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COMMUNITY WEEK 2014: INCLUSIVE SOCIETY, ITS RIGHTS AND DUTIES

PROCEEDINGS



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Introduction

Inclusive society is an important and relevant discussion in Punjab, India, and the world at large because it will lead to peace, happiness and wellbeing. If all the people of a community, nation and our global community feel they can live a fulfilling life, they will have more reasons to enjoying living than fighting. So an inclusive society is basic to peace. If a person feels by working honestly he can live a fulfilling life, he will work as a team member of the community and not put all his energy to cheat the system. Thus we must work to design strong governance policies that have a clear and transparent balance of individual rights and duties versus the rights and duties of the society as a unit. People need to be educated and reminded all the time how to co-exist as a society in balance with our needs and the resources and how to share them in a sustainable and fair manner. Just as any sports team cannot win without unity, no matter how many great players it has, a society and its people cannot live a happy and fulfilling life without having a balance between the self and others. This idea is not against our individual self, we just have to be educated that there is a diminishing marginal return for every want, and that is not any more a good return for the self. Once an Indian relative explained the competitive Indian nature to me, saying “when God told a man that he would grant whatever he wished for, but that whatever he wished would be doubled and given to his neighbor as well, the person asked the God to get rid of one of his eyes”. I was taken aback to hear such a thought coming from a mature person from the same Punjab known for Guru Nanak, who would measure all the goods as 13 which has the same sound as your and give to the poor without taking any money. It is the same land where there was no difference between Hindu and Sikh. Banda Bahadar, who established the first Sikh rule was a Hindu, and under his rule and the Sikh kingdom of Ranjit Singh all religions had equal freedom. This is the same region where caste system was abolished by the Gurus, and langar (Free Communal Kitchen) is to be shared with everybody sitting together at the same level. It is

the same region where women were equal in battle fields like Mai Bagho and Rani Sada Kaur. It is the same region, where the name Kaur, which means the crown prince, is given to a woman, thus establishing equality for women. If a woman is not economically independent, she is always at the mercy of someone else. She would be lucky if she is born in a family which values her as an equal and lucky if she is married off in a family where she will not be abused. However, today's Punjab has the highest rate of sex selection related abortions. This can only be overcome if genders have equal rights and duties. If there is dowry, a poor parent feels cursed to have a daughter. Inclusive society, a healthy society, needs to provide both genders equal access to education, choice of profession, choice of marital partner, but that also brings equal level of duties; so no dowries, no list of gifts for the girl's in-laws and equal responsibility to help elderly parents or siblings in need. So why hold this discussion in Punjab? Because in the 15th century, Guru Nanak introduced the type of inclusive society we talk about in the western world today. It is extremely relevant for today's Punjabis to live without religious divides, and to join India in leading the world to adopt and share the message of Guru Nanak on the importance of cultivating an inclusive society.

-Sonia Dhillon Marty

Community Week 2014 Design Statement: Public Toilets, a Civic Necessity

Sanitation is air-born, in our soil, in our table water

Sonia Dhillon-Marty

Vision

Inclusive society is an idea where everyone has the right to reach his or her potential while upholding the balance between his or her needs against the needs of the society. If a society does not have the same basic sense of cleanliness, how can people work or live together? Just creating reserved seats or giving handouts does not build a flourishing society. People, from birth or even prenatal care, need access to food, sanitation, health and education for vocational and ethical development. As a visitor to India, the first thing one sees everywhere is poor sanitation; therefore, we have chosen to present this issue for this year's Community Week as a challenge problem.

Design Challenge

This issue can be tackled in any form or genre, from a physical design, a public service campaign to a policy paper.

Social Impact

Sanitation is basic aspect of living a humane life. If a society does not respect its surroundings, how can it value human life? What makes us different from animal or beasts is that we can think how our actions affect us today and in the future. On my last visit to India, I took a train from New Delhi to Jaipur. I had not been to

an Indian train station for over 40 years. The Shatabdi first class train journey is very popular, and it is very hard to get the tickets, so I thought that with all the economic growth of India, the train journey would be reasonably comfortable. The express train was scheduled to leave at 6am, so I arrived about 5:30am. The station was crowded with people, people coming to catch their trains, beggars, and homeless people. I had to jump around people still asleep on the platform, but I did not expect that I would also need to watch for human feces. How can Indians not be fazed by such appalling conditions?

Once I got in my first class cabin, I still could not look outside for close to an hour as it was an open toilet and garbage bin, no matter which direction I looked out of my window.

This is a country with billionaires. Wedding parties are outdone by everyone. It is a highly educated society. Every Indian can argue to defend his zealous pride in his country, but how come people are not ashamed to deprive it? Even luxury buses are not equipped with toilets. The bus journey from Chandigarh to Delhi in an air conditioned reclining seat coach, amply bottled water to drink, and a movie to entertain was very comfortable. As we got closer to Delhi, a male passenger came by to talk to the driver, and a few minutes later the bus stopped, and many passengers started to disembark. I felt nervous, it did not look like a very busy area, the night was starting to fall, and there were only few women on the bus. To my relief and disgust, it was a pit stop on the side of the road so that passengers could go relieve themselves. I could not resist asking the driver, why the Indian women could control themselves, but the Indian men could not. Off course, I did not get any answers. Nobody even cared to acknowledge the issue. This seems to be the way for all of the issues in India. If I do not see it, hear it or say it, then it does not relate to me but to other people whom somehow I have segregated into another group as poorer than me, or from a lower caste than me...

In India there is more mobile phone penetration than toilets in homes. As such, two teenagers were gang raped and lynched when they went out to relieve themselves in the morning. There are not even toilets for on duty police in public places. In addition, people do not use the toilets appropriately. Sewage systems and water shortages are just some of the problems. For many Hindus, women cannot enter a place of worship or a kitchen while they have their periods, but there is no social stigma against public disposal or male defecation outdoors.

Asides from the technological problems, toilets can be a trap for physical and sexual assault. If they are not kept clean, they can be a breeding ground for sanitation borne diseases. They can be a place for snakes, spiders and tarantulas. The objective of this exercise is not only to facilitate public toilets that adjust to local needs, but to raise awareness among people about the importance of sanitation to achieve a developed society.

A Critique of “Out of Sight, Out of Mind”: Deep Diversity as a Means Toward Complete and Inclusive Cities

Howard Davis, University of Oregon, US

A lot of commentary about contemporary cities has it that the economy of cities in the West, and in American cities in particular, is no longer an economy in which things are made, but a “knowledge economy” in which value is added through the production of software, websites, prototypes, manipulation of symbolic knowledge systems and processes of control. This view, popularized by writers such as Richard Florida, has affected ideas about city planning and spurred efforts at “city branding;” it has contributed greatly to a particular view of the contemporary city that is characterized by repurposed warehouses and factories, left over from the industrial economy, converted into “hives” and offices for creative people, with hip coffee shops and restaurants at the street.

A report of the Brookings Institution, for example, describes “innovation districts” as “the ultimate mash up of entrepreneurs and educational institutions, start-ups and schools, mixed-use development and medical innovations, bike-sharing and bankable investments--all connected by transit, powered by clean energy, wired for digital technology, and fueled by caffeine.”

The contemporary urban ideal now has a lot to do with spaces that accommodate this “knowledge work” along with dwellings in nearby, dense neighborhoods.

But in this view of the city, places where most goods are sold—Walmart and Costco stores, Kroger supermarkets and CVS pharmacies, Home Depot and Target stores (large “big-box” stores, many of which are not unique to the U.S.)—are located outside the creative core in suburban locations with plenty of parking. And the places where the goods sold in Walmart, Costco, Kroger and CVS are made are not part of the city at all.

This picture of the city is not inaccurate. In the spirit of von Thunen or Burgess, who developed important models of urban economic geography, we can think of this contemporary “creative city” as having two concentric rings: an inner ring, the “creative core,” and an outer “service ring” of Walmarts and suburban housing developments.

But there is in fact a third, outermost ring, not usually talked about in describing this “city of knowledge.” It is the geographic ring in which things are made and in which food is grown, and it may be geographically quite distant from the ring of Walmarts and suburban tract developments. This ring of production was once just outside the second ring, and contiguous with it. But it now includes factory farms in the San Joaquin Valley of California, hundreds of miles away from where food is sold and consumed, banana plantations in Central America, shoe factories in Vietnam, clothing factories in Bangladesh, factories in China making every conceivable kind of item, from zippers to mobile phones to toilet-bowl brushes.

But even more so than the suburban ring of huge stores, this last ring is invisible to people in the “city of knowledge.” People don’t drive through this last

ring, they don't work there, and they don't know anyone who does work there. It is out of sight, and out of mind, not part of our model of the city.

But this is ultimately a colonialist attitude. The city in which the “creative core” represents the city's sole productive economic engine is in fact an *incomplete city*. It depends on the disconnected “hinterlands” in which labor is cheap and from which transport costs are also cheap. It is the same phenomenon described by William Cronon with respect to Chicago in *Nature's Metropolis*, extended to a global dimension.

This invisibility represents an artificial severing of a holistic phenomenon—the cycle of production and consumption. In order to maintain a complete understanding of that phenomenon—in function as well as physical form—we must include the outermost ring, even if it is invisible in people's everyday lives.

In the same way that William Cronon saw the city of Chicago as inextricably linked to the American plains and West, we have to see the contemporary city as linked to its “global hinterland.” The idea that the contemporary city is characterized primarily by a “service economy” or “knowledge economy” is true only if it is described to be artificially separated from an essential functional component—that of production.

The city has to be thought of as a system that has very particular relationships with systems outside itself, that need to be defined, specified and understood when the city itself is described. More specifically, production and consumption are part of a single ecological system, in which inputs and outputs, the adding of value and the increased organization of the system are necessarily

understood together. The idea that our cities are characterized only by “knowledge economies” is superficially true, but only if the city's boundary is limited by its political definition. It is not true if the city or its economic functions are viewed in terms of their actual functions, or flows of material, money, labor or knowledge.

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What are the implications of this?

In April 2013, the worst accident in the history of the garment industry happened in the outskirts of Dhaka, Bangladesh, when an eight-story building housing five garment factories collapsed, killing at least 1,129 workers and injuring over 2,500 more. Built originally as a shopping mall, the structure was not in compliance with Bangladesh's building code, and cracks had appeared in it days before—but the factory owners, who had strict contracts and subcontracts to produce clothes for large Western retailers, kept their operations open, requiring their employees to continue to come to work.

The garment workers, many of them recent migrants from rural areas of Bangladesh, had taken advantage of opportunities that promised them a foothold in the urban economy; but they had in turn been taken advantage of by their employers who were trying to lower costs as much as possible to remain competitive. Today's global textile industry represents just one step in a several-hundred-year-old history of reducing costs by finding the cheapest labor—ranging from English peasants displaced from their land as a result of parliamentary enclosure, to Jewish immigrants in New York and London, to internal

Bangladeshi migrants in Dhaka and Chittagong who because of the low cost of container-ship transport are able to stay in place producing cheap goods for consumers in California and London.

Much of the reaction to the Bangladesh disaster has had to do with the need for Western retailers to put pressure on Bangladeshi factories for stricter workplace regulation, stricter building codes and compliance with them. A lot of good can be done simply by increasing the price of garments by a few cents—and it is argued that indeed, pulling factories out of Bangladesh and similar low-wage countries would hurt their workers, for whom factory jobs are the first step toward advancing in the urban economy.

But there is another way to look at it. The global industrial system has transformed cities from places that combined production and consumption of food and goods into places that are much more about consumption. This transformation has happened using cheap labor that is thousands of miles away, and has reduced or eliminated a wide range of creative and economic opportunities. Contemporary cities, particularly those in the West or the global “North”, should regain their historic role as places of production— places where food is grown and processed, where clothing and everyday goods are made, and where artistic and technological innovation are supported.

The global production system will not and should not disappear—but it also need not continue unabated in its current form. The advantage of globalization is not that the financial bottom line of stateless corporations may be optimized by taking advantage of cheap labor anywhere, but instead, that a wide range of capabilities—including cheap labor but also including cultural insights,

creative capabilities, advanced craft and fabrication techniques, and the capabilities of local communities—may be drawn upon in the ongoing development of a production system for any product or food. The optimization of the corporate financial bottom line should take its place among other, human and non-quantitative factors. And social inclusion becomes important not only as a matter of equity but also as a means to foster innovation—and this in turn suggests a rethinking of what is made in our cities—and therefore of how cities themselves are made.

Within this system, local production will have an important role—not to the exclusion of imports but co-existing with imports. And local production, in turn, has implications on the form of the built environment needed to support it, and on how people live and work in that environment. So factories, workshops, bakeries, breweries, buildings for tech-oriented start-up businesses, artists’ studios, greenhouses—all have a role to play in the emerging city of production.

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A city in which the production of goods and the growing and processing of food are taking place is a city that is both complete and inclusive. It is complete because it includes a full array of human activities, not relegating any of them to a different or marginalized place. It is inclusive because it allows for the full range of human productive and creative capabilities—for people with a wide variety of skills and intentions to enter the economy and to advance in it.

It also suggests an expanded definition of urban sustainability to include the social and economic as well as the natural and biological.

In *The Death and Life of Great American Cities*, Jane Jacobs put forward “four conditions for city diversity:” mixed primary uses, short blocks, aged buildings and density. Her four-point solution is perhaps not as important as her value statement: urban diversity is good. If she was right, why is it good, and in what ways? Diversity is one of those ideas we tend to accept without much analysis, but it is also a concept that can lead us to deeper insights about the inclusive city.

