelter using the same material. Commissioned by the United Nations, Ban developed a frame of paper tubes and plastic connectors that could transform standard plastic sheeting into tents. With support from Vitra, Ban designed prototype shelters. Later the design was adapted for Turkey after the Kaynasli earthquake.

Figure 4.9 Axonometric of Paper Log House
(www.arch.nus.edu.sg/.../group5/ACaseStudy.html)
The foundation consists of donated beer crates loaded with sandbags. The walls are made from 106mm diameter, 4mm thick paper tubes, with tenting material for the roof. The 1.8m space between houses was used as a common area. For insulation, a waterproof sponge tape backed with adhesive is sandwiched between the paper tubes of the walls.

Shredded wastepaper was inserted inside the tubes along the walls and fiberglass in the ceiling, and also cardboard and plastic sheets were used for more insulation, depending the resident’s needs. The cost of materials for one 52 square meter unit is below $2000. The unit is easy to dismantle, and the materials easily disposed or recycled (Gümüş, Beraha, 2000).

Figure 4.10 Paper Log House by Shigeru Ban (www.arch.nus.edu.sg/.../group5/ACaseStudy.html)

Figure 4.11 The interiors of the Paper Log House (www.arch.nus.edu.sg/.../group5/ACaseStudy.html)
Fixed size is effective at reducing production costs and construction complexity. However, the shelter module cannot be readily adapted to different sized families and functions. Tubes are bound together with double sided tape and coated to provide water resistance.

![Figure 4.12 The Paper Log Houses in Kaynaşlı](http://jeffwerner.ca/daily_activities/)

The Paper Log House has a number of merits as temporary housing for the victims of disasters. Material cost is very low. The materials and parts can be procured on site. It can be easily built or dismantled in a short period of time even by people with no knowledge of building construction and is recyclable. For local governments, the greatest merit is that they do not have to have a stock of materials and parts for this type of temporary housing. That is, they can save costs for storage and transportation.

![Figure 4.13 Temporary housing in Kaynaşlı after the earthquake](http://www.kaynasli.gov.tr/deprem/index.html)
4.7. Example 3: Emergency shelters for refugees

In 1995 Khalili partnered with the United Nations to apply his research on tree-free building to provide emergency shelters for Iraqi refugees seeking safe harbor at the Baninajar camp in Iran.

4.7.1. Solution Description:

To design a shelter to meet the global need for housing includes millions refugees and displaced persons – victims of natural disasters and wars.

4.7.2. Solution Proposal:

After extensive research into vernacular earth building methods in Iran, followed by detailed prototyping, architect Nader Khalili has developed the sandbag or ‘super adobe’ system. The basic construction technique involves filling sandbags with earth and laying them in courses in a circular plan. The circular courses are corbelled near the top to form a dome. Barbed wire is laid between courses to prevent the sandbags from shifting and to provide earthquake resistance. Hence the materials of war – sandbags and barbed wire – are used for peaceful ends, integrating traditional earth architecture with contemporary global safety requirements.

The system employs the timeless forms of arches, domes and vaults to create single and double-curvature shell structures that are both strong and aesthetically pleasing. While these load-bearing or compression forms refer to the ancient mudbrick architecture of the Middle East, the use of barbed wire as a tensile element alludes to the portable tensile structures of nomadic cultures. The result is an extremely safe structure. The addition of barbed wire to the compression structures creates earthquake resistance; the aerodynamic form resists hurricanes; the use of sandbags aids flood resistance; and the earth itself provides insulation and fireproofing.

Several design prototypes of domes and vaults were built and tested. The system is particularly suitable for providing temporary shelter because it is cheap and allows buildings to be quickly erected by hand by the occupants themselves with a minimum of training. The shelters focus on the economic empowerment of people by participation in the creation of their own homes and communities.

Each shelter comprises one major domed space with some ancillary spaces for cooking and sanitary services. Incremental additions such as ovens and animal
shelters can also be made to provide a more permanent status and the technology can also be used for both buildings and infrastructure such as roads, kerbs, retaining walls and landscaping elements (Architecture for Humanity 2006).

Because the structures use local resources – on-site earth and human hands – they are entirely sustainable. Men and women, old and young, can build since the maximum weight lifted is an earth-filled can to pour into the bags. Barbed wire and sandbags are supplied locally, and the stabilizer is also usually locally sourced.

