RED

Project Borneo

Partnership Booklet

2017/18

ABOUT US

The Rural Education Development (RED) Project Borneo is a student-led project established in 2015 at Imperial College London. We promote sustainable educational development in rural and marginalised Bornean communities.

AIMS & OBJECTIVE

Led by students at Imperial College London, RED aims to assist in community with an emphasis on:

- EDUCATION
- ENGINEERING

1 Educational Infrastructure

We design and construct schools, community centres and other educational facilities to develop skills within the local community.

2 Exchange of Knowledge

Projects are carried out with the assistance of local builders in the village to bring about an exchange of knowledge. Through this, the locals will learn safer and more efficient construction techniques. With their experience in construction, their knowledge on buildability and practical construction techniques will also allow us to improve our design for future projects and allow volunteers to gain technical skills. Apart from participating in construction, student volunteers assumed teaching roles in bi-weekly English classes for the villagers, allowing both parties to gain language skills.

• Education

3 Student Experience

We aim to provide students with the opportunity to apply their engineering skills and gain hands on experience during the design, planning and construction process. This allows students to consolidate their engineering knowledge acquired at Imperial College London as well as hone their transferable skills and problem-solving techniques.

Living in the villages during the course of the projects will also allow volunteers to explore the local culture when interacting with the local communities. This will enrich their volunteering experience and promote global citizenship within the university.

- Education

1 Sustainability

We put great emphasis on functional, safe and sustainable design solutions. Construction material and equipment are sourced locally to ensure project contributes to the local economy. This also shortens the supply chain, reduces delivery times and saves logistical cost.

We use pre-fabricated materials such as pre-fabricated cement wall panels, gypsum boards and pre-manufactured steel frames for roof trusses to eliminate the need for intensive labour.

We also promote environmental sustainability by implementing green technologies such as solar energy systems and rainwater harvesting systems to educate the locals on harnessing resources that are affordable and abundant in tropical Borneo.

- Engineering

1 Sustainability

Project Partner– Life Empowerment Berhad (LEB)

Our partnership with LEB ensures that our efforts are able to impact the lives of the communities we serve in meaningful ways. They identify suitable project beneficiaries, provide us with technical support as well as assist in logistics and procurement. Additionally, LEB assures the longevity of the project by providing support to the educators to receive proper training to teach at the villages post project completion.

- Engineering

2 Safety

Structures that are built in rural villages of Borneo are typically traditional timber structure built with no fixed guidelines. We aim to introduce safe building practices to the villages by implementing building designs that are in compliance with the Eurocode regulations. This ensures that the structure functions throughout its design life within a serviceable state. We also ensure that structural designs are suitable for the tropical climate in Borneo.

We also simplify building processes to minimise inherent construction hazards, thus creating a safer environment for volunteers and local builders learn and apply their engineering skills.

- Engineering

PAST PROJECTS

2015 Feasibility Studies

RED's first overseas outreach was an expedition at Kampung Indrasan, Sabah, Malaysia. Our founding members, Edrea Pan, Chole Detanger and Jack Wilkinson embarked on a 3-week Bornean expedition to conduct a feasibility study on volunteering in rural Sabah. They assessed the region's climate, geological conditions and availability of local sustainably sourced construction materials.

Furthermore, a needs assessment was also carried out to channel essential input into the 2016 summer expedition. The needs assessment was crucial in planning social services that address educational demands from the underprivileged in Borneo.

2016 Pioneer Project

Building on the 2015 feasibility studies, RED launched its pilot project in Kampung Gaur, Ranau, Sabah with fourteen Imperial students. Our strong partnership with LEB enabled RED to complete a single storey 6 m by 9 m kindergarten in 6 weeks. The kindergarten we built consists of three rooms – a large hall, a resource room and a kitchen.

The structure was designed by Imperial College students with the help of a local contractor. The building has a steel-framed structure and a truss roof on a reinforced pad. It is cladded with cement fibre-boards on the exterior, gypsum boards in the interior and a corrugated zinc roof.

A rainwater harvesting system was installed to make the most of the rainfall in the region. A standard polyethylene tank and PVC pipes were used to harvest water from the installed gutter of the building. To prevent spread of vectors, a durable plastic mosquito netting was used in the pipe outlets and inlets. Water harvested is used for activities such as washing or flushing toilets and cleaning.

