

# East Timor Permaculture Design Course 2016

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CERES GLOBAL



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## Overview of the trip

The East Timor Permaculture Course aimed to foster the permaculture design skills of the participants in a tropical setting. The course consisted of two parts; four days of permaculture theory and design framework sessions in Melbourne, and ten days of community, food production and design in Timor-Leste. While daily permaculture workshops deepened our understanding about local ecosystems, site visits to local organisations consolidated our ecological knowledge and inspired discussions on how to create positive social changes. The community-based organisations we visited include the HIAM Health environmental centre and Permatil in Dili; Na Terra in Bacau; Green School in Maubisse and the Aileu Resource and Training Centre, Project Montanna and youth groups in Aileu. Visiting Timor since 2013, CERES Global has been building relationships with key organisations that are working on local food security, permaculture, sustainability, and community development.

The highlight of the trip was designing the Kadalak Dame garden in Aileu. The group gained hands-on experience in permaculture design including, client consultation, site analysis and assessment, concept and strategic design, and presentation. Based on the assessed needs and what we learnt throughout the trip, we designed sections of the Kadalak Dame garden containing meditation spaces, a demonstration food forest and garden and reforestation areas. The trip was designated as the initial phase of a continuous series of permaculture trips for CERES Global. We incorporated the feedback from the local Catholic into our design so that the next group from Australia or another part of the world will implement the improvements. Overall, the trip was successful in strengthening the friendship with the Timorese people and in promoting an enhanced understanding of ecology, culture and social challenges. The project is setting out the pathway to build sustainable and resilient communities in Aileu.

## About Timor-Leste

Timor-Leste is amongst the poorest and newest countries in Asia. The nation is Australia's closest neighbour and bounds with Indonesia. Whilst surrounded by coral reefs, its landscape is also extremely mountainous. The country gained its independence from Indonesia in 2002 and as a result of violent conflict seventy per cent of its infrastructure was destroyed<sup>1</sup>. Furthermore, oil dependency, low productivity in the agricultural sector, and rapid population growth have intensified the nation's vulnerability. Food security is one of the country's most critical challenges. Amongst its 1.06 million population, 38% consume less than 2,100 calories per day, which is minimal in the country's context<sup>2</sup>. This 'food insecurity' is exacerbated by the so-called 'hungry season', which runs from November to March because of the seasonality of tubers and the exhaustion of maize reserves.<sup>3</sup>



Map of East Timor (<http://www.ezilon.com/maps/asia/east-timor-maps.html>)

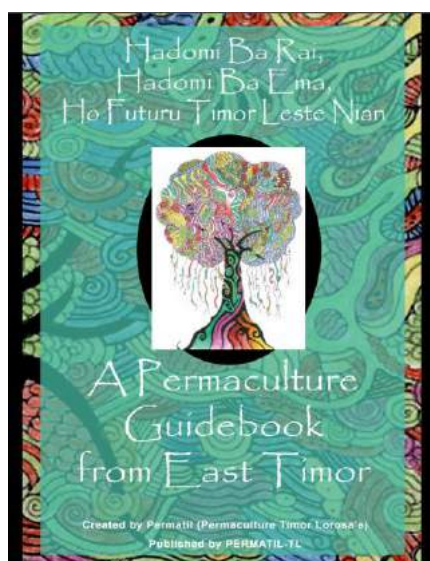
In this context, permaculture has taken root in Timor-Leste as movement to bring sustainable food production and development all year round. Introduced in Timor-Leste in 2000 in order to rebuild the country in a sustainable manner, permaculture has spread in popularity and fitted in

<sup>1</sup> UNDP 2012, About Timor-Leste. <[http://www.tl.undp.org/content/timor\\_leste/en/home/countryinfo/](http://www.tl.undp.org/content/timor_leste/en/home/countryinfo/)>

<sup>2</sup> Glazebrook, D, Lopes, M, da Costa, M. J, & Ximenes, A. 2007. Stocks and flows of household food supplies during the wet and dry seasons and food shortage period: a longitudinal case study among subsistence farmers in Aileu, Baucau.

