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 : Resilient BuGIS

Blue-Green Infrastructure in Semarang

ISSUE 1

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BuGIS project begins!



**Academic Team and Project Partners
Semarang, 11 April 2017**

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BuGIS stands for Blue-Green Infrastructure in Semarang, is a project aimed to increase the flood resilience of Semarang city by integrating Blue Green Infrastructure (BGI) concept into urban development planning. The project is a collaborative effort between Loughborough University (LU) and Universitas Diponegoro (UnDip), jointly funded by the British Council and Ministry of Research, Technology and Higher Education, through Newton Institutional Links/KLN-INSINAS scheme. The project commenced with a kick-off meeting on 10 April 2017, attended by all members of academic team. The inaugural advisory group meeting was held the following day and attended by academic team and project partners, representing policymakers, industry representatives and the local government. The third day saw the organisation of seminar entitled 'Disaster Management in Urban Areas', followed by a visit to a property development site and Mangrove Forest (in Tapak Tugurejo, Semarang), which is an example of BGI.

Welcome to the first issue of BuGIS newsletter!



BuGIS project has started in earnest. In the first six month, progress has been made in several key important fronts, as follows.

- Fieldwork was initiated by UnDip team, including interviews with officials at the Department of Public Work, Regional Disaster Management Agency, Department of Environment, and Regional Planning and Development Agency, Semarang, and interviews with community in case study areas (Tambakaji Village, Trimulyo Village, areas along Banjir Kanal Barat). The research team is intended to map the findings of this fieldwork with on-going analysis of policy framework of issues around BGI and flooding.
- In terms of capacity building and public engagement, members of the BuGIS team have also given lectures and attending workshops. UnDip team recently organised successful conference (IJCAET & ISAMPE), which is supported by LU team via the presence of LU keynote speaker. These activities are detailed in this newsletter (see pages 3, 5 and 6).
- BuGIS website (<http://bugis.lboro.ac.uk/>), Twitter (@resilientBuGIS) and Facebook (Resilient BuGIS) are now fully operational. It is worth noting that BuGIS twitter account has 146 followers, and increasing. Facebook has disseminated all daily activities of the project, such as meetings, visits and fieldworks, which demonstrate transparency of the research process for the public.
- A proposal has been submitted to NERC, DFID and ESRC joint-call in September 2017. This has allowed BuGIS team to develop a new internal collaboration with School of Business and Economic and Department of Geography (Loughborough University), and externally, with Universitas Negeri Surakarta (UNS) Sebelas Maret, Surakarta, Indonesia. Sustainability of BuGIS partnership is high on our agenda, and the proposal is demonstration of this.
- Three Research Assistants (one full-time and two part-time) from UnDip have been appointed from the start of the project, are fully inducted to the project, and undertaking fieldwork. One full-time Research Assistant from LU has also been appointed, and is to start her post in November 2017. Capacity building, particularly on training for the next generation of researchers, will be an important outcome of the BuGIS project.

The first few months of the project have presented a few challenges to the team. Our close collaboration, persistency and supporting attitude from the whole research team have allowed us to overcome these challenges. For this, I am greatly indebted and wish to thank all team members for their continuing support and contribution. Also, I wish to extend my thank to support provided by the project partners, who have made this progress possible. It is fair to say that the progress so far has provided a sound platform for more challenging and exciting future work. I look forward to reporting this in the next issue.

Should you have any comments, feedback and possible contributions to BuGIS, please do not hesitate to contact us!

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Grant Award Ceremony

Dr. Jati Utomo Dwi Hatmoko (Universitas Diponegoro) formally receives Newton Institutional Links/KLN-INSINAS 1 grant from Minister of Research, Technology and Higher Education in an awarding ceremony in Jakarta on 5th April 2017. The ceremony is part of the first Anniversary of Newton Institutional Links/KLN-INSINAS, UK – Indonesia Science Technology Fund.



Dr Hatmoko receiving certificate of Newton Institutional Links/KLN-INSINAS



The certificate

Disaster Management in Urban Areas

On 12th April 2017, a seminar entitled, 'Disaster Management in Urban Areas' was organised at the Faculty of Engineering, Universitas Diponegoro, and chaired by Dr Jati Hatmoko. Dr Lee Bosher (Loughborough University) presentation was entitled "The role of people and nature in urban flood risk management". The other presentations were given by Dr Nuraini Rahma Hanifa (National Centre for Earthquake Studies, Ministry of Public Work and Housing) and Dr Suharyanto (Department of Civil Engineering, Universitas Diponegoro). Dr Hanifa presented "Earthquake disaster resilience in Indonesia", whereas Dr Suharyanto's "Flood forecasting and warning system as climate change adaptation measures through flood risk preparedness". The seminar was open to academic community and public in Semarang.



