



UTS2708: Water Governance in Asia from a Systems Worldview

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Our Reflections from RC4's Southeast Asia Friendship Initiative (SFI)

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Introduction

Our group had never visited Indonesia before... Well, that's not entirely true—Xavier visited Batam and Bintan before. Nonetheless, we were all thrilled when Dr. Navarun offered us the opportunity to travel to Indonesia as part of RC4's new Senior Seminar, "Water Governance in Asia from a Systems Worldview". With the trip happening after our first semester in NUS, it was our first official overseas school trip (and hopefully not the last)!

Even through the short 12 days overseas, we created numerous precious memories, forged new friendships and deepened our understanding of water governance in Indonesia. Read on to find out more!



RC4 and UGM students at Old Jakarta Town Square

Experience our Amazing Adventures in Indonesia!

<https://www.youtube.com/watch?v=6ArUI-4xXIE>

Our Journey through Yogyakarta and Jakarta

Be it the serious discussions, fun adventures, or simply mindless retail and food therapy, join us in our journey as we walk you through our experiences in Indonesia.

Sleepy Beginnings & Anticipation

(a.k.a Day 1)

To be honest, while none of us knew what to expect from this trip, one thing we were certain of was that it did not involve waking up at 5am! Some of us had to drag our luggage and sleep-deprived bodies to Changi Airport since we needed to be there by 7:15am. After completing our check-in and baggage drop, and took a group photo, we headed to the departure hall and went to Burger King for breakfast. Once we boarded the plane, some of us took a much-needed snooze, and just like that, 2.5 hours passed quickly, and we finally arrived in Yogyakarta!



Introducing the faces behind Group 4
(Starting from the left: Xavier, Ryan and Roel)

After a long bus ride (and a short lunch break), we finally began the trip proper in the evening after checking into hotel. We went to this roadside stall that sells a unique Yogyakarta beverage, *Kopi Joss* (i.e. charcoal coffee). While Ryan is allergic to coffee—or more precisely, hyper-sensitive to caffeine, most of us ordered the charcoal kopi. The flavour of the coffee gave us a nice surprise—on top of the acidic coffee taste, there was a hint of nutty and earthy flavour, akin to that of sesame.

Afterward, we took a *Tuk Tuk* to the dinner location. Besides a minor mishap that left Ryan with some bruises, the ride was exhilarating (though not as exhilarating as the other ride we'll share more about below)! Following a scrumptious dinner, the NUS students led by Dr. Navarun, along with the students and staff from Universitas Gadjah Mada (UGM), did a quick self-introduction for everyone.

To end off the day, we ordered in and enjoyed McDonald's for supper before turning in early for the night. After all, we would be starting our day early for the next 11 days.

Understanding Kali Code

In the next few days, we experienced more of Kali Code in Yogyakarta, visiting the upstream and downstream areas.

On the second day, we visited the upstream area of Kali Code, where Mount Merapi resides. The weather was cooling, and the environment breathtaking. With part of Mount Merapi designated as a National Park, the landscape was protected from urbanisation and preserved in its pristine condition. In fact, the water from the streams was so clean that it was drinkable!



Xavier crossing a bamboo bridge across a stream in upstream Kali Code.



Location of mining operations just outside Mount Merapi National Park. (You can even see the volcano in the background!)

In the periphery of the National Park, through deep collaboration with the National Park authorities, mining companies can extract sedimentary stones from the volcano. In a similar vein, local farmers could engage in responsible harvesting of tall grass as feed for cows.

On Day 3, we ventured downstream of Kali Code, which is home to many local villages.

Here, we gained another insight into how Yogyakarta's unique governance system might impact water issues: official regulations stipulate that settlements need to be at least 15 meters away from the riverbank. However, owing to Yogyakarta's special status as the Sultan's Land, the people were empowered to have a say in certain decision-making, resulting in villages being free to build just 3 meters away from the riverbank. They knowingly did so, even if it risked making them more vulnerable to floods, especially during the monsoon season.



Downstream Kali Code, where we did a 1-2 hour tour and engaged with multiple ground-up initiatives



Corridor of the *rusanawa* we've visited

In response to the poor living conditions of informal settlements near Kali Code, the local government has embarked on the National Cities without Slums Project, to little fanfare. As part of the project, low-rise apartments, or *rusanawa*, were built in 2016. However, since most Indonesians prefer landed property over apartments, and considering the poor build quality of the apartments along with the need to relocate people from informal settlements, the initiative received little to no support. Instead, it garnered much criticism from both politicians and academics alike.

We noted that while top-down government presence was weak, there were strong ground-up initiatives, such as those that advocated for better waste management. We saw how villagers took charge in managing organic and plastic waste, such as making arts and crafts out of plastic, composting and managing waste banks.



A monument made out of bottles filled with plastic waste—an example of blending waste management and arts and culture.