<sup>3</sup> Costa, Md, Lopes, M, Ximenes, A, Rosario Ferreira, Ad, Spycerelle, L, Williams, R, Nesbitt, H, & Erskine, W 2013, 'Household food insecurity in Timor-Leste', Food Security, vol. 5, no. 1, pp. 83-94.

well with Timorese culture and identity.<sup>4</sup> Particularly, the local NGO Permatil has played a significant role in disseminating permaculture through sustainability and food sovereignty events as well as through educational materials including the comprehensive 'permaculture guide book from East Timor'.<sup>4</sup> Given over 43% of the population is below 15 years of age<sup>5</sup>, the demographic would be the key actor in sustainable development. As such, Permatil currently is engaged in permaculture school garden projects and is working with the Ministry of Education to develop permaculture school curriculums.



Permaculture Guidebook

[http://withoneplanet.org.au/downloads/pdfs/Permaculture\\_Guidebook\\_English.pdf](http://withoneplanet.org.au/downloads/pdfs/Permaculture_Guidebook_English.pdf)

School garden project

<http://www.fao.org/3/a-bl923e.pdf>

## Travel Journal

### Dili

The team spend a first couple of days in Dili. Dili is the northern coastal capital of Timor-Leste. Along the waterfront there are churches, restaurants and villas with former Portuguese colonial flavour. Beside the landmark of the Cristo Rei statute in the east, the city is rustic and the lifestyle of the people is simple. We stayed in SPC Sao-paulo Nunney, a catholic guest house ran by nuns. The warm hospitality, the pretty gardens and the vast common spaces make the accommodation comfortable.

<sup>4</sup> Permacultureprinciples.com 2016, From Permaculture in Timor to the tropical world <<https://permacultureprinciples.com/post/permaculture-in-timor/>>

<sup>5</sup> UNFPA 2010, Timor-Leste, UNFPA <[http://countryoffice.unfpa.org/timor-leste/2009/11/02/1482/timor-leste\\_democratic\\_republic\\_of/](http://countryoffice.unfpa.org/timor-leste/2009/11/02/1482/timor-leste_democratic_republic_of/)>



SPC Sao-paulo Nunney



Garden of SPC Sao-paulo Nunney

While we explored the city of Dili's markets, the Timor Plaza and the Chega museum, we also visited key local partners. HIAM Health is a promising NGO that seeks to address malnutrition through health education. Its motto is Hamutuk Ita Ajuda Maluln (HIAM) and stands for "Together we help each other". The organisation is working closely with the community to break the cycle of malnutrition through nutrition workshops teaching mothers food preservation techniques. Around 80% of children who participated in the rehabilitation and education programme gained weight successfully.<sup>6</sup> Jill, one of the staff members explained that the garden in the HIAM Health used to be a permaculture garden but they now focus on moringa trees in the micro-nutrition programme because the trees grow stably even during the rainy season and the leaves are rich in nutrients. This was an opportunity to see alternatives to permaculture in identifying the true socio-ecological needs of the locals.



