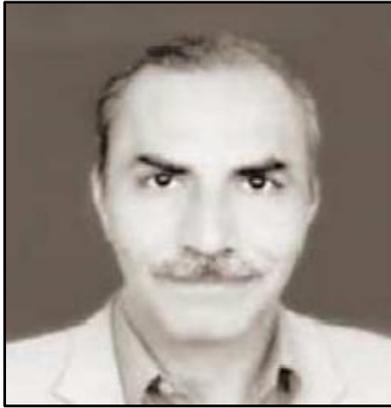


Design for All



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Letter from the Chairman's Desk

By Sunil Bhatia PhD

One day I was walking close to some construction site where I found a mason was evenly spreading fine cement powder for creating a very fine thin layer over newly constructed floor. I stopped for a while and watched him working and out of curiosity a question surfaced in my mind 'what for he was spreading powder of cement? Is it not one kind of dirt? As I crossed but my mind was still nagging over spreading dry cement for answer I noticed a roadside scooter mechanic was repairing the defective vehicle by rubbing one of the spare parts with sand paper for removal of dirt. In one place mason was using dirt as cement powder for achieving the objective and on other hand mechanic was repairing by removing dirt from the vehicle parts. Recently there was a news that one asteroid may strike the earth planet and impact would be such living beings would be vanish that time I realized the power of dirt that was huge in size but as compared to cosmic world its existence was merely dust and that has capability to wipe out life from our planet.

Dirt is generally undesired element but it appears of its own as outcome of some system but interestingly every moment of our lives witnesses surrounded by various systems so presence of dirt is everywhere and effects can be harmful or at times it proves beneficial for mankind too . Its presence may slow down the performance, consume more energy when compared with its absence, wear and tear is high and helps in shortening life of the

product. It of course needs thoughtful and careful handling otherwise it may create havoc. In simple words dirt presence should be avoided as something not required and if it is unavoidable then left with no option but make it useful by developing the mechanism for other systems .This particular idea gives the birth of concept of sustainability. Sugar industry produces molasses that is dirt out of cane sugar but it is in our knowledge that makes it further use for producing liquor. Crude oil processing leaves residual as dirt at every stage and extracts are useful till last stage of charcoal for constructing roads. Similarly our ancestors were aware about the use of banana plant and made every part that was dirt apart from the fruit onward. Earth worms release excretion that is dirt but useful for fertility of the soil. Sometime presence of dirt helps in achieving desired objectives as we introduce sand in abrasive paper. We design the products for avoiding its presence, sometime during the process of transformation and occasionally focus on end result. Carbon dioxide is considered dirt but it has all the benefits to sustain life. It is harmful when it emits from the automobile as dirt mixed with harmful gases. Similarly noise is disturbing our lives but it is used for keeping rodents and even birds away by designing products because insects and birds cannot bear that irritating sound and peoples do not get affected by that noise that helps in keeping area free from insects. Dirt is noticed in nails of the people that prove harmful because unknown microbes attack our digestive system and spoil its proper functioning and its removal checks. That forced our ancestors to design the product for cutting nails. "Dirt is a mysterious organic materials, microbes – microscopic living organisms that themselves consume and excrete – and it has lots of other essential stuff these are shaping for benefits as well as harm for human life.

My question of spreading cement by meson was nagging in my mind and I realized my answer was somewhere close to sand paper and it struck to me that it is an ancient practice for deliberate use of dirt for fulfilling our desired objectives. Discovery of fire and establishment of agriculture gave us idea of using dry flour over the dough for easy use of rolling pin for making flat bread and better manoeuvring after placing over hot pan for even cooking. When our ancestors learnt the art of storing the potable water in earthen or metal pot they wished getting cold water for drink and for their rescue again dirt came and potter added small quantity of sand in soil at the time of making earthen pot helped in making it porous that creates evaporation for making stored cold water. When my cycle's rubber tube punctured that time repairman rub the area of tube where leakage was by using sand paper before applying glue for closing for it was an action of removing dirt and presence of it would not allow for proper fixing of puncture . That action was nothing but removed of the dirt at the surface for proper grip of glue. Dirt has therefore played significant role in march of civilization and our major life time spend in either removing the dirt from desired areas or introduction of dirt in systematic order for fulfilling our objectives.

Action of avoidance of dirt or design for application of dirt helps in enhancing our intelligence as well creativity. Dirt works as carrier of germs and can damage our health and sometime we use dirt in vaccination that carries desired living cells of diseases for generating anti body cells in our bodies. Various kinds of dirt are existing and we are generally surrounded by them that helps us in devising new way for fighting urge for survival. Whenever we encounter foul smell as dirt that might enter through our nose or mouth and harm, we involuntarily cover our faces with both of

our hands for prevention. In modern times cities inhabitants are using face mask for protecting from dirt of harmful environmental effects. We encounter dry dirt that is mostly present in our living or working places or spread over items placed in rooms over time if dusting is ignored and for management for dirt we have designed broom, duster and vacuum cleaner. There is wet dirt that can be oil bound or because of presence of chemical particles or water borne. When we dry the fruits under sun and wished to enhance shelf life we allow evaporating the water treated as dirt that might attract bacteria attack and spoil the fruits. Oil bound dirt needs special treatment for removal by applying chemicals or some places applying heat. When silencer of vehicle fail to perform and we find dirt as unburnt carbon is blocking for exit of smoke, that time we heat for burning the struck carbon. Similar experience is when burner of LPG stove number of holes are blocked with dirt we heat for burning that dirt. Different metals are designed by adding some quantity of another metal as dirt and results as brass at times. A catalyst is nothing but dirt included for accelerating the chemical process or say for retarding the same. If soap stays for longer time in water turns pulpy difficult to use compared to dry and to protect from water as dirt we design soap case where water does not stay and prevent spoiling the cake of soap. Even in cooking, at the time of frying we treat the fried items as dirt in hot oil and to take out we have designed utensils like ladle , skimmers and strainers . Even dirt should not block the pipe lines or sewerage we have designed various type of mesh strainers . Dirt spoils and these turn to unhygienic, it needs cleaning. Sometime we use chemical detergent or dry cleaning with treatment of special chemicals for removal of dirt. Presence of dirt in air lower the air quality index and pollution surfaced if its presence in air for long duration. When dirt present for short time it is called dust storm .

There is dirt that is visible and we experience in light where emission may be treated as dirt that comes out of the system and in process releases light. Similarly flames of the fire leave the system and it may be dirt of the system but people understood and develop various applications with heat as well its inbuilt character of light . Another is invisible we notice in magnet that has dirt in the form of magnetic force capable of attraction with opposite or repel with like forces and people use this property of dirt for making lives better.

Selection of tiles for flooring is based on footfalls that is directly associated with dirt. Heavy footfalls means chances of dirt strike more on the surface of tiles that is brought by person with dirt stuck shoe soles and chance of high abrasion. Where ever possibility of heavy traffic and to keep clean and dirt free we prefer to use natural stones or stainless steel as we do in handle bar or sitting in metro rail or use powder coated products . Face and body lotion are designed for removing dirt from the skin pores. Copper tongue scrapper helps in clearing dirt from the tongue. To keep mosquitoes away from us we have designed repellent where chemical releases in controlled manner as dirt in air.

Why did our ancestors wish to clear the dirt? I think it was creating hurdle and required extra effort and energy compared to items with no dirt. Removal of skin from meat of hunted animals was the first attempt of clearing as dirt that was difficult to digest. Water was essential for living and presence of dirt might harm and that necessity compelled for clearing the dirt by using storming concept for allowing the sediments settled or use design of filter or later on adds alums or chemical as knowledge progressed. In modern times we are using filters along with ultra violet light or reverse osmosis for clearing even minute dirt from

the water for making potable. At the time of absence of weapons they were defending or attacking the enemies by throwing the dust as dirt for making them temporarily blind it gives sufficient time for desired action. Later they designed arrow for penetrating skin for allowing the blood should ooze out and concept of piercing was extension of dirt where it was with sharp edge of the head. Later for quick result they added poison as dirt at the surface of the head of the arrow. As our knowledge progressed and discovery of fire with acquiring knowledge of metal helped in designing sword that was in the larger extension of dirt to strike and used shield for protection. The concept of fire arms for striking bullet was extension of arrow where dirt is wrapped under metal case for destruction of objects. Ancient person realized that dirt has capability to extinguish fire and they used by throwing soil or sand and later used water as dirt. In modern time fire person still uses water force for controlling the fire and in specific occasion gas or chemicals as dirt for extinguishing fire. Police even uses water cannon or water jet or plastic pallets as dirt for controlling unruly crowd. In our time we have goggles which prevent dust as dirt strike the eyes and welding person uses high volt light that can damage the sight designed special glass for preventing light as dirt damage the eyes. Even eye experienced itching as dirt strikes and voluntarily tears roll down for clearing it. They realized that green place has less dirt and it protect the air quality.

Flowers pollination where pollen is transferred to reproductive organs for fertilization and allowing its pollen as dirt dispersed and transported by wind or by dirtying the body of insects for mingling with other flowers. Most people use the words soil and dirt interchangeably and it is more than just that dark mess that accumulates underneath nails or comes along with shoes track in

on the floor after a rain as we enter house. Iron ore has typical dirt that has strength where other metal like gold does not have that . Coal may be dirt but helps in fire. Sunlight may be dirt releases by sun and acting like a catalyst, good dirt allows plants to capture sunlight and convert solar , played a key role in the evolution of life by providing highly reactive surfaces .

Modern technological revolution has made use of dirt and that helps in designing the stage between metal and non metal that is semiconductor with the help of silicon by adding dirt of Boron and phosphorus for creating electron and hole. Big Bang theory supports that planets are nothing but scattered dirt from one ball and that process is still working and breaking of planet form asteroids and threatening our existence that may collide with earth and has capability to wipe out entire living beings. People are devising new technologies by providing power of intelligence to dirt for designing robots and stage will come when it will replace the humans through artificial intelligence. Dirt is threatening humans from the day of existence but still we keep experimenting with dirt. No one can deny the role of dirt in progress of modern life; ignorance may prove dangerous and design beneficial relationship! Take care of the dirt and it takes care of mankind.

It is sad that holocaust was possible in war where mass killing happened because of presence of dirt as mustard gas in closed chamber for allowing people die with suffocation. Extension of bullet was bomb that was nothing but high capacity of dirt capable and destroys the cities with its energy and effects. That dirt has left mark of destruction not only to the present generation of that time but consequences were witnessed in future generations by mutation of genes.

With regards

Dr. Sunil Bhatia

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Forthcoming Issues

December 2017 Vol-12 No-12

Manja Unger---Büttner, Technical University Dresden, Faculty of Arts, Humanities and Social Science, Associate at the Professorship for Philosophy of Technology. She is an Industrial designer & philosopher of technology, literary and cultural scientist. She is a lecturer for ethics and philosophy of design and technology for designers, engineers, design--students and students of philosophy in Dresden and Berlin.



January 2018 Vol-13 No-1

North Carolina State University Department of Industrial Design Prof Sharon Joines will be the Guest Editor for our inaugural issue. Sharon Joines, PhD Professor of Industrial Design, Director of the Research in Ergonomics & Design Laboratory, Director of Industrial Design Graduate Programs.



February 2018 Vol-13 No-2

Colleen Kelly Starkloff is the Founder and Co-Director of the Starkloff Disability Institute in St. Louis. She is also the Founder of the Universal Design Summit series of conferences focused on home and community design. She remains the Conference Organizer of these summits. These conferences, 5 of them already, have brought



best practices in Universal Design together into one national/international conference since 2002. Ms. Starkloff did not want an “academic” focus on Universal Design for these conferences. Rather a focus on what works, what doesn’t, what’s the difference between Universal Design and Accessible Design and how the use of universal features in home and community design best integrates all people in communities and improves housing choice for all.

March 2018 Vol-13 No-3

Christian Guellerin has been the Executive Director of L’École de design Nantes Atlantique since 1997, an institution of higher education in design, which has campuses in Nantes (France), Shanghai (China), São Paulo (Brazil) and (Dehli) India. The institution has developed significantly, striving towards the professionalization of design studies and establishing relationships with businesses.



He was President of Cumulus, the International Association of Universities and Colleges of Art, Design & Media from 2007 and

2013 (250 members from 46 countries). He is also President of the France Design Education and Honorary Consul of the Republic of Estonia for the West of France since 2009.

He has regularly taught courses and given academic lectures on design and innovation.

He was a consultant for various institutions and worked on a frequent basis as an expert to set up design centers.

In 2015 and 2016, he was elected by L'Usine Nouvelle magazine in the "50 people who made innovation in France".

Chevalier de l'Ordre National du Merite since 2016.

April 2018 Vol-13 No-4

Dr. Lee Christopher is the Director of eLearning at Arapahoe Community College and also an ACC instructor. Lee has a BA in Philosophy, an M.Ed, and a M.F.A in Writing and Poetics. Dr. Lee is currently in the dissertation phase pursuing a Doctorate in Education from Capella University.



Her dissertation title is Universal Design for Learning: Implementation and Challenges of Community Colleges. Lee's publications include: "Digital Storytelling" in *Handbook of Research on Transformative Online Education and Liberation: Models for Social Equality*, Kurubacak and Yuzer, Eds., IGI Global, 2011, "Hype versus Reality on Campus: Why eLearning Isn't Likely to Replace a Professor Any Time Soon" with Brent Wilson, *The E-Learning Handbook*, Carliner and Shank, eds. Pfeiffer, 2008, and "What video games have to teach us about learning and literacy," located at <http://edrev.asu.edu/reviews/rev591.htm>, Lee is on the Colorado Community College System Task Force for Web-IT Accessibility. She has a passion for Universal Design for Learning.

May2018 Vol-13 No-5

Dr. Antika Sawadsri" ,She is an Assistant Professor and the Director of Inclusive Designed Environment and Research (IDEaR Unit) at School of Architecture, KMITL, Thailand. As both professional and academic interested in Inclusive City, her contribution ranges from home modification to urban public space development for users with all life's spectrum."



June 2018 Vol-13 No-6 (150th milestone issue)

Prof Ricardo Gomes will be the Guest Editor for our 150th special issue. Professor Ricardo Gomes has been a faculty member in the School of Design (formerly the Design and Industry (DAI) Department) at San Francisco State University for nearly 25 years. He was the Chair of the DAI Department from 2002-



2012. Prof. Gomes coordinates the Design Center for Global Needs and the Shapira Design Archive Project in the School of Design (DES). This non-profit international research and development center is dedicated to promoting responsive design solutions to local, regional and global issues such as: inclusive/universal design, health care, the aging, community development, social innovation and sustainability of the built environment.

Prof. Gomes is on the Board of Directors of the Institute for Human Centered Design in Boston. He is also a member of the Industrial Designers Society of America; and Epsilon Pi Tau International Honor Society for Technology.

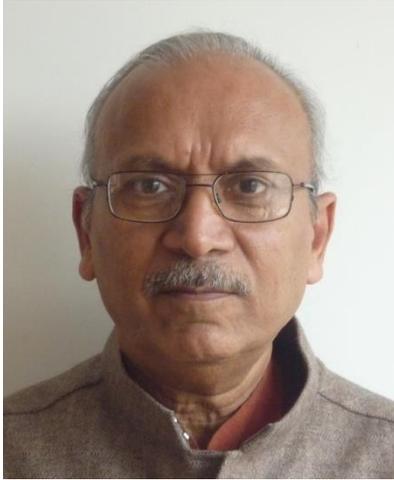
Prof. Gomes received his MFA in Industrial Design for Low-Income Economies from the University of California, Los Angeles (*Design of a Container System for Mobile Health Care Delivery in East Africa*).

July 2018 Vol-13 No-7

Professor Maria Luisa Rossi, Chair of MFA Integrated Design Program at CCS, has agreed to be the guest editor for the issue. Students in her program as well as other programs at CCS have developed a number of socially responsible design projects.



She is the Chair and Professor of MFA Integrated Design at the College for Creative Studies in Detroit where she brings an entrepreneurial culture, globally-focused and cultural empathetic approaches to the growing of the next generation of designers. Her works focus on the seamless capacity to deal with tangible and intangible aspects of user experiences, preparing “facilitators” capable to address global-glocal grand challenges. Strongly centered on the design process, the program prepare students for the practice of designing omni-channel journeys [products-strategy-services] focused to the quality of the users experience with a special eye to socially relevant solutions. As an undergraduate in Florence, Italy, her wearable computer project work was featured in the prestigious Domus magazine, earning her a scholarship to attend the premiere master’s program in industrial design at the Domus Academy in Milan where she got her Master of Industrial Design.



Vinod Gupta

Alumnus of School of Planning and Architecture, New Delhi and Indian Institute of Technology, Delhi, Vinod Gupta has been a teacher in architecture and industrial design at SPA, Delhi. He is partner in Space Design Consultants and Director of Opus Indigo Designs Pvt.Ltd. He is a fellow of the Indian Institute of Architects and member of IIID, founder member and president of Gubbi Alliance for Sustainable Habitat and founder member of GRIHA Council. He continues to be associated with SPA Delhi in several different capacities. Vinod Gupta's contribution has been in environment friendly architecture and interior design, furniture design, sustainable planning and design, intelligent/smart buildings. He teaches at the Department of Industrial Design at School of Planning & Architecture, New Delhi and his current work focuses on sustainable design for educational campuses and ergonomics of furniture for work.

Product Design for a Sustainable Living

Vinod Gupta

Sustainable development is what the world is talking about today and as somebody who has been involved in sustainable building movement for several decades, one can say that it is a poorly understood and much misused term. Brundtland Commission of United Nations (1987) defined sustainable development as that which protects the rights of future generations from excesses by the present generation. However, this definition does not talk about protecting the rights of one section of the present generation (the have nots) from excesses by another section (the haves). Publications on green buildings talk about buildings being responsible for 40% the world's energy consumption and half the world's greenhouse gas emissions. We also hear that cities are responsible for most carbon emissions and pollution. One needs to understand that it is not buildings or cities, but human activities associated with buildings and cities that are responsible for energy consumption and greenhouse gas emissions (Vinod Gupta, 2008). After all, there are abandoned buildings and cities that cause zero emissions. It is appropriate to state that if human beings had a sustainable lifestyle, cities and buildings would not be found wanting.

A sustainable lifestyle is one that does not consume more natural resources than the earth is able to replenish through *equitably distributed* natural processes and that does not cause more pollution than what natural processes can dissipate equitably. This means that each one of us must not use up in a year more resources than nature can replace in the same time. The sustainable lifestyle should be possible for '*ALL people to have for ALL times to come*', the word ALL being the important one. It

includes all sections of population within a society and across the globe and it includes present and future generations as well.

Green building certification systems that have been around for many years, are mainly concerned with the efficiency of use of resources and measures consumption per unit of built space. These systems have a check list that calls for using less material, less energy and water, using recyclable materials and producing less pollution per square metre of built space. No one ever questions the need for the building or how much built space ought to be built for a person. Building is an act against nature and there is no such thing as a sustainable building. Even green buildings are not sustainable. If green buildings are about saving on resource consumption, greatest savings result not from making green buildings but from building less, and building only what must be built. In many European countries, the focus is now on re-using existing space and not building more.

The idea of a sustainable lifestyle is relative though it does not have to be like that. People look at their present level of consumption and believe that a reduction of 10-20% in resource consumption would make them sustainable. Even the United Nations Environment Programme puts out such figures. Green building certification systems like LEED and GRIHA also work like that with a 30% reduction in resource consumption being the target. Actually all that such savings mean is that there is a slight reduction in unsustainability of the particular lifestyle.

