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BALI

## THE SUMMARY REPORT

# The 3<sup>rd</sup> Student Symposium Just-Energy Transition

📅 12 November 2022    📍 Green School Bali



# 3<sup>rd</sup> STUDENTS SYMPOSIUM

## Just – Energy Transition

Date: Saturday, 12 November 2022

Location: Green School Bali

### **Welcoming Introduction of Green School**

Speaker: Harriet Burrows

Harriet Burrows as the Head of High School at Green School Bali opens the event by sharing about the Green School curriculum philosophy. She encourages the youth to actively participate during this symposium to be represented in positions of power.

### **su-re.co Introduction**

Speaker: Takeshi Takama

Integration of research, biogas digester for farmers, selling farmers' chocolate and coffee, governments and also education. This year's student symposium topic is just energy transition

### **Students' Projects**

Speakers: Darma Dipta and Oka Nathanjaya

Darma Dipta, a Green School student, presented his water project called Liquify. Children used to be able to play in the rivers, but now it is impossible as the rivers are polluted with garbage and other pollutants. Due to a lack of clean water, people need to boil their water and have limited access to LPG. Then, people use firewood to boil the water, which causes carbon emissions into the air. Liquify has three bottom lines: the people, profit and the planet. The profit comes from the sales of shirts, water bottles, and metal straws. This profit then helps the people and the planet. Some liquify projects: recharge wells at Kintamani, arc water catchment system to store the rainwater, mini bio pores installed in several spots in Green School, and ultrafiltration system. By using this ultrafiltration system, people can reduce carbon emissions, decrease time consumption, increase efficiency, and increase water quality. This project connects 2 SDGs: clean water and sanitation (SDG 6) and affordable and clean energy (SDG 7).

Another project of Green School student by Oka Nathanjaya, is called Operation Rain Or Shine (OROS). Climate change is happening and it increases the use of dirty energy. Dirty energy is energy that causes negative impacts. People use a lot of this energy which leads to another problem, the lack of energy. The energy transition is not only about making cutting-edge innovations but also about sustainability. How do we make solutions for as many people as possible and the people most affected by climate change? The goal of the OROS project is for Green School to generate its electricity, whether it's a bright day or rainy. His projects also

support the educational purposes of SDG 4 about quality education. Youth education and empowerment in energy transition sector are important.

### **Panel Discussion**

Moderator: Lukas Van De Coevering

Panellists:

1. Prof. Ida Ayu Dwi Giriantari, head of Community-based Renewable Energy (CORE), Udayana University
2. Arif Utomo, Corporate Energy Lead, WRI Indonesia
3. Nurvitria M. Kristofikova, Chief of Operations, Negeri Matahari
4. Ngurah Angga, Business Director, Energy Wheels
5. Geoffrey Huskinson, Biobus team, Green School Bali
6. Takeshi Takama, CEO and founder, su-re.co

- ***What is the status of the energy sector right now? How does your role affect the energy transition in Indonesia?***

Prof. Ida Ayu Dwi Giriantari:

Indonesia is targeting for the 23% of energy mix in 2025. Indonesia is still far from the goal with only 11% of renewable energy as of 2022. Lately, there have been many government energy transition projects mainly focusing on the electricity sector. We also have a decree regarding no new coal power sector in Indonesia. In Bali there are some renewable energy projects such as replacing energy with gas and also projects on solar energy.

Arif Utomo:

There is still a significant gap to reaching 23% renewable energy and electricity mix in 2025. Positive trends among communities, governments, and policies regarding the energy transition can be seen. More people are also concerned with this matter. In many events, such as COP 26 and G20, energy transition becomes one of the main topics discussed, and more policies are made to support this energy transition. Implementation and enforcement of these regulations can be improved. WRI, together with other corporate members, are channelling these concerns to the government and hopefully within 1-2 years we can close the gap for renewable energy mix.