The system is also highly flexible: the scale of structures and arrangement of clusters can be varied and applied to different ecosystems to produce settlements that are suitable for different numbers of individuals or groups with differing social needs. Due to their strength, the shelters can also be made into permanent housing, transforming the outcome of natural disasters into new opportunities.
There are prototypes built so far:

- For Iraqi refugees at Baninajar Camp, Iran;
- For the orphans at the MEG Foundation, India;
- For the Mexican farm workers in U.S.A.

### 4.8. Advantages of a sustainable solution

After analyzing the examples there are some outstanding differences and advantages of a sustainable solution, then a sudden solution. To reach a sustainable solution, in the designing stage of the product, the materials, chemicals and energy intensity is reduced, on the other hand the existing resources, infrastructures and renewable energy are tried to be used. In the developing stage of the product the social features become important like supporting the spirit of sharing or valorizing the local environment and social resources. (Table 4.6.)
A sustainable solution is always advantageous than a sudden solution. A sustainable solution:

- makes substantial use of locally available materials and local means of transport;
- uses resources that are available in sufficient quantity to satisfy a general demand and not damage the environment;
- does not depend on equipment that is not easily available;
- uses skills that can be realistically developed in the community;
- can be afforded within the local socio-economic context;
- produces a durable result;
- responds to and resists the effects of the local climate;
- provides flexibility to adapt to local habits and needs;
- can be replicated by the local population.
5. CONCLUSION

Within the next few years the world’s population will reach 8 billion and will be predominantly urban for the first time in history. Accordingly to the latest Global Report on human settlements; 43 percent of the urban populations in developing countries live in slums. In the least developing countries the percentage of the people living in substandard conditions rises to 78. Today more than 1 billion people still have no access to clean and safe water and 3 billion lack access to sanitation; there are nearly 25 million internally displaced persons in at nearly 49 countries yearly and 10 million refugees displaced by war or conflict. And this numbers increase more by natural disasters affecting nearly 300 million people each year.

When resources and expertise are scarce, it is getting harder to satisfy the needs and wants of a growing population. Major corporations, gatherings and also developed countries around the world are donating money and services to provide relief. However are the provided solutions enough to meet the peoples’ real needs? Are they to the purpose? And for how long the relief is going to last? These are the questions, which I tried to find the answers in this study.

The designers know the fact, that sustainable, innovative and collaborative design can make a difference and it is important for us to show our commitment to social responsibilities. A designer’s strategy has to be seeking ways to better integrate economic progress, social development and environmental concerns to ensure a better quality of life for the future generations. In this case strategic philanthropy is unique in that its resources go to creating long-term solutions and provides the opportunity and mandate to explore new creative solutions. It creates opportunities for designers and architects around the world to help communities in need. With the guidance of strategic philanthropy we can prove the impact of design and its potential to improve lives. It provides a service-system, which makes it possible to bring funders together with designers to assist community groups in designing and building sustainable, innovative and appropriate solutions.
For example the resulting devastation of Katrina in the United States last year forced thousands to leave their homes and search for new shelters and were often set up in a temporary camps, which become permanent most of the time or other mobile, manufactured housing models. This was a "design solution" for overcoming the crisis at hand. However, the majority of the world's population does not have access to the same wealth of goods and infrastructure that made this relief solution possible in the United States. How can architects, designers, and aid workers continue to develop and improve on facilities and shelters that are erected in response to humanitarian needs and emergencies?

Through partnership with community development groups, community design centers, service-based organizations and design firms, workshops, educational forums, competitions and other activities, thoughtful design promote design solutions to global, social and humanitarian crises. In contrast to traditional philanthropy with social or environmental claims (financial donations), strategic philanthropy leverage the capability to demonstrate the commitment to social responsibility by providing solutions and services that improves people’s lives, in terms of health, education and convenience. As design is the tool to build the philanthropic movement, the solutions created at the end are much more innovative and sustainable, which are enabling the non-governmental organizations in their tasks of emergency relief, personal empowerment and local community development in a long term. Many of the socially conscious projects have been shown to generate a greater economic prosperity, to reduce risk of death and destruction from natural and man-made disasters and to generate a sense of dignity and pride.