Braungart and McDonough have presented the theoretical basis for a sustainable way of living and working in "Cradle to Cradle". In their biomimetic approach to products, buildings and life in general, they propose that we ought to treat waste the same way as nature does. All materials must be either returned to nature as raw material or retained in a closed loop for new products,

essentially eliminating waste. They point out that the concept of reduce, reuse and recycle is not sustainable as all products eventually end up as waste. Friedrich Schmidt-Bleek talks about dematerialisation- converting goods into services, and reducing the wasteful and inequitable consumption in Western countries by 90% as the sustainable way to live.

Sustainable Manufacturing

“Design for Sustainability”, a United Nations Environment Programme Report lists the methods that manufacturers must apply to business in order to be sustainable. Much of this is related to the issues of materiality, technology, product life cycle, efficiency, packaging, transportation and effect on life. Although the report is supposed to deal with design, in this exhaustive list they have left out basic issues of design like the goal of the designer/manufacturer, who the user is and what he does; and the effect of the product on user behaviour. This is because they are dealing with the existing situation with all limitations of an imperfect unsustainable world. With this methodology, if Western Society has an unsustainable life style, it can produce more efficient products for that lifestyle but it need not address the unsustainable lifestyle itself. Car manufacturers talk of efficient electric cars as a way of making cars sustainable, but an efficient electric car that produces no harmful effluents is still unsustainable because it occupies a huge amount of space and causes congestion on road, causes people to live and work far away from each other and above all it remains a violent and deadly means of transport. Another example comes from the fashion industry. Manufacturers could use organic cotton and natural dyes to make green garments but the way the fashion industry is organized, it would still want one to buy more and more clothes not because the clothes that one already has have

reached the end of their useful life but because of changing fashion, and this renders even the green clothes unsustainable. To support the idea of sustainable production, a phone company may take its mobile phones back to recycle them but they would still want people to buy new phones every one or two years, simply to keep up with minor improvements. The alternative of course is a phone made of standard parts some of which can be upgraded to keep up with new developments. Manufacturers of many other industrial goods are also part of a similar unsustainable business cycle.

So what is a sustainable business model? Xerox is a leading printing and copying business that has been selling a service and not a product. The company takes all its old products back, uses sustainable manufacturing practices and even claims to help customers manage/reduce their use of copiers and printers. Some other printing and copying companies have also modeled their businesses after this. Fabindia, an Indian company, deals with other aspects of sustainable production. Fabindia is a large platform for lifestyle products that are made using traditional Indian techniques, skills and hand-based processes. It has created a base for skilled, sustainable rural employment preserving traditional handicraft skills in the process. They source their products from small rural producers who are also shareholders in the company. Above all, the company has a policy of continuing with designs for decades so users are not compelled to buy more simply to keep up with new fashion.

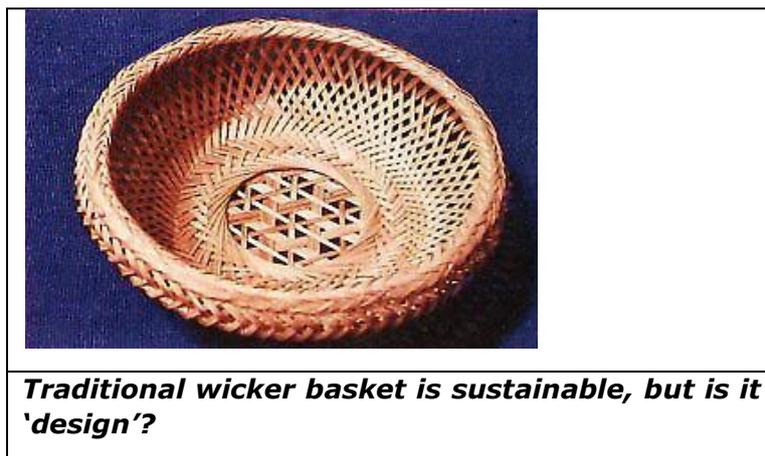
A company that is considered as a model of sustainable production is IKEA who claims the following considerations towards sustainability:

- *Efficient material use*

- ***Renewable, recycled, environmentally better, separable & recyclable material***
- ***Product quality***
- ***Transport efficiency***
- ***Energy efficient production using renewable energy***
- ***Product efficiency (less energy, water and waste)***

These environmental sustainability parameters provide a good basis for manufacturing methods, but IKEA does not source raw materials locally and its products compete with similar products from small local producers and they destroy local sustainable livelihoods and traditional skills. IKEA is part of the global consumer movement where buying more is synonymous with more joy for the consumer. For furniture and accessories, IKEA is the equivalent of a very large, efficient international industrial agriculture producer, no more and no less.

Design& Sustainable Lifestyle





The same basket in a far away place becomes throwaway packaging



It becomes modern 'design' when scooter tyres are applied to it. (Transneomatic Bowls)

It is well known that most products associated with traditional economies such as those that exist in rural India, are actually sustainable even though the design fraternity may not consider these utilitarian objects as great design. A traditional wicker basket from North East India, made of locally available forest produce gathered sustainably, is used for many years and at the end of its life, it goes back to nature to be composted and recycled. It meets all possible criteria for sustainable products. In an unsustainable setting, such a basket may travel across the world to be used briefly as packaging for a gift before ending up in a landfill. More natural resources would have been used up in transportation and packaging than in production, and the product would have served only for a fraction of its potentially useful life. The unsustainable setting is capable of rendering every product

unsustainable. Therefore sustainable product design is a misnomer because no product will be sustainable unless it is used in a sustainable milieu.

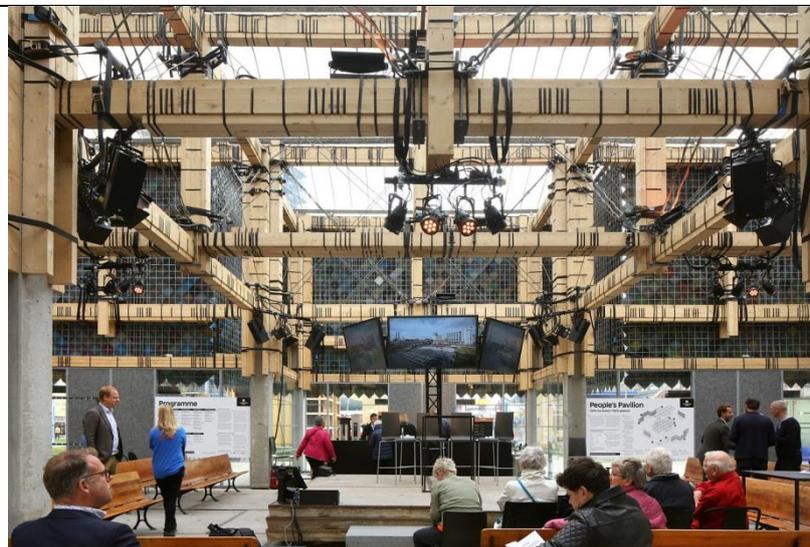
Industrial designers work for industries who work for shareholders who want a good return on their investment. Industrial designers design what is asked of them and companies have to sell what they think might make money and in a way that they can make money. The companies and the designers both exist in a competitive world order that does not really care about sustainable business practices, World Business Council for Sustainable Development (WBCSD) and Collaborating Centre on Sustainable Consumption and Development (CCSCD) notwithstanding. Designers are never in control of what they design as the companies cannot break out of the system even if they subscribe to the philosophy of sustainable development. If one looks at 100 or so of the biggest companies (there are several ways of defining company size), the list includes Aerospace and Defense, automotive, chemicals, electronics, pharmaceuticals and oil industry dominate the list. Many of these destructive and environment polluting industries have become an essential part of modern living even though they do not have a sustainable philosophy.

The earliest thoughts on meaningful design came from Victor Papanek in 'Design for the Real World' (1971). Papanek wrote: "Much recent design has satisfied only evanescent wants and desires, while the genuine needs of man have often been neglected by the designer." Papanek felt that much of what was manufactured in the U.S. was inconvenient, often frivolous and even unsafe.

The European idea of sustainable design is brought to the design fraternity by Dezeen.com and Inhabitat.com. A completely different range of products and systems can be seen from what one might use in India where natural materials are still available.



Book Fair stall in New Delhi made of recycled and recyclable materials - Space Design Consultants



People's Pavilion at Dutch Design Week – made with borrowed timber and designed for recovery of materials

There are two approaches to creating sustainable products. The first comes from the belief that new technology will give better

products to overcome the problems that result from existing technological products. The second approach believes that one can use existing natural processes to create better products. Because technology has been responsible for creating many of the problems that society faces today, it is hard to believe that future technology will come without new and unforeseen problems. Society does have the experience of a sustainable past but considering the number of human beings that we are today, it is difficult to see how the clock can be set back. Neither of the two can be considered as the only approach that will lead to a sustainable future.

Designers undertake design work for clients (manufacturers) who decide what they wish to achieve with their products. Business Corporations often deliver products for highly specialised use; deliver one time use products and complicated designs that solve non-existent problems. The cutlery and crockery that may be used for single meal is an example of over specialised products. Packaged water for which billions of plastic bottles are made every year is an example of an unnecessary product.

	
<p><i>Specialised use products - S&B Cutlery set</i></p>	<p><i>Completely unnecessary product. 63 billion plastic bottles are dumped into oceans and landfills each year.</i></p>

Only independent designers working for themselves have the freedom to choose what they wish to achieve, but all designers need to know what their designs will do and they need to take responsibility for that. Innovation, salability, aesthetics, user experience, functionality, efficiency, and producibility etc. are the goals that designers commonly seek. The sustainable manufacturing parameters deal with materiality, technology, product life cycle, efficiency, packaging and transportation. For sustainable product design, in addition to these parameters, designers must look at the product goal, user behaviour and the change in behaviour that the product will bring about.

Sustainable Product Design in Schools

Having been part of the movement for sustainable building design in India, the author thought it might be easy to bring this experience to product design. Starting with discussions on sustainable product design in 2007 at the Industrial Design Programme at School of Planning & Architecture, New Delhi (SPA-D), the idea did not seem to go any further. This is not very different from the situation in the architecture department of SPA-D in 1980's. Nobody was against it but nobody wanted to do anything about it either. Students at SPA-D (and some other Indian design schools) are tuned into design project work done internationally and they evaluate their work with respect to the work done elsewhere. Such evaluation includes visual appeal, materiality, functionality, manufacturing methods as well as the user base. One of the ways of getting away from international 'Design' is to choose the subject related to Indian Society but the results are mixed.



Device for transferring paraplegics from bed to wheelchair and back.

An industrial design student at SPA-D who was designing a sustainable medicine dispenser for older people made a credible product that failed to be taken as serious design mainly because it was made from common sustainable materials and lacked the visual character that is called design. The converse also happens sometimes. Another example is that of a student who wanted to design “*an inexpensive (affordable) device*” for transferring paraplegic patients from bed to wheel chair and back. The available devices were not used by common Indian patients because they were well beyond their means. This was a challenging task and nearly at the end of the exercise the student realised that an affordable device would have to be made of very inexpensive materials and may not look like sophisticated Design. He promptly changed his design brief and did away with “*inexpensive and affordable*” so that it became simply a device for transferring paraplegic patients from bed to wheel chair and back. The solution arrived at was one that met the requirements of the programme and the needs of the student but was irrelevant in India as it did not work with existing beds or wheelchairs and was even more complicated and expensive than available devices.



Last year at SPA-D, students dealt with bathing. One was an inclusive device that could be used for body cleansing in real Indian situations without having assured piped water supply and water heating arrangement. But the designs that received a lot of attention were the ones meant for that exclusive segment of society that already had everything. Typically these designs dealt with the experience of bathing, not addressing the issue of quantity of water used for bathing.



For the temple town of Bodhgaya, there was a foot covering that epitomised sustainable design. Shoes must be taken off when entering temple compounds and walking on stones in the heat of summer is difficult. The 'cradle to cradle' design for a single time use was a throw away product, using local materials, local labour and skills. Hospitals throw away huge quantities of plastic covers for shoes, used in ICU and operation theatres. Such covers are also used in places where people simply want to keep the floor clean. A bio degradable single use shoe would be a perfect replacement for both.



***A self-cleaning evaporative cooler-
alternative to air-conditioning***

Evaporative coolers are energy efficient cooling devices but there are several problems associated with their maintenance. The sustainable design from SPA-D uses a biological method of controlling the concentration of dissolved solids in the cooling water.

The Design Programme at Ambedkar University, Delhi is focused on social design. The basic difference between this programme and others is that a great deal of time is spent on *what* needs to be done. To achieve their objectives they look at their context and find projects within that- however difficult they may seem. For reasons mentioned earlier, they had to redefine design before they could take up socially relevant and sustainable projects.

The work of Manu Prakash who teaches at Stanford University may be taken as an example of good sustainable design (TED talks "A 50 Cent Microscope That Folds like Origami" and "Life-Saving Scientific Tools Made of Paper"). He invented a functional microscope using paper, a lens, LED and battery to give upto 2000x magnification. He has also created a centrifuge using paper, string and a glass capillary tube. Both devices are ultra-affordable and can be used for analysing blood samples for different diseases.

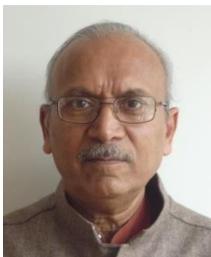
Whither Sustainable Product Design

There are three well known aspects of sustainable development - environmental, economic and social. The environmental issues are the ones that are most talked about and they are global in their reach. The availability of natural resources of energy, water and the capacity of the environment to regenerate polluted air and water spans across continents. The economic issues are regional and more often national and they manifest themselves as poverty, prosperity and affordability. The economic issues are ever present in the background, affect decision making profoundly but they are not always talked about. The social issues of sustainability are local and the poorly understood. The learning on environmental issues is easily carried from one region to another and a great

deal of effort has already gone into defining these. The UNEP report on 'Design for Sustainability' mentioned above, deals with environmental issues and it is applicable across nations. The economic issues drive the agenda of corporations and governments and designs or programmes that do not meet economic criteria quickly fall by the wayside. The social issues are always complex in nature and this is where designers can make a difference. Corporations rarely deal with social issues associated with their business. Design teaching / learning needs to include the social issues as being more important than technical and visual parameters so that future designers are able to recognise social sustainability problems and opportunities.

References

- 1.M.P. Ranjan, NilamAiyar and Ghanshyam Pandya, "Bamboo and Cane Crafts of North east India",Development Commissioner of Handicrafts, Govt. of India, 1986**
- 2. "Design for Sustainability: A Step by Step Approach" UNEP report by Delft University of Technology, 2009**
- 3. William McDonough and Michael Braungart, "Cradle to Cradle: Remaking the Way We Make Things" North Point Press, 2002**
- 4.FreidrichSchmidt-Bleek, "Factor 10: The future of stuff". Sustainability: Science, Practice, & Policy 4(1):1-4. <http://archives/vol4iss1/editorial.schmidt-bleek.html>**
- 5. Vinod Gupta, "Sustainable Design: Do Buildings Matter?" Architecture + Design Sept. 2008**
- 6. Manu Prakash;**
https://www.ted.com/talks/manu_prakash_a_50_cent_microscope_that_folds_like_origami



Vinod Gupta



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Currently working as partner in R Square Dezin, an architectural and design firm, New Delhi. Associate with NGOs like Dharma Foundation India and ACT-Gurgaon, working as design consultant. Lead the design team as Head of Design in COSMOS Media Products Pvt. Ltd. from Aug2009 to March2012. Believe strongly that spaces and products reflect our life and should revolve around the life we live rather than ruling it. For last few years he is into academics, acting as coordinator of Industrial and Product Design Department, Sharda University. He has studied Architecture and Product Design as professional courses.

Design and Development of Safe Home for Urban Community Dwelling Elders: A Designer Perspective

By Priyabrata Rautray

Architect, Product Designer

“Home Sweet Home”

From time immemorial human has endeavoured to develop better and better shelter. In his journey of building shelters, he not only conquered the effects of natural elements and protected himself from wild animals but also created a dwelling unit that showcased the creative side of the human nature. With introduction of agriculture the need for permanent settlement raised and the concept of “home” was developed. With passage of time the design of home has gone through many radical changes and has arrived in its present form.

The word “Home” is always associated with safety, comfort, love, care, relaxation, etc. which bring mental peace to populaces in general. Thus the term ‘Safe Home’ comes as a surprise as throughout history human has tried to build home for creating a secure environment; and home always represent safety and security. Due to various factors like cultural, social, economic, geographical and etc. large portion of the population end up in building or purchasing at-least one house in their lifetime. But this is the not the problem I am trying to highlight through this article but sheer apathy elders dwelling in this peri-urban settlement is what we would like to discuss.

Let us start with describing who these peri-urban community dwelling elders are, they composed of grandparents, parents who

have given up their lives in raising and nurturing us and making us able enough to build or purchase place we call home.



In the race of life we are faced with challenges like infrastructure cost, inflation, job pressure, commuting etc. that we tend to forget the needs of the elders. This slight is aggravated by the fact that these community dwelling elders suffer more than often from diseases related to age like pain, vision deterioration and neuro-degeneration. And that is not all socio-cultural notions like 'age' which is never consider while constructing the house, the dependency on domestic help or the phenomenal increase in the number of nuclear families.

In the mix of all these factors the community dwelling elders are left to fend for themselves in an environment which is neither conducive to their health nor to the psychological aspects. Thus the real question is how to improve the condition of these elders and make them contribute to the society and in the same time age actively.

To understand and address the problem we need to analyse the situation in a more comprehensive way by dissecting very fabric of the society we live in. To start with we need to institute large scale demographic profiling to get an exact picture of the community dwelling elders like socio-economical background, health condition, cultural, geo-political, etc. We also need to do extensive survey to understand their needs and aspirations. In the same time contextual/ observational research techniques like:

Covert observational research (The researchers do not identify themselves) or Overt observational research (The researchers identify themselves as researchers and explain the purpose of their observation). These methods allow a designer to understand the user in their natural surrounding and how they interact with world without any pretentions. Videography is an important tool for these methods.



To face this problem near understanding of the problem will not help, we need to be proactive and we should be able to acknowledge the problem. To acknowledge that there is a problem with the build environment and we need to develop an empathy for the community dwelling elders is the first step in designing a solution for this problem. In this digital age it is paramout to spread awareness among young genartion about the problem faced by the elders and how thay can do their parts in solving it. Eduction is another strong medium though which we can spread awareness and also in the same time empower the public in developing a better understanding of the problem faced by the elders. This education should not be limited to young generation but should be imparted to the all three generation that is grandparents, parents and siblings. Because age is one such

factor that will affect all living beings and more the awareness is the better prepared will be the populous. Last but not the least a strong motivation and zeal will drive the society in large towards a better future where “active ageing” of elders is not just a term but a way of life.

Being a designer and looking for another perspective to find deeper meaning to the existing problems of community dwelling elders, I stumbled upon a facet of life that is deep rooted in the psychic of the Indian society at large. That needs some lot of introspection and soul searching to get to it. The fact that we as a nation look live for the future, which is why our grandparents took great care of our parents and they in turn took all possible effort to make our life blissful reality. And this concept is translated into physical form when we consider building a house. We take utmost care that the building we built will able to take care of the future generation requirements, we conveniently brushed asides the daily needs of the elder. For example when a kid is born the house is modified in accordance to the need of the kid making it a safer and lively, but there is big gap in the efforts when it comes to doing same for the elders.



In the horde of growth and development we forget one simple fact that the houses we are building today, we be the home we will leave when we grow old. And if this point sinks in the overall consciousness of the populous we will design better living environment for the elders. Then we can see a positive change in the society where we not only care for the future generation but also give equal importance to the predecessors and in turn we can expect the same attention when we grow old. This will be a holistic change and need great effort in inculcating this idea in the mind of the many.

