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# Blue-Green Infrastructure (BGI) in Semarang

ISSUE 3

JANUARY 2019

## BuGIS disseminates BGI information!



A section of the BuGIS dissemination leaflet introducing members of the public to BGI concepts and benefits, with a locally inspired BGI mascot and games.

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**B**uGIS stands for Blue-Green Infrastructure in Semarang, Indonesia. It is a project that aims to increase the flood resilience of Semarang city by integrating Blue Green Infrastructure (BGI) concepts into urban development planning. The project is a collaborative effort between Loughborough University (LU) and Universitas Diponegoro (UnDip) and is jointly funded by the British Council and Ministry of Research, Technology and Higher Education of the Republic of Indonesia, through the Newton Institutional Links/KLN-INSINAS scheme. The project commenced in April 2017 in Semarang. This third issue of the BuGIS newsletter includes the project activities that took place between May and December 2018.

## Welcome to the third issue of BuGIS newsletter!



Following data collection and analysis, BuGIS project reaches a stage of dissemination of findings to policymakers and public. Here are few key developments:

- Based on combined data obtained from interviews, questionnaire survey and focus groups, supported by relevant literature, BuGIS Action Plan was developed to enhance BGI adoption in local communities. The Action Plan comprises ten items which are intended to support enabling practices, change hindering practices, facilitate policies and decision making. The Action Plan has been validated via workshops with community representatives and policymakers. These workshops are reported in this newsletter. In the long-term, the Action Plan will bring stakeholders together in a concerted effort that reduces flooding risk and provides benefits to wider public in Semarang.
- As part of capacity building activities, BuGIS team in UnDip recruited four new Research Assistants to support validation, data analysis and dissemination activities. In October 2018, Dr Jati Hatmoko visited LU to discuss preparation of validation and dissemination activities, and attend FloodFinJava project meetings. These capacity building activities including researcher collaboration will be an important outcome of the BuGIS project.
- I am pleased to report that BuGIS Co-investigator, Dr Lee Boshier with a team comprising the University of St Andrews in the UK, as well as Can Tho and Hue Universities in Vietnam, has secured a grant from NERC to undertake a research project entitled "Valuing Blue Green Infrastructure" (ValBGI) in Vietnam. The project will investigate the implementation of BGI in the City of Can Tho, Viet Nam, and will start in 1 January 2019 lasting two and a half years. This new project will strengthen the effort in BuGIS to contribute to flood risk management through BGI in the South East Asia region.
- Public engagement is an essential part of the BuGIS project. Since project commencement, BuGIS has developed some presence in social media, including Twitter (@resilientBuGIS, 294 followers) and Facebook (@resilientbugissemarang). BuGIS team will continue engagement and dissemination through these media and project website (<http://bugis.lboro.ac.uk/>) for future dissemination and wider engagement activities.

BuGIS team is developing a policy briefing and preparing academic dissemination on the findings. I wish to thank the whole team members for their continuing support. Also, I wish to extend my thank to support provided by the project partners, who have made this progress possible. The progress so far has provided a sound platform for a much more informed BuGIS Action Plan and policy briefing. Last but not least, I wish to thank Nafsika for compiling this newsletter!

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

*Dr Robby Soetanto  
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## A growing research team

In July 2018, BuGIS welcomed four new Research Assistants to the team. Erina Ermaliana, Reandy Haganta, Rayhan Hadi and Cholid Fitrianto are all Civil Engineering undergraduate students at Diponegoro University. Although they aspire to eventually become professionals active in different areas of civil engineering, they have a common interest in sustainability and the impact of the built environment on nature. With their involvement in BuGIS they are improving their understanding of how the built environment contributes to flooding risk, but also how it can alleviate the resulting problems through BGI. Moreover, they have the opportunity to work as part of an international multidisciplinary team and to develop valuable new skills, benefiting from BuGIS' research capacity building goals.



BuGIS UnDip Research Assistants Cholid, Erina, Reandy and Reandy with BuGI the mascot

## One more UnDip academic visits LU

After the visit of Dr Ferry Hermawan earlier in the year, Dr Jati Hatmoko visited the School of Architecture, Civil and Building Engineering in LU between 15-25 October 2018. Dr Hatmoko collaborated with LU partners on preparing for the final BuGIS workshop, as well as for the validation and dissemination phase of the project. In addition, he joined Dr Robby Soetanto in meeting with academic partners from the School of Business & Economics, the School of Geography & Environment and the department of Computer Science on another multidisciplinary project, FloodFinJava, focusing on financial planning for flooding in Central Java.



Dr Hatmoko with the LU BuGIS team

Dr Hatmoko with Prof Milne, Dr Courty and Dr Soetanto

## BuGIS 3<sup>rd</sup> Academic Workshop in Semarang

The final BuGIS workshop, that took place on 31 October – 1 November 2018, once again brought together the team members from both LU and UnDip in the City of Semarang. Following few months of data analysis and weekly Skype meetings, the complete BuGIS Team met up at UnDip's Department of Civil Engineering to: i) organise validation workshops with community members and government officials; ii) finalise the preparation of dissemination of BGI and its benefits to the public; and iii) develop dissemination plan of BuGIS' academic work.