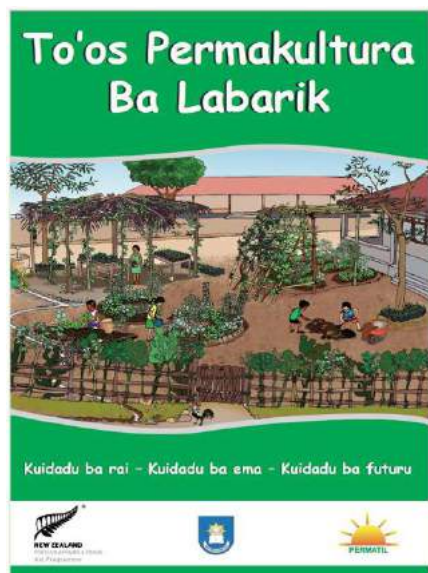
Moringa trees cycle



Moringa tree gardens in HIAM Health

<sup>6</sup> HIAM Health 2014 <<http://www.hiamhealth.org/hiam.html>>

We also visited Permatil (Permaculture Timor Leste), an NGO at the forefront of the permaculture movement in Timor-Leste and led by Ego Lemos. Established in 2000 after independence, Permatil began teaching permaculture with Australian permaculturists. It also formed a national farmers' network called Hasatil and the Perma-scouts movement, the latter which aims to foster sustainable agriculture.<sup>4</sup> After 2002, Permatil changed its approach from running permaculture design courses (PDC) to running training for locals on specific regional problems given half the population as the subject-oriented PDC did not address specific the social needs. Permatil also created a permaculture guidebook that explains permaculture in the Timorese setting. The guidebook is written in the Timorese language and its illustrations make it accessible to a broader audience. As such, permaculture is reinterpreted in the Timorese context so that people can practice permaculture widely and make a difference in the local food production by themselves. It is also inspiring that Permatil looks further into the future. Whilst the organisation has been sowing seeds by educating children through the permaculture school gardening projects, it also constructs water reserves for farming given then need to adapt to climate change. Although Permatil faces challenges in terms of finances and human resources, it is contributing to the building of resilient communities and helping provide a 'real' solution to tackle food shortage across Timor-Leste.



Permaculture guidebook for children



Discussion with Ego at Permatil

During the second night in Dili we had a chance to check out *Festa del la musica* (music festival). The waterfront bustled with the local families and young people who enjoyed a wide range of musical acts including DJs, Timorese rock bands and traditional artists. We could feel the positive vibes and energy from the music and audiences enhanced by a beautiful background sunset. It

was a good experience to get to know modern Timorese culture and life.



DJ Performance at Festa del la musica



Crowd of the locals enjoying music

## Baucau

On day three we headed out to Baucau to drive a campervan on bumpy and mountainous roads for three hours. The views on the coastline, idyllic villages and a herd of buffaloes were spectacular. Pouched on steep hillside, Baucau is the second largest Timorese city east from Dili.<sup>7</sup> Our main destination was naTerra, a non-profit association originally founded in Macau to promote education for sustainable development. As a part of the project called *Raio de Sol*, naTerra established permaculture demonstration gardens and an educational centre with ingenious design in Baucau.<sup>8</sup> Fernando, a co-founder of naTerra showed us a fishpond that uses an “edge effect”, as well as compost bins, animal sheds with multiple functions, and a nursery. During the tour, Fernando explained how the garden embraces traditional techniques such as roof knitting from coconut leaves, bamboo building as well as the practical functions of native plants. The site plays multiple roles that include the demonstration of the farm to children and other local farmers, a seed bank, a propagation and distribution hub, a research centre, and a volunteer training centre. Nonetheless, naTerra has been attracting and getting the community involved by using simple and replicable techniques. We learnt about its clear vision and step-by-step goals for establishing a market garden and a food processing centre to deliver more holistic community development through ethical eco-tourism and school garden projects.

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<sup>7</sup> Lonely planet 2016, Baucau <<https://www.lonelyplanet.com/east-timor/east-of-dili/baucau>>

<sup>8</sup> naTerra 2016 <<http://www.na-terra.org/ingles/home.html>>





naTerra tour



Nursey in the naTerra demonstration site

## Aileu

On the fourth day we moved to the small village called Aileu. On our way to Aileu we made a quick visit to a coffee farm. Coffee is the major commodity export for Timor-Leste and it is a substantial income source for a quarter of population.<sup>9</sup> We then headed to the urban centre of Aileu, which is located 47 km southeast of Dili. We had a break from the hot weather in Dili because Aileu is a bit cooler as low mountains surround the town. It is a cosy town with friendly people, vast farmlands and only a few shops. We enjoyed interacting with the local people and played with children. During the stay we developed a firm partnership with the Aileu Resource and Training Centre (ARTC) through designing their garden and forest areas for redeployment. ARTC is a local organisation that is working on community development projects such as technical training of solar energy for women's empowerment, reforestation and IT education. ARTC shared an insight about the short-term nature of development projects. They pointed that different organisations tend to implement aid programmes by using their own methods and then leave within a short period, which makes the locals confused. This led us to rethink about how we could build a long-term relationship with the ARTC to redevelop the site in a sustainable manner.