The diversity embraced by architects and urban designers recognizes the importance of different people rubbing shoulders with each other, of adults and children having the benefits of “informal” interaction, of the apparent liveliness of a street that has people of different ages, ethnicities, income levels, and physical abilities.

But is this rubbing of shoulders all there is to diversity? As Bill McKibben coined the term “deep economy” I would like to put forward the idea of “deep diversity.” Deep diversity is not just what is seen on the street, but actual social and economic interactions. The Latinos who cook in the Jewish dairy restaurant on Second Avenue in Manhattan, the tempura bar with five seats a half-block away from a corner with major department stores in Kyoto, the small business in Portland, Oregon’s old East Side Industrial District that makes prototype products for Nike and NASA—all these suggest urban cultures in which diversity leads to economic synergies between people in different groups.

In these cases, there are interactions at different levels—from the simple awareness of others, to everyday chit-chat, to ordinary economic transactions

in a shop, to a business owner offering a job to someone outside his own circle, to business deals and contracts. The depth and variety of interactions reminds us of the question Jane Jacobs implied in the title of the concluding chapter in *The Death and Life of Great American Cities*: “the kind of problem a city is.” What kind of problem **is** a city? And why would we be better off if this question were answered?

The contemporary emphasis on ecology and sustainability raises the question of attempting to answer Jane Jacobs’s question in contemporary terms. Two concepts are in current use, regarding ecology and the city:

- The first is *urban ecology*, or the relationships between urban built form and natural processes, including such issues as species diversity, the effect of urbanization on habitat, water flow, temperature effects of cities, etc. Here, ecology refers to biological systems, and it is the role of designers and others to shape cities in ways that improve their natural ecology and the natural ecology of surrounding territory.
- The second is *urban resilience*, usually applied to the ability of cities to recover after stress or disaster, including natural disasters such as flood or earthquake, man-made disasters such as war or the mass migration of refugees, or stresses that combine man-made and natural causes, such as climate change that leads to migration or the need for physical remediation. Here it is the role of designers to help make cities more resilient.

The ideas of ecology and resilience are of course linked: healthy ecological systems are resilient, allowing them to accommodate variations in environmental conditions and changes in species populations. The ideas are usually

applied to biological systems, but they are also true for the everyday social and economic structure of cities—the vast network of social relationships, economic transactions, buying and selling and manufacturing, the exchange of money, ideas and things that happen at many different levels.

This social and economic structure is supported by a physical structure --of buildings, streets and open spaces—itself characterized by a particular range of scales of physical entities, particular relationships between entities and elements of the public realm, different ways in which entities transform over time. The question is what the relationship is, if any, between this physical structure and social/economic life—and whether, when this relationship is investigated, insights are revealed that help illuminate the issue of the inclusive city.

There are analogies between biological species and types of different kinds, analogies concerned with diversity, and analogies that are concerned with function. Ecological systems and urban systems are parallel in their structure. Species are analogous to types, ecological habitat is analogous to physical elements of the city, eco-tones are analogous to edges between ecological zones, genetic codes are analogous to cultural and procedural norms. Ecological thought provides a way to think about the city as a complex system, in human and economic terms—and a way to see social inclusion as necessary to the healthy functioning of a city.

Ecological systems exchange energy and materials with systems outside themselves, and internally among their subsystems. This dynamic exchange, bringing in energy and material inputs from systems of lower organization, is

necessary to maintain higher levels of organization in the systems that are “importing” materials and energy.

And in like manner, a city’s production activities are critical to its health as a socio/economic ecological system. These activities are part of the input/output flows of money and materials, have controlling mechanisms of contracts and social agreements, and provide sustenance to the other systems. This is the meaning of adding value to materials or to goods that are in the process of manufacture. Those materials or goods become more ordered, more organized through the production process in which materials and energy are being brought into the equation.

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And this brings us, finally, to the importance of social inclusion. Within the complex system that is the city, social inclusion helps to guarantee that the diversity of entities in the system is maximized, that all available talents are used, and that people contribute to the production system rather than becoming a burden on it.

Traditionally, systems of material production—the growing, processing, and distribution of food; the construction of buildings; the manufacture of clothing or furniture—employed workers at different levels of skill, who were able to learn new skills and thereby move “upward” in the system and who may have been in a position to act creatively with the shape of the product they were making.

But in the gradual replacement of the craft system of production with the industrial system, there was a gradually increasing separation between different roles, and people at different skill levels. As the industrial system progressed, roles became more specific and more stratified, independent of each other and learnable in a shorter period of time.

This had spatial implications, as it meant that because people doing different things did not have to interact with each other, they could be in different places. The ultimate result, of course, is today's global system of manufacture, in which different parts of a product may be made in completely different parts of the world, facilitated by shipping costs that are low enough that they contribute in a minimal way, if at all, to decisions about the choice of subcontractor.

With production half a world away from consumption, the contemporary city in the West is characterized by a growing economic divide between rich and poor, in which many people are consigned to low-wage service jobs with little chance of advancement, instead of being part of the productive system of the city, which has effectively disappeared—"out of sight, out of mind," and unavailable.

And this in turn affects people's connection to their place. "Placelessness"—a concept that is connected to the work of such writers as Edward Relph, and "deskilling"—a term that is used in the literature on the history of labor as well as in protest—are two sides of the same coin. When a factory locates in a place purely because of the low cost of labor, the people who make up that local labor force remain as abstract commodities, available for exploitation.

So there is a relationship between craftsmanship and place. The tangible nature of material objects along with the need to deal directly with them suggests another justification for local manufacture, in which design and the processes of manufacture are closely linked, physically, to the actual making of things.

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Today there are two kinds of production. One is the production of ideas, software, websites, digital processes, and prototypes of products that are not necessarily manufactured in the place where the prototypes are developed. The second is the manufacture of goods and the production of food. In many people's thinking about the "creative urban economy," most emphasis has been on the first. But the arguments I'm making apply to both. Although in the West the volume of local manufacture of goods and food is tiny, and although there will always be location decisions that are based on differential labor costs, it is hard to imagine the continuation of a system in which knowledge and control are as separated as they now are from the places that material things actually come from.

Indeed, there is a silver lining to the cloud of global production. Local production of food and goods is beginning to return to Western cities, coexisting with globalized production systems. In this transformation, happening as large firms are downsizing and individual entrepreneurship is increasing, species diversity of entrepreneurs and manufacturers, is increasing again. The initiatives to bring production back into the Western city have included such things as craft-based enterprises; urban agriculture and farmers' markets; the re-use of

abandoned warehouse and factory buildings in for small-scale industry; efforts to revive New York's garment industry, and many others.

These alternatives are still minuscule in terms of money and production volume—but yet they exist, with committed business people and customers. The new, hybrid economy incorporates industrial, post-industrial and artisanal elements, and it operates at global, regional, and local scales. This is not only the economy of web designers, digital prototypers and manufacturers, or craft brewers. These are included in it, but it also includes people and businesses where individual entrepreneurship is critical; businesses that tend to be new and small; businesses and aspirations that are away from the established structure of large, global corporations, “name brands,” and highly stratified organizations. But it also includes people at the lower rungs of the economic ladder who are trying to make a go of it, who are willing to take risks in starting a new business, who may have technical/craft skills and not necessarily a lot of formal education.

Spatially, the ability to accommodate this new economy will come about through design, the development of design prototypes, the introduction of zoning that is flexible and dynamic over time, urban policy that allows the small and contingent to co-exist with the big and permanent, and development practice that recognizes the viability of different levels of risk in the same place. Innovators in different places are now trying out all these things, and in my own work I am trying to describe these efforts under a single umbrella of “inclusive urbanism,” recognizing the importance of what Henri Lefebvre called the “right to the city.”

In an increasingly urban world, an inclusive society will be characterized by inclusive cities, which are complete in themselves, containing within them the ability to maintain a full cycle of life while interacting with cities and places outside as well. Cities will welcome people into their cultures and economies, recognizing the worth of every human being, and providing the frameworks within which people can realize their potentials. These are cities in which production goes hand-in-hand with consumption, and in which production provides the means for creativity and self-realization, and not only the sustenance that is the payment for labor.

This paper is a summary of a talk given at the Third International Conference of the Portland Urban Architecture Research Laboratory, University of Oregon, October 2013.

Building Inclusive Societies to Manage and Embrace Diversities

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Abstract

Incorporating a female work force to the Japanese labor market and society is one of the pivotal topics of the economic growth strategies of Abenomics, or the current Japanese economic policy. The Japanese government set a target to increase the percentage of women in executive/decision making positions to 30% by the year 2020 when Japan will hold the Tokyo Olympic and Paralympic Games. However, the position of Japanese women compared to that of Japanese men is extremely low judging from international trends. On September 16, 2011, at the Asia-Pacific Economic Cooperation (APEC) Women and the Economic Summit (WES) in San Francisco, the then U.S. Secretary of State Hillary Clinton remarked that, “Unlocking the potential of women by narrowing the gender gap could lead to a 14% rise in per capita incomes by the year 2020.” At an Annual Meeting of the International Monetary Fund and World Bank Group held in Tokyo in 2012, IMF managing director Christine Lagarde said “Women could save Japan’s Economy if more of them went to work.” Later on, she indicated “if females were working in the same proportion as men, the level of GDP would go up 27% in a country like India but also up 9% in Japan. All economies have savings and productivity gains if women have access to the job market.”¹

This paper will investigate the current situation of Japanese women and

how diversities would be required not only from the moral and equal opportunity point of views, but also economic growth point of view. Materials used for analysis are related government papers, books, journals, interviews, and websites.

Key words diversity, women’s matter, innovation, positive action, gender gap.

1. Current situation surrounding women in Japan

1.1 The gender gap is wide in Japan

Exhibit 1 shows the Global Gender Gap Index of annual World Economic Forum Report 2013. Japan’s gender gap total ranking is 105th out of 136 countries in the world, 42nd out of 49 high income countries, and 19th out of 24 Asian and Pacific countries.² In economic participation, the rate of female work force participation is low in Japan compared to other OECD countries. It is especially important to note that there are few women in decision-making positions such as being on a company’s executive board.

In educational attainment, the rate of higher education of both females and males in Japan is not as high compared to other OECD countries. The tendency of higher education in OECD countries is that female education is higher than male education, so the gap index rank in Japan is low as female educational attainment is lower than male.

The political empowerment rank of Japan is 118th, even though increasing female participation in politics has been a focus of Abenomics since 2013, when two female ministers were appointed to Prime Minister Abe’s Cabinet and two women were appointed two of the three most important official positions in the government which are the secretary general, the chairperson of the Liberal

Democratic Party (LDP) Executive Council, and the chairperson of the LDP Policy Research Council. In the Lower House election in 2012 and the Upper House election in 2013, the total number of women elected decreased because of a lack of preparation, and there was a fall in the total number of females as local assembly members, mayors and governors. Female parliament membership is still low, meaning that there are opportunities to increase female participation but it must be done urgently.

Exhibit 1: The Global Gender Gap Index 2013

	Japan	India
Economic Participation	104	124
Educational Attainment	91	120
Health and Survival	34	135
Political Empowerment	118	9
Overall	105	101

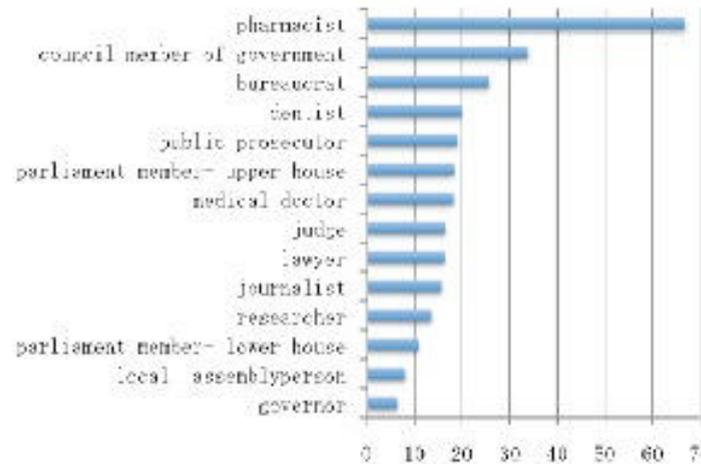
Source: Ricardo Hausmann, Harvard University, Laura D. Tyson, University of California, Berkeley, Saadia Zahidi, World Economic Forum(2013). *The Global Gender Gap Report 2013*, World Economic Forum

In leadership positions of occupations or highly specialized occupations, the ratio of female participation is still low, though the Japanese government is trying to raise the proportion of women in leadership positions to 30% by year 2020. As Exhibit 2 shows, only two categories have achieved the 30% as of now. The highest percentage of female leadership is found in pharmacists, which shows that females occupy about 66.8% of pharmaceutical jobs. However, in the medical field, the ratio of female medical doctors is still quite low standing at about 18%.

Even the ratio of female students at medical schools is only about 40%, as a large proportion of women leave jobs when they get married or raise children because of the excess overtime and night time work. In Japanese universities, medical school students must complete 6-years of intensive study to graduate, which is two more years of study than is required to obtain degrees in other fields. In addition, students must pass a national exam after graduation to practice medicine. Consequently, women who study medicine are spending more time and money to obtain degrees, which they may not actually put into use as women make up such a small percentage of the medical workforce. Thus we must work to create a women friendly work environment to utilize the abilities of these highly educated, and highly specialized female doctors effectively.

The ratio of female members in the government councils is 32.9%. This figure is the second largest proportion of females in leadership positions. The headquarters for the Promotion of Gender Equality designated the original target number for female participation in government council in 2003 to be 30%. The Gender Equality Bureau set a compulsory quota of 30% for female membership in the government council. This quota will be one of the factors leading to a higher number of female government council members. This type of positive action that requires women to attain more leadership roles should be incorporated to accelerate the speed at which Japan will achieve the target numbers.