The Design Initiative:

India being a developing country large part of the population is in the middle income group or lower middle income group, out of which most of them stays in rented houses where radical design changes are not possible. Thus the community dwelling elderly are forced to adjust with built environment. And the irony lies in the fact that most of these are the house (built environment) are built by them. So we find a large gap in the level of awareness of the client, the architects and the designers while conceiving the design for the home. More over there is strong demand for retrofit products that can be installed in existing house/ rented place to make it more elderly friendly. And to achieve this goal following steps can be followed:

1. Documentation

- *Lack of Reliable source of information. No analysis existing databases.***
- *Survey needs to be done. (sample group - 30 elderly households)***
- *Diverse culture, different socio economic backgrounds***

- ***Parameters on which data collection is based: HSSAT v.4, WHO quality of life (BREF), WHO DAS 2.0 (Disability assessment scale), Barthel Index, Modified Fall Efficacy Scale***
- ***Documentation done by an occupational therapist***

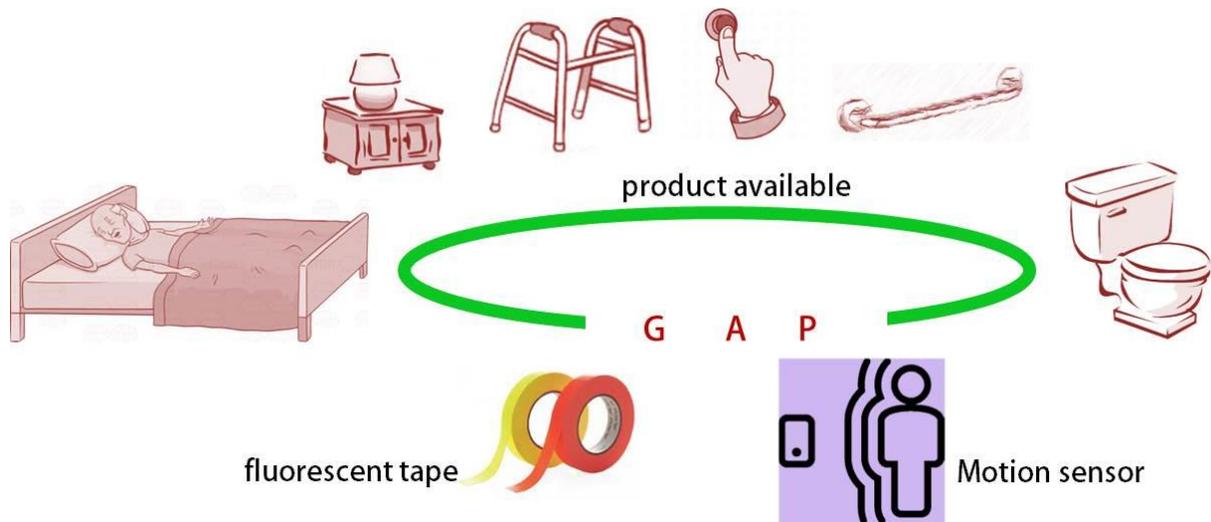
2. Analysis of Data

Once the data are collected, they are segregated and through analysis are done to find the problematic areas in the existing house which make it dangerous for the elders.

- ***Each part of the house is isolated and analysed.***
- ***Problem are categorised as sever, moderate and mild.***

3. Product Development

- ***Development of product brief after detail analysis***
- ***Concept ideation***
- ***Brain storming session with panel group as well as sample group***
- ***An example to illustrate the need for product development - An elderly need to get up at night more often to attend nature-call, few products are available in market to assist him/her but there is still a large gap which can be filled with smart products that are simple, innovative, easy to operate, cost effective, retrofitting.***



4. Field Testing and Evaluation of the product

- ***Installing the developed products in the homes of the sample group***
- ***Collection of feedback from the users***
- ***If the results are positive, then testing on larger group for evaluating the versatility of the products.***
- ***Would rely on the fact that how the product has made the elder independent, how there is a positive change in their life style and quality of life.***
- ***Once the products are developed they are tested with same parameters like: WHO quality of life (BREF), WHO DAS 2.0 (Disability assessment scale), Barthel Index, Modified Fall Efficacy Scale, User rating scales***

5. Sustainability of the product

- ***Designers and architects should be open to involve industry groups to use their expertise to make innovation and cost effective products.***
- ***The products will cater to all strata of the society.***

- ***Government tie up– NID incubation centre, SPA- ID and tie up with NGO to propagate the products to all corners of the society.***
- ***Involvement of policy makers and influence the lawmakers to make age friendly homes as bylaws.***
- ***Empowering NGO s working in this field***

Following these steps only don't not guaranty apt solutions for every problem but following certain procedures can result in more appropriate solution and that can drastically improve the quality of life for the community dwelling elders. Designers and Architects can make their own processes and guidelines to develop better and safer environment for the elders.

Time is one aspect of life that will follow its own course without any abatement and old age is one such predicament that will be faced by all. This put the onus on the designer and architects to evolve in way that will create more conducive and safe environment for the community dwelling elder. A nation as a whole we should be considerate to this fact and act towards building a better future for its citizens both young and old. Then can only we hope to have more joyful and dignified life when we start our second innings.

Reference:

- 1. A vote of thanks to Dharma foundation India and Mrs. Alok Banarjee for their valuable insights.**
- 2. All illustrations and images are online downloaded references.**



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Aditi Singh is an Industrial Designer and Architect with extensive experience in fields of product design and innovation, sustainable systems design and next-gen experience design. Recipient of the prestigious international Red Dot Design Award twice (2013, 2015), World Technology Award 2014 (USA) and International Design Award 2015 (USA), her portfolio ranges from design of consumer products to social innovation and architecture for several multinational organisations.

She has also been actively associated with premier design institutes, including RMIT University, Melbourne and IIT, Delhi. Currently, as Assistant Professor at the Department of Industrial Design, SPA, New Delhi, Aditi mentors a variety of design innovation projects and is passionate about the intersection of the digital-physical space; and the joy in building human connections with design.



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Parag Anand is Head and Associate Professor at the Department of Industrial Design, SPA New Delhi. He has a Masters Degree in Design from IIT, Delhi. He has been trained at the Delft University of Technology. His design experience of more than 2 decades spans fields of Product, System and Communication Design. As a keen academician with interests ranging from System to Social Design he is also visiting faculty at various institutions like IIT Delhi and RMIT Melbourne as design mentor.

His interest in innovation earned him prestigious international Red Dot Design Award for design of "datastickies" on future of data storage in 2013 and Red Dot Design Award: Best of the Best for the year 2015 for design in the field of Sustainable Design, that was among the top 5 awarded innovations worldwide.

Projects guided by him in the field of design of toilets for the Indian Context earned the prestigious WB Honours 2013 – a unique recognition for excellence in the field of washroom design and development. His expertise in design related to Sanitation and Hygiene have been recognized internationally.

Before joining SPA New Delhi, he co-founded 5th Quadrant Design and has designed product, communication strategies and services for LML, Amway, Schindler, HSBC among other national and international clients. He has undertaken a variety of projects in the field of Product and Communication Design.

The Himalayan Ecology Project

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1.1 Inception

Teaching a design studio also often becomes an exercise in designing one. As “teachers” of design, one is constantly innovating and researching more appropriate methods to guide the process of design. For a while now, we’ve been grappling with the dilemma that for projects in the social domain is the research-oriented approach to design always drawing us to similar, familiar and predictable results. This coupled with the constant burden of the necessary evil: massive loads of digital information abundantly available online, sometimes distracting, and maybe really restricting our minds from being able to push the limits.

It made us think: Was it possible to design without the burden of over-information? Was it possible to begin on a clean slate, without external influence, without prejudice? Were there untapped areas? Would they even benefit from design?

We imagined a design studio, free of digital information, free of electronic paraphernalia, an experience where we could soak in the project firsthand and plunge ourselves directly and wholeheartedly.

So when the Deer Park Institute showed interest in our idea of an “immersive” design studio at Bir, a picturesque remote village in the Kangra District of Himachal Pradesh, we, along with our

second semester students of Industrial Design at the SPA promptly packed our bags and boarded the next bus to the Himalayas. In mid February 2014, amidst unexpected snowfall, we arrived at the Deer Park Institute.



Fig. 1.1: Deer Park Institute, Bir, Himachal Pradesh, India (Image Courtesy: Deer Park Institute)

The Deer Park Institute was started in 2006 with the prime aim to restore and revive classical Indian Philosophical Traditions, Culture and the Arts, and has since then worked closely on Ecological issues of concern in the Himalayas in areas of organic agriculture, traditional architecture, local knowledge systems of health and healing, folk lore and on a zero waste Himalayan network.

Nestled in the foothills of the Dauladar ranges, Bir, where the Deer Park Institute is located is a rural hillside inhabited by the native Himachalisin its upper regions and a refugee Tibetans Colony in its lower slopes. Further up, 14 kms from Bir is Billing, one of the most popular destinations in the world for paragliding. The Deer Park Institute and a few other institutes are located in the middle slopes of Bir.

Established circa 1600 CE and ruled by a series of kings before the British made their way here, Bir is now home to a community of over a thousand Indians, a Tibetan refugee settlement and a small but growing international population. There are several neighbouring villages that are often referred to collectively as 'Bir', including Chowgan (home of the Bir Tibetan Colony), 'Bir Road' market, and Bir proper, also known as 'Upper Bir ', as well as the surrounding villages of Billing , Bhattu , Ghornala

According to the Primary Census Abstract (Final Data), Census 2011, there are 319 households in the village of Bir. With a population of 1334 persons it is interesting to note that women outnumber the men in Bir, a trend that noted throughout Himachal Pradesh. The percentage of literate population is about 74 %, which is nearly on par with the national literacy rate of 74.4% though lower than the state literacy rate of 83.78 %.

Upper Bir is a typical agricultural village, with the native Himachalis practicing sustenance farming. Besides this a few people are employed in government offices. Most of these farmers have small patches of land on which they grow crops just enough to meet their own domestic needs.

Bir, underwent an important change when Tibetan Refugee camps were set up here. Now known as Lower Bir, or simply "Colony", it is home to a sizable Tibetan Community. The lifestyle of the Tibetians, even though they have been here for many years, is completely different from the natives. With respect to food, practices, dressing, culture Upper Bir and Lower Bir are different worlds. The Tibetians are mainly merchants and traders, bringing goods from overseas and selling them locally. Even though they have been here for many years now, as refugees from Tibet, they still understandably lack ownership and association with the land.

Some wait to go back to their homeland and others move to more developed countries for the promise of better opportunities.

Over time both communities inspite of their diversity have developed a symbiotic relationship. The farmers in Upper Birare able to sell their surplus produce, vegetables and milk to the Tibetians and generate a small additional income. The Tibetians in turn have brought branded clothes and other foreign goods to the region that appeal to the younger generation from the village, and they frequently buy from them.

This diversity creates a curious mélange of cultures. The Tibetians lead a more urban lifestyle living in a government constructed dense planned settlement that now even has an ATM, a few hotels, in contrast to the predominantly rural Indian village that lives in traditional mud, slate houses in a cluster that has grown organically over time.

Another important aspect of Bir is the influx of international tourists that are brought in by the paragliding activity on the neighbouring peaks of Billing. The region becomes very busy during spring and autum. International Championships for paragliding and a host of other activities brings enthusiasts to Bir creating an entire economy. Paragliding over themountaintains and tea planatations of Bir and the Dhauladhar Range of the Himalayas, they create avenues for tourism, for guides, taxi services, guest houses and restaurants. The local youth engages in this seasonal activity to a great extent for their livelihood.



Fig. 1.2: SPA Students in Bir and Deer Park Institute (Image Courtesy: Students of ID, SPA Delhi)

Bir served as a prelude, a starting point for our study and understanding. It helped us begin a journey to decipher the mighty Himalayas, one of the most complex and diverse ecosystems of the world that figures prominently in major biophysical settings of the planet earth. This vast mountain range (over 2500 km in length, and a region that takes 16.16% of the total area of India) produces a distinctive climate of its own and influences the climate of much of Asia. The great variation in climate and topographical features causes immense diversity in climate and habitat conditions within the region. This phenomenal biodiversity works beautifully to meet diverse needs of the people. The beautiful landscapes, numerous rivers and streams cascading down the mountain slopes, diversity of cultures and religions, and colorful festivals of indigenous/ethnic communities presents strong attractions for people from all over the globe, be they nature-lovers, tourists, researchers or seekers of peace.

The Himalayan ecosystem continues to be extremely vulnerable due to its geographic location on the Earth, as well as anthropogenic factors leading to changes in the delicate equilibrium it has with the nature. This coupled with the inaccessibility, fragility and marginality the communities living in the region face that make them even more vulnerable to the changes. We witnessed many of these concerns first hand in the course of our investigation.

Academically, in all honesty, we were also itching to get out of our studios in New Delhi, having finished four projects in the first semester, exploring ergonomics, deciphering trends, decoding "styling", this bunch of 17 students; architects and engineers with 2 faculty members wanted it to get "real", and the temptation of fresh air and blue skies was hard to resist.

We needed a change of scenery. We needed to put ourselves in a place we had never been. We needed to abandon all search engines. We needed to challenge ourselves.

And challenge we did.

1.2 The Challenge

As Industrial designers we get used to function by method: we research, we analyse, we dig deep and identify problems and we solve them by creating design solutions. But Bir was all set to surprise us.

There seemed to be no problems.

With all the noise about environmental issues, global warming, melting snow-caps, we expected a village riddled with problems and issues we could provide solutions to. On the other hand, we met a seemingly content bunch of people going about their daily lives. We city people were puzzled by the resilience.

Do you have drinking water scarcity? No

Is there shortage of electricity? No

Does the area make farming difficult? No

Do you have garbage disposal issues? No

The industrial designer was practically redundant.



Fig. 1.4: Vernacular house in Bir (Image Courtesy: Author)

We had met a deadlock and needed another plan of action. So we split ourselves in eight groups: Energy, Water, Waste Disposal, Livelihood, Material & Construction, Kitchen & Cooking, Art & Crafts and Land-use. We explored first hand resources, government policies, community practices and traditions for each area. We experienced their life, spent time with families and listened to their stories. We brainstormed, we created personas, we role-played and then tried to connect the dots.

We found less problems and more opportunities.

1.3 The Opportunities

Our quest led us to discover new patterns, connections and inter-linkages, not apparent initially, where one area could benefit from another.

We found opportunities in the energy being lost from the many water streams that flowed. We found bonus in reusing the embers from the cooking stove to heat up houses in winter nights. We found incentive in creating livelihood from preparing their own cuisine.

We further worked towards finding design opportunities and gaining strength in creating and developing green design practices, creating innovations towards sustainability and reclaiming, recognizing and reviving local traditions. Water purification by design, passive heating, up-cycling of non-biodegradable waste and its management, tapping energy from natural resources, developing eco-livelihoods, creating products for sustenance of local traditions, means to create employment for local youth were identified as potential areas where design could make a meaningful impact.



Fig. 1.5: Brainstorming session for the Himalayan Ecology Project (Image Courtesy: Author)

1.4 The Outcome

After documenting and gaining insight in rethinking design of products, processes and systems for communities in the Himalayan region, the outcome was design of:



Energy

A heat-battery to capture excess thermal energy dissipated while cooking and using it in the household.

A personal energy tapping device for small scale use, from the water channels that flow by the village houses.



Water Resources

A self-propelled trash-separator to remove plastic and packaging waste from "kuhls" (water channels)

A water purification cap for bottles that discourages tourists and others from buying packaged water.



Waste Management

Up-cycling solution for PET bottles for creating embankments to prevent soil erosion and a water filtration system that reuses used PET bottles.

A water filtration and purification system that reuses used PET bottles.



Livelihood

Eco-friendly packaging design to be locally produced at a cottage industry scale to promote traditional Kangra snacks and creates employment opportunities.

An aid to decrease human effort required in carrying heavy loads across hilly terrain.



Materials & Construction

A lighting solution that enhances natural light indoor without compromising on thermal comfort.

An alternative structural system using local materials to fill the gap created by unavailability of larger wooden logs to encourage more appropriate traditional architecture.



Kitchen & Cooking

Green-house design to be economical, modular and expandable to be used in various seasons.



Arts & Crafts

Craft facilitation vehicle to connect craftspeople in remote areas with resources, materials and market needs.



Land use

Development of a design language for an inclusive Community Interaction hub.

Modular elements: shading devices and domes developed using local materials for proposed Experience Center Design.

This 8 week exercise that involved experiencing the region, brainstorming with experts, ideation by creating mock-up models and subsequent detailing led to 16 rooted and grounded design solutions that stem from the ecology of the region, using materials and processes prevalent locally and that generate employment opportunities while integrating with the existing style of living of the community.



Fig. 1.6: Jury for the Himalayan Ecology Project (Image Courtesy: Author)

2. Projects

2.1 Energy

The unique combination of the topography and running water in Bir creates many avenues to generate clean energy. It provides various potential energy options, which are still largely

unexplored in these regions. The narrow water streams, the winds, the forest refuse; the strong sunlight are all means of energy generation at a localized level that can be used in various activities in rural households.

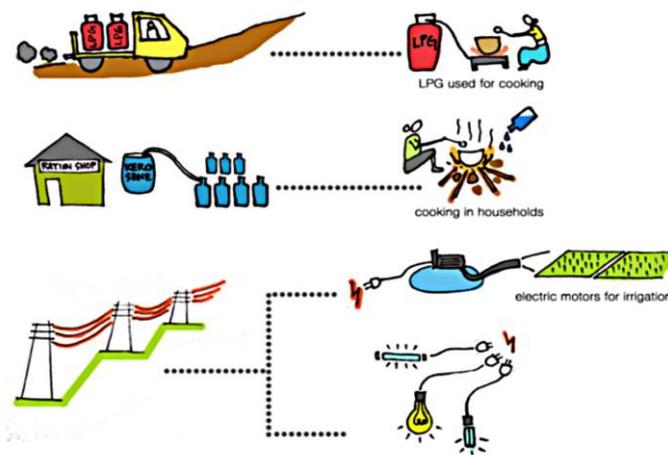


Fig. 2.1: Bir Energy Trail

Energy sources used by the people in Bir include firewood, kerosene, LPG, dung cakes, electricity and solar power in varying capacities. Initial installation costs for solar energy equipment prove to be big deterrents. Firewood is available but often illegally procured. It will predictably get more difficult to find in days to come. Inefficient and incomplete burning of firewood leads to high levels of smoke and breathing problems. Burning of LPG and kerosene causes comparatively less smoke.

Even though numerous hydro-electric projects exist in the state of Himachal Pradesh, flowing water can still be tapped for energy at a smaller scale at the local level. Low energy requirements like charging or equipment that need lesser electric power can be run utilising energy generated from these sources. Solar energy is yet another energy source which can be readily tapped.

Rapid and indiscriminate urbanisation in the slopes of Himachal has led to escalate pollution levels and coupled with smoke generated by household tasks it poses a continuous hazard to the inhabitants. With the existence of numerable potential energy sources, energy practices can be rerouted and the abundantly available renewable resources be innovatively used. Based on these two designs were developed that work passively to make use of energy being lost



Pic 2.2: Coil battery (Image courtesy: NitikaShailesh)

2.1.1 Coil Battery: Urjas

The narrow water channels (Khuls) adjacent to village houses inspired the design of this device that taps energy for small scale household use.