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<sup>9</sup> East Timor Now 2016. The Story of East Timorese Coffee <<http://www.easttimornow.com.au/trade/coffee.aspx>>



Coffee farm



Aileu town central

Besides the ARTC we visited the admirable base of Project Montanha, a NGO based in Aileu. Project Montanha is working on holistic projects such as healthcare, education, sustainable community development, youth assistance and family services<sup>10</sup>. We saw some local children making beautiful handicrafts such as seep soft toys, which were to be exported to Australia. Many of us purchased art works and crafts that children made at the souvenir shop. Children also cooked delicious and sophisticate lunches for us at the restaurant. These activities are part of their programs to train and empower children as well as to generate income. The strength of Project Montanha lies in children's ownership over the projects. They are responsible for each project including decision-making and management. For instance, children took the initiative of operating the souvenir shop by keeping the stock, price, and product details with little and at times without instructions from staff. They are also equipped with basic skills such as hygiene, time-management, table manners and language. These well-trained children must lead the development of community in the not-too distant future.

The town of Aileu is a vibrant centre with a young population. Due to the high number of children schools introduced the double shift system where the younger students go to school in the morning and the older ones study in the afternoon. On the back of the post-independence baby boom, Project Montanha's aim is to foster the capability of the youth. Foscaca is one of the youth groups we visited in Aileu. They are engaged in different cultural and livelihood activities such as choirs and farming. These emerging and informal bottom-up movements led by young people are positive characteristics of Timor-Leste that will strengthen the resilience of community.

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<sup>10</sup> Timor Leste Children's Fund 2016 <<http://www.timorlestechildrensfund.org.au/partner/projeto-montanha>>



Young artist at Project Montanha



With Foscaca youth group

On day seven we made a side trip to the 'green school' in Leubiara of Maubisse. Established in 2015, the Leubiara green school is an educational institution that teaches Timorese children about economically and environmentally sustainable development. It also operates an eco-retreat with a restraint and campsite aiming to be a community-based tourist destination that uses local resources and products.<sup>11</sup> We enjoyed walking in the pretty terraced flower gardens and had a buffet style lunch at a sophisticated restaurant. It was interesting that they grow strawberries in black poly sandbags because it was the first time we saw strawberries in Timor-Leste and the widely available sandbags are utilised as planters. Compared to the other organisations we visited, the green school is one of the only ones that incorporates social business model. It focuses on income generation for financial sustainability through establishing tourism, which is not yet a big industry in Timor-Leste. The well-designed flower gardens and the retreat centre have potential to attract tourists.



Strawberries in poly bags



Flower gardens

<sup>11</sup> Santana Unipessoal 2016 <<http://www.santanatimorleste.com/projects>>

## Design of Kadalak Dame

As the trip is part of the permaculture design course, we had a series of workshops to foster our understanding of environment in a tropical setting. The topics included soil, water, plants, trees, animals, alternative economy, building and aquaponics. This holistic ecological knowledge as well as what we learnt from the organisations we visited were integrated into our design process. From the discussion with the ARTC, we identified that the Kadalak Dame was a site of great potential because of its diverse geographic characteristics and the imbued socio-cultural demands of the community. Kadalak Dame mean 'peaceful gully' and has a symbolic shrine for meditation and a monument dedicated to victims of the war. Forests, slopes and overgrown fruits gardens surround the site. Our task was to renovate the garden based on permaculture principles keeping in mind the spiritual significance of the site.

### Consultation- Client analysis

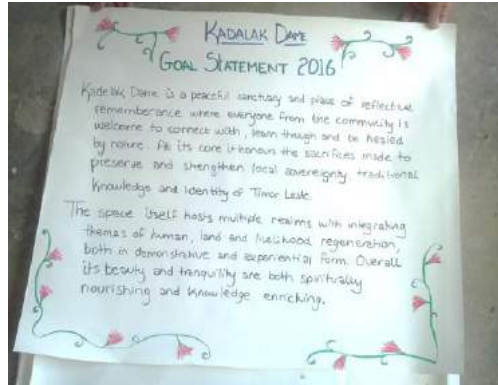
We set up a consultation meeting with sister Rosalva in order to assess the needs of the ARTC and the community and to gain contextual information of the Kadalak Dame. We learnt that the meditation garden is the feature that embraces intergenerational worship of the land and the history of the war. Therefore, healing through nature should be an integral part of the design. The food garden is adaptable to climate change and produces seasonal vegetables to generate income, which is another important element of the project. In the implementation stage, we could probably work collaboratively with community workers, children and traditional farmers. However, funding, water availability and protection of the site from animals can be challenging. Based on the meeting, we developed the following mission:

*'Kadalak Dame is a peaceful sanctuary and place of reflective remembrance where everyone from the community is welcomed to connect with one another, learnt and be healed by nature. At its core it honours the sacrifices made to preserve and strengthen local sovereignty, traditional knowledge and the identity of Timor-Leste.*

*The space itself hosts multiple realms with integrating themes of human, land and livelihood regeneration, both in demonstrative and experiential form. Overall, its beauty and tranquillity are both spiritually nourishing and knowledge enriching.'*



Meeting with sister Rosalave at ARTC



Goal Statement

## Observations

‘Observation and interaction’ is one of the key principles of permaculture. David Holmgren posits that ‘good design depends on a free and harmonious relationship between nature and people, in which careful observation and thoughtful interaction provide the design inspiration’.<sup>12</sup> Therefore we started our field task by observing the Kadalak Dame. We were divided into three groups and each team observed three different sites: slope area, meditation garden and forested entrance. We learnt that identifying permanent structures is critical. Through the five senses we discovered interactions among micro-climates, geographical structures and vegetation.

Permanent structure includes:

- Climate;
- Landform;
- Water;
- Access and circulation;
- External energy;
- Biology (wildlife and permanent vegetation);
- Buildings;
- Microclimate;
- Soils; and
- Aesthetics.

<sup>12</sup> Permaculture Association 2016, <<https://www.permaculture.org.uk/principle/1-observe-and-interact>>



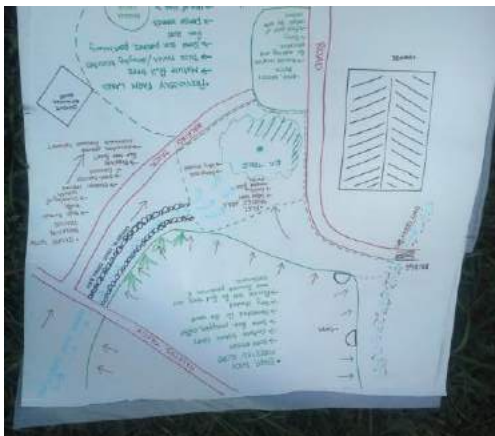
Team observing the site



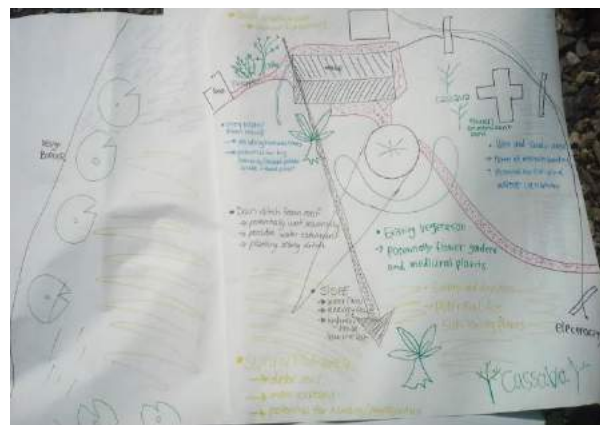
The shrine at Kadalak Dame

### Site analysis and assessment

We undertook in-depth site analysis and assessment. Each team summarised some key characteristics of the sites and identified potential risks and opportunities, which were to be incorporated in the design. For instance, steep terrace has potential for erosion and access to the area may be difficult. To mitigate the risks, seedballing that prevents soil from washing downhill as well as rebuilding broader terraces would be good solutions. As we learnt, problems can turn into solutions and threats into advantages in permaculture design. Likewise, creating an accurate site map was an important task for us. Creatively using a limited number of tools such as ropes and compasses, we measured the distances between key objects and draw a map by scaling down. It was a trial and error process that required a lot of circulations and steady work.