Understanding Kali Ciliwung



Midstream Kali Ciliwung, where we engaged with local communities

After a long day of traveling, which included a 6-hour train ride from Yogyakarta to Jakarta, our second day in the capital city involved heading to the midstream of Kali Ciliwung. There, we learned about initiatives to educate local citizens on waste management and infrastructure to extract clean water from rain.

The next day, downstream of Kali Ciliwung, we observed Normalisasi in action, witnessing river dredging and the construction of floodwalls along the riverbanks. We took a raft down the river to reach another local community. Along the way, we were taken aback by the disposal of liquid waste from home-based businesses, particularly those involved in tofu production.



Evidence of Normalisasi through the construction of floodwalls along river (on the right)



Upstream Kali Ciliwung in Bogor, where much like Mount Merapi, hosted beautiful landscapes and clean water

On the following day, we enjoyed a welcome break from the sweltering Jakarta weather as we headed upstream of the river and high up into the mountains in Bogor.

Recurring Themes in Our Experiences

A Foodie's Haven



Whether we were in Yogyakarta or Jakarta, we indulged in the delicacies that Indonesia has to offer, whether sweet or spicy, crunchy or chewy. While we probably did put on weight, maybe the many hours of walking and hiking during our trip were just enough to burn off all those calories? (At least, Ryan fervently hopes so.)

Leveraging on our Unique Strengths

Despite our different backgrounds and experiences, we managed to leverage on each other's strengths for this course.

- Ryan runs his own mental health ground-up and is personally invested in social issues, especially in the realm of education inequality and mental health.

Did you know: Ryan graduated from polytechnic as a Computer Engineering student, and used to be from a liberal arts and multi-disciplinary education background!



Ryan attempting to achieve nirvana

- Despite being a Mechanical Engineering student, Xavier enjoys creating creative content through photography and videography.

Did you know: Apart from Ryan's camera, which he obviously has zero experience using, Xavier also brought his drone and GoPro to take beautiful scenic shots/videos, including those in the above video and [movie!](#)



Xavier and his drone capturing the amazing shots!

- The only one who stayed "true" to his major in Electrical Engineering, Roel has been enthusiastic about applying systems thinking concepts to our lessons in Indonesia, contemplating how water issues can be addressed from various angles.

Did you know: As a freshman, Roel has already traveled to three countries back-to-back, starting with Australia, followed by this trip, and then South Korea for winter school!



Captain Roel navigating down the stream of Kali Ciliwung

Exploring new Horizons beyond the Classroom!

Throughout our trip, we experienced Indonesia from various perspectives. Each of these angles enriched our understanding of Indonesia and its unique

characteristics, such as its culture, geography, and governance.

From a Geographical Lens

In our fieldwork, we were particularly drawn to issues such as flooding and water pollution. Such fieldwork included engaged in interviews with local community stakeholders and residents to empathise with the challenges they face, and the measures they have embarked on or experienced first-hand.. These interactions provided insights into the multi-faceted problems, beyond what the classroom alone could offer.

Not only did we gain a deeper understanding of the immediate concerns related to flooding and water pollution, but we also unearthed the resilient spirit of the communities as they actively worked towards crafting solutions. The intersection of physical geography and human geography became evident as we delved into the complexities of these environmental challenges, reinforcing the importance of a holistic approach that encompasses both natural systems and the communities they impact.

We also engaged in conferences with academic and governmental stakeholders. This includes professors and students from Universitas Gadjah Mada from the Department of Public Policy, as well as policymakers in the Ministry of Public Works and the regional Jakarta government. This deepened our understanding of the issues faced from various perspectives.

Applying a Systems Thinking Framework

As students in Residential College 4, our aim was to integrate systems thinking into our examination of the challenges surrounding issues of too much and too little water. We employed modelling techniques, specifically employing causal loop diagrams, to comprehensively analyse the complex interconnections within these problems.

Looking beyond the scope of our trip, our aspiration is to further develop these models into systems dynamics frameworks. This progression will enable us to pinpoint crucial leverage points and formulate policies that offer holistic solutions to address concerns related to excess and contaminated water in the regions we studied. The application of systems thinking serves as a foundational approach to unpacking these water-related issues, paving the way for more informed and sustainable solutions.

Pondering about Public Policy

In our exploration of public policy, we took time to understand the governance system in Indonesia. Notable lessons included insights into the decentralised nature of Indonesia's governance structure and the incorporation of special governance regions, exemplified by Yogyakarta, designated as the Sultan's Land.

As we delved into these aspects, our objective was to discern their potential relevance to the water governance issues we encountered during our fieldwork. Understanding the decentralized framework and special governance regions offered crucial context, shedding light on how local nuances and unique designations might influence the management of water-related concerns. By connecting these governance intricacies to our observations in the field, we aimed to forge a comprehensive understanding of how public policy and governance structures intertwine with the complex challenges of water governance in the Indonesian context.