Exhibit 2: Women's Proportion in Leadership Positions



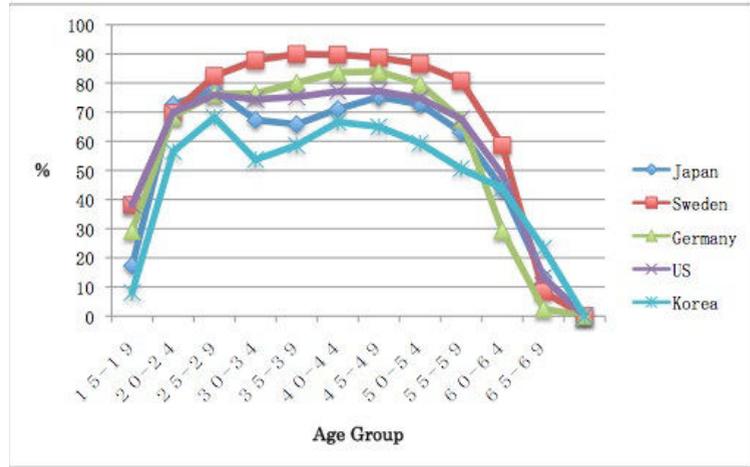
Source: Statistics Data in 2013, Gender Equality Bureau Cabinet Office of Japan

The work rate of Japanese women spanning from ages 25 to 54 years old ranks 22nd among 30 OECD countries.

The chart of the female labor force rates in Japan by age groups shapes a M curve, and the female labor force in Korea sees a similar shaped M curve. In Japan, the female labor force participation rate for women aged 30-34 declines sharply. In this period, women tend to give birth after they get married, retire their jobs, and raise their children at home. After they raised children, some mothers go back to work so that the job participation rate increases again around age 40-45. This tendency cannot be seen in Sweden, Germany, or the U.S. where Female labor force participation rates for women between the ages of 30-34 remains the same or increases after marriage or giving birth.

In most cases in Japan, when women return to work in their 40's after raising children, the quality of occupations and positions they hold are not as good as before they left. For example, some people apply for full time jobs but only get part time jobs. It is hard to say that they get satisfactory jobs. About 3.42 million females from 25 to 49 years old in Japan want to get jobs³, but they simply cannot. On the other hand, total population has been declining since 2011 due to the diminishing birthrates, thus changing the demographic structure of the ageing society. 2.6 people in the working generation are now supporting one elderly person. About a million people from the baby boom generation are retiring each year. This increase in retirement gives working aged women a good chance to compensate for the reduction in the labor force. As the labor force is decreasing, the positions for women with higher education should be secured when they return to work if they take a leave for familial reasons.

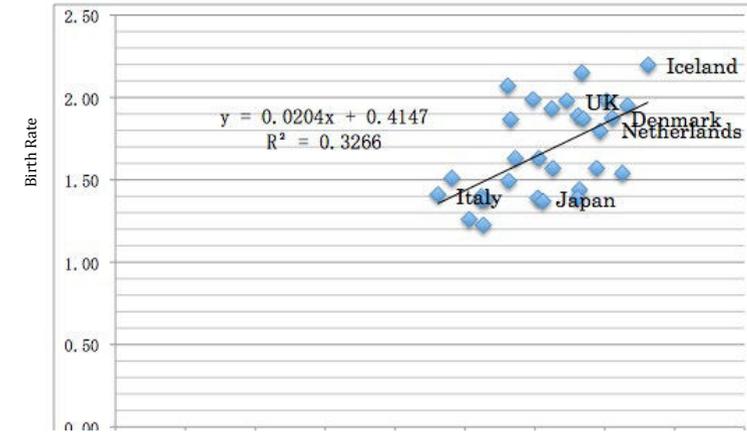
Exhibit 3: Female Work Force Participation Rate by Countries



Source: Statistics Bureau, Ministry of Internal Affairs and Communication (2011) and ILO LABORS-TA

Some OECD countries face serious concerns of a falling birth rate and a rapidly aging population. It is anecdotally said that as the number of working women increases birth rate will decrease. However, Exhibit 4 indicates that countries with relatively larger female labor forces have higher birth rates, especially in Nordic countries. Work styles of better work-life balance and policies including family leaves benefits provided by a combination of social insurance funds and employers, tax incentives, and post-maternity re-entry programs make this phenomenon possible.

Exhibit 4: Women's Employment Rate and Birth Rate in OECD Countries



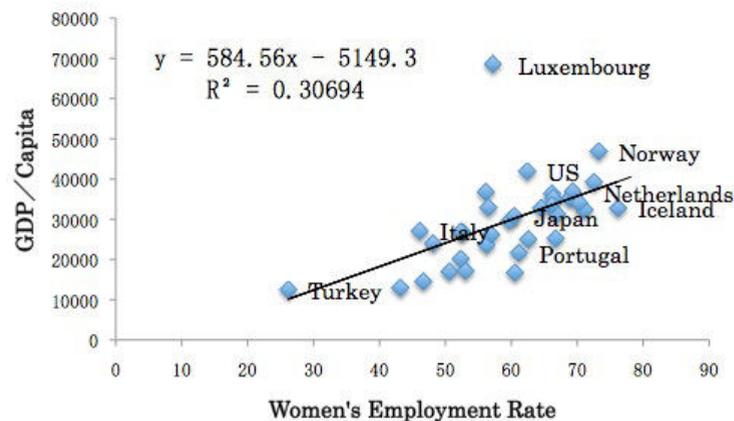
Source: Calculated with OECD Statistics Data 2010

1.2 Some indexes show women's contribution to improving economic performance

According to Exhibit 5, as women's workforce participation rates go up, the GDP per capita goes up in OECD countries. When a woman works, total income per family increases and disposable income increases as well. In 1982, the Dutch government, Labors and Managements established the Wassenaar Agreement and agreed to wage control in exchange for the shorter work hours. After the agreement, the practice of work sharing increased and female labor partici-

pation rates went up. The chart shows that the GDP per capita in the Netherlands is higher than that of Japan although the Dutch work shorter hours.

Exhibit 5: Women’s Employment Rate and GDP



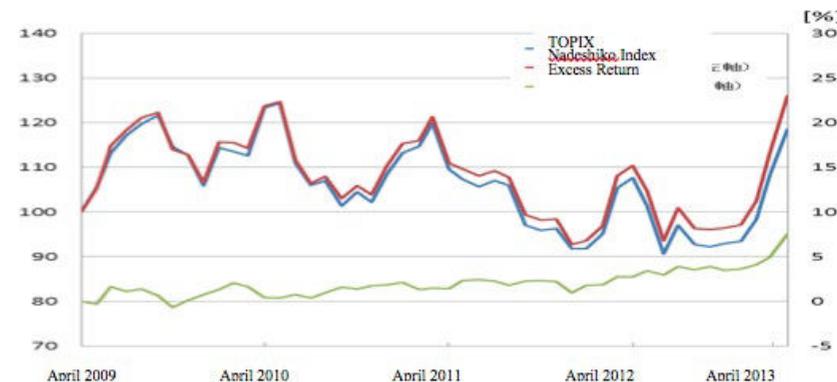
Source: Calculated with OECD Statistics Data 2010

TSE (Tokyo Stock Exchange) and METI (the Ministry of Economy, Trade and Industry) jointly designate enterprises that encourage women’s success in the workplace by labeling them as a “Nadeshiko-Brand”. “Nadeshiko Index” is designated in order to promote the extent to which companies encourage women to play active roles in the workplace. Seventeen companies were selected as Nadeshiko-Brands in February 2013⁴. Exhibit 6 shows the performances of the top three high Nadeshiko Index enterprises (72 stocks in total) in each industry, consisting of 33 categories of business

in Tokyo Stock Exchange. Compared with the TOPIX (Tokyo Stock Price Index), high Nadeshiko Index enterprises tend to exceed the performance of the TOPIX and their excess return expands almost consistently year by year.

Through the Nadeshiko Brand and Index, METI is aiming to accelerate the efforts of listed companies to hire women. Showing investors that adding women to the work force improves corporate value over the medium to long term will help ensure that women receive more job opportunities and chances to succeed.

Exhibit 6: Performance of the Nadeshiko Brand in Tokyo Stock Exchange

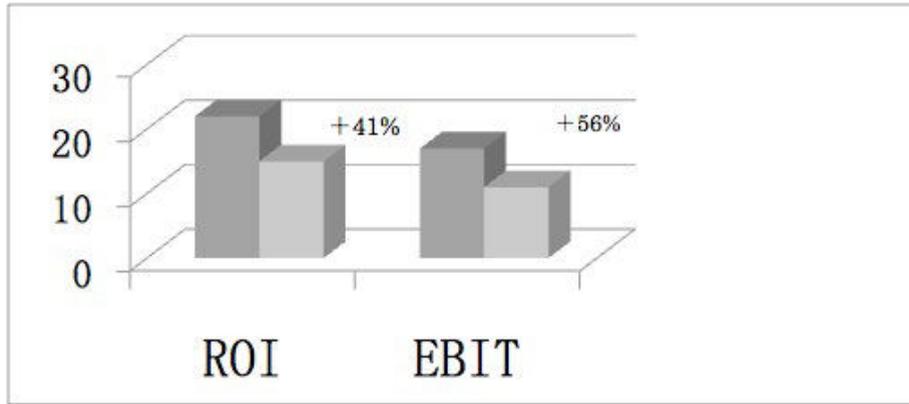


Source: Japan Cabinet Office, Number 56 April-May 2013, pp. 10

According to the McKinsey’s annual report, top-quartile companies that included women in their executive committees from 2007 to 2009, showed higher financial performance in this top-quartile than companies with all-male executive committees. As for return on investment, the top-quartile group with

women exceeded the all-male group by 41%. In terms of earnings before interest and taxes, the top-quartile companies that included women exceeded those that did not by 56%.

Exhibit 7: Companies With a Higher Proportion of Women in Their Executive Committees Have Better Financial Performance⁵



Source: Women’s Matter 2010
(Darker color) Companies in the top quartile with female representation in executive committee vs. sector (Lighter Color) Companies with zero women in executive committee in that specific sector

The numbers indicate that more gender diverse companies tend to have higher performance than companies with less gender diversity.

1.3 Diversity triggers innovation

Companies should hire people of all genders, ages, ethnicities, and social stand- ings so as to obtain a competitive advantage, foster innovation, minimize risks, and ac-

quire productivity improvement.

In Japan, women are not actively participating in the labor market and few hold management positions, so there is a significant potential for improve- ment in Japanese corporations. Japan ranks at the bottom of the table for wom- en in senior management positions among 40 economies, with just 7% of all senior positions occupied by the women according to a report by Grant Thorn- ton.⁶ The global average for women senior management positions is 24%. China is the highest at 51% followed by Poland at 48% and Latvia 43%. The report says that countries that had more women in senior management positions such as China, Latvia, Vietnam, Thailand and the Philippines have had high GDP growth rates of up to 7-8% in 2012, while the bottom eight countries for women in senior management such as Japan , the UK and the USA are experiencing low levels of growth. In 2012, GDP growth in Japan was 1.9%, the UK -0.1% and the USA 2.2%. In terms of a company’s board members, G7 countries have just 16% female board members while women occupy 26% of board seats in BRIC econom- ies and 38% in the Baltic States.

By including more women in the labor force, the Japanese economy might achieve remarkable improvements in terms of innovation, growth and productiv- ity. Diversity is necessary to the current economy because of the change in pat- tern of innovation, or the techno-paradigm shift. Kodama indicated that innova- tion patterns have shifted from technologic breakthroughs to technology fusion. “Recent innovations in mechatronics and optoelectronics make it more appropri- ate to view innovation as the fusion of different types of technology rather than as a series if technology breakthroughs.”⁷

Gibbons suggested production of knowledge shifted from “Mode 1” to

“Mode 2”. “The old paradigm of scientific discovery “Mode 1” is characterized by the hegemony of theoretical or, at any rate, experimental science; by an internally-driven taxonomy of disciplines; and by the autonomy of scientists and their host institutions. However, universities are being superseded by a new paradigm of knowledge production “Mode 2”, which was socially distributed, application-oriented, trans-disciplinary, and subject to multiple accountabilities.”⁸

The techno-paradigm shift requires different abilities than those needed in the past. Not only do we need specialized knowledge, but interdisciplinary skills will also be needed to achieve innovations. Ways of thinking have changed from Homo to Hetero, from uniform and standardized to diverse. Thus in this new age we must learn how to interlock two separated areas where asymmetry of information exists to continue innovating.⁹ Among the institutional gaps and variety of stakeholders, a diverse management group will play a pivotal role in fostering more innovation.

There are some examples of successful patterns of innovation incorporating management of diversity especially for women.

Examples of Product Innovation

A) After Nissan Motor Company allied with Renault S.A. of France, the diversity inside the company increased both ethnically and with regard to gender. The company has promoted diversity management as a business imperative. For instance, one manager becomes in charge of two sections whose interests conflict with one another. To manage two different contradictory business activities, managers were trained in management of diversity. The company succeeded in developing new cars by incorporating female’s ideas. In Japan, the domestic car market is shrinking because of the low birth rate and aging society. In addition,

74% of wives are the sole deciders of whether or not to buy certain goods in the family. When buying a car, women decide which car to buy 60% of the time. Thus, Nissan formed an all-women car development team in order to reflect women’s needs in the design.

