

SABAH RE2 ROADMAP

DEVELOPING THE DELIVERY ECOSYSTEM

31st October to 2nd November 2023



The Sabah Renewable Energy Rural Electrification Roadmap (SabahRE2) advocates for rural electrification with mini-grids powered by renewables across Sabah's remaining unelectrified villages. SabahRE2 details this proposed pathway, including enabling policies, regulatory and quality assurance framework, financial modelling, training, and delivery model and ecosystem.

The purpose of this gathering was to bring the sectors together to discuss the roadmap and these key topics, identify roles and needs, build consensus around shared responsibility, and co-develop the delivery ecosystem.

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DAY 1: WHERE ARE WE NOW?

31st October 2023



Bringing together 47 representatives of government, civil society, academia, and the private sector, together with 21 members of the SabahRE2 Consortium, the first day of SabahRE2 Roadmap: Developing the Delivery Ecosystem focused on illustrating the current rural electrification landscape in Sabah and introducing the frameworks, designs, and models that the SabahRE2 Consortium have developed for insight, question and feedback.



Section 1: The Evolving Rural Electrification Landscape in Sabah

The day began with three presentations: one from SabahRE2 providing context on energy access in rural Sabah and positioning mini-grids as the solution for addressing it; one from Energy Commission of Sabah (ECoS) on energy efficiency and the Sabah Energy Roadmap and Master Plan (SE-RAMP); and one from Kementerian Kemajuan Desa & Wilayah (KKDW) on Sabah's Rural Electricity Supply (BELB) Programme.

Together, and through these presentations, the group explored the questions:

- What are the implications of the Sabah Energy Roadmap and Master Plan (SE-RAMP)?*
- What changes will there be in institutional roles and responsibilities, if any?*
- What government resources will be allocated to the rural electrification plan?*

IDEAS, ISSUES & QUESTIONS EMERGING:

HOW CAN THE PRIVATE SECTOR GET INVOLVED? ARE PRIVATE COMPANIES ABLE TO CHARGE FOR THE POWER THAT THEIR EVENTUAL BUILT SYSTEM GENERATES?

In order to meet the targets of SE-RAMP 2040, more entries from the private sector into rural electrification would be very helpful to the Federal Government. While KKDW is not able to provide loans or sources of funding, they can provide support in forms of grants and tenders from the State Government, and private entities are welcomed in the planning and execution of projects.

While ECoS are still looking into the mechanisms of how private companies might be able to charge for power generation, they are open to input and new technologies from private entities. It was mentioned that the Kota Kinabalu Industrial Park charges their clients for electricity, and so there is a mechanism in place there. ECoS has already received over 50 proposals for renewable energy projects since its inception in January 2023. Currently, ECoS has been tasked with reviewing

all submissions, seeking funding for feasibility studies, and also looking into the potential of a power plant in Tawau as well as Small Modular Reactors (SMR) (nuclear power) as a possible avenue for Sabah. They may soon be signing a Memorandum of Understanding with China to build a SMR in Sabah.

ONCE THE SABAH STATE'S TRUST FUND IS ESTABLISHED, WILL POWER PLANTS BE ABLE TO APPLY FOR FUNDING?

ECoS explained that the trust fund might not be a feasible avenue as the funds available in it would be limited and "not as much as you would expect".

ON WHAT BASIS IS THE ELECTRICITY SUBSIDY PROVIDED? IS SABAH ELECTRICITY SDN BHD (SESB) REQUIRED TO PROVIDE PROOF OF CONSUMPTION?

According to ECoS, SESB is under contract for the Open Electricity Market (OEM). This contract was drafted to regulate responsibilities, reporting requirements, and other specific terms to ensure proper Standard