Speakers and Chair of the seminar



Dr Lee Bosher presenting

Visit to Property Development and Mangrove Forest

Following the seminar on 12th April 2017, BuGIS team spent the afternoon visiting local property development and mangrove forest in coastal areas of Semarang. During the visit, the manager of property development company gave an overview of housing development in the local areas and incorporation of green infrastructure. Mangrove forest in Tapak Tugurejo, Semarang provided an example of green infrastructure for protection against coastal erosion and flooding, amongst its various eco-system functions.



Briefing by the management of property developer



An example of green infrastructure and raising awareness of waste management in local property development



Mangrove forest, Tapak Tugurejo, Semarang



Mangrove forest with urban settlements in the background



BuGIS team listening to a tour guide on a boat



Used tires to reduce coastal erosion

BuGIS Researchers Attending Science Journalism Workshop

As part of capacity building, two BuGIS researchers, Dr Jati Hatmoko and Dr Ferry Hermawan, attended Science Journalism Workshop held by British Councils and AJI (Aliansi Jurnalis Indonesia) at Institut Teknologi Sepuluh Nopember (ITS) on 12-13 August 2017. BuGIS was selected as one of five research projects funded by Newton Fund to join this workshop. This workshop was intended to encourage researchers to communicate their research to wider audience through popular media, so that they can have more impact to society and influence policy makers. During the workshop, the researchers were introduced to journalists from about 25 media participating in this workshop. In the final session of the workshop, Jati and Ferry had an opportunity to explain the BuGIS research to the journalists in five separate interview sessions.



Dr Ferry Hermawan and Dr Jati Hatmoko



Dr Jati Hatmoko being interviewed by journalists

The 2nd International Joint Conference on Advanced Engineering Technology & International Symposium on Advanced Mechanical Engineering and Power Engineering (IJCAET & ISAMPE) 2017

Professor Andrew Price of Loughborough University has been invited as a keynote speaker in the IJCAET & ISAMPE on 24 – 26 August 2017 in Bali, Indonesia. The conference is organised by Diponegoro University in cooperation with Pukyong National University (South Korea), and Udayana University, Indonesia. Professor Price presented on “Improving critical infrastructure performance through advanced engineering and innovation”; the talk was intended to target and share knowledge with researchers in Indonesia and the region.



Participants of the conference



Professor Price presenting

BuGIS Researcher to Share Experience with Researchers in East Indonesia

Dr. Jati Hatmoko was invited by the Ministry of Research, Technology and Higher Education to share his experience as a Newton Fund Awardee with researchers and lecturers in eastern part of Indonesia. The session took place at Pattimura University, Ambon on 14 September 2017. He shared his experience in developing successful collaborative research proposal for Newton Fund Institutional Link with Loughborough University. He also shared how to deal with communication and cross-cultural issues during the research activities by Indonesia – UK team.



Dr Jati Harmoko gives talk



Participants of the event

Engaging Policymakers & Communities

The first six month of BuGIS project saw researchers and research assistants engaging policymakers and communities as part of fieldwork. Policymakers included the Department of Public Work, Regional Disaster Management Agency (BPBD, July 2017), Regional Development Agency (BAPPEDA, August 2017) and Department of Environment Semarang (September 2017). The research team is intended to map the findings of this fieldwork with on-going analysis of policy framework of issues around BGI and flooding. Interviews are currently being undertaken with communities in case study areas (Tambakaji, Trimulyo, Banjir Kanal Barat). The findings will be discussed during policymakers workshop (being organised in November 2017).



BPBD officials and Research Assistants



Staff of Department of Environment, Mr Ari Helmi and Research Assistants

Examples of BGI in Semarang

BuGIS Research Assistants at UnDip have conducted a field survey of examples of BGI in Semarang. The survey was undertaken in Banyumanik region including Gedawang and Padangsari villages, and also in Department of Environment (DoE). In Gedawang, biopore holes were mainly created in the area around village office; very few in individual properties. In contrast, a higher participation was found in Padangsari where the village authority provided 40 biopore-making devices which were used by community, facilitated by local forums. However, maintenance was still an issues with many holes were abandoned and dysfunctional. In addition to biopore, examples of infiltration well were also found in Padangsari. DoE implemented rainwater harvesting units to state-owned schools. Legally, the DoE can only do this on state-owned properties; participation from individuals was low. Nevertheless, this implementation was viewed to serve as an educational purpose for the students.