This female inspired car adopted rear doors that open to 85 degrees enabling women to quickly and safely get children or children in a buggy in and out of the car . Consequently, this car had the best sales for five consecutive months among gasoline-powered cars when it was released.¹⁰

B) A Japanese electronics maker, Toshiba Corp., started a female managers development program. Ms. Fukushima, a member of the inaugural class of this program, succeeded in developing the world’s first glasses free 3D televisions. The company is now developing consumer electronics lines from female point of views. The company also designed a new technological capability in refrigerators to retain produce freshness, which is important to mothers and wives.

C) Kirin Holdings Company involved female staffs in liquor product planning. The staff conceived an idea for a non-alcoholic beer that women could drink during pregnancy and breast-feeding. Thanks to these new ideas brought about by women, Kirin was able to meet the needs of women and create a new demand that successfully revitalized the shrinking beer market.¹¹

2. Conclusions, implications and actions

Although conditions for working women are improving in Japan through government policy and economical supports, female and male awareness of diversity, and the Japanese ideology surrounding women need to undergo rapid

and practical changes so that the nation can continue growing and improving. Economic indexes indicate that companies and enterprises with greater gender diversity show higher economic performance than those with less diversity. So, female participation in the work force should be done not only from the gender equality and ethics point of view, but also from an economic growth point of view. Companies in Japan are providing many successful instances where female employees contributed to product innovation and process innovation. Thus incorporating gender diversity will most likely create innovation. However, the female work participation rate is still low in Japan compared to world averages and the rate of women who are in senior management is very low. Glass ceilings remain in almost all countries across the world, although the number of the females in management positions is increasing. In order to enhance the gender diversity and create a more inclusive society, many policies should be accelerated and discussed more seriously.

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Incubators for Economic Mobility

Beverly Choe, Stanford University, US

A Growing Divide

A steady increase in wealth disparity can be found, in varying forms, in countries across the globe. In the United States, the income gap has soared to its highest levels since the 1920's, in which the top 10% richest households now earn 50% of all income. By comparison, through the 1950's-1970's, this same subset of households earned about 34% of all income¹ The middle class is shrinking, widening the divide between rich and poor. This forms a sharply tiered society, in which the haves and have-nots exist mostly in separate realms, aside from the service-related ties that binds them.

This hierarchy is pronounced in information-oriented cities such as San Francisco, where high paying technology jobs have replaced traditional manufacturing jobs; generating a high demand for low wage services, but less so for middle-tier positions. These socio-economic relationships do not lay a foundation for a balanced or equitable society. When one projects this trajectory into the future, a troubling picture emerges. The divisive effects of such a structure can be destabilizing for a society, as evidenced by protests ranging from Occupy Wall Street to the Arab Spring. For a sustainable future, a more evenly gradated economic distribution, with robust middle tiers, would support a more integrated society and stable political climate. This composition enables more fluid economic mobility, which would provide improved opportunities for the underprivileged.

Incubator Case Study: La Cocina

One strategy for bridging the income gap is the development of business incubators. Business incubators are institutions that support individuals in formalizing their businesses during the early stages of development. They provide business skills training, legal counseling, access to loans, and sometimes facilities.

In 2004, while employed by Paulett Taggart Architects, I served as Project Architect for La Cocina, a kitchen incubator located in San Francisco's Mission District. The Mission is known as a gateway neighborhood for immigrants, most recently from Central and South America. The idea for a kitchen incubator was sparked by a local neighborhood analysis of the Mission, completed by the Mission Economic Development Agency (MEDA). The study found that many informal cooking businesses were operating within the lower-income population of Latino women in the neighborhood. However, these entrepreneurs were limited by small residential-scale kitchen spaces, and/or a lack of business skills to launch or scale up their businesses.

La Cocina was envisioned as a space and program to "cultivate low income food entrepreneurs as they formalize and grow their businesses by providing affordable commercial kitchen space, industry-specific technical assistance and access to market opportunities."² Teaching skills ranging from accounting, marketing, to recipe translation from small to large batches; La Cocina aimed to provide the scaffolding through which an individual could grow her business from an informal, home-kitchen based operation, to one which had its own space with a commercial grade kitchen and employees.

When a pioneering donor agreed to provide a space for such an endeavor, a group of existing non-profit agencies joined to create this new type of in-

cubator. After a long process of working with the local community, the building was approved by the San Francisco Planning Department.

Symbiotic Urbanism



Site Model

Existing on a wide, quiet street lined with Chinese elm trees, the project houses La Cocina at the front of the parcel, and three townhouses at the rear. These two spaces are separated by a courtyard, which holds the housing units. The building massing is scaled to the pattern of the residential block, and the wood and plaster materials respond to existing materials found in the neighborhood. In this way, the building is able to mesh with its context.

This project is unique for its fusion of market rate housing and a non-profit kitchen on a single parcel, by a single developer. The owner was able to subsidize the construction cost of the kitchen through the projected rents generated by the housing units. This type of profit/non-profit alliance is a development model that balances community needs with economic viability.

While the kitchen's maintenance costs are supported by the housing income, the residents of the townhomes benefit from the economic and cultural activity generated by the kitchen. The two programs are spatially dovetailed and economically intertwined, resulting in a symbiotic urban condition.

**Photo credit for all La Cocina images: Jamie Kripke*



Front Facade on Folsom Street



Facade Detail



Main Kitchen Space



Kitchen view with windows

La Cocina features a commercial grade kitchen with individual cooking stations for its clients to use. The sawtooth roofs also respond to the smaller residential scale of the neighborhood, as well as the three rear townhouse units. These roofs also provide large north-facing clerestory windows for the main cooking space of the kitchen, which is divided into shared work areas, four prep areas, and a scullery. In addition, the facility houses a garage, office, dry storage and refrigeration rooms.



Townhomes at rear of site

Economic Assessment: Snapshots of Mobility



Villanueva's food cart / Photo credit: La Cocina

La Cocina is almost ten years old, and it is instructive to assess the socio-economic aftereffects of its incubator program. Its graduates have come from all over the world and exert a global presence. So far, they have opened 14 food-related businesses. In 2013, National Public Radio reported about one La Cocina graduate named Alicia Villanueva. An immigrant from Mexico, Alicia made tamales out of her home but found that she could not grow her business due to the lack of space. Through her enrollment in La Cocina's program, she gained access to the large kitchen facility to scale up her production, and was able to develop marketing tools such as a website. With dedication and perseverance, her business now produces 3,000-5,000 tamales per week. She owns a food cart, which she takes to the "Off the Grid" food fair, a weekly gathering of food trucks at a prominent location. Her ultimate goal is to open her own restaurant and send her three children to college.³ Villanueva employs nine women, five of whom work full time. The employees hired by Villanueva are active participants in the economy, through their productivity and their expen

ditures. A single incubated business thus triggers a chain of economic activity that buoys the local economy.



Bini Pradham with dumplings / Photo credit: Barbara Reis

Another graduate, Bini Pradham, is a Nepalese woman from Kathmandu who makes her native country's dumplings, called momos. Her business, called "Bini's Kitchen", has enabled economic self-sufficiency for this single mother. She was able to escape an abusive relationship, and with the help of La Cocina, she now supports herself and her young son through her cooking business.⁴ The transition from paycheck-to-paycheck living, to one of self-sustaining entrepreneur, is an empowering step on the economic ladder. The benefits between the individual and society are mutual: Bini enjoys upward mobility, while her unusual and delicious cuisine enriches the culinary offerings to her community.

Although La Cocina's program was originally conceived as serving women, they also have male participants in their program. One example is a Japanese immigrant named Koji Kanematsu, who has successfully opened a business selling small rice balls called onigiri. He now owns two busy restaurants in the Financial District, and is hoping to franchise his idea. The growth of these busi-

nesses generates a need for middle-tier management, resulting in higher incomes for the promoted individuals. This creates intermediate rungs on the economic ladder and fosters opportunities for mobility.



Veronica Salazar at work / Photo credit: El Huarache Loco

Of the graduates, Veronica Salazar, from Mexico City, has enjoyed the biggest success as an entrepreneur. She enrolled in La Cocina's program in 2005, wanting to sell Mexican corn cakes called huaraches. She began by selling her cakes at a Farmer's Market, and she earned a loyal following. She now owns her own bricks and mortar restaurant as well as a catering business, called El Huarache Loco. She employs 21 people through her enterprises: an impressive result of her dedication and labor.⁵ A thriving incubator business not only benefits the individual client, but can also spread prosperity back to their communities. These developments also nurture human capital, in which knowledge and information are shared amongst the participants. We see the formation of a vibrant cycle of growth, in which the business owner can support a group of disadvantaged people. By witnessing success, the members of this workforce might learn the business and become their own entrepreneurs one day.

Conclusions: Incubators as Bridges

Sociologist Saskia Sassen describes the global city in these terms: “If we consider that global cities concentrate both the leading sectors of global capital and a growing share of disadvantaged populations (immigrants, many of the disadvantaged women, people of color generally, and in the megacities of the developing countries, masses of shanty dwellers), then we can see that the cities have become a strategic terrain for a whole series of conflicts and contradictions.”⁶ These conditions have both economic and spatial ramifications, leading to alienation and discontent for the underprivileged. Incubators can support economic mobility for underserved communities within this divided landscape. By harnessing the talents and hard work of the underclass, they structure a path to ascension. The creation of intermediate “rungs” begins to bridge the economic gap. This fosters the type of upward mobility that strengthens communities, particularly those like the Mission, which represent a large low income and immigrant population. Hence, incubator programs help realign and integrate the stratification found in global cities. If one of society’s goals is to maximize each citizen’s potential, then it is wise to provide an economic framework that is both navigable and traversable.

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Inclusive Society From School: *Learning Environment, Sports, and Art*

Miwako Hosoda, PhD., Vice-President of Seisa University, Japan

Vision

Despite the diversity and complexity of society, discussing an inclusive society is a challenging issue. An inclusive society is considered to be a place where everyone is given an equal chance to access the services and facilities they need. The needs of specific groups of people such as those with disabilities, minority ethnic communities, elderly people, children, and faith groups should be met.

However, the concept of inclusive society means more than that. An inclusive society opens up opportunities for all people. School is sometimes recognized as a mechanism for ranking students' abilities; but school has the potential to encourage students to maximize their competency. I believe that an inclusive society, like a school, is not solely an ideal but a concrete practice. Focusing specifically on schools, I would like to draw a picture of an inclusive society by viewing the practice of Seisa Junior and Senior High Schools, which are important to our educational community in Japan. When I go to India, I would like to see how Indian schools are operated from the viewpoint of inclusion, and how I can contribute to inclusive schools in India.

Design Challenge

While schools are good at recognizing and dealing with diversity, we're still not doing enough to achieve a fully integrated society. How can education be more inclusive? This issue can be tackled by implementing accessible technolo-

gy, restructuring the physical design, increasing moral and ethical aspects, and a promoting public service campaigns.

Today, students are viewed as part of an inclusive cohort. However, students who are categorized as being disabled, an ethnic minority, impoverished or gifted, all share the feeling that they are outsiders. Consequently, despite many school programs designed for special education, there is an epidemic of low self-esteem that inhibits real attainment and progress.

This needs to change. I would like to suggest three ideas for inclusive education while referring back to Seisa's three guiding principles: leave nobody out, understand each other, and make friends.

First, in order to present feelings of seclusion, we need to move from the provision of support in an isolated model to a full-classroom integration. Secondly, to understand each other, I believe that we need to prioritize self-esteem and confidence over skills and grades. With a positive self-image, children will attain their potential and will be able to esteem others. Third, to maintain a close tie with those around us, we must shift away from thinking in binary terms about "them" to a single grouping, "us". This does not mean quashing people's identity, it means giving everyone a level playing field.

Unfortunately our education system is predicated on sifting out the brightest individuals, a gross sorting of wheat from the chaff. The problem with this model is that, by definition, a significant proportion will feel like they have failed. Thus, I strongly believe that we should explore a new model of education in which all students can feel like they have succeeded, in their own way.

Practice in Schools

Many students don't see that the "system" is for them, and neither do their parents. These students may languish at the back of a class or, even worse, be taken out and educated down the corridor in a special class.

Despite such mainstream tactics, Seisa schools have tried to create inclusive classrooms for all students to realize an integrated society since 1972. The following are the practical steps we have taken to implement an integrative system:

- Use precise feedback to track and monitor the amount of social integration and self-esteem as well as academic achievement.
- Learn to deal with not just the individual child but always take into account the context of their family units.
- All youth communities must offer integrated services; this includes youth movements and social, art, or sports clubs.
- Communication between schools and external professionals, such as medical doctors and counselors, is open, efficient, clear and timely.
- Agencies and services should collaborate and integrate, sharing as much knowledge as possible through new Information Communication and Technology (ICT).
- Welcome the parents into the school community before pupils arrive. Give them an ally who will liaise with them regularly, sharing feedback.

- Education systems are made open and clear to all – especially to parents. There is no excuse in our connected world for someone to wonder what to do or whom to contact if they have any concern.

- Health and social services should work with schools and students to prevent endless referrals between agencies.

- All teachers should be given training and support to integrate their students and be able to operate with confidence in a system that is different from their normal teaching style. In the Seisa Schools' case, it became possible through the collaboration with Seisa University.

Social Impact

Through these very simple changes, we can begin to create a system of education that values all. From here, we can make larger societal changes. We will host TOKYO 2020 Olympic and Paralympic Games in 6 years. But why are there two Olympics? Why don't people think that a one-tier Olympics could be a goal of inclusive society?

A one-tier Olympics sounds something like dream, but I believe that all of the efforts to make it happen lead us to an inclusive society. To reach to this goal, we need to start by changing the present education system.