On lines of the prayer wheel that was rotated by a water stream flowing down a slope in Norbulinga Monastery, design concepts were developed to tap energy from flowing water. This was conceptualised by using the flowing water to run a turbine, which would further coil up spring steel coil, storing energy in them. This was the coil battery. The coil battery housing was designed that can fixed across the Khul, resting on either side with telescopic legs. The Coil battery could now be fixed to the battery housing, which gets coupled to the turbine. As the turbine rotates and coils up the battery a red indicator appears when the winding is complete. The coil battery now fully charged can be taken from the housing and further used to power low energy equipment like cellphones chargers, radio, LED bulbs etc. by using a dynamo.

2.1.2 Soapstone Heat Battery: Ushmak

Vernacular houses in the Himalayan region have kitchens attached to the living areas so that the heat radiated from the chulha helps in keeping other space warm. Firewood, cow dung and forest refuse are the main sources of fuel used for cooking in village households. The region has ample soapstone available in its vicinity, which has the perfect property of retaining heat for a longer period. This prompted design of a soapstone based chulha that enables transfer of excess heat from chulha to where it is required.

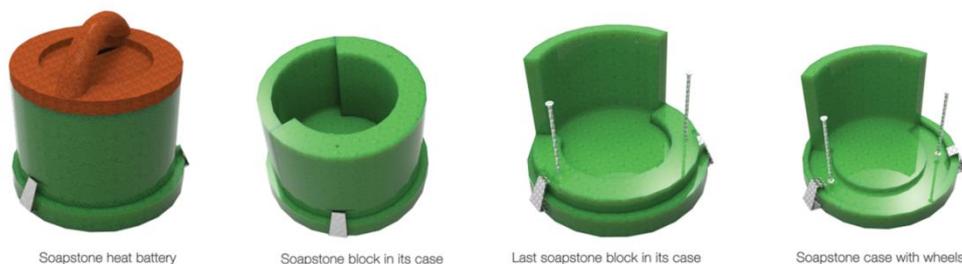


Fig. 2.3: Soapstone heat battery (Image courtesy: Devasheesh Singh)

The heater was designed for the Soapstone blocks to be placed in a depression on the outer wall of the chulha. The blocks were made portable using handles, which are clamped onto the stone block. Heated soapstone blocks could be carried in a wooden casing with windows for heat dissipation.

2.2 Water Resources

Rural water supply in India has proved to be a challenge to planners and administrators. In Himachal Pradesh the terrain has demanded innovative solutions. It is claimed under the National Rural Drinking Water Supply Programme (NRDWP) all Census villages in the State have already been provided with drinking water facilities in the mid nineties. As per the National Rural Drinking Water Programme, effective from 1.4.2009, there are

53201 habitations in the State. The status of these habitations is as under: Status as on 1.4.2011

Not Covered (NC)	0
Partially covered (PC)	10725
Total NC/PC	10725
Fully covered	42475
Total	53201

The situation in Bir reflects the assertion of the Government of Himachal Pradesh that all the habitations have been covered. In terms of drinking water it was noted that the sources of water (municipal supply, streams and handpumps) are plentiful.

Although the existing population is small, the regular and growing influx of tourists often gives rise to shortage. The tourists bring with themselves disposable plastic bottles, also sold readily locally, that more often than not end up in the streams clogging them and littering the pristine landscape.

The existing water supply flows from a reservoir in Upper Bir to Lower Bir. The quality and quantity of water suffers as it moves to Lower Bir as a result of insoluble impurities that find their way into the streams. The rains also stir up the sediments in the otherwise clear water in the making it hard and sometimes unpalatable. Kidney stones are a common occurrence in the region.

In terms of water for irrigation the major source of irrigation in Bir is the simple method of directing water from various streams, rivulets and springs through small rills or channels to the cultivated fields: the kuhl system. According to local farmers this method continues to be the most suitable to the local conditions. Most farmers continue to rely on the rain for irrigation agriculture rather than deploying systematic irrigation facilities.

As per the 73th Amendment to the Constitution, all the rural water supply schemes are to be operated and maintained by local bodies (Village Water and Sanitation Committees, Gram Panchayats and Zilla Parishads and civil societies). Thus with the decentralization of funds, functions and functionaries to have a structured approach to rural water supply and its management is required.

It is important therefore to address the issues of

- ***Improvements in operation and maintenance of water supply***
- ***Potential for water harvesting for irrigation***
- ***Other innovations to satisfy the needs of the inhabitants***
- ***Cleaning of garbage in the water Khuls.***
- ***Alternatives for packaged drinking water.***

It is expected that these measures will improve the availability of water in Bir for both domestic, tourists, agricultural purposes, addressing the difficulties experienced in the realms of drinking water and irrigation.

2.2.1 A self-propelled trash-separator

“Khuls of bir

The gliders float free, Through the fluid the air, Like the waters in khuls. They are seasonal here Winters come and gone The snow, it melts Snow waters down from the highest heights yet With undaunted persistence it travels forth Our story ensues at the village road edge Unobjectionable, patent the khuls bear, plastic and muck from everywhere, The water is wise it knew we would come Today is a great day for design intervention.”



Pic 2.4: Trash separator
(Image courtesy: Kartik

-Kartik Mahon, ID (II Sem), SPA New Delhi

A trash separating system was designed to remove plastic and other waste from Khuls. As plastic bottles, polythene bags etc. flow with water, they results in choking the Khuls. Even though the trash is an eyesore, there is no attempt to clear it. A system, which extracts trash from the Khuls as water flows along would be the desired solution.

A self-propelled trash-extractor was designed using a spiral auger made up of aluminum mesh to carry trash out of Khul. As it is important for auger to rotate, the flowing water of the Khul was the solution in terms of the power it provided. An arrangement of worm gears, spur gears and turbine propelled by flowing water was designed to power the auger. The auger made of aluminum mesh moves trash out of Khul, while the water flows back to Khul.

2.2.2 Portable water purification

Though the trash-extractor is designed to take care of the trash in the Khuls, there is a compelling need to design a product or a system that encourage less waste generation to begin with. Drinking water available in Himachal is potable but tourists are increasingly seen with a preference towards easily available packaged drinking water in plastic bottles, which leads to generation of huge quantities of waste.

To discourage excessive use of packaged drinking water, the design team conceptualised a filtration cap for bottles that can filter water while refilling. To achieve this, a cap was designed using a rubber bellow attached with a basic filtration system. When the bottle is refilled through the inlet nozzle it fills and

expands the rubber bellow, which with its filtration unit filters the water and fills the bottle. A straw is inbuilt in the design of the cap for ease of drinking. This encourages people to carry a reusable pocket size filtration system with themselves that can fit any bottle, eliminating the need to buy a new bottle each time.

2.3 Waste Management

As in the rest of India and other parts of the world, waste is a serious problem in Bir also. Here though, amidst the beautiful landscape and the precarious environmental position of the Himalayas, the issue is compounded many times. Garbage is thrown into the streams and empty areas, and plastic waste is burned in the open. There are no recycling or waste processing facilities, and there is no organized waste collection or disposal system. In spite of many institutions and NGO's, working towards garbage disposal systems, solutions like public bins, landfills and incinerators have shown little effect to the 'out of sight, out of mind' attitude that exists. The sparse population that is widely scattered in small settlements also does not help sustain most traditional garbage disposal systems. To reduce waste generation and encourage responsible waste disposal require judicious design interventions at the systems level.



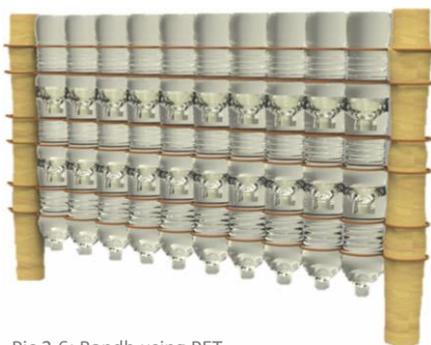
Fig. 2.5: Trash spread across Khuls in Bir (Image courtesy: Vishal Sengar)

There have been a variety of initiatives taken by Government

- ***Government started the 3rs/polybag scheme to reduce plastics, but the scheme failed.***
- ***On the occasion of Himachal day the area was declared as zero waste and to create awareness many workshops are organised.***
- ***The authorities finally completely banned plastic carry bags.***

Since waste generated or brought into the hills is not sustainable to carry back to the plains, it was clear that design interventions would have to look for localised solutions, where waste could be a resource and be judiciously reused in the system.

2.3.1 Up-cycling solution for PET bottles



Pic 2.6: Bandh using PET bottle

Soil erosion in the region is major issue in the region and mud and boulders are commonly used to prevent it by creating bandhs (barriers).

The design team worked upon the use of waste PET bottles to create bandhs that are DIY, cheap and easily installable. A system was designed to create a bandh by a) collecting plastic water bottles; b) segregating bottles according to size; c) removing caps; d) cutting the lower portion of the bottles and e) stacking 4 bottles one over the other to create pipes. These pipes were then interwoven together using bamboo and rope to create barriers which could be installed in series to create a barrier.

2.3.2 A water filtration and purification system

A water purification cap was designed as an improvement over packaged drinking water, but at the same time the need for basic water filtration was also identified at a household level. The water available in the region is potable but has a high mineral count and non-dissolvable impurities. This prompted the design team to develop a design of a DIY water filtration system.

The design was conceptualised using PET bottles, bamboo and filtration material viz., cotton membrane, silver impregnated granulated activated carbon, minerals, silica sand, ionic-exchange resin, mineral balls etc. A technique was devised to create a filtration pipe using PET bottle filled with filtering material at in tandem in a bamboo frame. Water flowing from one end of the filter pipe was purified by the time it reached the bottom.

2.4 Livelihood

The two distinct communities living in Bir led to an interesting symbiotic relationship. The original inhabitants of the village, the small agricultural based Indian community practice sustenance farming. The Tibetan community brought in trade to the region. An interdependency of the predominantly agricultural community in Upper Bir selling their surplus produce and buying foreign goods from the traders the Tibetan refugee colony in Lower Bir

has created a local economy of sorts. Still to a large extent, lack of employment opportunities in Upper Bir and a sense of belonging and ownership in the refugees in Lower Bir are both proving to be deterrents in improving economic conditions and subsequently quality of life of its inhabitants.

As per the 2011 census the literacy rate in Himachal Pradesh is 83.78%. Though literacy is higher than many other states, job opportunities are few. In Bir, three categories of employment are prevalent: the self employed (tourists, masons, craftsmen etc), the service providers (shop keepers, taxi drivers etc) and government employees. Among these too, avenues like craft are seeing a decline for lack of patronage and readily available options.

Schemes like the NREGA that guarantee 100 days of employment create employment, but of the unskilled nature. Employment has been generated for water conservation, harvesting, construction of irrigation canals, horticulture facility, flood control and protection work and building footpaths. Though it carries a two-way advantage of generating employment as well as developing infrastructure, in a place like Bir, it further alienates the skilled worker, the educated and the craftsperson.

Bir is less populated (in terms of both tourism and residential density) as compared McLeod Gunj and Dharamshala. Therefore it still has a simpler lifestyle. Indiscriminate and unplanned growth of tourism has affected the lifestyles and prevalent local crafts in many parts of Himachal including Bir. Only few people in Upper Bir are still practicing the traditional crafts and professions. The long and tedious processes that craft entails, as one of our case studies of a weaver family revealed, along with little understanding of market needs is no match for the branded clothes available in the market.



Fig. 2.7: Villager repairing handloom in Bir (Image courtesy: Vishal Sengar)

The studies of livelihood and lifestyle of Bir village revealed a general satisfaction in terms of governmental effort to enhance accessibility to the region and provide basic amenities. But the village still requires development to increase employment opportunities, especially for the skilled and trained section

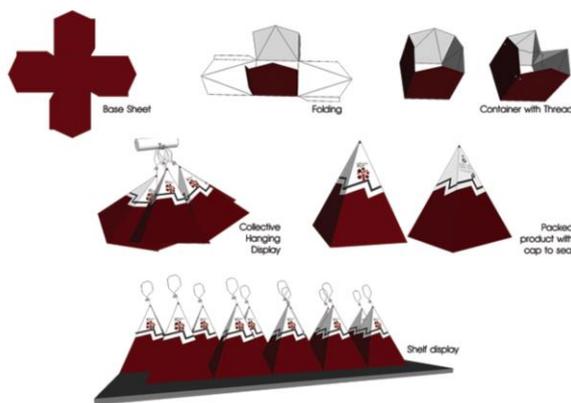
Small cottage industries can serve an opportunity for the ladies to work. One good example is the floor mats that are manufactured in a small industry in Lower Bir and as they have become a necessity due to the extreme cold and can be found everywhere from taxis to houses and monasteries.

Our analysis indicated that the village requires to generate opportunities that can create a bridge between the aspirational lifestyle and the very appropriate age-old traditional practices. The migrating youth is looking for a reason to hold on and employment opportunities can fill that gap

2.4.1 Eco-friendly packaging design

The region has traditional cuisine that is being lost and forgotten while the fascination of readily available junk food takes over.

An opportunity for design of attractive packaging for locally made snacks seemed to be a solution to counter the threat of the packaged food invasion. The major consideration was to use locally available material to develop eco friendly packaging solutions that are air tight, locally made and that would provide employment opportunities with minimal mechanised interventions.



Pic 2.8: Packaging for Himachali Snacks
(Image courtesy: Garima Rajput)

The design was conceptualised using locally available paper, which was coated with the mixture of pine resin and edible gum. After drying this creates a layer on the paper, which does not allow it to absorb oil from

the snack and moisture from the atmosphere making the packaging airtight. Further, the paper is cut using a specially designed die that can be locally manufactured.

The entire process was designed to function at a local level creating a cottage industry for packaging. The final design was inspired by Himalayan snow capped mountains which is ecofriendly and appealing enough that the tourist wants to take it away as a souvenir, after eating, preventing littering in the area.

2.4.2 An aid to decrease human effort

Bir houses two groups of people living in the upper and lower slopes.



Pic 2.9: Assistive Device
(Image courtesy: Karthikeyan)

The connection and transactions between the two always involves an arduous climb. Most of the time, people carry their goods uphill in big bamboo baskets. For various reasons, these bamboo baskets are being replaced by plastic ones. Though there is a change in material but there is no reduction in human effort to carry the load.

Design of a system or equipment that helps carrying the goods uphill became the area of intervention. Bamboo canes were used to develop the assistive device, which could be used as a backpack in which the basket could be placed and carried. While going uphill canes assist the user climb by sharing the load and while going downhill these canes assist in balance and controlling movement. Also, while walking through forests and through thick undergrowth there is always the danger of being bitten. The design allows for the user to clear their path with the hand-aids while moving ahead.

2.5 Materials & Construction

In Kangra too, as is with most vernacular settlements, dwellings have evolved as a delicate synthesis of what the land provides, its culture, social structure, climate and topography. This type of construction has evolved and sustained in this region for a long time due to all the benefits it provides of being low cost, earthquake resistance and thermally efficient. All until now, where deterrents in the nature of policies, physical infrastructure and the aspiration nature of “modern” construction have led to a new type of architecture to flourish. The shift is visible in villages across the valley and it prompted us to dig deeper.

Present construction trends in Bir indicate a preference for concrete framed-structure construction. However aspirational this new system maybe, there exists awareness among people

regarding its performance capability with respect to the terrain and climate of the region, where it neither helps in maintaining temperature nor does it help earthquakes in this seismically active region. Attempts to promote traditional systems of construction are being undertaken at a smaller scale by organizations like Satbhavana, working towards promoting mud construction that is thermally efficient, low cost and easy to construct.

Locally available materials apart from being used in construction of vernacular houses are being used effectively in versatile manners by the inhabitants. Mud not only forms the walls of the village but is also used in making the chullah. Hay serves as food for the cattle and as their shelters in the form of roof. It also acts as reinforcement for the mud walls when mixed with mud. Application of bamboo is immense, it is the structure for laying the flooring and roof of a building, is used by the villagers for carrying from place to place and also to store hay at an height in open fields. Slate and stone are also used widely.



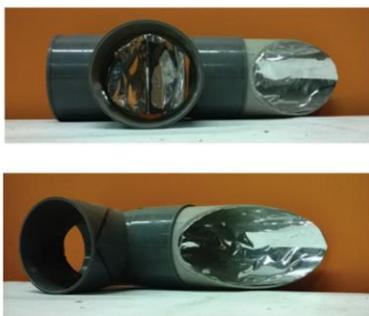
Fig. 2.10: Vernacular houses of Bir (Image courtesy: Vishal Sengar)

Mud, high on maintenance, in extreme weather and heavy rain, has the potential of improved performance with a change in characteristic by means of developing it as a hybrid material. Non-availability of logs for the central beams is also another area of

concern that dissuades people from building vernacular house with sloping roofs.

Vernacular houses for limitations of material and thermal comfort are deliberately designed to have small openings. With changing lifestyles, a lot of time is spent indoors during the day, unlike previously where the day was spent outdoors and the night indoors. These small openings lead to dark interiors during the day even though the sun shines bright outdoors, forcing people to resort to artificial light. Both Windows and flooring are challenges for vernacular architecture that require to be addressed.

2.5.1 A lighting solution that enhances natural light indoor



Pic 2.11: DIY Light
(Image courtesv: Reina Rose)

The dark and dingy interiors of traditional houses require better solutions to changing lifestyles and time being spent indoors during the day there is a need to light up the houses during daytime.

A DIY lighting system was designed that is sustainable and provides adequate light without losing thermal comfort for traditional mud houses during daytime. This was achieved by using locally available material like PVC pipes, aluminum foil as reflector, PVC T-joint and fasteners.

2.5.2 An alternative structural system using local materials

One of the major deterrents for constructing vernacular houses is the unavailability of the main central wooden log and due to the ban on cutting trees in the region. This prompted design of a Structural System that replaces the central wooden member, and is sustainable and modular in nature. Bamboo clubbed together using ropes and fasteners were used to make an apex bamboo beam. When the bamboo beam was prototyped and tested it

performed well against the anticipated forces. The bamboo beam also worked an additional spine, carrying services, and providing for a easily installable modular shelving system, thereby value adding to this traditional system.



Fig. 2.12: An alternative structural system for vernacular houses (Image courtesy: Louis Tigga)

2.6 Kitchen & Cooking

Traditional cuisine and cooking methods have been shaped by geographical contexts, culture, habits and climate. Among little known pahari cuisine, the aroma and flavours of the kangra food stands out.

All traditional local cuisine used seasonal produce and availability of local resources. Vegetables like Lungdu, Patrudu, Arbi are all grown in farmland or available in forests. Methods of preservation were used for off-season consumption of both vegetables and meat. Food was not wasted, only prepared in required amounts and if leftovers be, were fed to the cattle.

Wood used to be a primary source of energy and knowing its value people understood protecting the forest and trees on their farms. A balance was created with people taking only as much as they needed to sustain. Now a government policy has banned cutting of trees leaving the people with few options, which has in turn promoted illegal felling and loss of ownership.



Fig. 2.13: A typical kitchen set of vernacular house (Image courtesy: Vishal Sengar)

Driven by necessity, traditional wisdom has led to some ingenious cooking aids. The chirotu, a round bottom pot with narrow opening, is used for cooking rice, dal and vegetables but it can be transformed into a steamer by adding a stick mesh inside. Ingenious brooms made of pine leaves are small and perfect in size to dusting kitchen and small spaces.

Large market towns were earlier inaccessible and therefore the ingredients remained limited. Today, improved roads and communications have brought a variety of fruits, vegetables and spices that have led to so many changes in eating habits. However traditional cuisine which is area and climate specific, provided the kind of nutrition required by the people of the region. Vegetables not traditionally grown here due to climatic constraints like tomato, eggplant and mushroom have made way into the cuisine. This along with little patronage has severely diluted the original flavour of the regional cuisine, which is now difficult to find. As a result of this the identity and novelty of kangra food is being lost.