This project was the culmination of dedication from RED members and generous support from the Institution of Civil Engineers, City and Guilds College Association, Imperial College Union, IC Trust and the Department of Civil and Environmental Engineering at Imperial College London.

2016 Pioneer Project

2017 Second Project

In 2017, we built an education centre in Kampung Palipikan, Sabah, Malaysia with two groups of volunteers in the span of 5 weeks.

The education centre is a replica of the previous project. We also introduced an off-grid solar panel system. This system has the flexibility of tapping into existing 230 V power grid which will allow maintenance on the solar panel system to take place without interrupting power supply. When power output from the solar panels is unable to meet electrical demand, occupants can resort to the power grid for electricity.

2017 Second Project

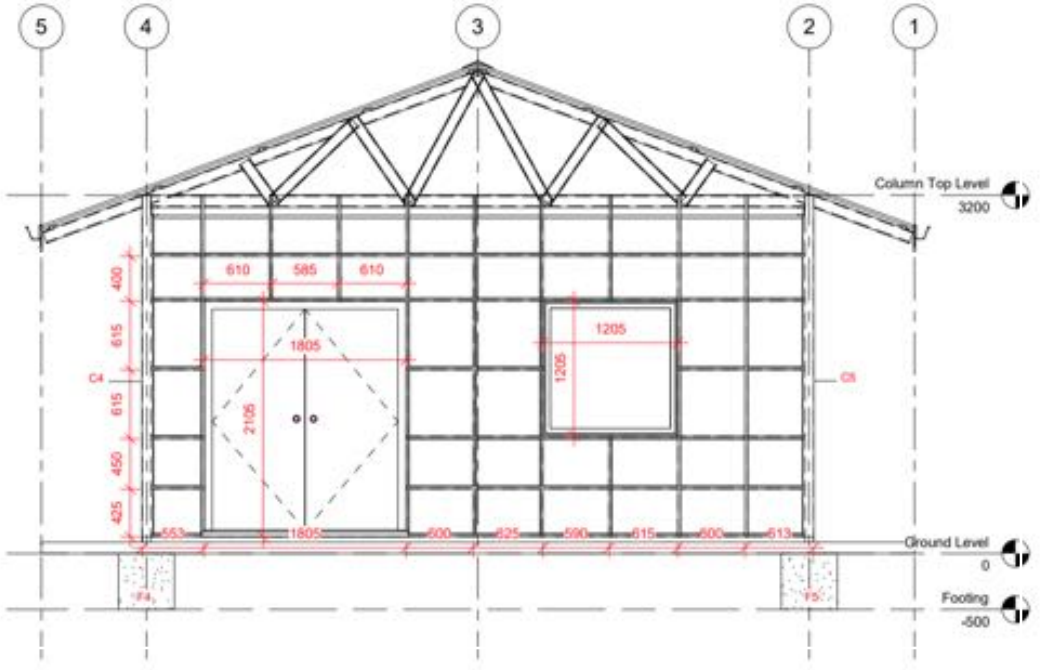
Upon receiving great feedback from the villages in Kampung Gaur (project site in 2016), bi-weekly English classes were conducted in Kampung Palipikan.

In our effort to improve the structure of our English classes, we had a team of 11 members who dedicated themselves in designing an English curriculum suitable for the Bornean children in the Palipikan village. The curriculum revolved around expanding English vocabulary through interactive games and nursery rhymes. English booklets delicately designed by our members were presented to the Bornean children to accompany them in learning. Furthermore, flash cards and teaching kits, adjunct to the English booklets, were also introduced to enhance the children's learning process.

2018 PROJECT PLAN

Design & Construction

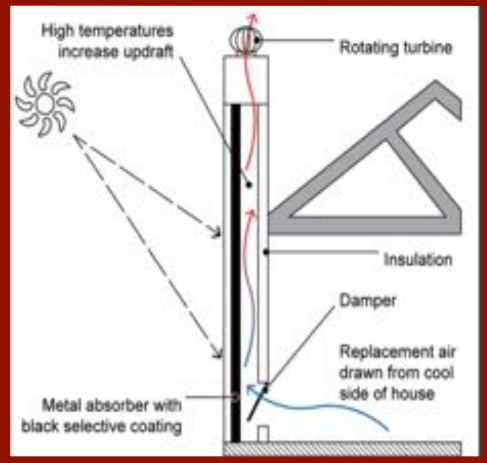
- We plan to replicate design of previously built 6 m x 9 m education centre in another village in Sabah, Malaysia. Our project site for 2018 has yet to be identified.
- We hope to obtain a concrete mixer to speed up building processes and reduce manual labour.
- We will work to streamline and fully document processes and methods for safer construction, and for future uses.