Natural Disasters and Japan

Fusanori Miura, Vice President of Yamaguchi University in charge of Foreign Affairs, Graduate School of Science and Engineering, Tokyo, Japan

1. Japanese Feelings Towards Natural Disasters

On March 11, 2011, Japan was devastated by an earthquake and tsunami that killed nearly 19,000 people. After the disaster, there was an online article admiring the Japanese titled, "10 things to learn from Japan". They are as follows¹⁾:

1. THE CALM

Not a single visual of chest-beating or wild grief. Sorrow itself was elevated.

2. THE DIGNITY

Disciplined queues for water and groceries. Not a rough word or a crude gesture.

3. THE ABILITY

The incredible architects, for instance. Buildings swayed but didn't fall.

4. THE GRACE

People bought only what they needed for the present, so everybody could get something.

5. THE ORDER

No looting in shops. No honking and no overtaking on the roads. Just understanding.

6. THE SACRIFICE

Fifty workers stayed back to pump sea water in the N-reactors. How will they

ever be repaid?

7. THE TENDERNESS

Restaurants cut prices and ATM's were unguarded. The strong cared for the weak.

8. THE TRAINING

Everyone, both old and young knew exactly what to do and they executed what they had practiced.

9. THE MEDIA

They showed magnificent restraint in the bulletins. No silly reporters. Only calm reportage.

10. THE CONSCIENCE

When the power went off in a store, people put things back on the shelves and left quietly!

Many people in the world seemed to want to understand how the Japanese manner, behavior and attitude remained so strong and united during such a difficult time. It is true that Japan is one of the most natural disaster-prone countries in the world, and therefore, the Japanese might be more familiar with natural disasters than others. But this alone is not enough to explain the Japanese response to the events of March 11, 2011.

Some people attributed the response to the religions of Japan. Most Japanese are Buddhists, but they are not exclusive in their practice. They enjoy Christmas season, go to a shrine or church when they get married, and pray and give thanks to "God" at a shrine during the New Year. This seemingly looks like they have no principle with religion. However, the origin of this practice might be traced back to 6~7th century when there was a severe war between believers of the Japanese religion "Shinto" and advocates of a new religion from the Eurasian Continent,

“Buddhism”. Japan’s genius prince at the time, Shotoku Taishi put down the rebellion and established the famous Constitution of 17 articles, which emphasized the importance of peace, friendship and harmony among people.

Others attributed the Japanese response to its agrarian society and culture. Historically, farmers needed to help each other and cooperate together during the harvest. In addition, Japan has survived severe natural disasters, which strengthened the bonds between people. Though nature has often devastated Japan, the Japanese have a special reverence for nature and look to it as if it were a kind of god. Consequently, many people worship nature. Therefore, as disasters are part of nature, Japanese people may have a tendency to accept natural disasters as they have such a high esteem for the natural world.

There are definitely other factors, which have shaped the Japanese attitude towards disaster other than the factors mentioned above, but the important thing is to try to imitate their strong unity in the face of adversity. In recent years, the bondage between Japanese people has been weakened, because individual privacy has become increasingly more important than the relationship with others. This has weakened the disaster prevention capabilities of the Japanese, rendering people and communities more vulnerable to natural disasters in Japan. Taking the East Japan Earthquake opportunity, Japanese people are once more considering the importance of the relationship between the neighbors and communities.

Though the Japanese response to the events of March 11 displayed an incredible sense of unity, society has been changed and communal ties have become weaker than in the past, especially when compared to the urban areas post-World War II. As more people want individual privacy, the bond of the Japanese people is starting to weaken. Thus, we must learn to walk the line between privacy and communal allegiance in order to live in times of peace but also be ready for disaster.

2. Disaster Mitigation Using Satellite Remote Sensing

Japan will surely face severe natural disasters in the future. The nation must be prepared for earthquakes, especially the Nankai Trough huge earthquake which will attack almost the entire West side of Japan and another severe earthquake which will occur just beneath the Tokyo metropolitan area, as well as huge typhoons, and heavy rains. As a result, Japanese central and local governments are making preparations for future disasters. In disaster mitigation, both hardware and software countermeasures are necessary. In terms of software, the relationship between neighbors is very important, and we must help foster relationships among neighbors, to create strong communities that can succeed in these trying times.

Another important factor of software is information. Without any information about the situation of the disaster, i.e., what has happened, where it happened, how severe it is, no one can determine how to best proceed. One of the strong tools that could help provide information is satellite remote sensing technology.

We have been studying the applicability of the satellite images for disaster mitigation. Figure 1 shows the images of the inundated area caused by the 2011 East Japan earthquake and tsunami in Rikuzentakata City. Figure 1(a) is a true-color image obtained from ALOS-AVNIR-2. The green area in Figure 1(b) represents the inundated area by using NDVI which is an index representing the vigor of vegetation. Figure 1(c) represents the inundation area (white zone) obtained from ALOS- PALSAR.



Fig. 1(a) True-color image of Rikuzentakata after the tsunami devastation.

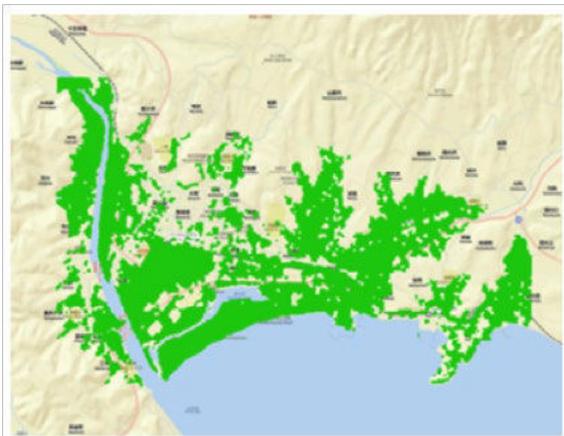


Fig. 1(b) Inundation Area Obtained from NDVI

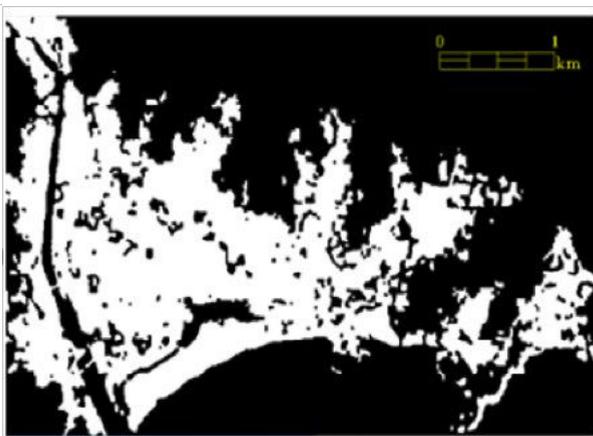


Fig. 1(c) Inundation Area image Obtained from SAR

Figures 2(a) and (b) show analysis results of flood inundation area caused by heavy rain in Thailand in 2011. Figure 2(a) shows the area before the flood and (b) shows that after the flood. These images were obtained using NDVI. The blue areas represent water zones while red areas represent vegetation zones.

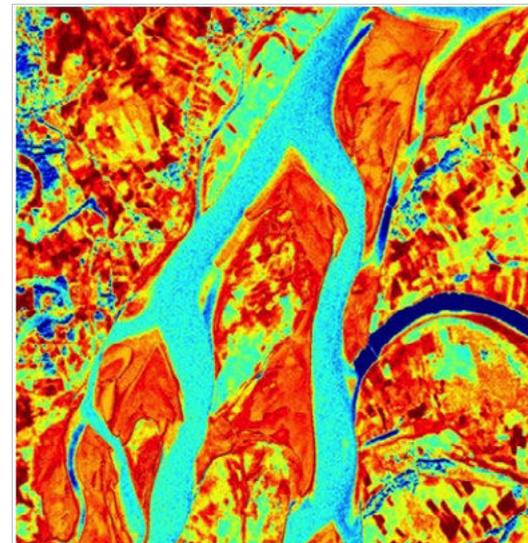


Fig. 2(a) Before the heavy rain

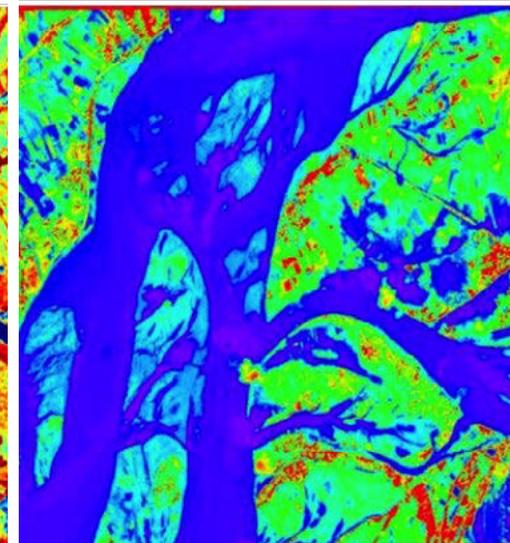


Fig. 2(b) After the heavy rain

Last year, we had a severe rain induced flood disaster in Yamaguchi Prefecture. We compared images of the area “before” and “after” the event to assess the damage. We then uploaded the images to the website of Sentinel Asia²⁾. Figure 3 shows one example of the products.

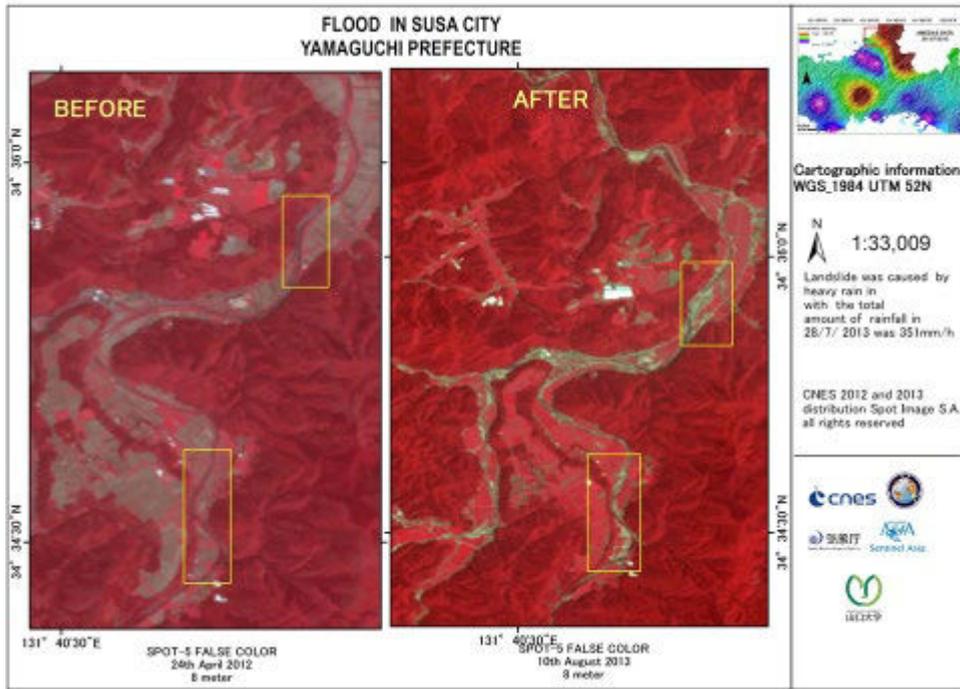


Fig. 3 One of the products of flood disaster occurred in 2013 in Hagi City, Yamaguchi Prefecture. This image was uploaded to website of Sentinel Asia.

To actually use the satellite remote sensing images for disaster mitigation, there are two problems to be solved. One is space resolution, and the other temporal resolution. After the occurrence of a disaster, information is needed as quickly as possible. Thus, images provided after several days of the event will not

be useful even if they are very detailed and clear. But conversely, images provided just after the event that are coarse and low quality will not be useful.

From this point of view, Advanced Land Observation Satellite-2 (ALOS-2) which was launched on May 24 by Japan Aerospace Exploration Agency (JAXA), has abilities to improve both image quality and speed of image delivery. It has 3x3m space resolution, and it can deliver images within 24 hours, and if timing and conditions are good, within 12 hours. These satellite images will be very useful for any country facing devastating natural disasters. Thus moving forward, JAXA will contribute to global natural disaster relief by providing required output images to damaged countries through Sentinel Asia.

References

- 1) <http://profile.ne.jp/w/c-53730/>
- 2) http://global.jaxa.jp/article/special/sentinel_asia/index_e.html

Mapping Out Punjab for the 21st Century and Beyond

Sonia Dhillon Marty

As we set our eyes on becoming a world class region, we need to define what it means to be world class. We are striving to make the Punjab region renowned for excellence of service and quality, economic prosperity and intellectual openness to diverse views and opinions. To achieve this high standard we must first understand the strengths and potential shortcomings of the region and culture, so that we can most efficiently gain international acclaim. Without going through such an exercise of self-reflection and analysis, we are bound to fail. Globalization and technological innovations we see today have provided abundant benefits to people across the world, but they haven't been without cost. For example, the displacement of fertile soil for concrete and pavement, the use of inefficient fossil fuel-powered buildings, and cities designed for dependence on car transportation have all allowed for a more integrated world but they have also hurt the environment and may be responsible for the current shift in global climate. Thus going forward we must aim not only for economic and technological progress but we must think of how to make these aims environmentally and socially sustainable. Poorly coordinated planning of construction and expansion can lead to familiar scenes such as cultural disconnection and failed economies.