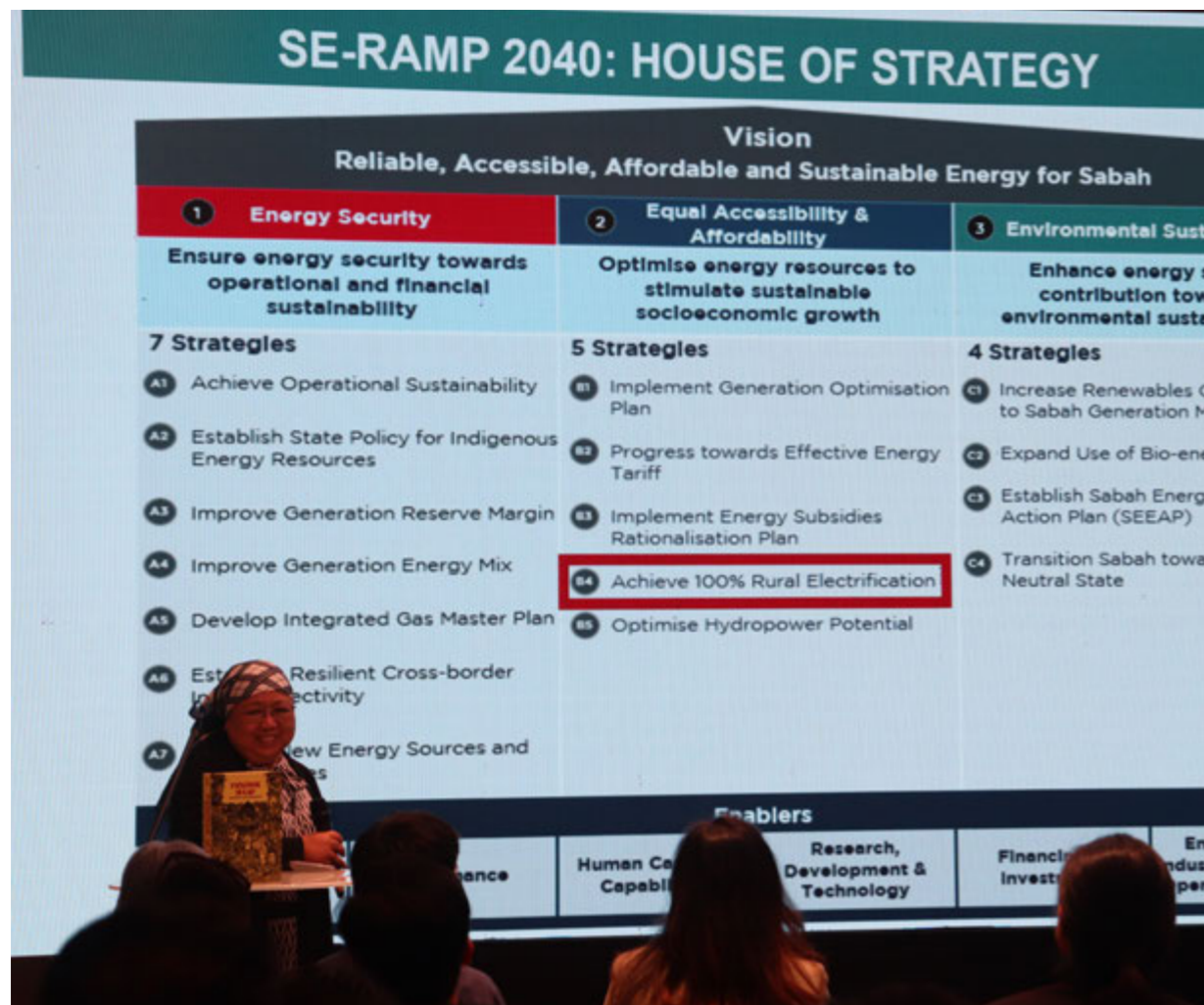
Operating Procedure (SOP) and accurate accounting. Whatever balance is remaining after monthly bills are deducted from their operation costs is subsidised, following a reimbursement system.

HOW HAS SABAH'S REPORTED ELECTRICITY COVERAGE REACHED 96% WHEN THERE ARE SO MANY UNELECTRIFIED VILLAGES IN SABAH?

The reported coverage data will be subject to change in the following year, according to KKDW. They also explained that the current 96% projection is based on 2020 data on energy coverage cross-referenced with 2017 population data, and so discrepancies may exist.

WHAT OPPORTUNITIES ARE THERE TO EXPLORE GREEN TECHNOLOGY AND OTHER RESOURCES WITHIN THE CURRENT LANDSCAPE?

In terms of green technology, SESB has final say on whether new technology is implemented.



Section 2: Proposed Quality Assurance Framework and Delivery Model

The next section centred around the draft Quality Assurance Framework and delivery model developed by the SabahRE2 Consortium and a discussion on regulation and more focused standards and guidelines.

Representatives of Jentayu Sustainables were also on hand to share their work in sustainable energy solutions, zooming in on Project ORIOLE, a run-of-river hydroelectric plant in development that is expected to generate 959GWh per year.

Currently, there is no specific standard or guideline for off-grid systems in Malaysia under 72kW. Within this regulatory gap lies opportunities to develop a registration framework that assures safety and related standards that is tailored to the realities of rural users and operators while aligning with SE-RAMP to enable holistic, decentralised and community-driven energy solutions.

IDEAS, ISSUES & QUESTIONS EMERGING:

ELECTRICITY, LIKE TELECOMMUNICATIONS, RELIES HEAVILY ON INFRASTRUCTURE. HOW ARE WE GOING TO MAKE SURE THAT INFRASTRUCTURE IS DEVELOPED IN LINE WITH THIS INITIATIVE?

ECoS brought up the long-planned Southern Link that would make a continuous loop for the current state grid that is currently only connected at one point across central Sabah. The Southern Link would build resilience and increase the security and reliability of the state's power supply. The Southern Link would enhance power provision to the east coast, including (in a transition period) from natural gas generation on the west coast, as well as enabling hydro, biomass and other renewable energy development in southern Sabah as part of the transition away from fossil fuels. However, the earliest that this could be put into place is the year 2029.

While the Federal Ministry of Rural & Regional Development (KKDW) facilitates the development of infrastructure, plans

come from the State and involve various ministries and agencies, so the quality of state planning is crucial. The KKDW representative also referred to Jentayu Sustainables' Project ORIOLE as a positive step in addressing Sabah's generation needs.

A representative from the Sabah Economic Development & Investment Authority (SEDIA) supported the idea of a Southern Link, mentioning that companies like Hap Seng Plantations generate biogas that can be fed into the grid via the Southern Link. A representative from Hap Seng Plantations then spoke of a planned biogas plant that is expected to supply up to 13,000MW of electricity per year to various estates and plantations.

IDEAS, ISSUES & QUESTIONS EMERGING:



Section 3: Program Design and Financial Model

The last round of presentations for the day focused on SabahRE2's system design methodology and financial model, opening up a discussion on financial mechanisms, levers, and opportunities to consider.

While the financial model functions as a tool for estimating costs and returns, bringing together all the relevant data to showcase the economics of mini-grids, the practicalities of the costing and expected cash flow still require discussion.