Biopore hole in Padangsari



Biopore holes in Padangsari



Biopore holes in Gedawang Village Office



Infiltration Well in Padangsari



Biopore hole is being made



Installation of lid to a biopore hole



Rainwater harvesting in Schools

Following this survey, observation and targeted review of literature, few points can be drawn as follows: (i) biopore is low-cost example of BGI, and to be effective, would require community participation in their creation and maintenance; (ii) literature on modelling the effectiveness of biopore in other Indonesian cities suggests that biopore is not sufficient by itself to mitigate urban flood. Combination with other solutions is essential. Bear in mind that there is still a need for further evidence of their efficacy and assumptions in the evaluation; (iii) given the volume of water in the catchment areas in Semarang, many millions of Biopore in appropriate location and network are required to completely mitigate floods. The real challenge is that, given the current low level of take-up, is it feasible to implement biopore in large scale?

Graduation

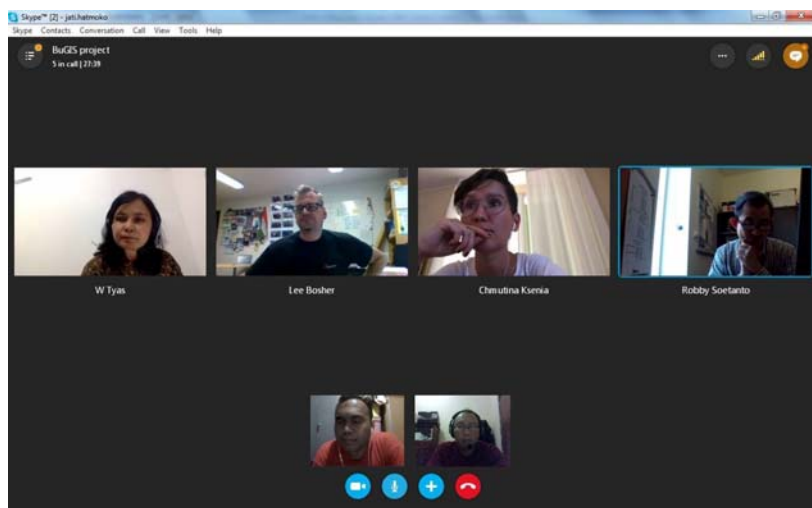
Dr Ferry Hermawan was awarded his PhD from Coventry University on 19th July 2017. His research entitles "A strategic approach to enhancing sustainable practices in public building projects: a case study of Indonesian local authorities"



The graduant, Dr Ferry Hermawan, with Dr Robby Soetanto

Team Meetings

In the past six months, BuGIS team has practiced remote collaboration via internet. Time difference (6 or 7 hours) between Indonesia and UK coupled with tight individual diary have posed a challenge, albeit a minor one. This has been overcome by willingness to compromise in a spirit of collaboration to achieve successful project. Typically, we have meetings in the afternoon UK time (i.e. 14.00), which is evening time in Semarang (i.e. 20.00). Up until the release of this newsletter, we have organised 12 research team meetings. Team meetings were documented by logging meeting agenda in the BuGIS facebook account. Team interaction was shown by uploading the screen capture of Skype meeting (see below). This allows the public to follow our research process and support our dissemination of findings.



Screen capture of team meeting via Skype

BuGIS Team

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 Dr Ksenia Chmutina (LU)
 Dr Jati Utomo Dwi Hatmoko (UnDip)
 Dr Ferry Hermawan (UnDip)
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Project Partners

Mr Agung Budi Margono (House of Representative Semarang)
 Mr Purnomo Dwi Sasongko (Regional Development Agency/ BAPPEDA)
 Dr Wiwandari Handayani (UnDip)
 Dr Hanifa M. Denny (UnDip & DP2K)
 Mr Dimas Agung (PDAM Tirta Moedal)
 Mr Yudiarso Setiawan (Association of Property Developers)

Research Assistants

Ms Nafsika Drosou (LU)
 Ms Januarta Dwi Kusmayanti (UnDip)
 Ms Sheila Nabila (UnDip)
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