Punjab has two choices: It can either accept whoever comes to do business and endure the grave environmental and social costs these companies may bring, or it can be selective with its partnerships and attract world class businesses that want to build the Punjab region into a socially and environmentally sustainable economic engine. This means looking at each investment project in terms of its potential to reinforce rather than to undermine what is already exceptional about Punjab. How do these investments impact the built and natural environments, how do they develop our global

profile, and how do they begin to engage world-class companies for larger projects?

To make my point, let's take a simple infrastructural investment such as a fence. People believe a fence will keep them safe and ensure their privacy, but often it is an unnecessary construction which blocks views, and separates classes of people while also disconnecting them from the natural world. Thus, a simple fence can impede personal relationships with our neighbors, peers and the environment; relationships that are vital and necessary for future generations to strengthen, as they become stewards of one another and of their functioning ecosystems.

By tearing down the literal and hypothetical fences that keep us apart, Punjab can become an inclusive society that shines like a diamond attracting the best and brightest from around the world, helping us make Punjab the most desired place to live and work. Culture is something learned by a group of people. It is the thoughts and beliefs developed by them over a long time through social interaction in cities, homes and through architecture, art, climate, and even through historical events and geo-political issues. Given this, public policies and infrastructure define how people operate and interact. Do they allow a woman, a child or an old person to live an independent life? Does the infrastructure allow for an inclusive society? Can a person develop his skills to the fullest and be rewarded regardless of religion, gender, age, class or caste, physical limitations or any other political or social differences?

Such an inclusive society is the ethos of Punjab. Guru Nanak gave this brief to us in the 15th century, before it became part of the western ideology. The Punjab's DNA of hard work, loyalty, discipline and agility can be revived by like-mind

ed individuals and international organizations. We need to attract world class Japanies companies for their hardworking and diligent culture, French companies to bring style and essence of living, Silicon Valley for its agility in business and innovation, and so forth.

During the Meiji Restoration in Japan, Japanese scholars were sent abroad to develop world class bench marks for the industrial transformation and foreign experts where invited to teach in Japan to make the best of this transformation from an agrarian economy into a developed industrial one. Much of Japan's new infrastructure was designed by foreign architects. In fact, foreign architects built both The Bank of Japan and Tokyo Station, which are still landmarks in Tokyo today. Tokyo was transformed into a metropolis like Paris, London and New York with help from the international community. From that base, Japanese architects have risen to be world renowned, building landmark buildings around the world, attaining many prestigious architectural awards and teaching new forms of architecture to the globe.

Japan's Criminal Code was drafted with the help of Gustave E. Boissonade de Fontarabie, a French legal scholar, and the first Commercial Code was drafted by the German scholar Hermann Roesler, based on German law. In a similar manner, many features of the educational system of Japan are based on European models, especially the French system.

Likewise, Punjab should look outward to global "best practices." Then, Punjab's strength will be how it differentiates itself from rest of the regions in India and South-East Asia. In today's globalized economy, Punjab is competing for global visibility. An international company is going to probably establish one location in India and maybe South-East Asia. Therefore, solely attracting Indian companies to Punjab is not a very strategic plan if we want to make our state the

sought after location in the India sub-continent by international firms.

When a foreign company sets its operation at one place, even if it is a very small project they get familiar with the region and if the experience is good, then it becomes the home base for that region/country. Working with world class companies will create a culture that will make Punjabis and Punjab a sought after place to do business as it will revive the hard working ethics of our people. Someday, like Japanese today, Punjabis will be invited around the world to lead social economic transformation.

Defining Punjab: Punjab's differential factor over rest of India

Geography: We do not have beautiful beaches, but we do have rivers that can provide places for water sport and outdoor experiences. We have foothills for meditation and relaxation, but no skiing. We have no port or large industrial cities with an established identity. That means we are free to establish whichever legacy we want because we do not have the baggage of other legacy businesses. In order to promote regional development and improvement of living standards, Punjab should be extensively linked via high speed train network. High speed trains to Delhi would transform Punjab like they did Gurgaon, and also provide much needed relief from fatality rate on the GTR-Grand Trunk Road. An important attraction for multi-national companies is the fact that India's Punjab can be the gateway to Pakistan. 70% of Pakistan's administrative services and military are Punjabis. India's Punjab offers higher security, while approximate to the highest dispensable income segment in Pakistan.

Culture: Punjabi food and style is most recognized by people around the world. Darwin concluded that neither the strongest, nor the smartest species survive

evolution, but rather the most adaptive ones. Punjabis are the most adaptive people. They can easily integrate with any society around the world. They never lose their resolve even when they have hit rock bottom. You will never see a Punjabi begging. Punjab is at the top in India on being an inclusive society. With such practices as langar (communal free kitchen), Sikhism denounces class system. Punjab has one of the highest GDP and educated population rates, as well as high level of sanitation.

Punjab to become top destination for business

Paris is considered one of the most beautiful cities. It is on everyone's list of places to visit. Beauty is goodness. It makes us positive, and our senses are stimulated. Punjab needs to target for a beautiful state. People of Punjab already value living well, looking good and dressing well. Bustling cities are not designed by one person, but what shapes sought after cities are factors such as, design code, infrastructure design, cultural life, security, inclusivity-its buzz, environmental purity, social equality, freedom of expression for all. Here are some areas of concern that need to be addressed while defining our goals:

- Population control
- Environmental and noise pollution
- Sanitation
- Gender equality
- Security
- Air Quality
- High speed public transportation and air/rail access
- Water quality and availability
- Biodiversity
- Employable population

- Quality healthcare
- Energy management
- Sustainable farming
- Ease of access to essential services for everybody
- Transparency in doing business
- Corruption free society
- Food Quality
- Product safety and integrity
- Access to law and fast implementation of it
- Logistics
- Rich cultural and outdoor life - amusement parks, sports, nature, art, theater, music, night life, fashion, dining out, international cultural mix

By designing an inclusive society through responsive policies and institutions, Punjab will attract world class businesses and intelligentsia from around the world. In doing so, we can build a sustainable world class state both socially and economically. An inclusive society means a more just and affluent society. The USA can serve as a bench mark for this goal. Inclusivity includes all: rich and poor; young and old; workers, students and retirees; able and disabled; business and arts; educators, sportsmen, entertainers; new immigrants, visitors and founding families. Diversity keeps the society rich and energized. Punjabis DNA has the guts to overcome any challenge when called to be united behind a cause.

Here is the call to action:

- No one will litter in public places especially urinate or spit
- Public toilets at every public place and gathering, and in every household
- No tipping like Japan. In Japan, people take pride in doing their job well. Such a system builds a very professional society.

- No large weddings, why not build a school or a hospital or a retirement home to celebrate your child's wedding?
- Transparency in business and law, zero tolerance for corruption.
- Women will not get a dowry, but the inheritance law will be enforced.
- Encourage older age marriages such as 25. Thus people are mature to find a compatible partner.
- Population control, encourage 2 kids per household.
- Educate against HIV and other communicable diseases.
- No to drugs
- Lifelong learners- Keep citizens mind rich and growing through hobbies, book clubs, and short educational courses.
- Every person will play a physical sport at least twice a week to keep the society physically fit and mentally stimulated. In Vietnam, they have exercise machines in the parks, badminton courts on the sidewalks. Per WHO report, there will be an alarming 75% rise in cancer in the coming years which will mainly come from developing economies as it is linked to obesity, diabetes and poor eating habits and smoking. Thus making physical fitness part of our daily life is an essential preventive measure to avoid overwhelming health care costs.

Punjab Government's policies and its institutions can inspire and force the change in Punjab and its people. We must act now.

Challenges to overcome

The Punjab region is entering late into the game of industrial development in comparison to some other parts of India. There are many locations in India that are already well-established centers for multi-national companies. At the moment, Gujarat is the state to go to do business. People have degrees, but are not ready to work. Therefore, instead of using their smarts to succeed, they spend more time on corrupt means

to get ahead. This creates an unhealthy culture of undermining markets ability to let the best succeed. There is no cultural scene to help international companies attract world class employees. The pursuit of self-actualization is replaced by showing loud money. Such an economy of living off the cash from sold land will collapse when the golden eggs run out after the golden goose has been sold off. In addition, land value will run the risk of a bubble effect and collapse unless the fiscal policies change. Another challenge is that Chandigarh is more expensive than Paris or the Silicon Valley while it does not offer any intellectual or industrial attractions like other world class cultural centers or the centers for technological and business inventions. We must think of how to fix issues dealing with water, power supply, food quality, security, gender gap, environmental pollution, and many more items in an inter-connected fashion while planning the future of the state. The solutions to these problems must have common threads that make them all work together and reinforce one another. Today's policies will both inspire and force a cultural shift in our people. Technology is making a lot of professions redundant at a very fast pace; therefore, we need to define a very clear vision and set our measurable goals to lead Punjab and its people to a position of leadership in India and in the world.

Legal and Illegal Urban Villages

Ko Nakamura, Director of Mosaic Design, Assistant Professor, Kengo Kuma Lab., Department of Architecture, The University of Tokyo, Tokyo

In Shenzhen, there are “Villages” in the center of the city called “Urban Villages”. Behind glazed skyscrapers that have 40-50 stories, there is a “Village” densely populated with 10-15 story buildings. The term “Village” is not only metaphorical, it literally refers to village.



In 1968, the Chinese government divided their land in 2, the city and the village, to keep the village land for agriculture. The city part belongs to the government, but the village part belongs to farmers. Village land is the only one people have a right to have ownership in China. Shenzhen was literally a village until around 1980, but once the Chinese government defined it as a special economic zone it grew rapidly, becoming well known. Government began to buy the land from the farmers to develop it as office, retail and residence land. As a result, the city part has grown surrounding the “villages”, and several of them remain inside the city.

Some villages are trying to sell the land to the government at a high price, some have been re-developed by the government, and some are against expropriation by the government. In any case, since land price keeps increasing, farmers began to build as much as possible without following any rule regarding space. The average distance between buildings is less than 0.5m; most buildings are touching, leaving only 1.5m wide alleys between them.



This looks completely illegal, but taking into account the history between government and farmers in regards to the definition of village, this is actually legal only in the “village”. People and buildings follow their own rule instead of following the Laws established by the government.

In these “urban villages”, dwellers give more importance to securing as much cheap land as possible, sacrificing aspects such as ventilation, light, space, etc.; features that are usually considered basic in housing.

There are many people who seek cheap rents, instead of demanding good living conditions. As a consequence, in order to fulfill these needs, inside the villages there are architectural structures that would be normally considered illegal, but they see them as legal.

“Urban villages” have their own particular order and there are many businesses, shops and entertainment spots that simply pop-up to satisfy people’s needs.



“Urban villages” are not perfect and have a lot of problems, but they have their own role within the city.



In Taipei, there are a lot of illegal extensions, even on the police station. This is a case of tacit admission; that is, "It's not legal but everyone does it, and nobody complains about it". This kind of attitude is also important in building cities. Drawing a strict line and establishing regulations such in Tokyo, brings an enormous amount of trivial routine duties, transforming the city in a dull place.

In Seoul, someone used the street as space for advertisement. It is easy to say "This is messy, regulate them by law!", but at the same time it is also a chance to think about new and more suitable regulations for the city.

These kind of discoveries and ideas are most valuable things to improve the cities. Sometimes, both government and people will try to put regulations, but sometimes these things will be praised by everyone. What we should do, is to just leave those kinds of unexpected things and improve them with flexibility.

Considering that the future is unexpected, this is what we need to build sustainable inclusive societies.





What we need in the cities is something like this manifestation of freedom and happiness in Bangkok. What we have to do, is think how to manage / operate / control such kind of situations, when new ideas pop up in a city without any formal regulation.

Little by Little, Learning Great Nature

Jun Sato, Jun Sato Structural Engineers Co., Ltd.
Associate Professor, The University of Tokyo, Tokyo
佐藤 淳
佐藤淳構造設計事務所, 東京大学准教授

Morphogenetic operations of structure in architecture have advanced into the phase where structural elements also serve as environmental elements. Some of them will be developed by the following practices :

Dynamics Operations : Single structural design method used for diverse forms based on dynamics

Geometry Operations : Choreography of complicated geometry

Experimentation : Physically sensing the operation processes that appear in workshop scale structures

These operations also have the possibility of contributing to the generation of a sanitary land. Little by little we are learning about natural phenomena such as the vibration of the ground, water and wind flow, optical permeability of vegetation, porosity of insect bodies, buckling phenomena and the plastic state of material. Through these ideas we can bring safer and more comfortable days.

Approach to Single Structural Design Method

Stained Glass Structure, Design & Research : Jun Sato Laboratory, the University of Tokyo

The *stained glass* panels are made by fixing glass in a slight metal frame, which represents the diverse forms in the manner mentioned below.

As the cushioning materials inserted between the glass and metal frame are required to be resistant to UV damage, we are using *tin* plates, which we found to be effective.



Left : Stained Glass Structure test specimen

Right : Pop-up Stained Glass using brass frames

This structure represents a design that can take on diverse forms and is composed of diverse phenomena:

Composed of *multiple materials*.

Composed of *bar* and *plate* elements.