REGARDING THE SABAHRE2 PRESENTATION ON FINANCING SCENARIOS: WHY HAS THE COMMUNITY TARIFF BEEN SET AT RM1 PER KWH IN SCENARIO 1 WHEN THE LEVELIZED COST OF ELECTRICITY (LCOE) IS ONLY RM0.36?

The tariff rates shown in the presentation are for modelling purposes only, to be able to more clearly compare the different scenarios and showcase the positive NPV in Scenario 1 as an incentive for investors. The model can be adjusted to show the sensitivity of the tariff rate in its profitability and income incentive to clients.

THE COMMUNITIES MIGHT BE WILLING TO PAY RM1 TARIFF RATE AT FIRST BUT EVENTUALLY THEY WILL START QUESTIONING WHY ELECTRICITY IN URBAN AREAS LIKE KOTA KINABALU ARE SUBSIDISED WHILE THEY PAY MORE. HOW DO WE DEAL WITH THIS? WHY SHOULD THE POOR HAVE TO PAY MORE?

The tariff rates and costs are levers that can be adjusted. If the LCOE is reduced, this leaves room for providers to charge based on kWh consumption, rather than based on costs to build into a tariff.

WHAT HAS THE UPTAKE BEEN LIKE WITH

RENEWABLE ENERGY MINI-GRIDS ALREADY INSTALLED?

The seven pilot systems under SabahRE2 pilot systems are still being installed so it is too early to say. About forty systems have been implemented in Sabah and across Malaysia by TONIBUNG over the past twenty years but these may not be an accurate benchmark for SabahRE2 as these pioneering efforts were implemented with small grants under difficult conditions and do not generate power at the scale and technical quality of the systems rural communities are seeking under SabahRE2. From past experience, however, community contributions typically do cover the cost of operating and maintaining their respective systems. The trip to Kampung Buayan is expected to paint a picture of what kind of cost, income, and opportunities may arise in these kinds of systems.

ANY INCENTIVES FOR GOVERNMENT BODIES TO PARTICIPATE? FOR CIVIL SERVANTS LOOKING TO PARTICIPATE INDEPENDENTLY, WHAT MIGHT THE INCENTIVE BE?

SabahRE2 Consortium has not looked specifically at those mechanisms as of yet, as the focus is currently state government input and "buy-in" to this financial plan before moving further. So

far, in the context of cost, the Consortium has been focused on analysing the minimum cost of getting the projects off the ground. The Consortium is hoping for support in this area.

COULD A PROJECT TIMELINE BE ADDED TO THE SAFETY & QUALITY ASSURANCE FRAMEWORK (SQAF) PRESENTED IN SECTION 2? TIMELINES HELP TO MANAGE INVESTOR EXPECTATIONS. THE SABAHRE2 PROJECTIONS ON GROWING DEMAND BY NEWLY ELECTRIFIED COMMUNITIES SEEM QUITE CONSERVATIVE – OTHER SIMILAR PROJECTS PROJECT 30% INCREASE IN TWO TO THREE YEARS.

How can we reduce the timeline for project development? That is a question that is difficult to answer and plan for, but that should be discussed. The current numbers are intentionally conservative to show the project's minimum potential returns. The systems are designed to be modular and so when demand reaches beyond the current system capacity, it is expected that the repayments may be able to cover the cost of upgrade. A lot of detail has gone into looking at the appliances that will be used and their hourly and monthly electricity consumption. It should be noted that SQAF and other models are more tools than answers.



World Café

Later in the day, participants broke out into groups, rotating around four tables to discuss various aspects of the SabahRE2 presentations:

1. Delivery Model & Program Structure
2. Costs & Financial Model
3. Revenue & Financing Sources
4. Regulations, Project Tendering & Management

Groups spent 15 minutes at each table in turn, asking questions, raising concerns, and providing feedback on the work developed by the SabahRE2 Consortium thus far. The following content was generated:

Group 1: Delivery Model & Program Structure



What type of organisation should the “mini-grid portfolio company” be?

- Should be a government agency because many of the proposed roles already overlap with those of KKDW/ECoS
- Does not need to be a government agency but should be a company that is government appointed and guaranteed
- Should be a foundation, backed by the government, so it can obtain tax exemption for itself and investors
- Whichever the case, ECoS should have oversight

Other types of organisations that should be considered when thinking about funding and organisational relationships regarding investment

- Private investors
- Commercial banks

Community consultation

- There should be a direct relationship between engineering, procurement, and construction (EPC) companies and communities, so that communities may have oversight over implementation

Certification of developers and operators

- Idea for “franchise licensing” of mini-grid operators, i.e. it can be a business that licences community-based cooperatives to operate mini-grids

