WRAP UP SESSION

Management of Changes for Livable Environment

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1 Introduction

Every community has been facing rapid changes in various aspects of life. At global level, the changes refer to planetary-scale changes in the Earth system which consists of the land, oceans, atmosphere, polar regions, life, the planet’s natural cycles and deep Earth processes that its parts influence one another including human society.

Beside the threat of significant climate change, there is growing concern over the ever-increasing human modification of other aspects of the global environment and the consequent implications for human well-being. Social systems can also change rapidly and discontinuously in ways that may greatly alter environmental systems and human being.

To address the changes, the governments, public and private institutions and people are required to agree on the ethical framework for global stewardship and strategies for environmental system management. The academic and scientific society that are believed to be the most prepared in facing rapid global changes should take a lead in exploring the new way addressing the problem.

With purpose to comprehend any new initiative for managing the changes and keep the environment livable, this conference discusses in detail about the state-of-the-art of environmental management, technology, and methodology to address the changes at community, city, regional and global levels.

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2 Knowledge organization

To obtain clear overview of possible changes in the way to addressing sustainable issue, we organized the groups of initiatives, ideas, and possible solutions generated from research and academic activities which include local wisdom and global experience into five groups of focus:

1. Disaster Risk Management
2. Sustainable City
3. Livable Rural and Urban Environment.
4. Green Infrastructure
5. Sustainable Resource Management

Following the idea of Change Management (Kotter, 1996) which include: (1) Creating Urgency, (2) Form a Powerful Coalition, (3) Create a Vision for Change, (4) Communicate the Vision, (5) Remove Obstacles, (6) Create Short-Term Wins, (7) Build on the Change, (8) Anchor the Changes in Corporate Culture, we critically analyze where we are now and what should be the next.

3 Are we in the right direction?

3.1 Creating Urgency: Water

The sense of urgency has been disclosed by the distinguished speakers. Most of them brought the issue on water, either on how the water is obtained, quality improved, cleaned or even how the water could transport or removing pollutant.

Professor Thomas Boving for example, invent the new approach for pollutant tracking transported by water with microscopic particle. Professor Tsair-Fuh Lin, Yi-Ting Chen et. al. furthermore, aim to neurotoxin removal with oxidating treatment of water. Professor Fusheng Li at the same time introduce new approach to apply biological filtration, activated carbon adsorption and membrane filtration for improving water quality.

3.2 Form a Powerful Coalition: Water and its concerned institution

While global concern on water is increased, local initiative toward the same direction also take place. For example, Prof. Pranadhang et. al. who aim to mimic natural bioremediation for water pollution might be aligned to the similar approach applied in Indonesia at by Prihatini et. al.

This is only one example indicating many scholars, and its institution could form a powerful coalition on working on together in sustainability issue.

3.3 Create a Vision for Change: Balancing planet, people, profit (3P)

The Honorable Mayor of Banjarmasin, Ibu Sina, starting the keynote speak with the vision of balancing planet (environmental concern), people (social inclusion), and profit (economic benefit) in the city of Banjarmasin.

Professor Marcus Hackel is among scholar who take strong voice to balancing people through architectural artefact and balancing its interinfluencing to planet and profit. More detailed action for balancing the 3P (Elkington, 1997) has been done by Mirwan, Putra and Lestari who disclosing peat clay as a new source of material for removing pollutant or

catalyst for chemical process, and Winarno who seeking a new sustainable material for construction industry.

3.4 Communicate the Vision: Honestly speaks the contradiction

Again, Professor Marcus Hackel is among the scholar who communicating the contradiction present when we might endorse a sustainable policy. Contradiction might be beneficial on one leg of P (Planet), however it might bring consequences for other P(s).

3.5 Remove Obstacles: Addressing the contradiction

In this conference, even though not mentioning the contradiction, some scholars have been systematically addressing the negative consequences. Among others are Mirwan and Mediana et.al. If the negative consequences are not well addressed, it might create obstacle on the social and political aspect that might stops the changes toward sustainability (Wiyatiningsih, Noviandri, and Ameen et.al).

3.6 Create Short-Term Wins: Proof-of-Concept

In this conference, all scholars presenting a quick-win, as the result of careful research and empirical observation indicating the new way of winning to be scaled up.

3.7 Build on the Change: Scaling-up

In every concluded research, we show a quick-win, showing what went right, and what needs improving. Most to the paper clearly articulated the future research need to be conducted. By articulating the future speculation clearly, we keep ideas the idea fresh, inviting new change agents and leaders for us to form coalition.

3.8 Anchor the Changes in Corporate Culture: Institutionalizing

We, as part of scientific communities, who form coalition with government, business, and community, in this conference series has been talking about progress every chance we get. Here we tell success stories about the change process and repeat other stories.