Nurvitria M. Kristofikova:

In society level, there is momentum which we can find a lot of initiatives from communities regarding the renewable energy. On decision or policy level, we see a big improvement compared to several years ago. Implementation of this policy is still lagging. Collaboration between academia, government, policy makers, private sectors and other communities is needed to reach the goal. Energy transition does not only focus on renewable energy, but we

also need to also consider the energy efficiency. We need to be mindful with our energy consumption. In Bali itself, most of the electricity is still supplied from Java. As Bali has a lot of hotels and other tourism facilities, Bali needs a lot of electricity supply This is why we need to be mindful with our energy consumption. Renewable energy is being explored such as geothermal.

Ngurah Angga:

Another perspective is that we need to think about the number of motorcycles in Bali. The number of motorcycles in Bali (3.8 million) are almost the same as the population of Bali (4 million). It causes a harmful impact; we need to be careful with electric technology such as cars or bikes, as 60% of electricity in Indonesia is generated from coal. We need to work together to be able to solve this problem.

Geoffrey Huskinson:

Indonesia has great potential. As a teacher living in local community, we can engage with local people to find local solutions. Finding new ideas or solutions through simple communications and networking events.

Takeshi Takama:

Indonesia is an exciting case for renewable energy. People still think that coal industry is a prospective industry. How will we shift from coal perspective? Solar panels are great but there are also other renewable and natural energy that can be explored. It is not possible to rely only one type of energy. Gender is very attached to the energy sector. For example, in rural area women collect firewood and using firewood causes in house pollution. By solving this, we can tackle both energy and gender issues.

- ***Are there ongoing solar energy projects in Bali? Are there any large-scale solar energy projects or only limited to individual households?***

Nurvitria M. Kristofikova:

There are many government initiatives regarding solar energy in Indonesia. Policy on green energy in Bali is much more progressive compared to the other islands. Mostly these solar projects are decentralized as the sun is always available throughout the year.

Prof. Ida Ayu Dwi Giriantari:

In Bali Island there are 2 large solar panel plants installed in Bangli and Karangasem. State Electricity Company or PLN has a project to install 2 solar panels in the West and East Bali that can produce 25-megawatt electricity each.

Takeshi Takama:

PLN plants to install more solar panels and there will be more in the future.

- ***What are some other potential energies other than solar panel? What about bioethanol or biomethanol as renewable energy?***

Takeshi Takama:

For bioethanol, we need to be successful first in the first generation before continuing to the second generation. The problem with bioethanol is that the primary source is sugar, and Indonesia does not have enough sugar. Energy is not only limited to electricity, so exploring other potential energies, such as water and biogas is possible.

Prof. Ida Ayu Dwi Giriantari:

Bioethanol or biomethanol is not always based on sugar but it is always related to food. While in Indonesia food security is still becoming a challenge.

Arif Utomo:

There are areas of potential for hydropower and also biogas. su-re.co also has communal biogas, for example.

- ***Why can't Indonesia explore geothermal energy?***

Prof. Ida Ayu Dwi Giriantari:

In Bali, it is not possible to explore geothermal energy as Balinese believe that mountains are sacred. It is possible to explore other sites other than the mountains, but it depends whether it is considered sacred or not in Bali. Geothermal exploration in other parts of Indonesia is possible and has already started. Indonesia has a very big potential for geothermal.

Arif Utomo:

The energy transition is not just piling up options of renewable energy, the main goal is to reduce emissions. This can be done by a lot of ways such as increasing energy efficiency. Geothermal energy is being developed in other parts of Indonesia. There are also issues that Indonesia has oversupply of energy. This might be one reason why the government has not explored other types of energy.

Takeshi Takama:

Indonesia is one of the top three countries with geothermal potential. There is also

psychological side in this exploration that is people being afraid to hear the word geothermal. Geothermal is not dangerous but people thought it is a dangerous source of energy.

- ***How does it feel like to be a woman in the energy sector?***

Prof. Ida Ayu Dwi Giriantari:

Energy sector is not only for men, and I am happy as a woman to work on the energy sector. At the household level, it is always women who take care of the energy sector, for example, cooking.