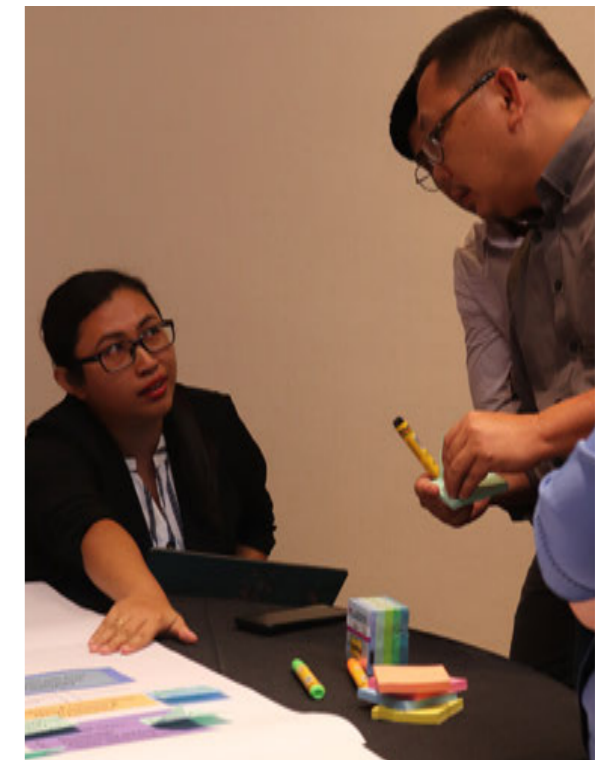


Coordination with other sectors

- We need to be sure to coordinate with other infrastructure agencies/ initiatives, e.g. road building and expansion
- Water supply infrastructure expansion

Licensing

- ECoS will be taking over Suruhanjaya Tenaga and SEDA roles. This will streamline/standardise processes. EPCs want to know if certification/licence to sell equipment is mandatory? Some EPC might have qualification and other resources but do not have certification/licence. ECoS needs to see a licence to show developers' competency due to safety reasons.



- Similar questions surrounding licensing of new technologies: what process will exist to make sure we are considering new innovations in the space and able to pilot new technologies?

Organisations interested in being part of the conversation of shaping the delivery model

- Jentayu Sustainable's CSR division wants to be involved in developing the management plan
- Good Shepherd Services wants to be involved in implementation
- ECoS wants to be continually involved
- Commercial banks should be involved (none were present)
- Private investors

Group 2: Costs & Financial Model



Cost structure and comprehensiveness of data

- Transmission and distribution costs: Our current modelling of these costs is sufficiently thorough, considering factors such as the approximated using distance between households and distance from the powerhouse, and scenarios that will require low/medium voltage lines, transformers, and single-phase vs. 3-phase distribution. It was suggested to share this data with the group.
- Insurance and land acquisition costs: Participants commented that when systems encroach on private property, land owners will need to be compensated for it or part of the property will need to be purchased. Similarly, insurance costs need to be accounted for as these can be substantial.
- Modelling commercial/industry use: The model relies on the number of households and needs to integrate potential for industry use
- Solar mini-grids: Cost per connection generally goes down for larger systems, demonstrating economies of scale, but it goes back up for much larger systems upwards of 120kW. This suggests a limit to economies of scale for solar, but this needs further investigation.
- It was suggested to share the raw data of the financial model, along with the



design of the systems that determined the costs. The group would like the opportunity to provide further comments and comparisons with their own models.

Other variables in modelling

- Inflation and foreign exchange rates affect the cost of mini-grids and project financing decisions. It would be good to show a sensitivity analysis with these variables.
- Distributed Renewable Energy Credits (D-RECs) are currently not included in the modelling but if it ever gets included, good to clarify assumptions.

Incentives for private sector actors

- Renewable energy companies want to know the mechanisms through which they can be involved in implementation. Ownership of the system where they can manage returns will incentivise the private sector to finance capital costs. Results-based financing and direct handover after the system is built is also an option.

Scaling plan

- The projected growth path appears unrealistic, to go from 7 systems → 28 systems → 168 systems
- Others commented that after assumptions are validated, a financing mechanism is set up, and a conducive policy and regulatory environment are laid out, the scale plan will be viable.



Group 3: Revenue & Financing Sources



Structure of the sector/Principal actors and roles

- Private investors: Were not included – an additional valuable category. The model needs to explore transparently Return on Investment (ROI), tax and other incentives, what owner-operator models would look like, and blending potential with other energy investments (including on-grid) to manage risk. Potential for Government Linked Company (GLC) engagement, including in Joint Ventures (JVs).
- Loans: Measures suggested to reduce risk, lower and stabilise interest rates, including fixed BLRs and Government Guarantees. “Hire purchase” approaches considered. “Equity crowd funding” could be used to enable private and community beneficiaries to own equity and reduce loan requirements. Scenarios should clarify who is the asset owner in relation to loan risk.
- Government subsidies: “Ecological fiscal transfers” – forest conservation payments to states – might support micro-hydro systems catchments
- DRECs/RECs: Renewable Energy Credits generated by remote indigenous communities ought to command market premium to help offset other capital requirements
- Community: These models are demanding of communities. They also



deserve fully funded systems like other consumers. What is the communities’ equity under the different models?

Fully vs. partially funded CAPEX scenarios

- Energy justice: Remote communities shouldn’t need to borrow for what is typically a state-guaranteed basic need
- Speed and convenience: Loans can speed implementation and access to a bigger funding pool – why should communities “pay the cost” of waiting? Loans can initiate activities and future grants pay them off.

Missing financial components

- OPEX vs. CAPEX: Current financial strategy only looks at financial

mechanisms in support of CAPEX, but there may be opportunities to address operational costs such that remote area communities are not paying full cost while urban consumers are subsidised

- Tariffs: Cross-subsidies from commercial off-takers could keep community domestic tariffs low. The financial function of the RM1 per kW tariff needs to be made explicit in the model, including whether it is subject to inflation.