Newer houses made of bricks and concrete do not have the traditional inbuilt chulha that served the dual purpose of cooking as well as keeping the house warm. The chulha in traditional dwellings on the other hand has not improved from its original excessive smoke-producing variant.

2.6.1 Utsarjak: Expandable Green house

In the Himalayan region, farmers use green houses for growing off-season vegetables and other vegetation that requires a controlled environment. This gives them vegetables for their own consumption and also to make a living by selling the surplus. The Government provides 50 to 80 percent subsidy for green house installation. But still for some farmers installing greenhouses remains out of reach. Moreover, the roof of green house deteriorates rapidly due to environmental factors. This gave us an opportunity to design a green house, which is modular, expandable and low cost, that can be manufactured locally using eco friendly material.



Fig. 2.14: Expandable and modular green house (Image courtesy: Vishal Sengar)

A modular green house was designed that was foldable and could be carried in a tractor trolley, as these trollies are readily available in the region. This design was made expandable so that when needed extra modules can be added without compromising on the installed module. The structure uses material, which is

locally available and easy to manufacture so that it creates employment avenues too.

2.7 Arts & Crafts

This beautiful “paradise on earth”, Himachal Pradesh, has provided artisans and craftsmen with immense inspiration and the liaison of this beautiful land to its people, and of their culture to its crafts, has created craft and techniques which range from woodwork to leather embroidery, from metal ware to carpets and from clay ware to woolen textiles.

After studying the Kangra valley and especially the area in and around Bir the team shortlisted a few concerns:

- *There is a lack of a connection between the market and the craftsman limiting the marketing input in the craft and even accessibility of buying and selling the craft.*
- *There is opportunity in the use of number of previously unexplored local materials such as pine cones, needles, slate etc. in the local crafts. These materials are available in abundance and can give new opportunities to the craftsmen.*
- *The waste material is thrown in the open and thus littering the area and destroying its scenic beauty. This material can be used to create items;decorative and also utility based which can be sold in the market.*
- *The craftsmen in villages only produced handicrafts and other products for domestic and local use. Small quantities resulted in a lot of expenditure on the raw materials and production with very less profit in the end.*
- *Moreover, the products lacked the finesse to be getting sold in the open market. Due to this reason the younger generations now look at other occupations, as it does not provide their family with enough money to sustain. Thus, the*

various traditions and cultures of these villages and small towns are dying and so is some part of our history with it.

- *Some of the Tibetan crafts are heavily ornamented, thus making them expensive and popular only amongst a very select audience. With proper design intervention the crafts look for a larger customer segment too.*



Fig. 2.15: Craftsman working in Norbulingka Institute (Image courtesy:Papiya Das)

Proper packaging, branding and marketing of the local crafts can be done, making the crafts popular and accessible to a larger set of buyers.

Focus should be on developing new and contemporary designs, methods, aids which will enable the locals to produce more goods without compromising on quality effort using newer materials. This in turn will provide viable employment opportunities to the youth and also help in keeping the skills and tradition alive in future generations.

2.7.1 Shilpa-sutra: Mobile Crafts Facilitation Vehicle

Craft products made by lone craftsmen in far flung areas lack input on the market front and are also limited by availability of raw material due to the remote locations of the villages.

There was a need to design a system to connect craftsmen located in remote villages across Himachal Pradesh and facilitate them by

providing resources, and strengthening them by creating a network. This need was addressed by designing a craft facilitation vehicle developed on a Tata 407 chassis. The craft facilitation vehicle a mobile craft centre, was designed to have space for craft resources, material and market input that needed to be delivered to craftsmen situated in remote locations. The vehicle provided a space for a craft specialist who can train craftsmen when required with the required equipment.



Fig. 2.16: Mobile crafts facilitation vehicle (Image courtesy: Aseem Arya)

2.8 Landuse

To maintain a balance in development between rural and urban areas there is a growing need to set up policies aimed at evolving planned and developmental approaches through constructive land use that will reinforce rural economies, improve the quality of life and serve as catalysts to rural regeneration.

Today, rural communities lack the social and economic infrastructure that exists in urban communities. This results in inequality of opportunity for rural people, fewer services, limited choices of employment, and limited recreational facilities.

Therefore there is a need to integrate land use with people’s participation, capacity building opportunities and technical innovation as central to further development. What may be seemingly insignificant is the vital step forward not only in terms of developing rural settlements economically but also help in conserving social and traditional identities through infrastructural developments.



Fig. 2.17: Landuse pattern (Image courtesy: Author)

In an endeavour to develop such a constructive proposal for the acquired land at Bir, a research study was undertaken to explore the latent potential of the area within the context of the community and its needs.

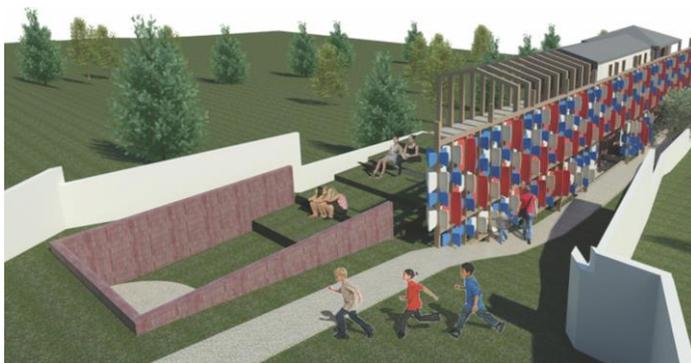
The existing monastic building and interviews of the Deer Park officials and local residents provided valuable information that helped to guide and align the collected research data. Secondary research further supplemented the study with specifics on land details, settlement patterns and a worldwide view of expansion plans of similar institutions. Personal documentation based on observations made during a walk through the village and informal interactions with local residents augmented the exploratory study

and provided the much-needed input to help evaluate and analyze the set challenge at hand.

The detailed analysis based on personal observation, documented research and interaction with officials and residents revealed that the land use of the plots plays a crucial role in the future socio-economic and infrastructural development of both the community as well as the physical area. The challenge lies in preserving local tradition, culture and identity in addition to creating opportunities and provisions for alternative livelihoods for the local population.

With development comes change and therefore what once was, is now replaced by newer landmarks that become symbolic reference points of development. These structures need to be designed in a manner that makes them contextual, representative of and in alignment with the architectural typography of the identified area. Another significant factor was the use of the readily available building materials, which are vernacular in nature to ensure environmental sustainability and economic viability. The design, layout and plan should be such that though in continuity is also dynamic in nature, adaptable and flexible in use with links for future expansions.

2.8.1 Development of a design language for an inclusive Community Interaction hub.



Pic 2.18: The screens that would create movement
(Image courtesy: SidharthKhatri)

Deer park has two plots, which are adjacent to their property. The aim is to expand its horizon keeping in mind their sociological and ecological needs and

parameters of the settlement community around.

The design was conceptualised with different combinations of flexible spaces within a linear format. The idea was to create spaces that open up to other spaces creating larger spaces. Ever evolving spaces that can have multi functions. Specific zones for each activity were defined.

The motivating factors that drive this development are the needs and expectations of the local community. A well designed structure that offers space to serve as a hub for community involvement, social interaction, celebration and community recreation. The designed structure should also offer flexibility in use keeping in mind the evolving needs of the community. The usage could serve as learning centres for vocational education or display halls that speak of culture and heritage through art and craft exhibitions. These would be both an alternative business opportunity coupled with a lure for visitors as well as an assertion of local tradition.

A creative pattern of connections between yesterday, today and tomorrow that capitalizes on the local community's assets, inspiration, and potential is required thus building a landmark that defines a place and supports its ongoing evolution.

Energy producing elements within the building structure e.g. Windmills were added using an interactive screen that is a combination of movable flaps mounted on hollow tubes. The screens would create movement once initiated, by touch or by the wind. This movement would generate electricity through wind and piezoelectric material.

2.8.2 Modular elements: shading devices

Design of a new language in architecture which is to be both contextual and yet modern. A building block, a single module was

designed using bamboo and rope that could be replicated to create domes that could be semi-open and also closed. Without being alien, this new technique would create structures that would breathe life in the seemingly stagnant style of construction. Shading pods were created, to be able to enjoy the generally pleasant weather without the stark sun and that would function as light pods providing potential gathering spaces.



Fig. 2.19: Dome developed using bamboo building block (left) and shading pod (right) (Image courtesy: ShruteeBhut)

3.1 Himalayan Ecology Project Phase II: The Deer Park Project

Our visit to Bir gave us valuable insight of the region. It dismissed many myths, it opened many dimensions. In Bir many worlds meet, and perpetuated by necessity develop complex inter-linkages. For the locals though, living in the pristine beauty of the Himalayas does not come without a cost. The perils of living in remote, inaccessible areas with ecosystems that are increasingly becoming imbalanced, range from lifestyle induced hazards to those contrived by extreme climatic and vegetation pattern deviations.

Bringing together the learning from the Himalayan Ecology Project at the SPA, New Delhi and the resources extended by the Deer Park Institute for engaging local communities, we made a proposal to carry out a Design Studio at the RMIT University,

Melbourne Australia. We saw this as an opportunity to leverage our findings and understanding of the region to explore new facets engaging with a group of design students and faculty, with different perspectives and approaches to design.

The Indian studio took a detour from the "problem solving" approach a studio of this kind usually follows to an exercise in "opportunity finding". We approached issues laterally; instead of trying to solve the problem per se we looked at creating triggers, opportunities that could self sustain and build on the possibilities created.

The Australian Studio, conducted by us with Prof Soumitri Varadarajan and Robert Eales went ahead another step and the Deer Park Project that emerged was a unique "social design" exercise in a transnational studio setting. Students were encouraged to develop solutions for Bir that had an Australian flavour that they could imagine through their own unique life experiences. Wellness and quality of life beyond traditional problem solving became the mandate of this exercise.

Over the years, the region has seen economic growth, widespread mobile connectivity and there is even an ambitious government mandate to make the region Wi-Fi. All these extend a great opportunity to move beyond traditional systems and widen boundaries of design. We also wanted to see if RMIT's experience in harnessing technological advancements to address pivotal grass-root issues could prove beneficial here.

The studio was aimed to create products, services and systems which are simple to use and may still integrate the use of hi-technology, open source systems, tapping of natural resources abundantly available to address issues in the Himalayan Region, without interfering with the prevalent lifestyle and ecological

systems. Traditional systems of knowledge were also to be revived and propagated by appropriate interventions. The project was looking to leap frog to apply technologies that minimise environmental impact and contribute to sustainable development.

Currently both studios are collaborating with The Deer Park Institute to work further on these projects and begin the first phase of design engagement with the community.



Astita Prof Aditi Singh



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Priyabrata Rautray

Currently working as partner in R Square Dezin, an architectural and design firm, New Delhi. Associate with NGOs like Dharma Foundation India and ACT-Gurgaon, working as design consultant. Lead the design team as Head of Design in COSMOS Media Products Pvt. Ltd. from Aug2009 to March2012. Believe strongly that spaces and products reflect our life and should revolve around the life we live rather than ruling it. For last few years he is into academics, acting as coordinator of Industrial and Product Design Department, Sharda University. He has studied Architecture and Product Design as professional courses.



Avik Roy

Avik Roy, is an Architect and Industrial Designer by education. He has done his Bachelors in Architecture from CET, and Masters in Industrial Design. He has his own practice in the fields of Architecture, Interior design, Lighting design and Product design. He is also into academics as well and acts as Interior Design Course Coordinator at Pearl Academy, a reputed design school based in Delhi.

COLOURS FOR THE ELDERLY

Safe Homes for Elders in India

Avik Roy

Architect, Product Designer

Priyabrata Rautray

Architect, Product Designer

I distinctly remember that afternoon, while returning back with my father from school, we happened to take a sudden detour to my maternal Grandmother's place to find her wriggling in pain in her front porch. She hadn't been able to notice water spilled on the grey cement flooring of her house, and had lost her balance and fractured her knee. She was alone at home and could not inform anyone nor was anyone able to hear her cries for almost an hour of her accident. Her struggle had damaged the knee further because of which she had developed a limp and had pain in her knee for the rest of her life. However the psychological trauma that she faced had brought a sense of depression which she could never recover from.

I guess every elderly has some similar story of trauma to share. In fact it is a risk that they face every day. With the rise of nuclear families and disintegration of societies, there is strong social alienation everywhere. Thirty to forty years back, a neighbourhood always comprised of families who had stayed together for decades or may be centuries. Everyone used to be closely knit like a family. But today's younger generation has a

tendency of migrating in search of better avenues and profession, leaving their old parents, in neighbourhoods where everyone beyond their own walls is more or less a stranger. Developing new relationships after a certain age becomes a difficult proposition. And thus arises the scenario where the older generation is home alone with only a television set to accompany them. Additionally if they are afflicted by some health issues, then there is always a potential scenario of accident in store. It is not that we are trying to build up a scenario where elderly look completely helpless, but it is true that the healthiest of the elderly have weak vision capabilities with lesser ability to recognise colours and which may result into unsafe scenarios. As age progresses the cognitive and sensory functions of an elderly individual gradually reduces, a phenomenon which actually initiates at the age of 40.

Oxford Dictionaries defines safety as the condition of being protected from or unlikely to cause danger, risk, or injury. So what are these risks? Are they only physical in nature or psychological as well? How age aggravates these risks? All these questions need to be understood not superficially but in an in-depth manner.

Loneliness and depression are a deep area of concern these days. Lack of peer support, unknown surroundings, lack of social structure creates a stronger sense of depression among the older generation. The present direction of our society is moving ahead completely in contrast to the needs the elderly generation. This scenario gives a perfect opportunity for the designers to come into play and designing that supports a strong sense of psychological engagement.

Thus while designing any house a designer should consider the following factors:

- ***Physical & medical needs***
- ***Home maintenance***
- ***Social & emotional needs***

Psychological safety is something that can't be fulfilled by just designing safer products and spaces. It is in fact a complete system design. It should generate situations or scenarios where these can take off and the elderly gets rid of the feeling of being 'Home Alone'. A good design should consider psychological safety as the prime area of its research.

Instead of designing a house that is modified according to the age, the aim of design should be a place where one can live forever. A study by University of California San Francisco (UCSF)^[1] and Defence Institute of Psychological Research (DIPR), DRDO^[2] has found that it is irrespective of health condition that people get into depression, especially among women. And depression leads to accelerated decline of health in all respects.

In such a scenario, vision is one aspect of an individual which has an immense psychological impact, as loss of it in any proportion alienates a person from the world around irrespective of the age. It is a natural phenomenon that recognition of certain colours reduces as the age progresses. Colour is something which defines the world that we see around us. It plays a very strong element with the psychology of a person. Even if colour doesn't add any tangible function but it plays a major role in the emotional state of an individual. With the rapidly increasing elderly age group in India, the need to understand the importance of colour is even more important. According to the Central Statistics Office-Ministry of Statistics & Programme Implementation Government of India^[3], the population of the elderly will be around 10% of the total population by 2021.

With age, incorrect perception of colours may lead to accidents, disorientation and disillusion. The researches [4] show that the elderly with age irrespective of the health conditions (including Alzheimer's, Dementia etc) see blue, red and green better compared to other colours. Thus while arriving at the selection of these colours through research; we must also understand the type of emotional reaction each colour generates. These findings help the elderly to handle their interior spaces in a more confident manner.

Colour Psychology [5]

Colour	Psychology
White	Purity, Innocence, Cleanliness, Sense Of Space, Neutrality, Mourning
Black	Authority, Power, Strength, Evil, Intelligence, Thinning / Slimming, Mourning
Grey	Neutral, Timeless, Practical
Red	Love, Romance, Gentle, Warmth, Comfort, Energy, Excitement, Intensity, Life, Blood
Orange	Happy, Energetic, Excitement, Enthusiasm, Warmth, Wealth, Prosperity, Sophistication
Yellow	Happiness, Laughter, Cheery, Warmth, Optimism, Hunger, Intensity, Frustration Anger
Pink	Romance, Love, Gentle, Calming, Agitation
Brown	Reliability, Stability, Friendship, Sadness, Warmth, Comfort, Security, Natural, Organic, Mourning
Purple	Royalty, Wealth, Sophistication, Wisdom, Exotic, Spiritual, Prosperity, Respect, Mystery
Blue	Calmness, Serenity, Cold, Uncaring, Wisdom, Loyalty, Truth, Focused, Un-Appetizing
Green	Natural, cool, growth, money, health, envy, tranquillity, harmony, calmness, fertility

Designing of Interior Spaces of a Home:

While designing an interior space, one should understand the priorities of the elderly, who have limited visual agility & lowered cognitive capacity, and can get handicapped without the subtle directions that each colour gives. Any space, for example, a medicine cabinet should be designed in a manner that the cabinet could be placed in such a background that it gets noticed instantly by the user. A white chair in whitish flooring under white light could result into disorientation or confusion for the elderly. In depth research ^[6] suggests that as the human being ages, the lens of the eyes get yellow and we start looking at things in greys and subtle minor change in colour shades is difficult to notice. While planning a space, it is necessary to use appropriate colours. Designed use of colours helps in a faster healing process and recuperates the losses in dexterity and cognitive capabilities. Right kind of light also enhances the Colour Rendering Index which helps the person recognise objects better.

Thus application of colours for elderly should have following factors in mind:

- Prioritising an object or space- Emphasize the important objects for the elderly. The patients of dementia and Alzheimer's often have low appetite. Thus appropriate use of colours especially red and yellow in the dining area will increase their appetite. Green is a calming colour and can be used the bedroom as usually elderly have less sleep in the night. Blue is a soothing cooling colour and can be a very useful during the summer of India.***

- ***De-emphasize Objects-*** *The objects which are of lesser priority should be subdued to create less confusion for the elderly*
- ***Applicability of General Colour theories -*** *The colour theories which are applicable to younger generation are equally applicable to the older folk as well. A warm toned bedroom will be equally soothing and cosier for the older generation as well.*
- ***Appropriate Lighting Levels-*** *The elderly need almost three times more amount of light for the same task. Thus the lighting levels need to be rightly evaluated to see objects and their colours appropriately*

Thus a stronger application of contrast, saturation, hue, values should be done to achieve better cognitive capabilities among the elderly.

Mentioned below are some points that one should take into consideration while creating a better interior space:

INTERIOR ELEMENT	COLOUR CHOICE
Movable Furniture Such As Chairs	High Contrast Value To The flooring/background
Door Frames	Dark Coloured Frames With White Walls
Toilet Seats	Avoid Similar Coloured Flooring And Toilet Seats. The Toilet Seat Should Be High Contrast With Both The Floor And The Walls.
Wash Basin, Sinks	High Contrast Colour To The Counter Slab
Day To Day Accessories	Utensils, Soap Trays, Tooth Brush

	Holders, Medicine Boxes, Water Bottles etc. Should Be Of Contrast Colour To The Space They Are Usually Kept.
Lighting Levels	Avoid Glare Such As Direct Vision Clear Lamps Where Source Of The Light Is Visible.
Floor	Avoiding High Reflection Surfaces And Complicated Patterns. Use Subtle Colours For Flooring Patterns As It Is Not Necessary For The Elderly To Focus On Them Such As Shades Of Cooler Colours. Use High Contrast Patterns At The Entrances/ Transition Area To The Room.
Switches & Sockets	High Contrast & Value Colour To The Back Ground
Stairs	High Contrast Between The Floor And The Staircase With Supporting Handrails

The elderly need more lighting [7] [8] [9] compared to the younger people. Also mentioned below is an indicative table while considering lighting as it is light which defines colours and vision as a whole.