Design & Construction

As the climate in Sabah is tropical and humid, we hope to improve the natural ventilation of the building in order to minimise dependence on electro-mechanical ventilation system (e.g. fans) and thus reducing energy consumption. We have conducted a preliminary research and shortlisted a few cost-effective ideas that could potentially be implemented:

- Install transom windows above doors
- Installing interior soffits to deflect rising hot air out of windows
- Installing a solar chimney with rotating turbine
- Using louvres instead of sliding windows



Green Technology

Previously Implemented

- We plan to implement previously introduced *Rainwater Harvesting System* and *Off-Grid Solar Panel System* as they were successful in lowering water and electricity costs for the villagers in our past project sites.

Current Research

- We are looking to introducing a *Water Filtration System* to provide drinking water in the village. In the past, volunteers have been buying bottled waters for drinking while villagers resort to the sole method of boiling water for consumption. Thus, we plan to introduce an alternative which will provide abundant purified drinking water for the villagers.

Green Technology

Current Research

- We are also looking for possible Waste Management alternatives to educate the villagers. Through our observations in past project sites, villagers resort to burning their domestic waste as it is a cheap and convenient method for waste disposal. We hope to introduce more eco-friendly practices that will benefit their local community.

Curriculum Design

- Drawing from our previous attempts at curating an effective English curriculum, we have identified the need for a more structured course to ensure the communities benefit from lessons conducted. We plan to work with an external organization to train our volunteers in proper teaching methods and assist them in preparing suitable curriculums for both children and adults respectively.

- We aim to conduct a total of 10 -15 hours of lessons throughout the duration of our project similar to our summer projects in 2016 and 2017. This would take the form of bi-weekly sessions conducted on weekday nights.

Term Time Activities

Autumn Term	Spring Term	Summer Term
Introductory Meeting	Grant Applications	First Aid Training
Preliminary Project Development & Research	Committee Shadowing Scheme	Logistical Arrangement
Fundraising Events	Project Development	Material Sourcing & Procurement

RED is a student-led project. This means that we are involved in all aspects; from the design and fundraising, to the construction of these education centres. As students, we are unable to fund this project on our own and therefore rely on the goodwill and support of organisations to do so.

We are a registered charity under the student union and can therefore be part of your CSR projects. We are open to supporting your company/organisation in return. For example, organise engagement sessions and promote your company's events, student opportunities or products. We will be happy acknowledge your sponsorship by including the company's logo on all promotional materials, our newsletters, our website and the façade of our education centre. We also welcome any other suggestions!

WHY PARTNER WITH US?

Becoming a Partner

Sponsor

1. **Monetary Sponsorship**
   We accept any amount of sponsorship. For details on our fundraising plan and budget, as well as our financial statement, please contact us.

2. **Equipment and Material Sponsorship**
   As this project is mainly construction based, we appreciate donations in the form of construction materials or equipment. For a full list of equipment or materials, do get in contact with us.

Becoming a Partner

Collaborate

1. **Green Technology Implementation**
   Have an idea or a technology developed that you think can be implemented in our project site? Speak to us!

2. **Skill Training Workshops**
   We would appreciate if your organisation is willing to run skills or training workshops with our volunteers to assist them in better achieving their goals. This may include a whole range of skills; from workshops on fundraising to talks on international volunteering.

3. **Joint Fundraising**
   If you are an organisation that would be willing to host or run joint events, please do get in contact with us as these events play a significant part in helping us achieve our fundraising goals.

Have other ideas? Contact us! We're open to suggestions.

Thank you very much for your interest in RED. Please do get in contact with us if you would like any further information on what we do. Full project reports of our previous projects can be made available upon request.

RED is a student led project under the Imperial College Union, with the registered charity number: 1151241

For financial responsibility purposes, all income statements and project expenditure will be published following the completion of RED's summer construction expedition. A full project report will also be published and sent to all our partners.

WHAT NEXT?

CONTACT US

This project is based in Imperial College London.

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