Nurvitria M. Kristofikova:

There is no difference between men and women in the energy sector. Men can be better in technical parts, but women are the ones who integrate everything together. In the green industry, it is still a feminine world to me.

- ***What is Indonesia or Bali's standpoint on nuclear power?***

Arif Utomo:

In-depth research is needed before making a decision or really implementing it. The research and exploration of nuclear energy has been going on. One of the most promising areas is Bangka Belitung, the most stable part of Indonesia. Nuclear energy is still a possibility, but it is still far from progress.

Takeshi Takama:

Education is very important before implementing nuclear energy. I do not think we need to cross out this possibility, but I think it is still too early for Indonesia to implement nuclear energy.

- ***At SMK PGRI 2 Badung experimented with converting fuel-powered bikes to electric bikes so the fuel-powered bikes could operate using electricity. This conversion is still slow and takes a lot of time. Is there any solution or technologies on how to increase conversion speed?***

Ngurah Angga:

It is a very great idea to convert fuel-powered bikes into an electric bike. This is what we will need in the future. To increase the speed, we can make a template for each type of the bikes, and after that we can just duplicate it for the other bikes. A previous achievement, we converted 20 motorcycles in 2 weeks. The actual problem is not the speed of conversion but the cost of conversion. Especially the price of the battery and dynamo is still too high and not feasible. Collaboration is needed from schools, companies, and governments to be able to convert fuel-powered bikes to electric bikes. Renting the battery can actually reduce the battery cost.



Geoffrey Huskinson:

Action point: SMK PGRI 2 Badung can collaborate with Green School and other schools to convert the fuel-powered bikes to electric bikes.

Takeshi Takama:

Thailand, using the tax money, is planning to make 1 million electric vehicles within the span of 15 years. We need to be committed to our resources, including money, if we really want to convert this.

- ***We all know that climate change is happening and is affecting the next generations so what's the perspective of the youth? Secondly, how to create an eco-chamber as some people don't believe in climate change and a lot of decision makers only act when they're concerned about the "now" and not the future?***

Geoffrey Huskinson:

One of the most essential things is to be patient to yourselves. Ensuring the potential for your awareness of the options. As technology advances, the opportunities that will come with it and the links between the various systems that appear to you, will make you able to communicate with each other and share opinions, and ideas. Then, when I posted the solution, I would be one of them. The best projects here come from student's ideas. A simple thought has become valid learning experiences and projects. And I think, when you look around the different schools that are here, there are so many ideas and experiences. Nowadays you have so much information at your fingertips... But it is no longer about learning about information; It is about where are the connections? Where can we see the opportunities? Where one aspect of industry can facilitate or provide the solutions to another and talk to each other? I think you will find so many other minds that share your anxieties, your thoughts, your hopes. But don't lose contact with the other people who does not share your vision, talk to each other!

Arif Utomo:

I found out that there is no a real mechanism or system to enable youth to really participate greatly in the conversation. At least that's what I found from reading some journals. I don't know if we are sharing the same feeling or not. Of course, there are a lot of great initiatives, organizations and schools that have an impressive addressing program and curriculum. They were able to address sustainability to the conversation or to the curriculum, but when I'm talking about the involvement of youth in the decision making and policy. I would like to know how to improve the implementation of youth in the policy and I think it's a really important part to improve.

- ***Garbage generated power plant is not effective as it still produces greenhouse gases. How to manage waste so that it can have higher value?***

Nurvitria M. Kristofikova:

The main garbage problem in Indonesia is there is no segregation of waste. Everything ends

up in the landfill. If segregation is applied, we can use the segregated materials to produce other valuable things or even to produce energy from waste. One of the keys to solve the problems is to separate waste in households in order to facilitate the recycling process.

Geoffrey Huskinson:

There is an ongoing green school project, Geo Trash Management in Lombok where they convert plastic waste into energy and other types of chemicals.

Mr. Driver:

Action point to share the contact of Geo Trash management.

### **Concluding remark from Ngurah Angga:**

Encourage youth to walk the talk, not only think but do by spreading this message to your circle on how to reduce emissions. Because the future is in youths' hands.