Other ideas

- Installation costs: Can be reduced by broadening eligible contractor base through less onerous contractor requirements by adopting appropriate criteria for small project implementation.
- Results based financing and incentive based regulation: Emerging policy approaches to consider incorporating



Group 4: Regulations, Project Tendering & Management



Regulatory framework enhancement

- General agreement: Enhance regulations to support the scaled deployment of mini-grids
- Rural community definition: A proposal for a wider, more inclusive definition of rural communities to include a variety of settlements (may not align with government's) and prevent exclusion

Regulatory clarity and stakeholder engagement

- Regulation feedback: There was interest in providing input on proposed regulatory changes concerning off-grid system deployment
- Regulatory clarity: Concerns were raised about the current lack of regulations for off-grid systems, with suggestions to simplify them to lower entry barriers for developers

Funding and approval processes

- Government-funded projects: It was noted that projects funded by government would necessitate many approvals from various agencies
- Proforma licence concept: The idea of a proforma licence was proposed, which would serve as a preliminary step that aligns with the government's regulatory framework

Tendering process and program management

- Training component: Consensus that training should be a fundamental aspect of the program, potentially funded through levies. Training should aim to help communities manage and operate their systems efficiently and equip project developers with the necessary skills and capacity to meet project and program demands.
- Program evaluation: The necessity for monitoring and evaluation mechanisms to ensure the program's effectiveness, including transparent planning and coordination (including government decisions)
- Job creation as a metric: Job creation



- within the ecosystem should be used to measure the program's success
- Inclusion of existing mini-grids: Feedback highlighted the need to integrate existing mini-grids into the program so that those communities can also reap program benefits
- Localised approach: Strong sentiment for ensuring that the program remains localised and includes community input, even as the focus shifts to broader program development

One-stop centre for program delivery

- Centralised management: Strong desire for the SPV/managing facility to act as a centre for approvals and information for both project developers and communities



Incentives and project requirements

- Tax incentives: The provision of tax exemptions was suggested as an incentive for project developers
- Clear project requirements: Call for detailed project specifications, including precise power metrics and requirements

Community involvement

- Community engagement: Feedback was given to include community involvement in this slide on project tendering and management



Insights & Inputs Through Open Space Technology

The last part of the day opened the floor up to the participants, where they were invited to convene topics that they felt needed to be further unpacked.

LEGALITY FOR FOREIGN ENTITIES

Partnerships

- How can the corporate structure of investors include foreign entities?
- Foreign entities would need to partner with local entities to be involved

Government involvement

- It may be necessary for the State Government to step in to facilitate the entire project

FINANCING & REGULATORY FRAMEWORK

Considerations for investors

- Commercial or independent – need to clarify
- There is a need for clearer profits and ROI – when will it make money?
- Investor deck needed

Management of mini-grids

- Suggestion to elect an entity to manage and maintain the systems
- Questions arose on whether mini-grids could be financed by individuals

Government involvement

- Support from the government will help ease challenges in seeking funding and attracting private sector participation
- Will the systems one day be attached to the state grid?

INELIGIBLE AREAS/ COMMUNITIES

Grassroots action

- There is a need to address the other 200 villages that were mapped but are not part of the project portfolio - energy access is a human right
- Pangrok Sulap sold art to raise funds to build a community

MINI-GRIDS AND COMMUNITY DEVELOPMENT

Sustainability of projects

- It is vital that communities are able to manage and maintain their own systems – capacity

pico hydro system – potential model to address the communities that were not shortlisted

Changing mindsets through art

- Many of these villages are made up of undocumented communities – the social stigma surrounding these communities is a large part of why they were not included in the project portfolio
- There is a need for education and awareness, and to build empathy and compassion amongst Sabahans – art can be the medium for this



building and training needed

- Social issues such as socioeconomic development and gender equality need to be addressed as part of the project

Opportunities for development

- Identifying ecotourism potential in watersheds and villages – where there is potential, government provides development
- Suggestion to include the maritime community into SabahRE2's scope

INTEGRATING SABAHRE2 WITH EXISTING GOVERNMENT PROGRAMS

General overview

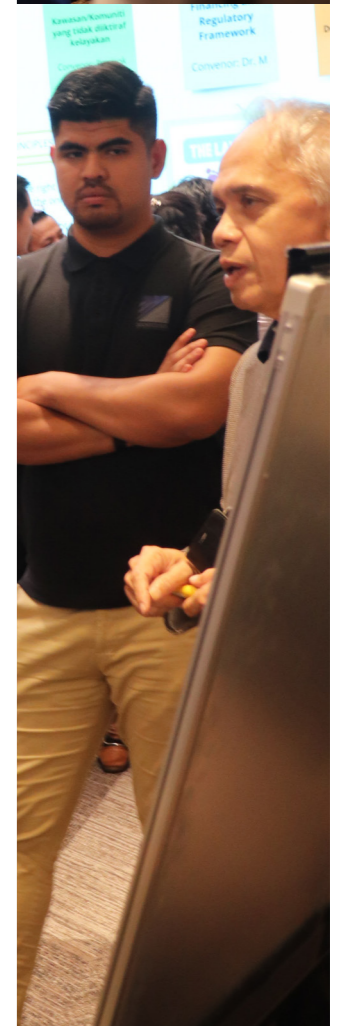
- The idea received positive response, with most agreeing that it would be most practical avenue for achieving universal energy access
- There are opportunities to integrate government funding with private or international funding streams
- KKDW believes that cost sharing is possible with the right process

Biggest challenges

- Consolidating goals and ideas into plans that are approved of by the necessary state agencies