Through this way, we include the change ideals and values when we back to our institution and outreach the idea into our corporate culture to be contributed by all member and ensuring that our legacy is not lost or forgotten.

4 New resources for managing the changes toward sustainable built environment.

Following the organization of themes, new ideas as the resources for sustainable built environment are summarized.

4.1 Disaster Risk Management

With concern for measuring rural livelihood experience, Rudiarto et.al. started to explore and apply Livelihood Resilience Index for tidal prone area. Tunas and Herman took further investigation on the effectiveness of normalization of river bank flood mitigation. The

effort to prolong the function of other measure of river flow were applied on the conservation types of reservoir (Brontowiyono et.al.) and risk management during construction process (Devi et. al.). Moreover, Miladan et.al. and Harjanti et. al. propose land use flood vulnerability maps in the process of urban planning and reservoir-construction program.

To address other type of disaster, Sastra and Idham propose a new approach for anticipating landslide event with introducing spatial configuration of landslide event clusters. This attempt is aligned with Pawirodikromo et.al. who develop a micro site coefficient required for earthquake mitigation program in building design.

At building level, Idham disclosed the evolution of traditional architecture through civilization process which influence the level of building safety under earthquake. In serving a more contemporary building design Teguh et.al and Pawirodikromo investigated partially strengthened structure on multi-story building.

At micro level, Pratiwi et.al. learned that the type of construction material assembly also contribute in increasing the risk for the disaster event. Furthermore, Abidin et.al. and Sigit & Azizah aim to address the risk of fire case in industrial sector and the risk of safety in construction sector using safety management systems.

Finally, all the scholars converge the opinion toward the fact that a comprehensive approach is required to mitigate all possible risk of any type of disaster.

4.2 Sustainable City

To serve sustainable city, Saptorini investigate placemaking phenomena in urbanized riverside, its problem and the possibility to address the negative implication. Wulandari & Aina, and Huzairin & Oktaviani, Nugraha et.al., and Tohjiwa investigated the effect of placemaking and urbanization to architectural spatial identity, typology, and morphology. To address a space scarcity in a more competing urban activity, Wiyatiningsih and Noviantri propose a spatial negotiation approach for sustainable city. In an extreme case of urban-space competition, such as in a post-war country, Ameen et.al. reveal the fact that sustainable city could only be established through political stability.

To investigate placemaking phenomena, Budiman conducted a historical and longitudinal global level investigation and disclosed planning conception for the structure of the cities. In a forward-looking perspective, Trisutomo et.al. successfully predict the future of the city to serve a more sustainable coastal area planning.

Aiming to serve sustainable city, one of vital component, such as transport systems need to be carefully planned. At network level, Wibisono and Suprayitno attempted to integrate inter-city and urban mass transport planning. At a more detailed level, Romadhona and Ikhsan address sustainability issue in urban area by investigating the effect of U-Turn on traffic performance. The improved performance of traffic to reduce the Green House Gas (GHG) emission is then calculated by Nugrahayu and Firmansyah.

Moreover, Mediatika et.al., Darmawati, and Rini et.al., emphasize the critical importance of mobility system to serve people with different ability, impaired people, youth and aging society. Therefore, a sustainable city should be supported by inclusive infrastructure, including pedestrian (Yulia and Iftironi) and other mean of mobility to serve all group of society.

4.3 Livable Rural and Urban Environment.

Role of society in forming livable rural and urban environment is among interesting subject investigated by Raharjo. He defined as People-Driven Development (PDD) and leading to people-driven urbanism. Moreover, Lukito and Zahra also learned that urban public space

could be enriched with public art and aesthetical element, and indeed greenery (Caesarina et.al.). Lukito & Iskandar, Asmal et.al.. and Nugroho in specific have seen that the societal effort for living harmony with nature could be traced through their architectural artefact, as well as its spatial track analysis of physical movement in response to natural circumstance (Astuti et.al., Aufa et.al.).

To support their civilization, people take resource from the earth, and its surface including the sea. Annisa et.al. investigate how mineral in the ground could provide sources for a sustainable live. Besides, in the context of resource at the earth surface, Hasanah et.al. explored a potential pathway for urban sustainability through urban agriculture initiatives to address food scarcity. To obtain water, a study of flow parameter and river intake was done by Bakri et. al. Furthermore, Mujiyanti et.al. and Syauqiyah et. al. demonstrate the possibility to desalinate water. At more advance level, Hasanah et.al. disclose the evidence that a System of Rice Intensification (SRI) could address water use management, as well as reducing greenhouse gas emission.

The concern on GHG reduction both in urban and rural area is one of the focus of the scholars, Samodra investigate the contribution of traditional houses in rural area in reducing energy consumption that lead to GHG reduction.