AREA	LIGHTING
Reading & Task	1000lux- neutral white lighting with focus lighting for the task area. The lights should be

	flicker free.
General Movement Area	300lux- neutral white
Bedroom	<p>300 lux- warm white.</p> <p>Many old people have sleeping problems during the night for which they take a nap during the day. Hence a balanced daylighting and ambient lighting should be provided as they do multiple activities on the bed itself.</p>
Kitchen	1000lux-neutral white
Stair	Led strip lights for low level of highlighting
Bathrooms	<p>A combination of task lighting and ambient lighting focussing on the medicine cabinet</p> <p>Light on both sides of the mirror highlighting the face. Light from top will create shadows</p>
Night Time	Low level lighting for the pathway towards the bathroom especially. The fixtures could be kept on dimmers

With leaping progress in the field of science & research, we should start incorporating these researches and findings in our lives through sensitive use of design solutions. We should strive to use elements and methods which comfort our lives not only today but

also at an older age when our senses become weaker. Design for elderly should not be retro-fit but eternal in nature. Our spaces should be designed in a manner that we can live in it forever and not struggle in redesigning it again and again at different phases of life. The elderly need both emotional as well as spatial inclusiveness for a more enhanced and comfortable living.

References:

1. <https://www.ucsf.edu/news/2012/06/12184/loneliness-linked-serious-health-problems-and-death-among-elderly>
2. <http://medind.nic.in/icg/t09/i1/icgt09i1p51.pdf>
3. http://mospi.nic.in/mospi_new/upload/elderly_in_india.pdf
4. http://www.ideasinstitute.org/article_021103_b.asp
5. <http://www.arttherapyblog.com/online/color-psychology-psychologica-effects-of-colors/#.Vs65Mvl97IU>
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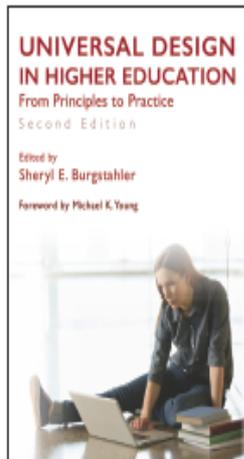
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**UNIVERSAL DESIGN
IN HIGHER EDUCATION**
From Principles to Practice
Second Edition

Edited by
Sheryl E. Burgstahler
Foreword by Michael K. Young

**UNIVERSAL DESIGN IN HIGHER
EDUCATION**

From Principles to Practice, Second Edition
EDITED BY SHERYL E. BURGSTAHLER • FOREWORD BY MICHAEL K. YOUNG

This second edition of the classic *Universal Design in Higher Education* is a comprehensive, up-to-the-minute guide for creating fully accessible college and university programs. The second edition has been thoroughly revised and expanded, and it addresses major recent changes in universities and colleges, the law, and technology.

As larger numbers of people with disabilities attend postsecondary educational institutions, there have been increased efforts to make the full array of classes, services, and programs accessible to all students. This revised edition provides both a full survey of those measures and practical guidance for schools as they work to turn the goal of universal accessibility into a reality. As such, it makes an indispensable contribution to the growing body of literature on special education and universal design. This book will be of particular value to university and college administrators, and to special education researchers, teachers, and activists.

SHERYL E. BURGSTAHLER is an affiliate professor in the College of Education at the University of Washington in Seattle, and founder and director of the university's Disabilities, Opportunities, Internetworking, and Technology (DO-IT) and Access Technology Centers.

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—JONATHAN LAZAR, PROFESSOR OF COMPUTER AND INFORMATION SCIENCES, TOWSON UNIVERSITY, AND CO-AUTHOR OF *ENSURING DIGITAL ACCESSIBILITY THROUGH PROCESS AND POLICY*

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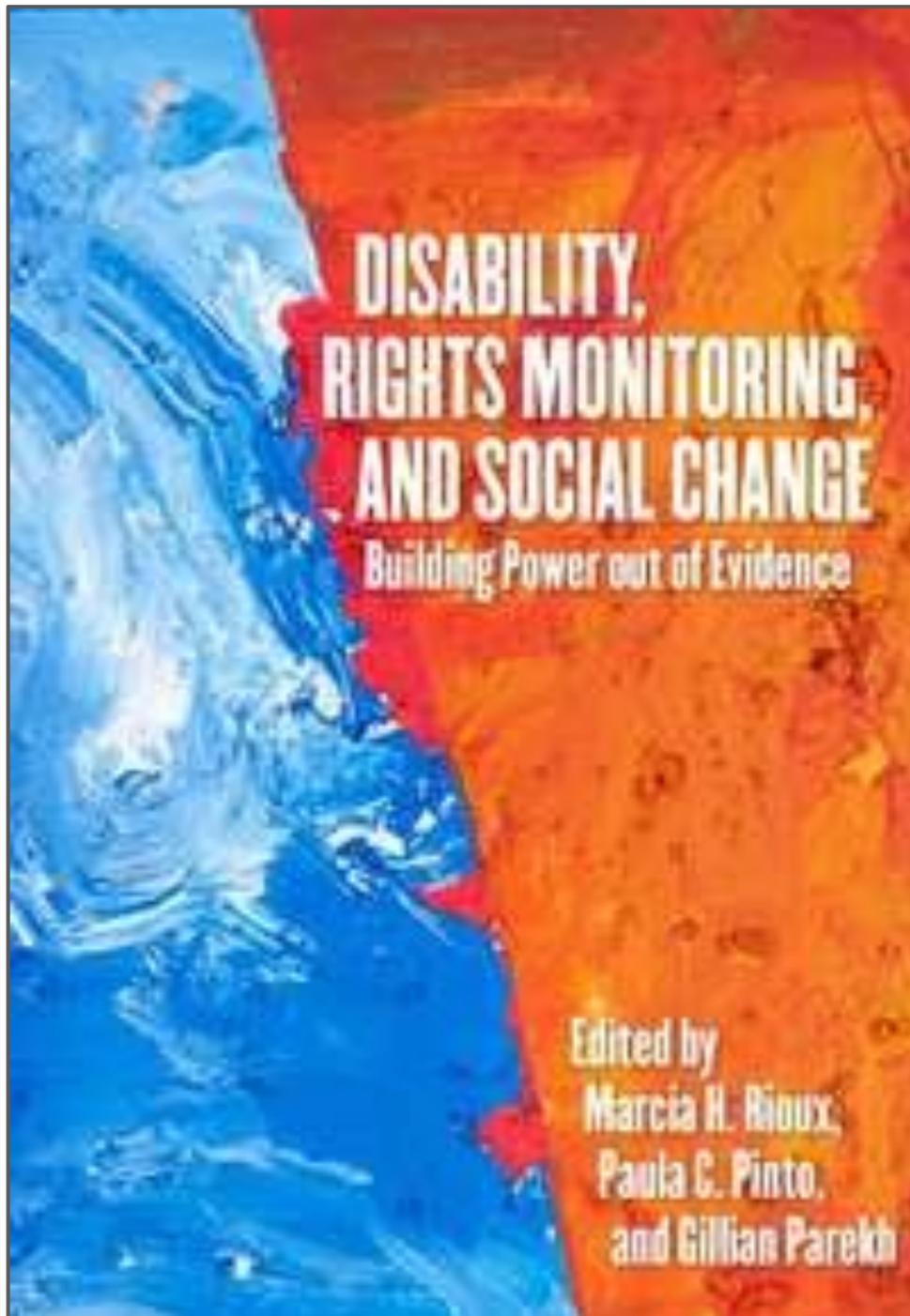
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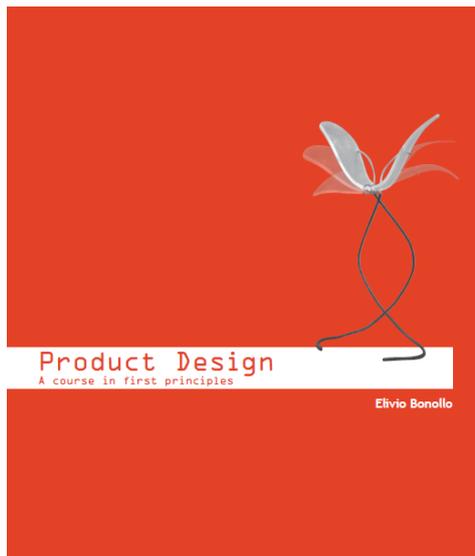
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Product Description

In this book, Elvio Bonollo takes us on a 'learning journey' about design including a scholarly explanation of the characteristics and power of the design process. It provides valuable insights into the attitudes, knowledge and skills that underpin the design discipline at an introductory level of expertise, and has been developed to meet the needs of aspiring designers in many areas including industrial design, design and technology, art and design and architecture. Elvio uses an operational model of the design process - along with related educational strategies, learning outcomes and an ordered set of design briefs - to develop a systematic, problem-based method for learning design from a first principles viewpoint. The beauty of this approach is that it brings structured learning to aspiring designers whilst being mindful of diverse cultures and backgrounds. Each part of this book encourages self-expression, self-confidence and exploration: it has been carefully designed to take the reader on a highly motivating journey of design thinking and creativity, supported by excellent sample solutions to design problems, lucid discussions and extensive references. These solutions, developed by design students, serve as novel examples of how to solve real problems through innovative design without restraining creative freedom and individual personality. The design learning method and strategies in this book will greatly assist design and technology teachers, students of design, aspiring designers and any individual with an interest in professional design practice.

I cannot recommend this book highly enough, it was a complete lifesaver throughout my undergraduate studies and honours degree and now continues to serve me well as I move into industry practice. The content is easy to understand and follow, providing a practical guide to understanding design principles and every aspect of the design process. It includes great project examples and reflects the wealth of knowledge and experience possessed by this accomplished educator. I have purchased multiple copies of this book for peers and would suggest any student who is studying a design discipline to pick up their own copy as this has quickly become the most useful book in my design collection.

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★★★★★ A 'Must Have'.

By Amazon Customer on 7 April 2016

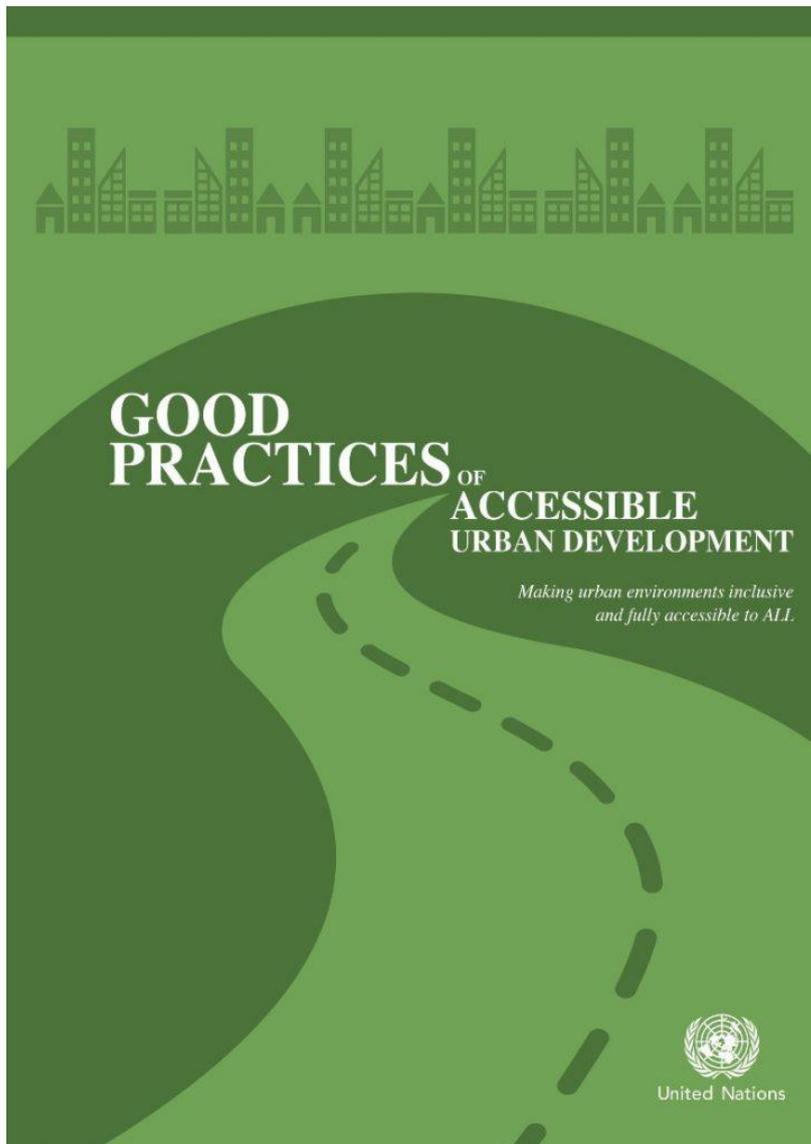
As a Design Education professional of many years standing, I endorse this book without reservation. It is comprehensive, lucid and above all, useful in a very accessible level at the coalface. Professor Bonolo has an enormous cache of experience as an engineer, designer and design educator and his experience is well demonstrated in this book. A 'must have' for anyone in the business of educating or being educated in the product design arena.

TAPPING INTO HIDDEN HUMAN CAPITAL

How Leading Global Companies Improve their
Bottom Line by Employing Persons with Disabilities



DEBRA RUH

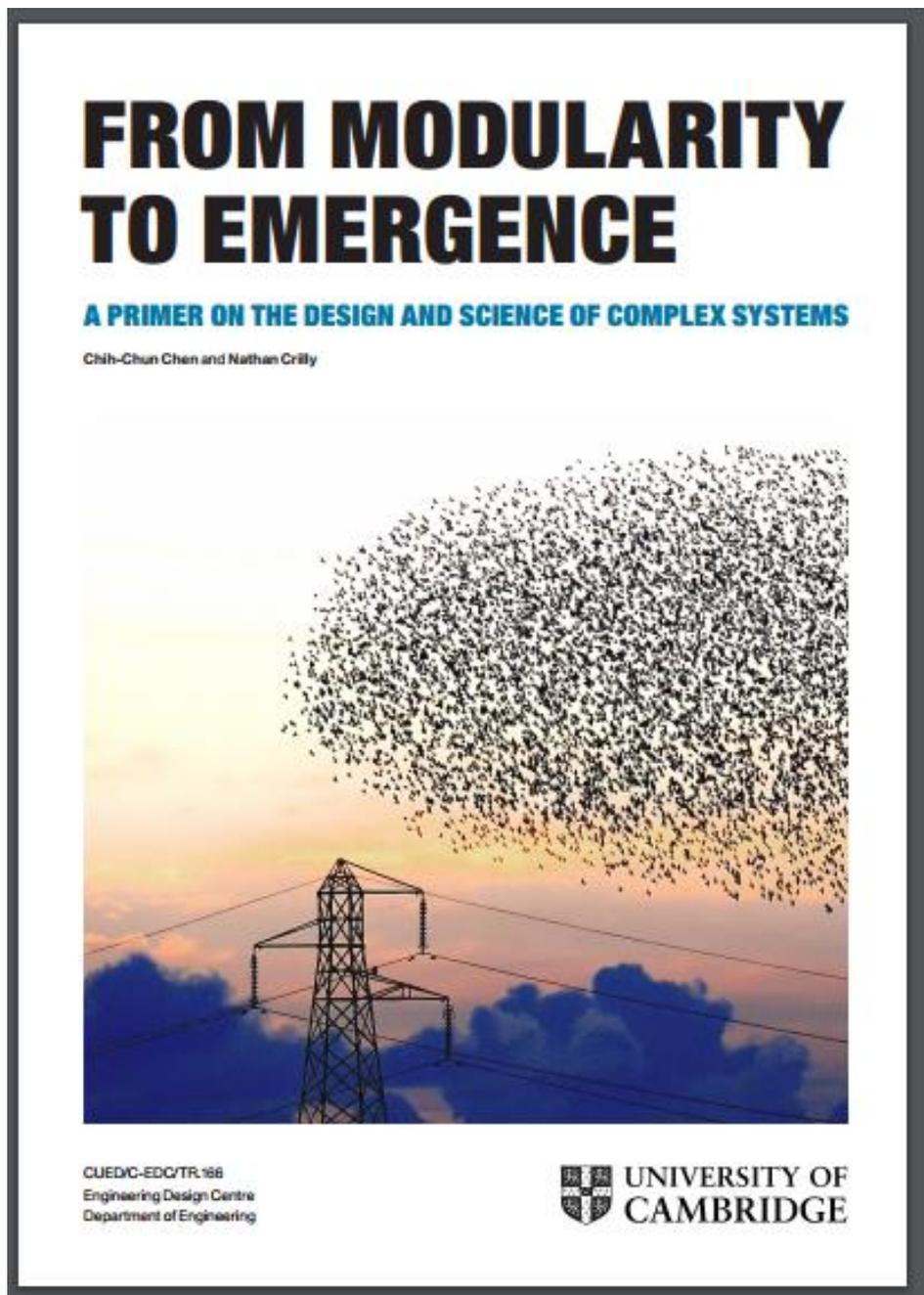


In light of the forthcoming United Nations Conference on Housing and Sustainable Urban Development (HABITAT III) and the imminent launch of the New Urban Agenda, DESA in collaboration with the Essl Foundation (Zero Project) and others have prepared a new publication entitled: “Good practices of accessible urban development”.

The publication provides case studies of innovative practices and policies in housing and built environments, as well as transportation, public spaces and public services, including information and communication technology (ICT) based services.

The publication concludes with strategies and innovations for promoting accessible urban development.

The advance unedited text is available
at:[http://www.un.org/disabilities/documents/desa/good_practices_urban_dev.p
df](http://www.un.org/disabilities/documents/desa/good_practices_urban_dev.pdf)



Dr Chih-Chun Chen and Dr Nathan Crilly of the Cambridge University Engineering Design Centre Design Practice Group have released a free, downloadable book, *_A Primer on the Design and Science of Complex Systems_*.

This project is funded by the UK Engineering and Physical Sciences Research Council (EP/K008196/1).