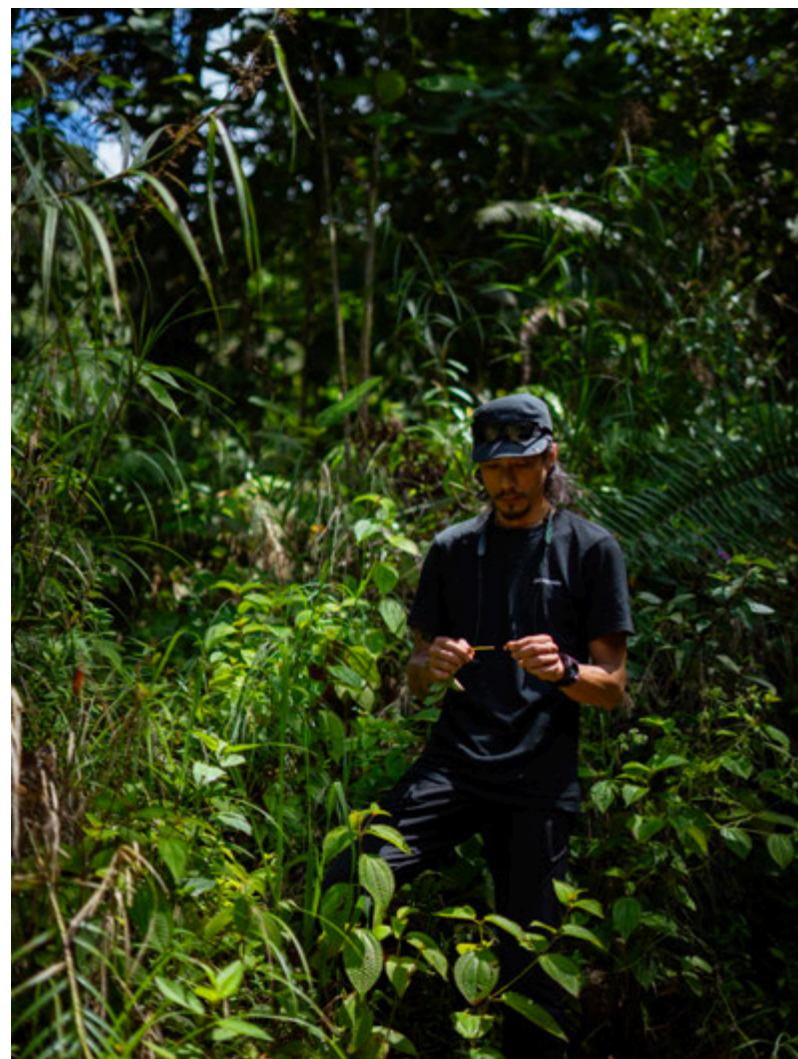
Planning recommendations

- It was suggested that Sabah was falling behind Sarawak and that the latter could be used as reference on how to consolidate state planning
- It is necessary to address both the immediate and long term goals, expectations, and needs



DAY 2: WHAT HAS BEEN DONE?

1st November 2023



The second day of the workshop brought participants to Kampung Buayan, Ulu Papar, to see a micro-hydro system installed by TONIBUNG that has been in operation since 2019.



KOBULU POWER HOUSE

The site of a 20kW micro-hydro system providing power to 60 households in Kampung Buayan, the Kobulu Power House is owned, managed, and maintained by the community themselves, with many having pitched in “gotong royong” on the build as well.

Participants were buzzing with questions upon arrival, asking about various components of the system, the building and installation process, and the overall function of the power house. The Kobulu Power House does not only supply electricity to Kampung Buayan but also functions as a TONIBUNG testing site, where systems are brought here to be tried and assessed before being installed in their respective villages.

The cost of the system stands at RM200,000, with a yearly maintenance cost of RM7,000. The TONIBUNG team were able to reduce the build cost by 70% by building the electronic load controller themselves, applying their own technical innovation and expertise.

While the system has been running smoothly, data collected from the system’s receiver shows that disruptions are increasing in frequency, which the TONIBUNG team posits is a likely result of climate change affecting the head and flow rate of Kobulu River.



KOBULU INTAKE SITE

A quick hike up above the power house is the intake site, located along Kobulu River. The micro-hydro system requires a head of at least 20 metres between the intake site and discharge point in order to properly function. With that there is no need for a dam.

A forebay was built alongside it to act as a buffer during floods or heavy storms, and to filter out sediments and debris in the water as it makes its way to the power house. The forebay has to be cleaned sometimes up to twice a week to ensure that congestion does not affect power supply.

COMMUNITY OWNERSHIP

The power house and intake site are kept clean and well maintained, showing a high level of enthusiasm, commitment, and responsibility from the community in managing their own system. According to Marius, one of the five system operators assigned to oversee maintenance of the system, the operators work around the clock, sometimes having to venture out to the site in the middle of the night when disruptions occur. They also undergo annual training with TONIBUNG to ensure their capacity and skills are up to task.

The impact of power on the village has been substantial. While children in the village used to struggle with their studies, the arrival of electricity has enabled them to extend their study time to the night, which resulted in a 100% passing rate amongst the Buayan students in the last UPSR examinations.



DAY 3: WHAT COMES NEXT?

2nd November 2023

LIGHT IS LIFE

Pangrok Sulap’s previous visit to Kampung Buayan was in 2014, before the arrival of the micro-hydro system, when the community still reached for candles at sundown. The arts collective observed several changes in people’s lives since the mini-grid – for one, power has enabled the Buayan community to access a wider range of cottage industries and opportunities to enhance their productivity and livelihoods.

The village has also grown physically since their last visit, with the addition of a new church and several more homes. Community members also shared observations of reverse migration, with many previous residents moving from the urban areas back to their village in recent years, since the installation of the power system.