The full BuGIS academic and research team wearing t-shirts with the BuGIS mascot created for public outreach activities

Several meetings and events were packed in the short span of two days, but UnDip team's hosting skills and the good rapport built between UK and Indonesian BuGIS members throughout the past two years of collaboration, made the job effective and enjoyable.

## Seminar: "Is BGI the Future of FRM in Semarang?"

On 2 November 2018, Dr Robby Soetanto of LU gave a presentation entitled "Is BGI the Future of Flood Risk Management in Semarang?" The seminar was organized and hosted by the Faculty of Engineering, Universitas Diponegoro, and chaired by Dr Ferry Hermawan. Dr Hermawan and BuGIS LU Research Associate Nafsika Drosou presented sections of the seminar that concerned data analysis, which each of them had analysed over the previous months. The audience was made up of urban planning and civil engineering students who engaged in an interesting Q&A session following the presentation.



Dr Robby Soetanto speaking to an audience of engineering and urban planning students at the University of Diponegoro

## Validating BuGIS findings

The 3<sup>rd</sup> BuGIS workshop provided an opportunity to validate key qualitative findings that were produced during the data analysis phase. Three focus group discussions took place on 1 November with participants representing community groups from the three Semarang communities that were studied (two that experience flooding, Trimulyo and Karangayu; one that doesn't, Gunung Pati). Dr Robby Soetanto, Dr Jati Hatmoko and Dr Ferry Hermawan led the discussions and conducted a short survey on the participants' perception of BGI implementation challenges and enablers. Furthermore, they facilitated lively discussions stemming from an exercise on prioritising the importance of 10 actions suggested as key for the adoption of BGI in Semarang.



*Workshop participants and BuGIS team*

The same survey and discussion were organized to obtain the opinion of government representatives from the Regional Development Planning Agency (BAPPEDA). The BuGIS team met BAPPEDA officials in their Semarang headquarters for a discussion on policy challenges and enablers concerning local BGI project implementation.



*A focus group discussion with BAPPEDA Officials, led by the Head of Infrastructure*

## Disseminating BGI information in Semarang

An initial look at the data collected for the BuGIS project pointed to the fact that residents of Semarang were not aware of BGI and its benefits. Since bottom-up approaches have been found to be most effective in the adoption and maintenance of BGI strategies in the developing world, BuGIS organized a series of community events to raise awareness and impart knowledge of BGI to the public. Implementing BGI has the potential to aid them in managing flood-related problems in their homes and their neighborhoods.



*BuGIS Research Assistant Rayhan Hadi awarding a BuGIS tumbler to one of the winners of a flood risk management game.*

On 9 November, during a civil engineering job fair at the UnDip campus, BuGIS team reached out to an audience of about 200 engineering students. The BuGIS stall was popular with students who won BuGIS merchandise by taking part flood risk management games.



*Simbang Lima Square at the heart of Semarang City Centre, where the Sunday Car Free Day events took place (left), BuGIS Research Assistant Cholid Fitriano talking to a member of the public about BGI (right).*

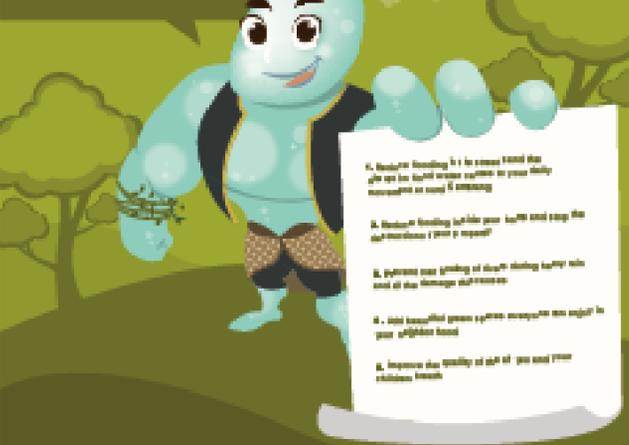
BuGIS team also set up a stand at the City Centre of Semarang during the Sunday Car Free Day events on 11, 18 and 25 November 2018. These busy events draw a mix of young and old residents who enjoy the opportunity to cycle or stroll through a carless city centre, whose streets are lined with vendors and stalls for a day.

Colourful posters of BuGI, the cartoon mascot (see in the next page) and an informative cartoon video-clip created by UnDip researchers were pitched in such a manner that captured the attention of public while at the same time relayed information on the relevance of BGI to improving flood risk management.

Want to reduce the risk of flooding in your home and your neighborhood?



BGI is the long lasting solution that can ...



Blue Green Infrastructure (BGI) Types



BuGI, the cartoon mascot of BuGIS created to draw the interest of the public and to aid in disseminating information on BGI and its benefits.

## BuGIS Team

### Academics

- Dr Lee Boshier (LU)
- Dr Ksenia Chmutina (LU)
- Dr Jati Utomo Dwi Hatmoko (UnDip)
- Dr Ferry Hermawan (UnDip)
- Dr Robby Soetanto (LU)
- Dr Wido P Tyas (UnDip)

### 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 Associate & Newsletter Editor

- Ms Nafsika Drosou (LU)

### Research Assistants

- Ms Erina Ermaliana (UnDip)
- Mr Reandy Haganta (UnDip)
- Mr Rayhan Hadi (UnDip)
- Mr Cholid Fitrianto (UnDip)