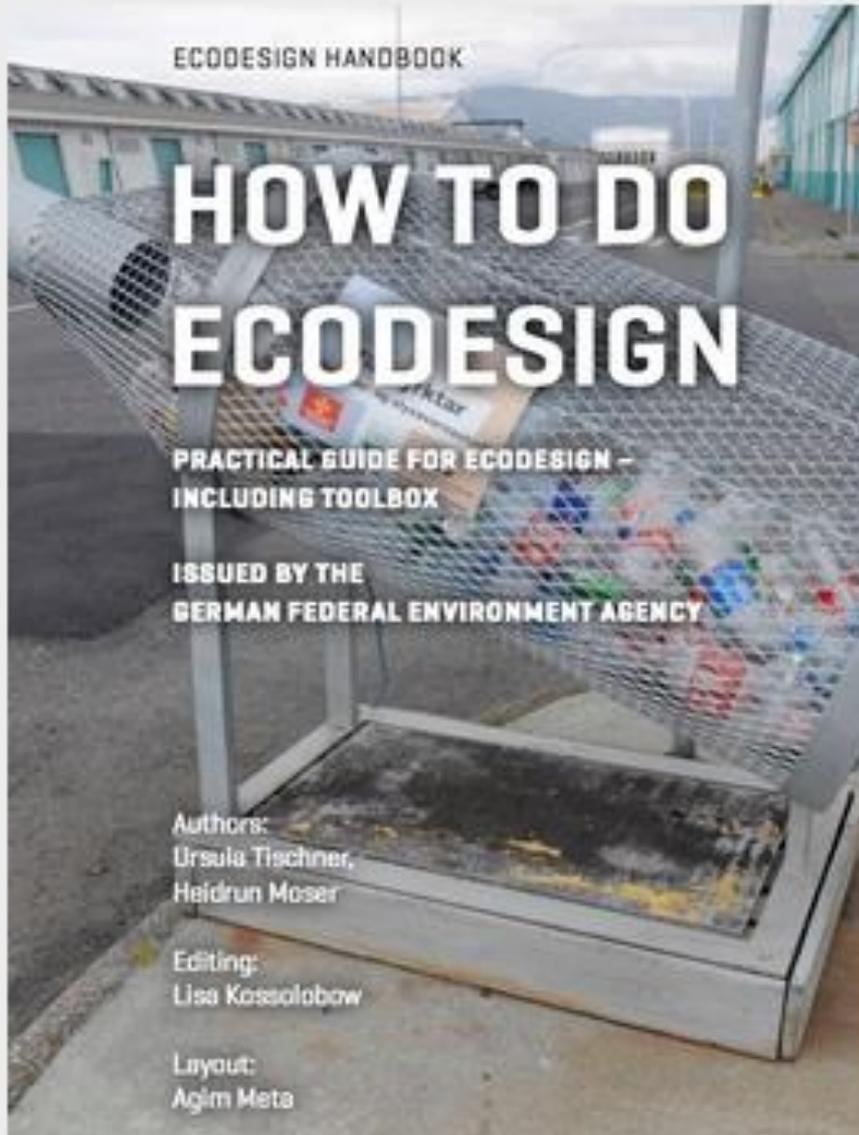
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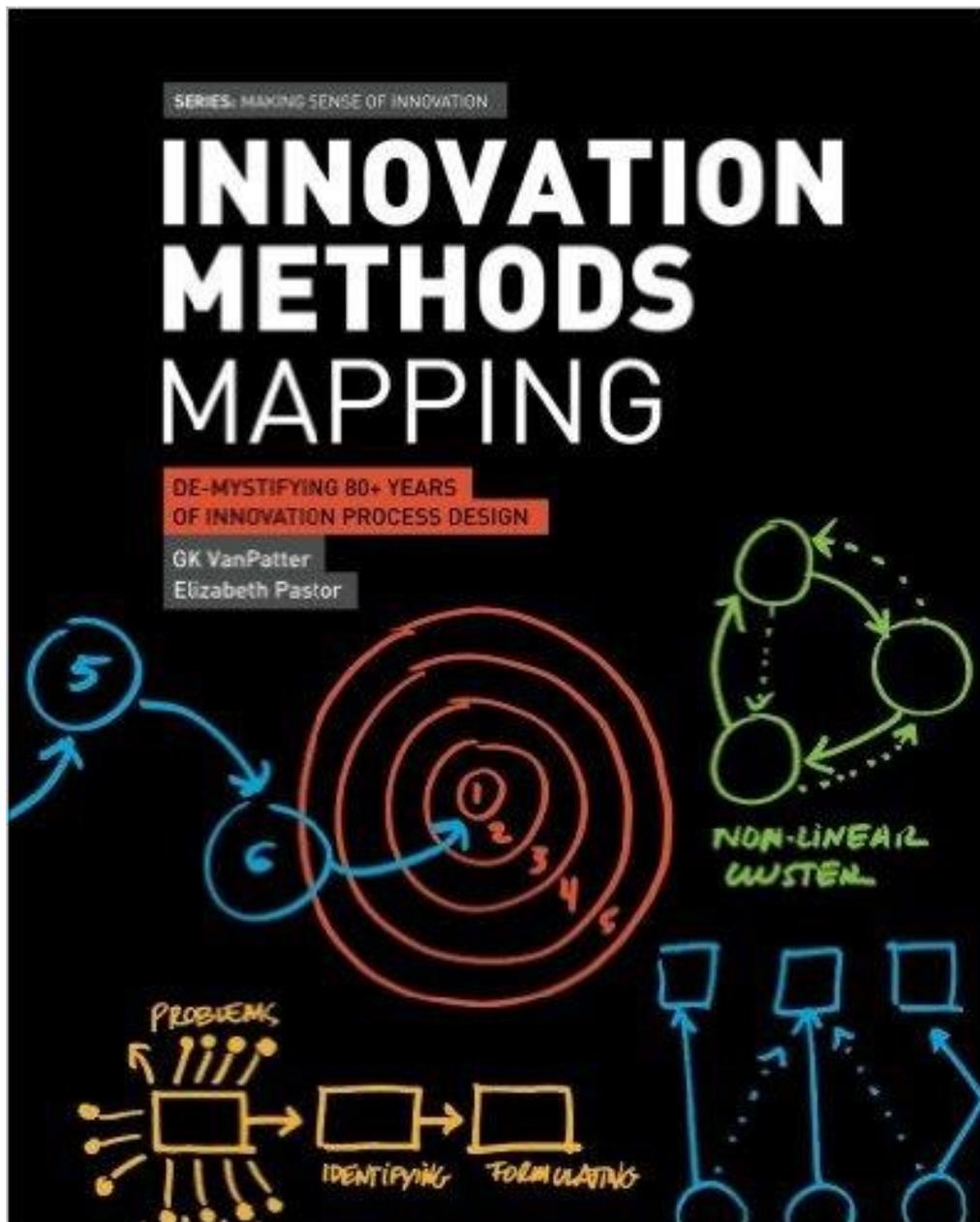


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Author: Ursula Tischner



Humantific's new book: Innovation Methods Mapping has just been published and is now available on Amazon.

https://www.amazon.com/dp/1540788849/ref=sr_1_1?ie=UTF8&qid=1482329576&sr=8-1&keywords=Humantific

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7 Roles to Drive Change by Design
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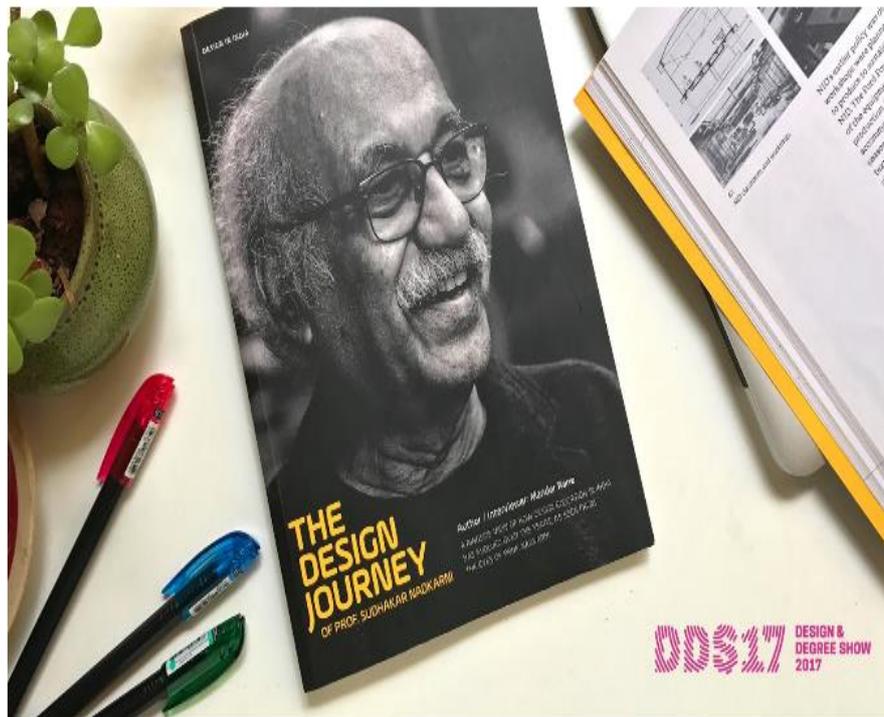
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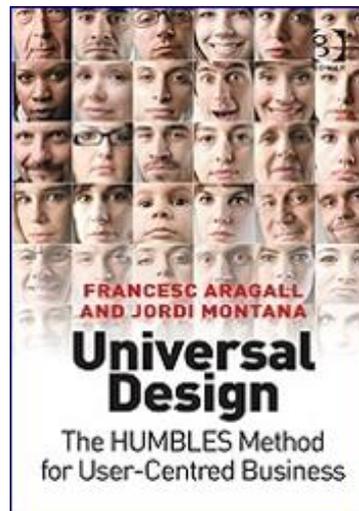
Thank you for your interest in the book, 'The Design Journey of Prof. Sudhakar Nadkarni'. Few limited copies will be available for purchase on the day of IDC Alumni Meet, on June 11th, Sunday, 5:30 to 6:30 pm. Rest of the book orders will start shipping June 25th, 2017 onward.

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Universal Design: The HUMBLES Method for User-Centred Business



“Universal Design: The HUMBLES Method for User-Centred Business”, written by Francesc Aragall and Jordi Montaña and published by Gower, provides an innovative method to support businesses wishing to increase the number of satisfied users and clients and enhance their reputation by adapting their products and services to the diversity of their actual and potential customers, taking into account their needs, wishes and expectations.

The HUMBLES method (© Aragall) consists of a progressive, seven-phase approach for implementing Design for All within a business. By incorporating the user’s point of view, it enables companies to evaluate their business strategies in order to improve and provide an improved, more customer-oriented experience, and thereby gain a competitive advantage in the marketplace. As well as a comprehensive guide to the method, the book provides case studies of multinational business which have successfully incorporated Design for All into their working practices.

According to Sandro Rossell, President of FC Barcelona, who in company with other leading business professionals endorsed the publication, it is “required reading for those who wish to understand how universal design is the only way to connect a brand to the widest possible public, increasing client loyalty and enhancing company prestige”.

To purchase the book, visit either the [Design for All Foundation website](#)

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I have a new book that presents fundamental engineering concepts to industrial designers that might be of interest to you. This is the link:

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Appeals

1.

Toyota Mobility Foundation launches \$4 million challenge to expand mobility for people with lower-limb paralysis

LOS ANGELES, CALIFORNIA: The Toyota Mobility Foundation, in partnership with Nesta's Challenge Prize Centre, has launched a \$4 million dollar global challenge to change the lives of people with lower-limb paralysis, culminating in the unveiling of the winners in Tokyo in 2020.



The Mobility Unlimited Challenge is seeking teams around the world to create game-changing technology that will help radically improve the mobility and independence of people with paralysis.

The Mobility Unlimited Challenge aims to harness creative thinking from across the world to accelerate innovation and encourage collaboration with users to find winning devices to transform the world for people with lower-limb paralysis. The Challenge will reward the development of personal mobility devices incorporating intelligent systems.

The mobility solutions of the future could include anything from exoskeletons, to artificial intelligence and machine learning, from cloud computing to batteries.

Around the world, millions of people have lower-limb paralysis (the most common causes being strokes, spinal cord injury and multiple sclerosis). While there are no statistics on paralysis worldwide, the World Health Organization estimates there are 250,000-500,000 new cases of spinal cord injury globally every year.

Innovation in “smarter” mobility technology has the potential to create personal devices that are better integrated with the user’s body and the environment. But the application of this groundbreaking technology is slow due to disincentives such as small and fragmented markets, regulatory burdens, and reimbursement complexities from healthcare systems and insurers.

This can make the field unattractive to small or new entrants, and prevent innovative solutions by existing innovators from getting to market. Even though huge advances have been made in improving travel between places, innovation in everyday functionality still lags behind.

The Mobility Unlimited Challenge Prize is supported by a number of ambassadors from around the world, all of whom have experience of living with lower-limb paralysis. Global ambassadors include: Aki Taguchi, Director, Paralympian Association of Japan; August de los Reyes, Head of Design at Pinterest; Indian athlete and campaigner Preethi Srinivasan; Dr Rory A Cooper, director of the Human Engineering Research Laboratories at the University of Pittsburgh; Sandra Khumalo, South African rower; Sophie Morgan, British TV presenter; US track & field athlete Tatyana McFadden; and Yinka Shonibare MBE, Turner-Prize nominated British/Nigerian artist. *(All global ambassadors are available for interview on request).*

“This is the beginning of our challenge, a three-year journey concluding in Tokyo in 2020. A journey where the greatest minds in technology, design and engineering, from every corner of the world, will compete to make the environment and society more accessible for people with lower-limb paralysis. We know we don’t have solutions yet: this Challenge is about working with the people who can help develop them.” said Ryan Klem, Director of Programs for Toyota Mobility Foundation.

“Challenge Prizes are a way to make innovation happen. The Mobility Unlimited Challenge is about the freedom to move. It will support innovators, creating cutting-edge personal mobility devices incorporating smart technology and intelligent systems that will transform people’s lives.” said Charlotte Macken of Nesta’s Challenge Prize Centre.

A panel of expert judges will pick five finalists who will each receive \$500,000 to take their concepts from an intelligent insight to a prototype. The Challenge winner will receive

\$1,000,000 to make the device available to users- with the winning concept unveiled in Tokyo in 2020.

The Mobility Unlimited Challenge aims to attract and support smaller innovators who might otherwise struggle to break into the assistive technology market. The Discovery Awards will provide seed funding of \$50,000 for 10 groups with promising concepts, but who might otherwise lack the resources to enter the Challenge. Interested innovators can apply online at mobilityunlimited.org.

Building on universal design principles to create a more equitable environment, entries for the Mobility Unlimited Challenge will be user-centered. The Challenge will be a catalyst for innovation through co-creation with the people around the world who will benefit most from the solutions discovered by our entrants.

At the end of the Mobility Unlimited Challenge, the Toyota Mobility Foundation and Nesta’s Challenge Prize Centre will have supported teams of innovators in creating leading edge technological solutions, opening a new chapter in personal mobility for people with lower-limb paralysis.

For more information, go to mobilityunlimited.org

(Courtesy: Americas, Assistive Technology)

2.

Professor Y.D.Deshpande(Ph.D. – IIT Guwahati)

Research Domain:Human Computer Interactions (HCI)

Interactions between humans and computers should be as intuitive as conversations between two humans. However we find many interactive products around us that fail to achieve this. The research in “Human-Computer-Interactions (HCI)” focuses on

human aspects of these interactions with a goal of making these interactions enjoyable and useful to the user. HCI study involves observing and modeling interactions and designing new technologies that let humans interact with computers in novel ways. The research in HCI combines fields of computer science, behavioral sciences, design, media studies, ergonomics and several other fields of study.

Research Interests:

- **Interactive learningspaces**
- **Augmented reality applications to education**
- **User experience design**
- **Software-Usability Engineering**
- **Educational Technology**
- **Context-aware computing**



News

1.

UP Institute Of Design To Start Full-Time Courses By 2019: Government

Lucknow: In a bid to give a contemporary touch to various handicrafts and boost indigenous crafts in Uttar Pradesh, the state government is planning to start proper and full-time courses in the UP Institute of Design by 2019. "We plan to start proper and full-time courses from the UP Institute of Design, Lucknow, by 2019. At present, there are certificate courses being run in the institute, which comes under the ministry of micro, small and medium enterprises," chairperson of the UP Institute of Design, Kshipra Shukla told PTI today. She said that the institute will offer degree courses to students.

"The institute will offer undergraduate degree, post-graduate degree and PG diploma to the students. Apart from this, there are also plans to introduce one-year certificate courses for working professionals. In addition to this, plans are on the anvil to introduce short-term courses for entrepreneurs," Shukla said.

She informed that the stress is on providing job-oriented courses. "There are plans to start courses in visual merchandising and fashion journalism," she said.

The institute will also endeavour to help the artisans and budding artisans in designing and marketing of their products.

(Source NDTV)

2.

Conference on Autonomous Vehicles and the Disability Community

BALTIMORE: The National Federation of the Blind (NFB) and the Alliance of Automobile Manufacturers (Auto Alliance) hosted a conference titled "The Promise: Autonomous Vehicles and the Disability Community" on October 25. The event was hosted at NFB's Jernigan Institute in Baltimore, Maryland.

The event brought together representatives from government, the automotive industry and advocates for persons with disabilities to discuss the advances, challenges, and path forward for autonomous vehicle development.

"Historically, accessibility has been a costly post-purchase vehicle modification for most people with disabilities, and nonexistent for the blind," said Mark Riccobono, President of the National Federation of the Blind. "The National Federation of the Blind was therefore pleased to co-host this first-of-its-kind gathering of disabled consumers, automotive industry representatives, ride-sharing providers, and policymakers, laying the groundwork for accessibility to be included in the development of promising new vehicle technologies rather than as an afterthought. Discussion between industry and disabled consumers has already had a positive impact on the Senate's AV START legislation, and our continued work together will pave the way for autonomous vehicles to become tools that will truly enhance independence and opportunity for travelers who are blind and other disabled."

"Automakers have been developing self-driving technologies for years. We are motivated by the tremendous potential for enhanced safety for everyone and the opportunity to provide greater mobility freedom to people with disabilities and the elderly," said Mitch Bainwol, President and CEO of the Auto Alliance. "Given the enormity of the social benefits, we are anxious to work with stakeholders and government leaders to develop the policy framework to realize these benefits as soon as we can."

The conference was a key step in the ongoing conversation about how autonomous vehicles can be developed and deployed safely, while considering the needs of those 57 million Americans with disabilities.

Autonomous vehicles offer disabled Americans opportunities for increased mobility and independence, as well as reliable transportation that could vastly increase employment opportunities.

The National Federation of the Blind and Auto Alliance urge Congress, the Administration, and original equipment

manufacturers alike to consider the needs of the disabled as they continue to develop the laws, regulations, and technology that will bring autonomous vehicles to the masses.

The day's speakers included representatives of the disability community (including the National Association of the Deaf, National Federation of the Blind, Paralyzed Veterans of America, American Association of People with Disabilities, United Spinal Association, American Council of the Blind, and National Down Syndrome Society); the automotive industry (including General Motors, Audi of America, Daimler North America, and Volvo Car Group); government (including representatives from the office of Sen. Gary Peters, D-Mich., the U.S. Department of Labor, and the National Highway Traffic Safety Administration) and other stakeholders (including representatives from Uber and Securing America's Future Energy).

(Source: Global Accessibility News)



Programme and Events

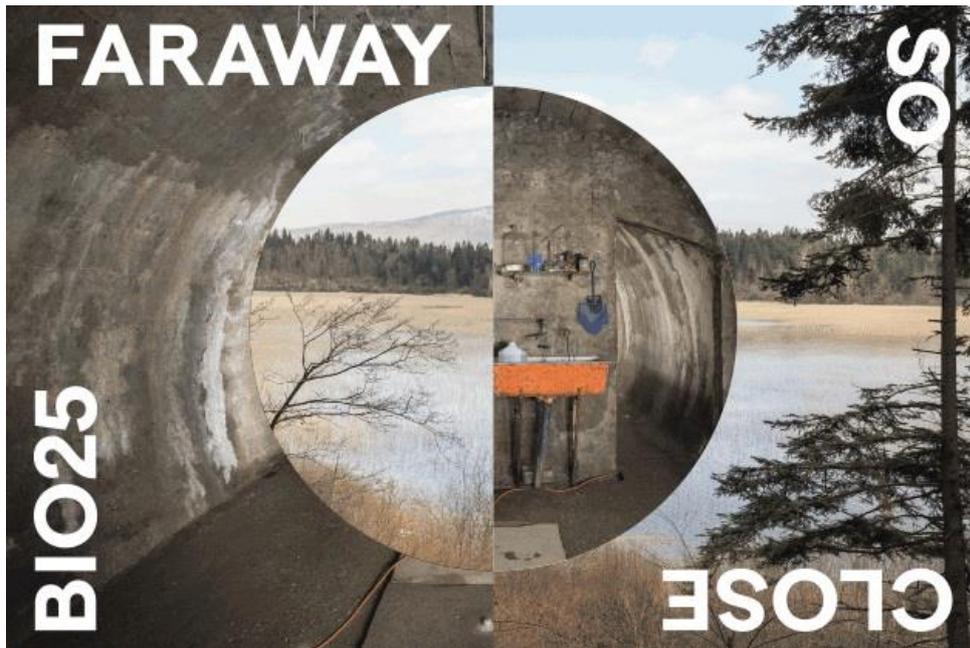


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FARAWAY, SO CLOSE

25th Biennial of Design
Ljubljana, Slovenia
25. 5.–29. 10. 2017

The 25th edition of the Biennial of Design in Ljubljana is set to strengthen its role as an interdisciplinary collaborative platform where design is employed as a catalyst for change.