“Cahaya itu adalah kehidupan. Di mana ada cahaya di situlah ada kebahagiaan, kasih sayang.” (Light is life. Where there is light, there is happiness and love.)
– Rizo Leong, Founder of Pangrok Sulap



Participants begin the final day of the programme, reflecting on the events of the last two days. Here, the group harnessed their shared experiences and ideas to co-design their vision for the future.

Reflections on Kampung Buayan

- Impact of electricity
 - Reverse migration: Buayan has seen an increase in people moving from the urban areas back to their village in recent years
 - Socio-economic development: Electricity has opened up more opportunities for cottage industries, with existing efforts becoming more productive now that they are able to continue their work into the nighttime
 - Education: Students are now able to study at night
 - Other developments: A new church has been built
 - Other communities: Residents from Kampung Dagat (who recently had a solar grid installed in their village) shared how electricity has enabled them to use freezers to enhance their local fisheries industry
- Infrastructure
 - Roads: The roads going into Buayan are so challenging that only 4x4 cars can make it all the way – for this trip, the rental of each car cost RM850. This is considered an improvement, however, as prior to the system being built, the roads were worse, with TONIBUNG needing to trek part of the way carrying the materials on their back, or use a helicopter for heavier materials.
 - Internet: The community uses a demand management application to monitor their energy consumption. This requires the use of the internet, something that was not available in Buayan until there was electricity.
 - General agreement: Infrastructure needs to be developed in tandem with SabahRE2
- Community spirit
 - Several participants noted the the dedication and responsibility of the Buayan community in managing and maintaining their micro-hydro system
 - Community empowerment and participation are — and should continue to be — core elements of SabahRE2 and other similar projects in rural Sabah



Commitments

Taking in all the learnings, ideas, and reflections over the last three days, the programme culminates in intention and action. Before wrapping up, participants were given the opportunity to mould their discussions into declarations of commitments.

| Project developers | Proposal development | Fundraising | Community training | Community development |
|---|--|--|---|--|
| <ul style="list-style-type: none"> TONIBUNG SOLS Energy Samudra Engineering Solutions Pangrok Sulap COMET | <ul style="list-style-type: none"> Green Empowerment Forever Sabah | <ul style="list-style-type: none"> Forever Sabah Pangrok Sulap SOLS Energy Samudra Engineering Solutions | <ul style="list-style-type: none"> TONIBUNG PACOS Trust SOLS Energy | <ul style="list-style-type: none"> PACOS Trust Good Shepherd Services SOLS Energy Jentayu Sustainables |
| Building standards | Tools for development and community engagement | Advocacy | Storytelling | 10% of salary |
| <ul style="list-style-type: none"> SOLS Energy Samudra Engineering Solutions Green Empowerment Jentayu Sustainables | <ul style="list-style-type: none"> COMET (Community Energy Toolkit) | <ul style="list-style-type: none"> Forever Sabah ENACT | <ul style="list-style-type: none"> Pangrok Sulap University College Sabah Foundation Third Rice Culture Media Productions Forever Sabah Institute | <ul style="list-style-type: none"> Anonymous |



APPENDIX

Workshop Structure & Agenda

| Day 1 | Day 2 | Day 3 |
|---|--|--|
| 31st October 2023 | 1st November 2023 | 2nd November 2023 |
| 9:00 a.m. to 5:00 p.m. | 9:00 a.m. to 5:00 p.m. | 9:00 a.m. to 1:00 p.m. |
| Sabah International Convention Centre, Kota Kinabalu | Kampung Buayan, Ulu Papar | Sabah International Convention Centre, Kota Kinabalu |
| <p>Introductions of SabahRE2 Consortium and participants</p> <p>Section 1: The Evolving Rural Electrification Landscape in Sabah</p> <p>Section 2: Proposed Quality Assurance Framework and Delivery Model</p> <p>Section 3: Program Design and Financial Model</p> <p>World Cafe: Sharing & Feedback</p> <p>Open Space Technology: What are the topics we need to zoom into?</p> | <p>Meet-up at CREATE Borneo, Penampang</p> <p>Departure for Kampung Buayan</p> <p>Visit to the Kobulu Power House</p> <p>Visit to the Kobulu intake site</p> <p>Lunch with the Buayan community</p> <p>Presentation from TONIBUNG</p> <p>Sharing from Buayan micro-hydro operator</p> <p>Departure for CREATE Borneo</p> | <p>Reflection: Pair & Share</p> <p>Group in Sectors: What can your sector do?</p> <p>Recap of the past two days</p> <p>Commitments: Are you in a place where you can make commitments?</p> <p>Declaring Commitments & Intentions</p> |

LIST OF PARTICIPANTS

Sabah Government

| Name | Position | Organisation |
|------------------------------|---|---|
| Maryani Binti Tasmiran | Ketua Penolong Setiausaha, Bahagian Prasarana | Kementerian Kemajuan Desa & Wilayah |
| Emelinah @ Akin Binti Ampon | Director of Economic Regulation (Industrial Planning & Development) | Energy Commission of Sabah |
| Rick Kual | Assistant Director (Electricity & Gas Planning and Development) | Energy Commission of Sabah |
| Muhammad Hazrin Bin Harris | Planning Officer (Policy & Sectoral), Forest Sector Planning Division | Forestry Department |
| Karen Christine Mijin | Senior Strategic Planning Officer | Sabah Economic Development & Investment Authority |
| Junik Ampongau | Assistant Environmental Control Officer Investigation Division | Environmental Protection Department |
| Amisah Binti Zakaria | Jurutera Awam Kanan | Education Department |
| Varatharajoo A/L Munusamy | Jurutera Elektrik | Education Department |
| Mohd Naqiyuddin Bin Serbini | Penolong Pegawai Pembangunan Masyarakat | Kementerian Pembangunan Luar Bandar |
| Syed Azwe Shahrin Bin Japlin | Penolong Pegawai Pembangunan Masyarakat | Kementerian Pembangunan Luar Bandar |
| Jane Polus Masundang | Ketua Penolong Pengarah | Economic Planning Unit |
| Mohd Zulhilmy Bin Zakaria | Penolong Pengarah | Economic Planning Unit |