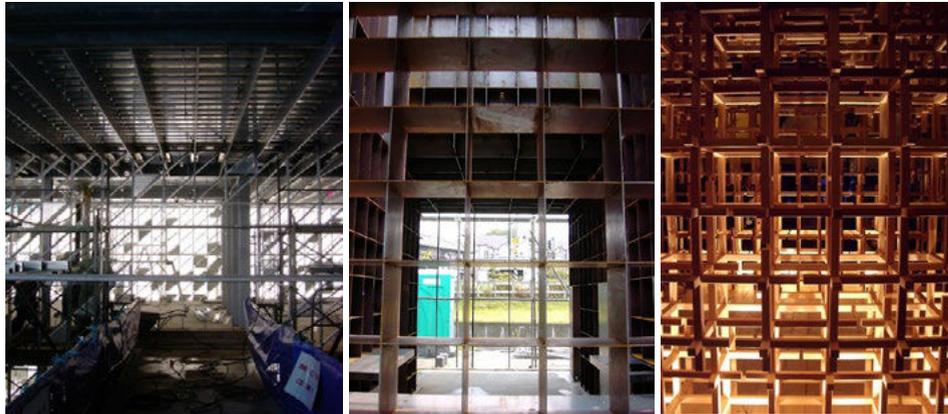
The *optimized framework pattern* existent to make it stronger using curved line elements.

Elastic behaviour of the tin plate while in a plastic state.

Algorithm to describe *plastic hinges*, which also describes buckling behavior.
Mutual buckling resistance between the glass plates and the steel frames.

The development of the algorithm mentioned above is now under investigation using the *condensation of the eigenvalue equation of buckling*. As we can see, this material is a sufficiently complex composite that can be used to develop a structural design method. When completed, it can be adopted for many of other structures.

The next issue we are trying to solve is how to achieve the craftsmanship necessary to generate these structural – environmental elements. Some of the attempts we've made are shown in the following examples of mesh tectonics.



Left : Research Building, Hakodate Future University, 2005

Middle : Tsuda Veterinary Clinic, 2003

Right : Prostho Museum Research Center, 2010

Sunny Hills in Aoyama Tokyo, 2013

3rd Examination of *kigumi* – timber joints without metal fixings with Kengo Kuma
Compared to Prostho, it has evolved into a very complicated geometry. It is dif-

icult to tell how the elements are overlapping and how they should be carved just by looking at *3D images* on a display.

Thinking about these operations of complicated geometry, we should develop a suitable way of *projecting* onto a 2D display.



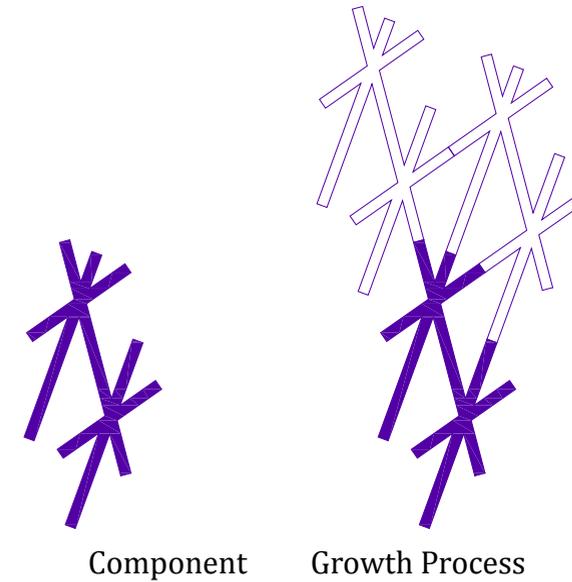


Considering the *geometry operation*, this system can be composed as follows:

Local State (shape of components and connection type):

Component with complicated but singular shape, with no parameters.

The connection type is singular with no parameters.



The *growth process* will be easy, and any *global shape* can be generated. As one of the developable operations, a *random operation* can be composed as follows:

Growth process can generate many random global shapes, and each shape is evaluated individually. Finally a single shape is then decided upon.

This method is applicable to many systems but it has *limited convergence*.

When the global shape has been composed, we can estimate certain values:

Structural dynamics values such as safety ratio, strain energy

Environmental factors

Space volume

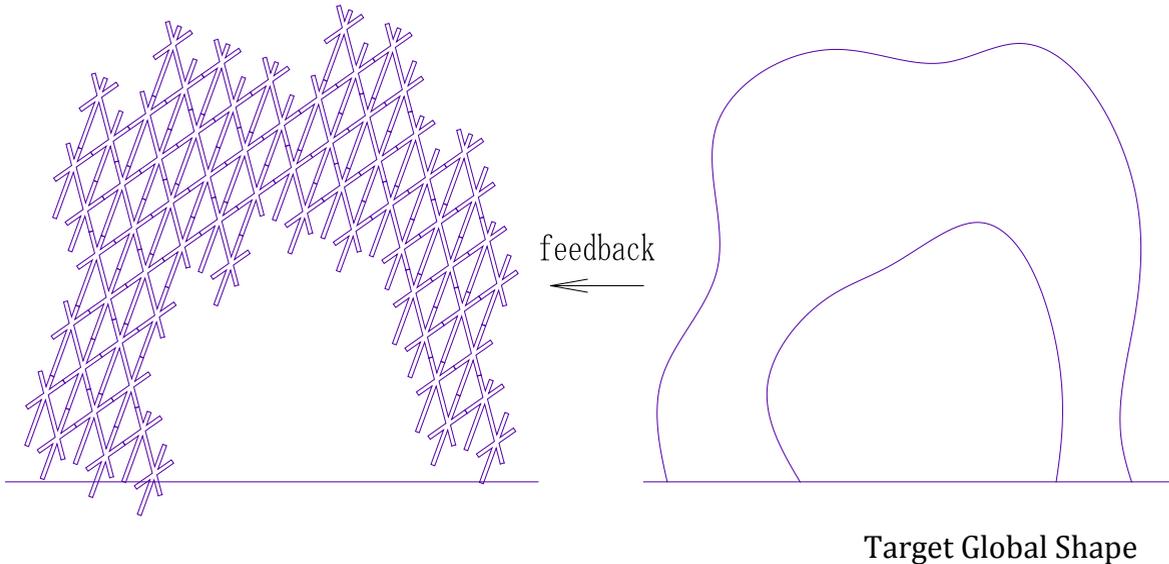
In this system, when the units were connected *constant porosity* is guaranteed, which is useful when thinking about light, wind, insulation, etc.

In this case it is easy to compose a *feedback process*:

Information from the global shape, such as points of weakness, is fed back into the system and units for reinforcement can be added.

It indicates when we have a *target* global shape, we already have a way to compose the local state.

As it is easy to make the feedback process, an *iteration process* is therefore also an easy operation of geometry.



Operation of Complicated Geometry

“ ζ - cube”, Design & Construction : Ken Yokogawa Laboratory, Nihon University,
Structural Adviser : Jun Sato

Like particles gathering into a protein molecule, 60 mm cubes made of *hemlock spruce* are connected by “ ζ - inverted question” mark shaped eye bolts.

The structure gradually changes from a *hard* structure at the base to a *soft* membrane-like structure on the roof.

The distance between nodes should be the dimension of the cube with factors of $x 1, x2, x3$.





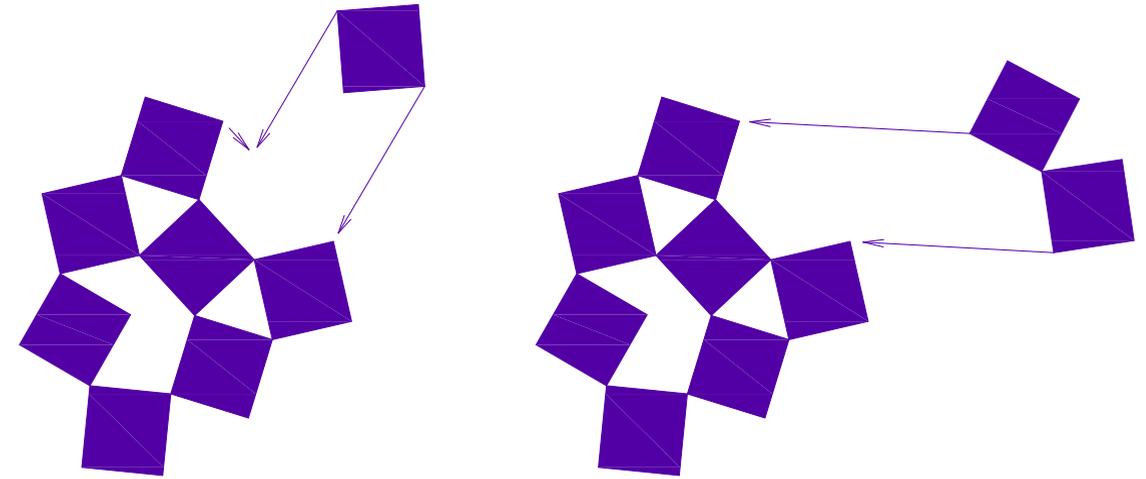
In this case, the operation can be composed as follows :

Local State :

Particle with *simple* and *singular* shape with no parameters.

The connection type is *simple* but the *angle coordination* of the particle may be the parameter.

Almost any global shape can be generated but, the *growth* process will be complicated.



Adding a single particle: difficult but hard and strong
Adding multiple particles: easy but soft and weak

When the global shape has been composed, we can *estimate* some values:

Structural dynamics value like safety ratio, strain energy

Environmental factors

Space volume

Porosity,

...

In this case it is complicated to make a *feedback operation*:

When we want to add a cube, the distance between the nodes might become a limiting dimensions.

On the other hand, if the distance to be spanned is found to be outside the cube's dimensions, we can add multiple cubes to span that distance.

However, if we can understand the relationship between the local state and the target global shape based on reinforcement, stiffness, curvature, porosity, we can develop *growth*, *feedback* and *iteration* processes.

Different Brick, Exhibition Real Size Competition 2013

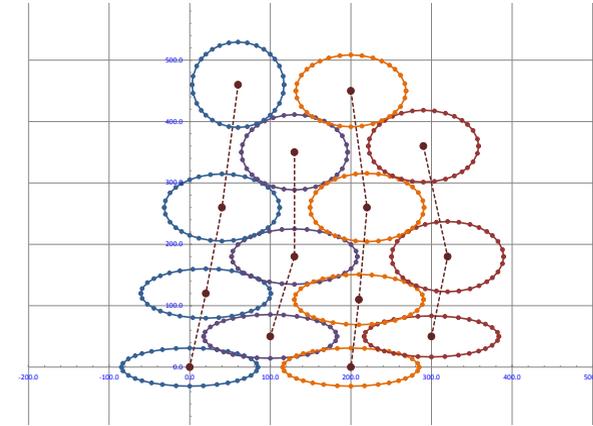
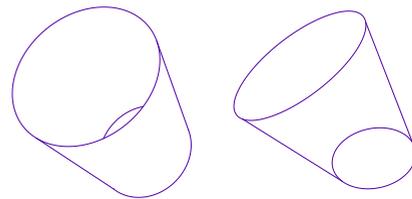
Design & Construction : Yusuke Obuchi Lab, the University of Tokyo

Structural Adviser : Jun Sato Lab

Masonry structure composed of *ellipse shaped bricks*.

The bricks are cast using cone shaped moulds. The moulds were soft enough to be deformed, so different ellipses could be generated from the same mould.

Ellipse packing is a very complicated geometric problem, which is solved by finding the solution of *simultaneous quartic equations*. These are developed using the conditions that the *length of circumference* must be identical and every adjacent 2 ellipses should have *single intersection*. Here we proposed an approximate solution.



In this case, the operation can be composed as follows:

Local State:

Particle has a *simple* shape but it has the parameters of *cone type* and *cone deformation*.

The connection is *simple* and *singular* without any parameters.

Not every global shape (surface) can be composed. This will be limited but the *limitation* should be considered as a characteristic of this system.

Growth process will be simple and easy.

Another estimation other than those mentioned above will be the *compression state*, which necessitates that the final shape should be developed with no tension arising.

In this case it is complicated to make the *feedback operation*, mentioned above.

If we can understand the relationship between the *local state* and the *target curvature* of the *global shape*, we can develop the *growth*, *feedback* and *iteration* processes.

Morphogenesis Appearing in Workshop Scale Structures

Through performing design-build processes like workshops and exhibitions, we can learn how to develop morphogenetic design based on *geometry*, *materials*, *dynamics*, *craftsmanship*, *site matters* and the *spirit of engineering*. It is also necessary to develop a way of running a workshop in a matter of a few days.

Creative Structures : art4d workshop in Bangkok, 2012

Using *local materials*, 4 teams constructed pavilions of 4 to 8 m spans, in only 2 days.





Experiments on Geometries and Dynamics: workshop at Stanford University, 2014

Students studied 2 categories and materials of my proposal for 2 days in February and constructed it in 2 days in May.

Category 1, *Tensegrity Volume*: Tensegrity to have “3 dimensional” volume.

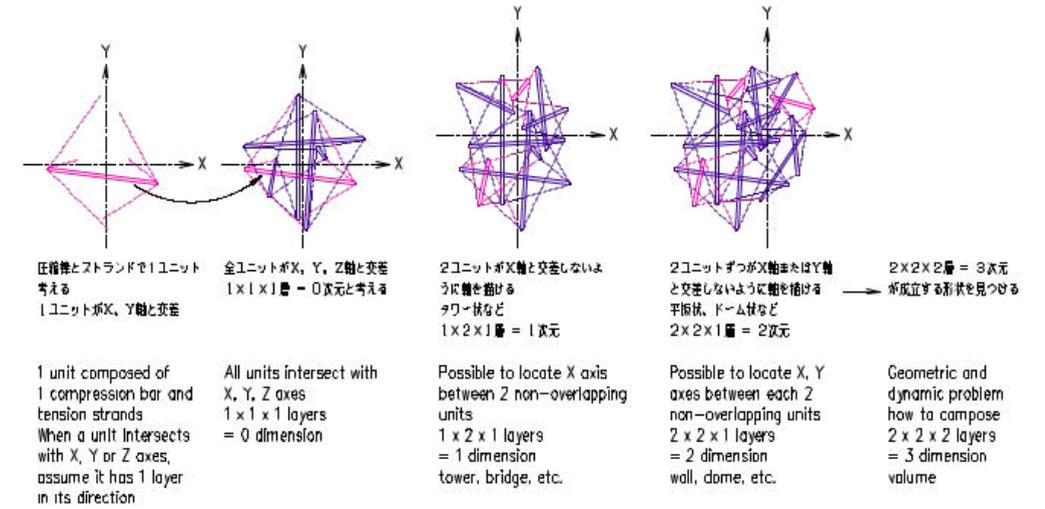


Left : “3D” Tensegrity Volume composed of 18 galvanized bars and lengths of stainless cables (photo by Nick Xu)

Right : Tensegrity model, Pop-up Tectonics model

Dimensionality of Tensegrity

It is hard for a basic tensegrity to find a stable shape as a “3 dimensional” volume as it is not a modular system that can be made up of standard units.