When people live on earth they also produce waste, including the wastewater that leak to the waterbody and river. The analysis of temporal variation of water quality along the river was conducted by Fajri et.al. To mitigate the effect of domestic wastewater Rahmawati et.al. and Yulianto et.al. investigated the effectiveness of chemical and physical parameters, including aerobic granular in the function of communal wastewater treatment. Furthermore, a more careful investigation of water treatment unit has been done by Yamada et.al. and Juliani et. al.

To improve the environmental quality of accumulative waste at surface area in a coastal area, the flushing method in polder drainage system also discussed by Wahyudi et. al.

4.4 Green Infrastructure

Moreover, for a better living, green infrastructure is required. Various type of public infrastructures such as social housing, hospitals, education facilities and public spaces were investigated by Wijaya et. al., Samudra and Sudarma, Handoko, and Santi et. al. Other types of infrastructure discussed were transportation (Prayudyanto and Tamin), drainage (Astuti and Anggraheni), logistics of construction industry (Mursadin), and telecommunication (Khatimi et.al.) as well as IT technology (Alkaff et.al). The discussions also include infrastructure governance, with the case of aerotropolis development (Berawi et.al.).

The intervention possibility could be done through ecological architecture (Handoko), building retrofitting (Fasna and Gunatilake), building shape formation and construction of green roof (Hendrawati and Putra), building foundation systems (Ma'rif et.al.), vegetation arrangement (Samodra and Sudarma) and construction material advancement (Krasna et.al., Nurwidayati et.al., and Arsyad et.al., Chairunnisa and Fardheny, Arifin and Rahman, Tata et.al., Prasetia and Rizani, Putri and Lisdiyanti, Utami et.al.).

At macro level, the planning approaches for urban configuration, the infrastructure network, its service delivery and pricing strategies were discussed by Berawi et.al., Prayudyanto and Tamin, Amri et. al. At this level, the progress of green infrastructure deployment and city sustainability could be monitored with Green Configuration-Based GIS spatial model.

4.5 Sustainable Resource Management

Again, the most concerned resource to be maintained sustain is water. All the scholars in this topics deal with water resource. Rahayu and Rini, for example observed the socio-economic determinant of water consumption. Siswoyo et. al., aim to address water pollution from the use of detergent, while Meadows et.al. and Hadjeres et.al. focus on addressing the toxic by-product of water treatment plant, and Nurmianto & Ohashi, and Islami et.al. aim to organic removal process. Ni'mah et.al. more specific aims to address the contaminated water from mining, while Warmadewanthi et.al. focus on the excess of fertilizer industry contaminating water body.

Other scholars investigate the water quality of surface water and rivers (Anggraheni and Gustoro, Marlina and Melyta, Nugroho et.al., Sriyana, and Rusdiansyah et.al.). Riduan et.al. then expand the investigation into a tidal swampland suitability for agriculture development using GIS spatial model.

Moreover, beside dealing with water, a specific attempt to explore the waste treatment option to GHGs emission was also done, by Meidiana et.al., to disclose the fact that the attempt to better living might bring a consequence for others. In the case of an excessive land resource occupation for example, it creates erosion and sedimentation on watershed area.

To mitigate a risk of land resource occupation, Ariyani et. al. test an evaluation mechanism for assessing the use of resource for a landfill systems of municipality solid waste management. An attempt to address cross-cutting issue of disaster and resources from the waste was discussed by Yusriansyah et. al. They addressed both optimized use of waste material and a more lightweight concrete adaptable for earthquake effect anticipation. Kasam also working on optimization of waste, with emphasize on reduce, reuse and recovery concept. Similarly, Wijayanti et.al. successfully exercise demineralized risk husk waste for biofuel source.

Other critical resource, but often overlooked, is the time. Anggraini et.al. and Yuliana in specific aim to manage the time as a critical resource to be managed properly especially in the construction process.

One of the critical factors of the effective use of time resource is human resources capacity. Irawan and Utomo, disclose how the leadership plays an important role in improving workforce performance in construction industry.

5 Concluding remark

We all together, in the 5th ICSBE, 2018 have provided evidences of our intention, and capacity in change management for livable environment. All our effort serves the purpose to comprehend any new initiative for managing the changes and keep the environment livable. We have the state-of-the-art of environmental management, technology, and methodology to address the changes at community, city, regional and global levels.

Nevertheless, we should continue our effort. With consider that a better life needs to be supported by invention and innovation, let me again to articulate the way of Prof Hackle that emphasizing on solving problem with contradiction. New invention, could only generated if we could determine an inventive problem (San, 2014). A problem with contradiction. In this case, we should not only balancing people, planet and profit through optimization approach, but beyond that, we must push-forward the new solution while at the same time also inventing other solution for the worsened situation.

Therefore, in this opportunity, let me propose the potential theme for future, the 6th ICSBE, conference theme to specifically focus on Inventing Solution for Sustainable Built

Environment. I believe, with our continues effort and commitment we could contribute the benefit not only among us, but also for our future generation.

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