BIO 25, under the title *Faraway, So Close*, will be curated by **Angela Rui**, a Milan- and Rotterdam-based design critic and curator, and **Maja Vardjan**, curator of Museum of Architecture and Design (MAO).

In line with their focus on the humanistic side and expression of design, they will use the Biennial **to decode through design the effects** of environmental changes, asset migration, and reactions to the systemic crises.

In the face of the total failure of the theory of Positivism, we are now forced **to confront the crucial and still largely hidden meaning** of the consequences of "post-modernization", for which the city seems to have lost its authority as the territory where we look to find the source of quality existence.

Small changes are already taking place and gaining ground, and new inputs are slowly modifying our urban and rural environments. New frictions emerge out of the co-habitation of remote meanings and contemporary habits, as we look for new territories to signify, places to re-inhabit, ancient relations to re-enact, basic coexistences to re-imagine. **Can this friction between distant conditions produce new scenarios for a different present time?**

Along with the main subject-themes of the biennial, BIO 25 will de-centralize and will be interpreted as **a shift towards new territories** to be seduced by research and discourse, as well as by the idea of an event with which to produce knowledge. In the age of super information consumed in real time, the challenge of a biennial becomes increasingly closer to real conditions of everyday systems; **to provoke and challenge the paradigms** related to design and architecture through their pragmatic

application, acting as a “permanent work in progress”.

Slovenia, in accordance with its geographical conditions, will perform as a paradigm to stimulate, discuss and test the status of this global shift.

SAVE THE DATE FOR THE 25TH BIENNIAL OF DESIGN

Open Call 12 May - 5 July 2016
Kick-off event 15 September 2016
Process Autumn 2016 – Spring 2017
Exhibition 25 May – 29 October 2017



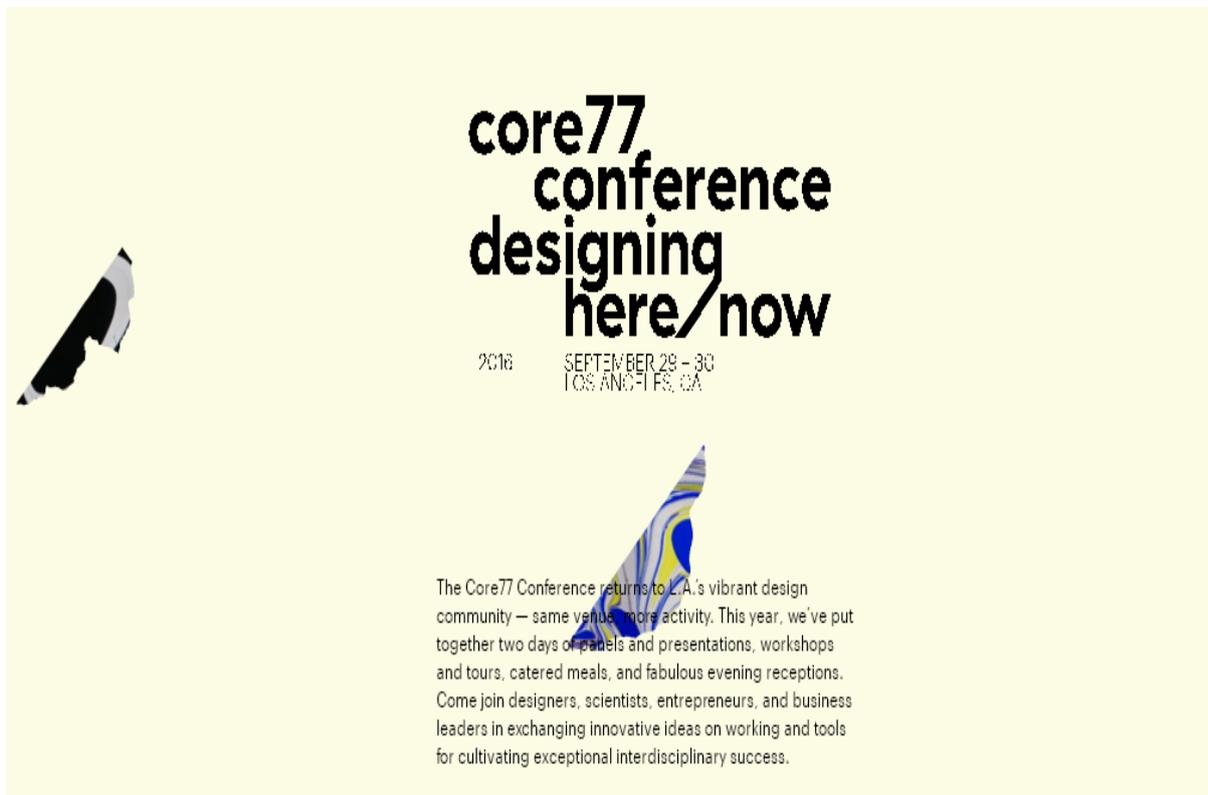


INTERACT 2017 MUMBAI

6th IFIP TC.13 International Conference on Human-Computer Interaction -
INTERACT 2017

Theme: Global Thoughts, Local Designs

at IDC, IIT Bombay 25-29 September, 2017 <http://interact2017.org/>



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LOS ANGELES, CA

The Core77 Conference returns to L.A.'s vibrant design community — same venue, more activity. This year, we've put together two days of panels and presentations, workshops and tours, catered meals, and fabulous evening receptions. Come join designers, scientists, entrepreneurs, and business leaders in exchanging innovative ideas on working and tools for cultivating exceptional interdisciplinary success.

THE ANNUAL INTERNATIONAL BERKELEY UNDERGRADUATE PRIZE FOR ARCHITECTURAL DESIGN EXCELLENCE 2018

**2018
berkeley
prize**

Applying the Social Art
of Architecture



ABOUT THE PRIZE
ESSAY PRIZE COMPETITION
TRAVEL FELLOWSHIP
PREVIOUS FELLOWSHIPS

2018 2017 2016 2015 2014 2013 2012 2011 2010 2009 2008 2007 2006 2005 2004 2003 2002 2001 2000 1999

TWENTIETH ANNIVERSARY!



**INTERNATIONAL VISUAL METHODS
CONFERENCE 5
VISUALISING THE CITY**

**5 - 18 AUGUST 2017
SINGAPORE
WWW.VISUALMETHODS.INFO**

phenomenon of cities is an increasingly important part of the everyday life of individuals. The United Nations reports that as of 2014, 54 percent of the world's population live in urban areas, with that proportion rising to 66 percent by 2050. Asia and Africa are projected to contribute the most to this growth. Cities come in, and are engaged with, on a variety of scales, shapes and interactions. From global cities to suburban neighbourhoods to the bedrooms of our informants, from walking to sensing to mapping the city – the ways in which we have seen, experienced and documented cities are constantly in flux.

In this 5th instalment of the International Visual Methods Conference, we seek papers, presentations and performances that critically examine the city through visual methods. However, we also welcome proposals for topics not directly related to urban life, but nonetheless encompass visual methods.

CALL FOR PANELS, PAPERS AND OTHER CONTRIBUTIONS

Hosted in Singapore, itself a unique blend of city and state, we welcome presenters from a wide range of disciplines, from the arts to social sciences to STEM subjects – and particularly encourage interdisciplinary dialogues. Specific themes include, but are not limited to the following

- Critical Perspectives on Visual Methods
- Visual Methods for Urban Areas
- Walking, Sensing and Experiencing the City and other Spaces
- The Science and Technology of Visual Methods
- Mapping Everyday Life
- Visualising the Unseen
- Visual methods as an Agent of Change in the City
- Visual Methods in Teaching and Learning
- Open Stream

**SUBMIT ONLINE BY JAN 2017 AT
WWW.VISUALMETHODS.INFO/CFP**

IVMC 5
VISUALISING THE CITY
AUGUST 2017
SINGAPORE

Visual Methods Conference

HOSTED BY
SIT SINGAPORE INSTITUTE OF TECHNOLOGY

The 2018 NKBA Design Competition Is Open



The 2018 NKBA Design Competition is open and accepting submissions. The annual competition provides the opportunity to recognize the association's designer members for their outstanding kitchen and bath projects completed between Jan. 1, 2016, and Aug. 4, 2017.



The banner features a collage of healthcare professionals. On the left is the GCIC 2018 logo, which consists of a stylized globe with blue, yellow, and red curved lines. Below the logo, the text reads "Global Conference on **Integrated Care** 2018". To the right of the main title, it says "ADVANCE! Accelerating the Integration of Care". At the bottom left, the dates "1 - 3 FEB" are listed next to the venue: "Resorts World Convention Centre, Resorts World at Sentosa, Singapore, 8 Sentosa Gateway, Singapore 098269". A pink button with the text "REGISTER NOW" is positioned to the right of the venue information. Below the button, a small note states "Early bird rates end on 30 September 2017". A blue heading "ABOUT THE CONFERENCE" is followed by a paragraph: "The **Global Conference on Integrated Care (GCIC) 2018** is an international conference that will bring together clinicians, health and social care professionals and practitioners, and policymakers from around the world to share knowledge, experiences, ideas and innovations".

GCIC
2018

Global Conference
on **Integrated Care**
2018 ADVANCE! Accelerating
the Integration of Care

1 - 3 FEB | Resorts World Convention Centre
Resorts World at Sentosa, Singapore
8 Sentosa Gateway, Singapore 098269

REGISTER NOW

Early bird rates end on 30 September 2017

ABOUT THE CONFERENCE

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Typoday 2018

International Conference, workshop, exhibition:

[Typography Day 2018](http://www.typoday.in)

1st to 3rd March 2018 at Sir J J Institute of Applied Arts, Mumbai, India

<http://www.typoday.in>

18 - 20 OCTOBER 2017, BRISBANE



Universal Design Summit 6

Inclusive Communities: Housing & Public Spaces

November 13 – 14, 2017 in St. Louis, Missouri

A leading conference in North America that proudly provides exceptional content on Universal Design in home and community

Join us at the Summit!

Registration is now open!

\$190.00 – Early bird by September 1st at 5:00 PM CDT

\$225.00 – Regular price after September 1st

PLATINUM SPONSOR

GOLD SPONSOR





The Srishti Community Invites you to The Srishti Collective 2017 from **July 17th to July 20th**, from **11:00 am to 6:00 pm**.

The Srishti Collective 2017 is an annual curated exhibition of our graduating students' work, including the Thesis / Capstone Projects of 2017.

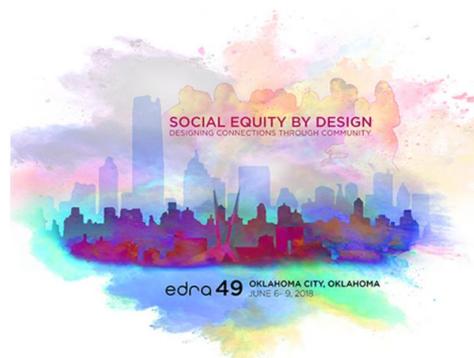
Venues:

- King's Court, Gate no. 5 Palace Grounds Jayamahal Bengaluru 560006.
- Cubbon Park Metro Station Bengaluru 560001.



Srishti Institute of Art, Design and Technology
40/D, 2nd Cross, 5th Main, Shiva Mandir Road, Yelahanka New Town, Bengaluru 560106
+91 80 49000800
info@srishti.ac.in | www.srishti.ac.in

ACADEMY PARTNER

Join us for the **2018 EDRA49 Annual Conference** in the **Oklahoma City, Oklahoma!** Walk along the streets of Oklahoma City, home to an attractive variety of historic buildings. Eye-catching religious buildings, and magnificent structures of great architectural and historic significance. **Stay tuned for registration to open in late Fall.** Check out what OKC has to offer, [click here](#).

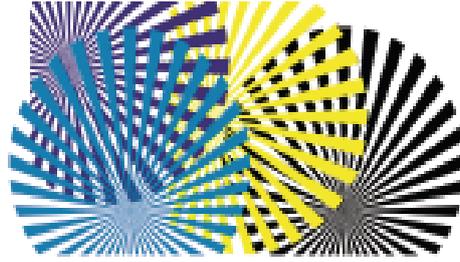
**NATIONAL CONFERENCE
ON
LEARNING TOGETHER: INCLUSIVE SCHOOLING**

Date: 02-04 November 2017

Timings: 09.00 am to 05.00 pm

Venue: NDMC Convention Centre, Connaught Place, New Delhi-110001

Organizers:
Brotherhood, Delhi and Centre for Disability Studies and Action (CDSA),
School of Social Work of Tata Institute of Social Sciences, Mumbai
The Cradle, New Delhi



iphiGenia Design Award

iphiGenia Gender Design Award 2017: Preisverleihung – Save the Date

12. Oktober 2017, 19:00 Uhr
Museum für Angewandte Kunst Köln/MAKK
An der Rechtschule, 50667 Köln

Aktuelle Informationen:
iphiGenia.GenderDesign.com

Für Fragen eine Mail an:
iphiGenia@GenderDesign.com

Prof. Dr. Uta Brandes
(Vorsitzende IGDN)
+49 (0) 221-26 12 07

In diesem Jahr ergibt das „International Gender Design Network/IGDN“ erstmals die neue, ebenso wichtige wie einzigartige Auszeichnung: den „iphiGenia Gender Design Award“.

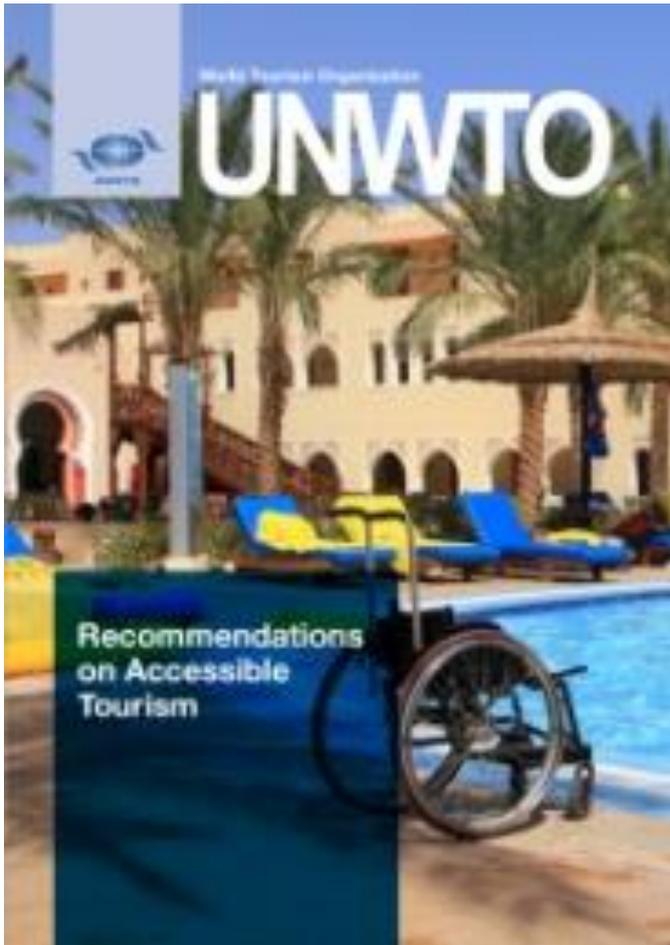
Eine kompetente Jury hat aus den vielen Vorschlägen zwei PreisträgerInnen ausgewählt. Am 12. Oktober 2017 werden im MAKK gewürdigt:

- mit dem „IGDA Evolution“ wird ein junges, erfolgreiches Unternehmen aus New York ausgezeichnet, das äußerst innovative, nachhaltige und attraktive Produkte für Frauen gestaltet, produziert, vertreibt und diese auch vorzüglich kommuniziert – und zusätzlich eine Stiftung zur Aufklärung von Mädchen und jungen Frauen insbesondere in Afrika gegründet hat
- mit dem „IGDA Revolution“ wird eine dänische Design-Agentur gewürdigt, die radikal, erfindungsreich und provokant die internationalen Bildatzenbanken gendersensibel verwirrt und bereichert.

Repräsentant_Innen des Unternehmens und der Agentur werden bei der Preisverleihung am 12. Oktober anwesend sein.
Sehr gern laden wir Sie zu der Preisverleihung ein.

Uta Brandes
(Vorsitzende des IGDN)







UXINDIA2017: Intl Conference on UX Design
1, 2, 3 & 4 November 2017
Marriott Whitefield, Bangalore

www.2017.ux-india.org

REGISTER NOW

4 days of inspiration, education and skills development for user experience designers, UX leaders, program managers, user researchers, startup founders and design students

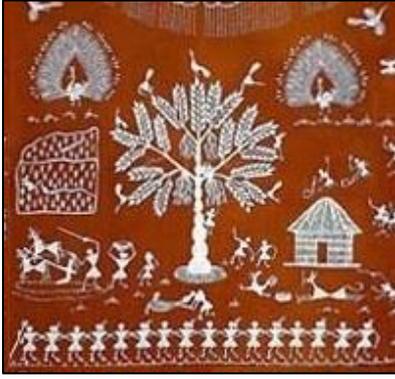


2017 Student & Pro Concept Deadline Update

Hi Folks–

The Spark Deadlines for the Winter award categories are fast coming up.

The **LAST CHANCE DEADLINE** is November 28, 2017, Midnight, California Time



Job Openings

1. Job Opening

Xoriant Solutions is looking for a Sr. UX designer (preferably permanent position) at their Mumbai office. The following are the details:

As a UX Designer,

You will:

- **Strongly advocate the user. That means you will be asking a lot of “who, why and how” to the clients, stakeholders and team mates.**
- **Understand the user and create user profiles and scenarios.**
- **Understand and map the user journey, create flows to support the users in their objectives.**
- **Create and test wireframes, prototypes and functional specs for the interfaces you design.**
- **Prioritize alternative approaches in face of conflicting requirements.**
- **Conduct full-fledged and quick usability tests as needed.**
- **Collaborate with UI designers to translate the wireframes into beautiful and usable interfaces.**
- **Support the development team in building a successful product.**
- **Work as a part of a cross-functional team.**
- **Help with planning the UX track in the projects.**
- **Sometimes travel for short durations to meet users, and/or clients.**

You are:

- **Preferably a graduate or post-graduate in product design, communication design, interaction design or HCI from a reputed institution, though this is not mandatory.**

- **Have a good understanding of the UX process end-to-end.**
- **Have strong written and verbal communication skills, and are willing to speak with client team on a regular basis and explain your ideas.**
- **Have a good enough understanding of technologies to understand their potential and limitations with respect to User Interfaces**
- **Have a portfolio of work containing examples of more than just UI design.**
- **Know wireframing and prototyping software like Visio, Axure, Balsamiq, etc. Knowledge of HTML/CSS, Photoshop and Illustrator is a definite plus.**
- **Know the latest trends in Interaction design.**

You have:

- **Worked as a UI/UX designer/Information Architect or a similar role for at least 4-5 years.**
- **Been a part of a project where you interacted with the stakeholders and clients.**
- **A portfolio showing projects where you contributed to more than just the UI design.**
- **Conducted at least one usability test and analyzed the results.**
- **Used at least 2 softwares for wireframing and diagramming.**
- **Have worked on a project independently, with minimal supervision.**

Interested designers, please write to hansraj.surti@xoriant.com with your resume and portfolio details



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