These goals can only be achieved through intelligent design schemes and the same time can reserve the limited resources of the world we live in. Basically this include features like designing for reduced consumption of goals, designing for products with long life and designing for possible recycling of materials.
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APPENDIX

A. Some of the existing Community Design Programmes

A.1. The Aga Khan Development Network

The Aga Khan Development Network (AKDN) focuses on health, education, culture, rural development, institution-building and the promotion of economic development. It is dedicated to improving living conditions and opportunities for the poor, without regard to their faith, origin or gender.

The work of all AKDN agencies is heavily concentrated in South Asia, Central Asia, and Eastern Africa, the areas inhabited by a large percentage of the world's poorest people. Individual agencies have activities in other areas such as Western Africa, the Middle East, Europe and North America. The Aga Khan Trust for Culture conducts programmes directed to the entire Islamic World.

Projects of the Aga Khan Development Network:

Aga Khan Award for Architecture

The Aga Khan Award for Architecture, established in 1977 by His Highness the Aga Khan, recognizes examples of architectural excellence that encompass contemporary design, social housing, community improvement and development, restoration, re-use, and area conservation, as well as landscaping and environmental issues

Aga Khan Health Services

With community health programmes in large geographical areas in Central and South Asia, as well as East Africa, and more than 200 health facilities including nine hospitals, the Aga Khan Health Services (AKHS) is one of the most comprehensive private not-for-profit health care systems in the developing world. Building on the Ismaili Community's health care efforts in the first half of the 20th century, AKHS now provides primary health care and curative medical care in Afghanistan, India,
Kenya, Pakistan, and Tanzania, and provides technical assistance to government in health service delivery in Kenya, Syria and Tajikistan.

**Focus Humanitarian Assistance**

Focus Humanitarian Assistance is an international group of agencies established in Europe, North America and South Asia to complement the provision of emergency relief, principally in the developing world. It helps people in need reduce their dependence on humanitarian aid and facilitates their transition to sustainable self-reliant, long-term development. Focus Humanitarian Assistance is affiliated with the Aga Khan Development Network, a group of institutions working to improve opportunities and living conditions, for people of all faiths and origins, in specific regions of the developing world. Underlying the establishment of FOCUS by the Ismaili Muslim community is a history of successful initiatives to assist people struck by natural and man-made disasters in South and Central Asia, and Africa.

![Figure A.1 FOCUS Humanitarian Assistance](http://www.akdn.org/focus/slideshow.html)

**Architects Without Frontiers**

Architects Without Frontiers (AWF) is a not-for-profit organization based in Australia. The focus of AWF is to assist in the rebuilding of cities and communities that have been devastated by war, social conflict and natural disasters, irrespective of
race, religion, creed or political affiliation. Using Australian design expertise in the fields of architecture, urban design and landscape architecture AWF members currently provide unpaid design and construction services in Nepal, Bosnia-Herzegovina, East Timor, Australia and Afghanistan.

Architects Without Frontiers philosophy is to work with communities in the reconstruction of their physical and social infrastructure. As an integral part of a project AWF trains or educates members of a community in the services being provided; this is envisioned to help foster self-reliance of a community rather than their dependence on outside organizations.

**Projects of Architects Without Frontiers:**

The Sri Lanka Mobile Library and Dickwella School Rebuilding Project

In partnership with the City of Melbourne, AWF has provided 2 mobile libraries in the cities of Galle and Hambantota and built a three-story IT centre in the Dickwella School. A breakfast, book and computer program has also been established at the school.

Waste Pits along the Everest Trek in Pangkarma

AWF has been involved in construction of Waste Management facilities along the Mt Everest Trek in Nepal, helping local communities to manage the large amounts of undisposable rubbish that is generated in this environment.

![Figure A.2 The waste pits in Nepal](http://www.architectswithoutfrontiers.com.au/our-projects/projects/rubbish-pit-construction-nepal)
The Kabul Orphanage project

Working with Mahboba's Promise, AWF has helped with the design of an orphanage in Kabul for 200 orphans and foster mothers.