Private Sector

| Name | Position | Organisation |
|--------------------------------------|---|-------------------------------|
| Haziq Ishak | Business Development Engineer | Samudra Engineering Solutions |
| Peter Ooi | General Manager | Samudra Engineering Solutions |
| Juil Angkui | Executive, Functional & Leadership Capability Development | Kimanis Power |
| Jelson Rusipin | HSSE Executive | Kimanis Power |
| Mohd Ilzham Bin Datuk Haji Masin | VP1, Stakeholder Relation Utility Management | Jentayu Sustainables |
| Stealyka Astrid | Stakeholder Relation Executive | Jentayu Sustainables |
| Datin Noor Afzalinah Mohd Afzul Khan | Chief Corporate Officer | Jentayu Sustainables |
| Sasha Adrianna | Admin | Jentayu Sustainables |
| Kee Keow Chong | General Manager (Argronomy) | Hap Seng Plantations |
| Norsyazwan | Sustainability Executive | Hap Seng Plantations |
| Randall Lingam | Manager Office | Ditrolic |
| Dahrum Samsudin | Engineer | SESB |
| Mamias Harman | Engineer | SESB |
| Corinna Chong | Senior Executive | SMJ |
| Dr. Mahadi Harris Murshidi | Chief Executive Officer | Borneo Telkom |
| Junidi Doronsoi | Deputy General Manager | Jetama |
| Tang Yang Cheng | Project Development Manager | Jetama |
| Murali Haripalan | Head of Renewables | Bolt Industries |
| Anthony Lim | Relationship Manager | CIMB |

Civil Society & Associations

| Name | Position | Organisation |
|--------------------------------|------------------------|------------------------|
| Cabrini Janis John | Manager | Good Shepherd Services |
| Imelda George | Senior Program Officer | Good Shepherd Services |
| Zayrul Rizo Bin Osman Leong | Artist | Pangrok Sulap |
| Nurtasyareena Jekaria Abdullah | Artist | Pangrok Sulap |
| Ashley Ian Pius | Artist | Pangrok Sulap |
| Rayner Chiu Tze Hon | Artist | Pangrok Sulap |
| Dr Rebecca Jumin | Head of Conservation | WWF-Malaysia Sabah |

Solar Vendors

| Name | Position | Organisation |
|-----------------|----------------------|--------------|
| Hakim Albasrawy | Director of Strategy | SOLS Energy |
| Yeap Mei Yi | Director, Green CSR | SOLS Energy |

Community Members

| Name | Position | Organisation |
|-----------------|-----------|---------------|
| Rajimah Kasran | Community | Kampung Dagat |
| Jabran Hussin | Community | Kampung Dagat |
| Runji Bin Ramsa | Community | Kampung Dagat |

Academia

| Name | Position | Organisation |
|------------------------------|--------------------|-------------------------------------|
| Jamal Gabir | Research Officer | University College Sabah Foundation |
| Razsyarizzand Rindu @ Pius | Graduate Student | Institute of Borneo Studies |
| Chandra Segar A/L Soosaimany | Managing Director | Sunrise International TVET College |
| Kamaleswari A/P Kaliapeumal | Executive Director | Sunrise International TVET College |

SabahRE2 Consortium

| Name | Position | Organisation |
|-------------------------|--|-------------------------|
| Cynthia Ong | Chief Executive Facilitator | Forever Sabah |
| Kenneth Wilson | Technical Advisor | Forever Sabah |
| Katrina Ong | Executive Assistant | Forever Sabah |
| Winnie Long | Chief Operations Officer | Forever Sabah |
| Cheryl Chan | HR & Admin Manager | Forever Sabah |
| Noorfazella Dingka | Admin Assistant | Forever Sabah |
| Stasha Van Houten | Comms | Forever Sabah |
| Neville Yap | Chief Operations Officer | Forever Sabah |
| Gabriel Sundoro Wynn | Energy Access Lead | Green Empowerment |
| Geoanna Corneby | Program Director | Green Empowerment |
| Leona Wai | Malaysia Program Coordinator | Green Empowerment |
| Alice Jipius | Executive Director | TONIBUNG |
| Joe Baxter | Project Coordinator | TONIBUNG |
| Philip Chin Jr | Project Manager | PACOS Trust |
| Gordan John Thomas | Program Coordinator | PACOS Trust |
| Noel Seanundu | Coordination & Learning Experience Facilitator | Forever Sabah Institute |
| Nur Afiqah Binti Roslan | Content & Learning Experience Designer | Forever Sabah Institute |
| Kenneth Lo | Chief Executive Officer | Third Rice Culture |
| Emily Chin | Copywriter | Third Rice Culture |
| Isaac Collard | Photographer & Graphic Designer | Third Rice Culture |
| Ting Wai Kit | Intern | Forever Sabah |