Appreciating Indonesia as a Tourist

Finally, we enjoyed viewing Indonesia through the lens of a tourist. Beyond our academic pursuits, we dedicated time to explore numerous museums, historically significant areas like Old Jakarta, and the natural beauty of Yogyakarta and Jakarta. Engaging with local language and culture became an integral part of our experience. Through capturing our encounters in an array of photos and videos, we managed to document the richness of our cultural immersion!

In weaving together these diverse lenses — from that of a geographer to one of a systems thinker— we gained a highly comprehensive overview of the water issues prevalent in Indonesia. This holistic approach enables us to appreciate the multifaceted nature of these challenges and underscores the importance of addressing them through interdisciplinary lenses.

Ideation for our Case Study

Based on our fieldwork along the two rivers, concepts such as compromise and the systems archetypes of fixes that fail and shifting the burden resonated with us. These insights were fortified through dialogues with locals and discussions with UGM students.

Moreover, we frequently found ourselves contemplating the profound significance of public policy and governance in the issues we encountered. This reflection stemmed not only from interactions with UGM students but also

with local villagers who perceived an absence of government support and from policymakers. (As a lighthearted joke, we referred to this trip as 'being political science students for a day' as none of us are from the College of Humanities and Sciences.)

The amalgamation of these ideas propels our case study in the direction of analyzing how policy impacts the issues for various stakeholders, considering the complex concepts mentioned above.

While multiple directions are conceivable, we are anchoring our scope on water pollution (or water quality) because it persistently degrades the quality of life for villages along the river. Additionally, we are intrigued by the prospect of conceptualizing our case study in the form of a game to simulate these issues and their potential solutions. Our approach involves integrating concepts such as tradeoffs, unintended consequences, and conflicts of interests in the analysis of water issues in Indonesia. By using policies as a "currency" for the game, we aim to observe how different policies can holistically improve or degrade water quality.

In the meantime, as we continue to refine the direction of our case study, you can view our preliminary findings and thoughts in the slide deck below.

[https://prod-files-secure.s3.us-west-2.amazonaws.com/ebf09db4-f38b-4443-a5b0-01ebe3cfbfcd/efb77322-2e0f-4e5b-962d-b45882afd326/Week_1_Presentation1\(new\)_compressed.pdf](https://prod-files-secure.s3.us-west-2.amazonaws.com/ebf09db4-f38b-4443-a5b0-01ebe3cfbfcd/efb77322-2e0f-4e5b-962d-b45882afd326/Week_1_Presentation1(new)_compressed.pdf)

Fieldwork + Fun Activities = Awesome SFI Experience



Of course, fieldwork is not the only thing we did in Indonesia. We marvelled at the intricate carvings of Borobudur, the largest Buddhist temple in the world, and were awestruck by the grandeur of Prambanan, a complex of Hindu temples. The architectural brilliance and historical significance of these temples were truly mesmerising. Additionally, we had the opportunity to witness a traditional Javanese dance performance, immersing ourselves in the rich cultural heritage of the island.

But one of the greatest highlights of the trip that will always remain etched into our memories is riding a jeep through Mount Merapi and experiencing the Lost World tour. Oh, did we also mention that we did extreme swirls around the stream in our jeep, and even got in a few more extra rounds?

Forging new friendships and connections beyond Singapore

Our experience in Indonesia would not be complete without the UGM students and staff. For example, Warren helped select good (and fashionable) batik pieces for Ryan and Xavier to try on, with Ryan ultimately acquiring the ones shown in the photo on the right.

While in Jakarta, Audori also introduced us to the local delights for supper, which she ordered. These local treats mainly consist of a variety of satays! Our favourite is still the chicken skin satay, paired with its chili sauce. Just thinking about it makes my mouth water.



A group photo taken with Eben (1st from right), Ndaru (2nd from right), Audori, and Warren on the rooftop of Serena



Taking a group photo with Warren (2nd from left) and Audori (4th from left) on our last day

During our visit to Serena, an outlet mall primarily focusing on local brands rather than international ones, with the help of Ndaru, Audori, Warren, and Rafa, we created our own personalised body oil fragrance, providing a truly one-of-a-kind experience.

A special shout-out goes to Warren and Audori for being such fun and hospitable hosts, especially to our group! While learning and experiencing more cultural aspects in Indonesia, we couldn't have asked for a better group of friends. Hope to see you guys soon!

Conclusion



Our group (featuring Edison) taking a group photo with our jeep!

Our trip to Indonesia was truly an unforgettable experience. From the hiking in beautiful landscapes to the exhilarating jeep rides, we thoroughly enjoyed our journey even as it was admittedly tiring. The warm hospitality of the Indonesian people, coupled with the breathtaking landscapes, made our adventure all the more memorable. We left Indonesia with new friendships forged and a deeper appreciation for its culture, and we can't wait to return one day to explore more of this incredible country.

If you are interested in being exposed to any of the United Nations' Sustainable Development Goals or simply just broadening your horizons, consider joining your hall's or residential college's SFI!