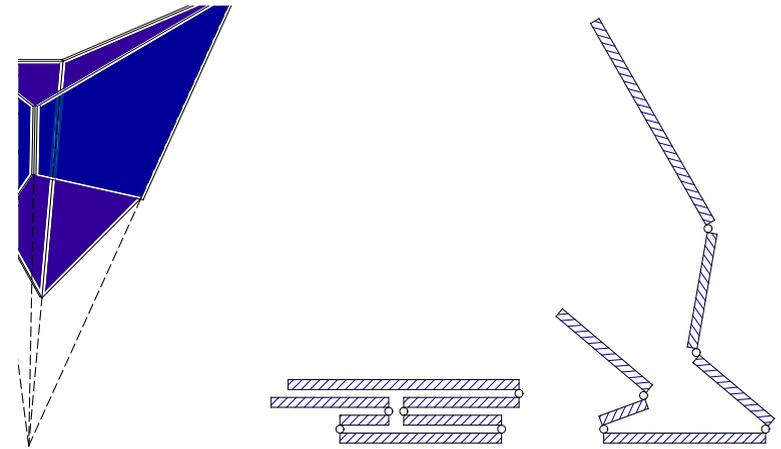


Category 2, *Pop-up Tectonics* : Foldable structure like a **pop-up book**, composed of 22 panels made of *washi*, traditional Japanese paper, and timber frames.

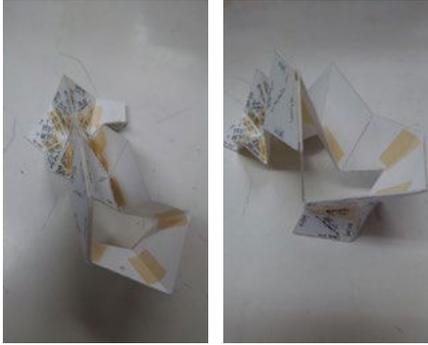


*Raising process of Pop Up Tectonics,
 (Top right, bottom left : photo by Nick Xu)
 (Top left, bottom right : photo by Jun Sato)*

It is hard to find an exactly foldable shape when using **thick plates**. Extensions of sides should cross at the same **focus point**. Panels belonging to the same layer should not be **overlapped** when they are folded down and the **total angle** of the sets of panels, which coupled, should be same.



Geometrical conditions can be recognized by studying the model. For example: from the top view, a ridge line or thalweg line should be seen to lie on a **straight line**. When the loop is connected, panels have **twisted shape** like a Mobius loop and it is hard to find the focus point.



Through workshops like this, I feel we are thinking about structures that are **adequately light and soft** such that **people do not die even if they collapse**. I hope this does not end just as a fantasy.



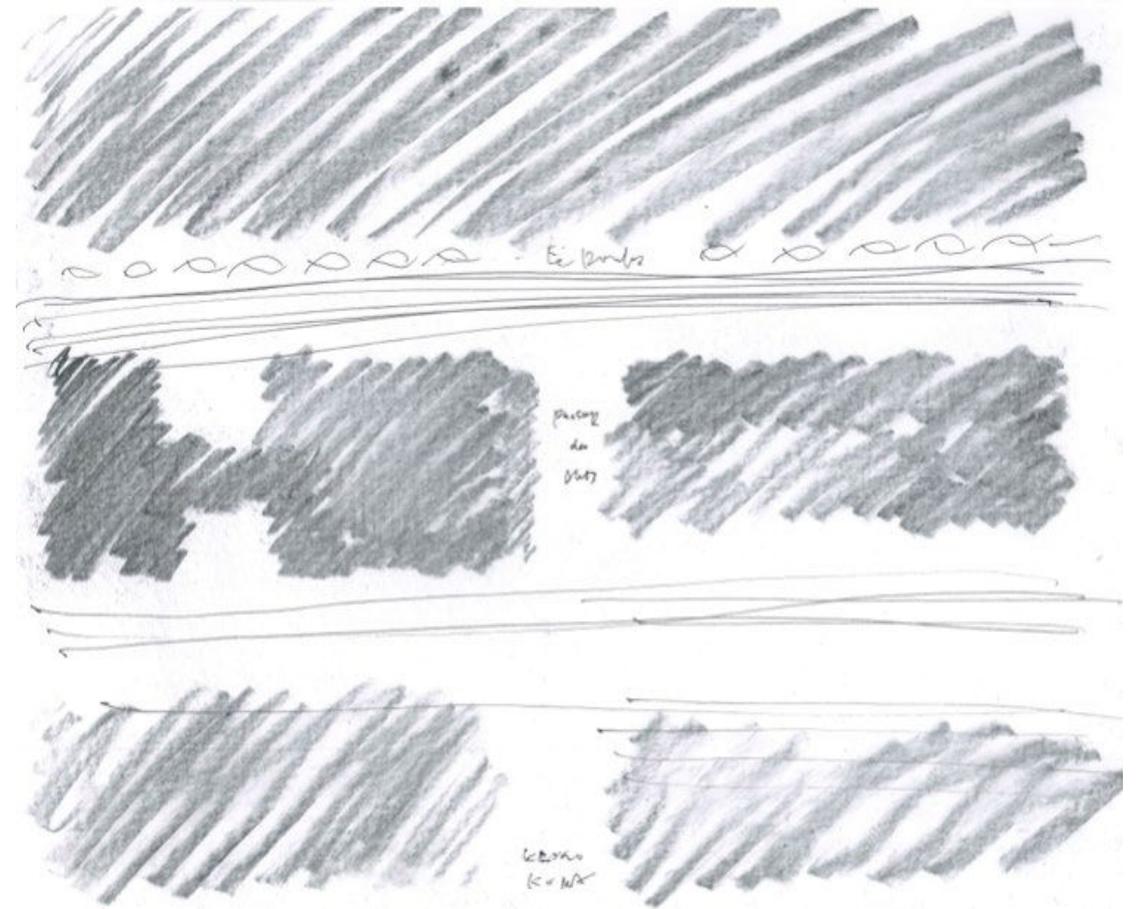
Japanese Umbrella, representing a light and soft structure made of *washi* paper coated with *linseed oil* for waterproofing. The frame is slight and woven with colourful string to prevent buckling.

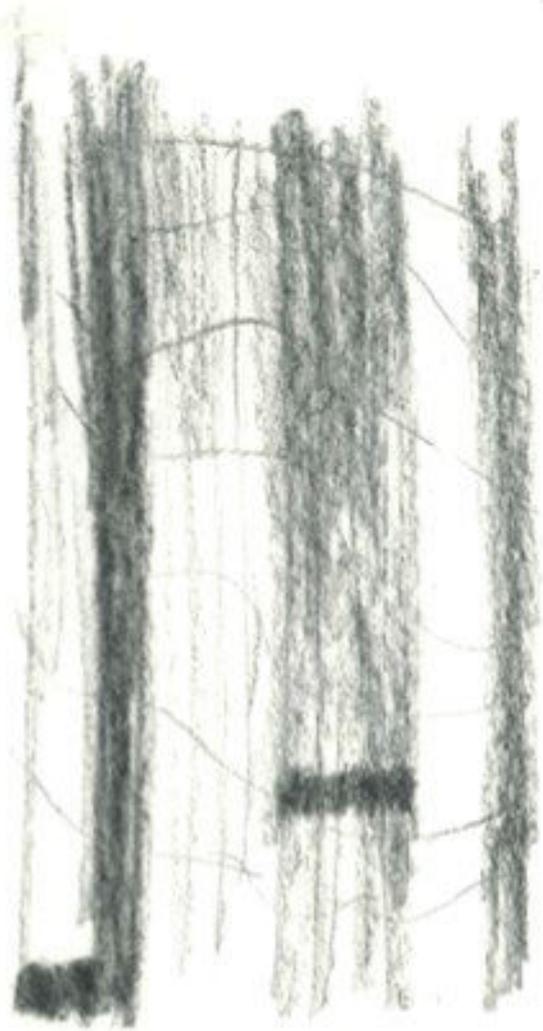
Rhythm of The Earth

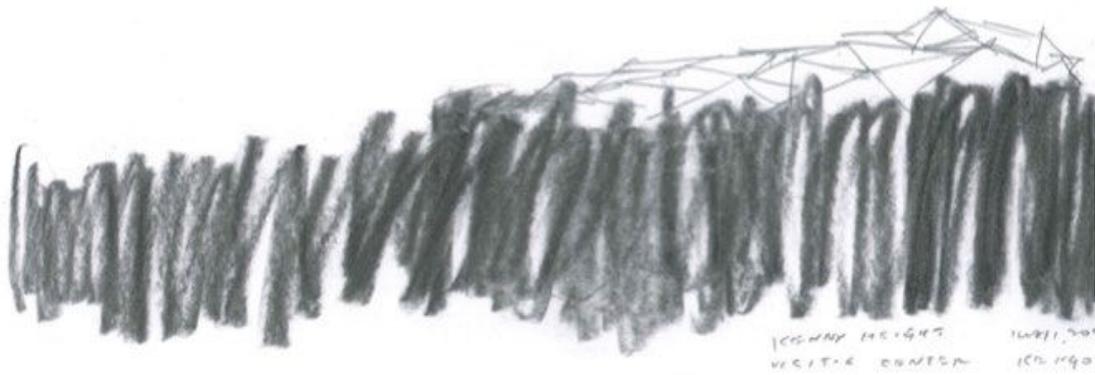
Kengo Kuma, The University of Tokyo, Tokyo

"What I want to do most in Panjab is to catch the rhythm of the earth and sublime it in a work of urban design. In fact, this is the thing Le Corbusier tried to do in Chandigarh. In Paris, at the beginning of the 20th century, he aimed to separate architecture from the ground. Having encountered with the ground of Panjab, he attempted a totally different approach. Still, I feel his architecture retains hardness that is unique to the industrialized society. I would like to bring architecture and earth together and merge them eventually. Panjab is the ideal place to realize such approach and our way of working will be disseminated to the world from here."

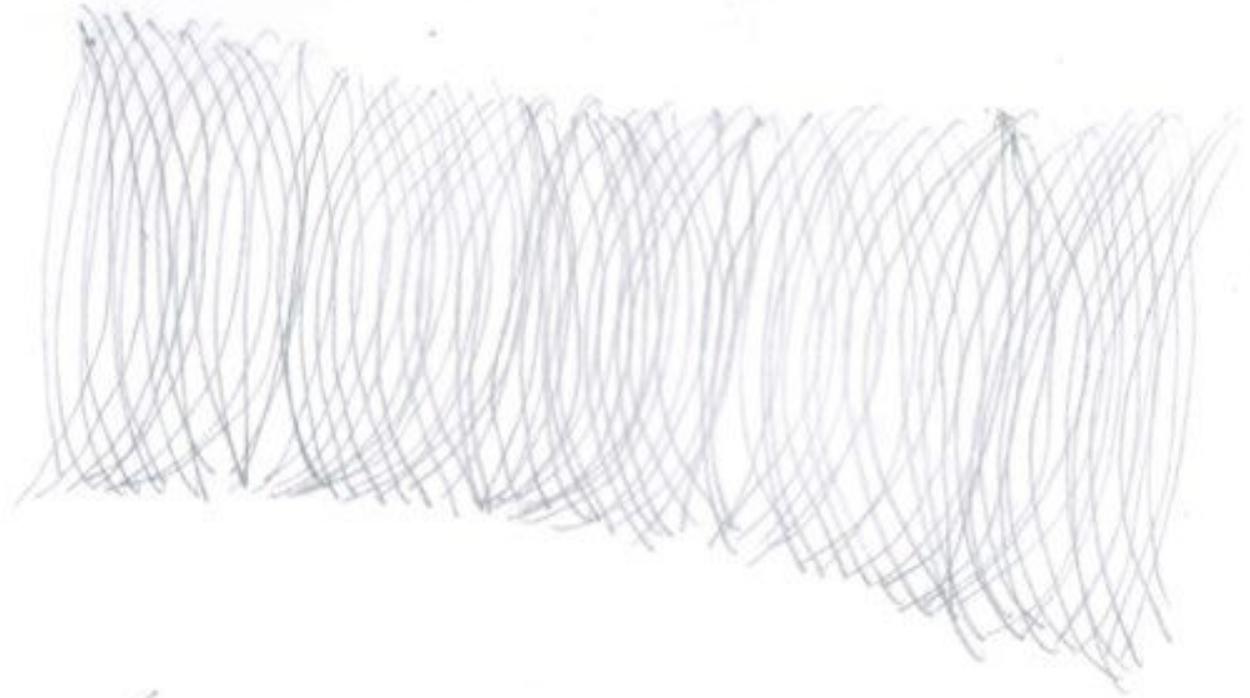
-Kengo Kuma







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