A.2. Design Corps

Design Corps' community service program is ten years old and has a proven record of success. It brings the skills of recent architecture and planning graduates who provide technical assistance to communities in need. They primarily serve small rural communities composed of low-income families who do not have access to the technical services needed to shape their physical needs. The design and planning expertise provided by these interns allows communities to shape their physical environment and create positive change. Design Corps' community service program offers technical assistance in planning, design, and grant writing.

Projects of Design Corps:

Community Design & Planning

These services are directed to rural communities, which are typically isolated from the rest of the society, allowing their poor working and living conditions go unnoticed. Services are administered in response to and with direct involvement from local community members.

- Community Planning (Newton Grove, NC)
- Job Training Center (Marion, AL)
- Self-Help Housing (Marion, AL)
- TUCCA Community Center (Taylor, AL)
- Self-Help Housing (Pennsylvania)
- Seaboard Community Design Studio (Seaboard, NC)

Migrant Housing Program

This program builds quality housing on farms where there is a need. The program is a true partnership that involves the farmers and the workers in the process of developing the design and making it affordable to both through the assistance of federal funds which are secured by Design Corps.

- Migrant Housing & 2004 Hurricane Response (Florida)
- Mushroom Worker Housing (Chester County, PA)
• Migrant Housing (Adams County, PA)
• Virginia Migrant Housing
• Migrant Farmworker Bath House Prototype / Program

Figure A.3 Mobile migrant worker housing by Design Corps
(http://www.inhabitat.com/2006/07/04/migrant-housing/)

A.3. Shelter Associates

Shelter Associates is a NGO working in Pune, India comprising Architects, Social workers, GIS Experts and Community Workers. We work with the urban poor, particularly women in informal settlements to facilitate, and provide technical support to, community-managed housing (slum rehabilitation) and infrastructure projects.

• Promote community participation in housing and infrastructure projects for the poor
• Promote and support community-led housing projects
• Promote and support community-managed settlement improvement projects
• Support the formation of savings and credit groups which work for poor women
• Create a database of poor settlements in Pune
A.4. Architecture for Humanity

Architecture for Humanity is a charitable organization founded to seek architectural and design solutions to humanitarian crises and to provide design services to communities in need.

Architects and designers are volunteering their time and expertise to create shelter for the people who need it most: survivors of natural disasters and war, and those too poor to afford adequate housing on their own.

The non-profit Architecture for Humanity (AFH) was founded in 1999 to apply architectural solutions to humanitarian problems. AFH recruits volunteers through competitions, workshops, educational forums, and partnerships with aid organizations.

Architects work with community groups and relief organizations to build lasting, people-friendly structures. Over the past five years, AFH has developed a network of more than 5,000 volunteer architects and designers who are active around the world.

AFH head and founder Cameron Sinclair insists on building more than mere utilitarian structures, because he believes that beauty and aesthetics inspire people. “Design like you give a damn,” is how Sinclair sums up his mission.

Projects of Architecture for Humanity:

The organization is currently providing design services and funding for reconstruction in India and Sri Lanka following the devastating tsunami that struck South-East Asia in December 2004 as well as on the Gulf Coast of the United States after Hurricane Katrina.
In addition to implementing design initiatives and competitions, Architecture for Humanity supports humanitarian-directed design through advocacy. They also have consulted with government bodies and relief organizations on a number of projects, including mine clearance programs and playground building in the Balkans; earthquake resistant construction techniques in Turkey and Iran; school building in Calcutta; refugee housing on the borders of Afghanistan and responding to Hurricane Ivan, Emily and Katrina.

Figure A.4 The SafeR House designed by Harvard Graduate School of Design students in Sri Lanka (http://projects.gsd.harvard.edu/tsunami/index2.htm)
BIOGRAPHY

Mine Gökçe Özkaynak was born in Pennsylvania, U.S.A. in 1980. After graduating from St. Georg Austrian College in Istanbul, she started her study in Istanbul Technical University Faculty of Architecture. She got her BArch in 2003, and started in the same year her MSc in Architectural Design Programme in Science and Technology Institute in I.T.U. In the year 2004 she was accepted from the Masters Programme in Strategic Design in the University of Politecnico di Milano. After graduating from the University of Politecnico di Milano, between the dates September 2005-February 2006 she worked as a Strategic Designer in Philips Design in Holland, Eindhoven.