Site summary of the forested area



Site summary of meditation garden



Handmade tool for calculating angles



Measuring the site

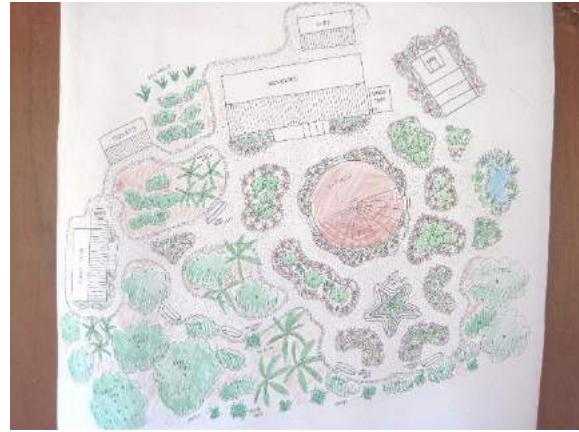
## Design

After a series of workshops we synthesised the vision into design plans. We held a brainstorming session to elaborate our design by integrating the various ideas of each member. We came up with some great ideas such as fishpond, a sandbag bench, and a banana circle garden. The design process has three stages: concept, schematic and detailed design. At the concept design stage, we decided on seven sub-zones, terraced reforestation, regrowth forest, food forest demonstration, demonstration food gardens, remembrance and reflection zone, meditation gardens, and new guest residence with fruit trees. In schematic design, we decided on patches, boundaries and the shape of elements. In specific, we allocated key components such as flower and vegetable gardens, water ways, living fences and pond on the site by combining a range of permaculture design techniques including edge effects, multiple uses and catching energy.

The meditation area aims to provide healing and peacefulness by flower and medicinal plant gardens that circle round the shrine and the pond. In contrast, a demonstration garden area has more playful design with keyhole gardens, spiral gardens, small vegetable patches and educational spaces under trees, which could be an ideal place for local children to learn from and interact with nature. Likewise, a terraced reforested area has a more practical function such as erosion control and waterway maintenance through planting various trees while enhancing income generation by producing strawberries, coffee and cacao.



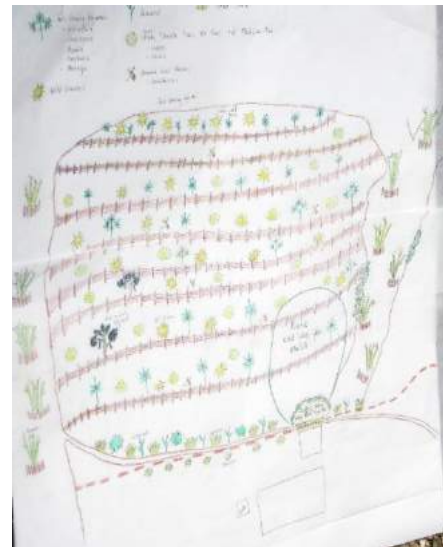
Concept design



Schematic design- mediation area



Schematic design- demonstration garden area



Schematic design- terraced reforested area

## Presentation and feedback

Fortunately, we had a great opportunity to present our design ideas to local people including ARTC and the Catequist group at Kadalak Dame. The presentation was a significant part of our design process not just because it was the sum of our work but it created an interactive space to reflect upon our initial ideas through feedback of the 'local experts' and catalyse new ideas collaboratively. In fact, we gained some critical feedback form the Catequist members. First, the maintenance of the water pond is challenging given the poor water access during the dry season in the region. Living fences may be porous and an alternative plan is needed because animals easily invaded through to eat fruits and vegetables in the gardens. Furthermore, there was a concern on how we could utilise the existing



trees when renovating the terrace. These are realistic insights that are underpinned by the local experience and knowledge, which needs to be considered carefully in the implementation stage.



Presentation



Feedback form the Cathequist group

## The future

We gained comprehensive learning on community development, initiatives for social change driven by local people, socio-economic sustainability beyond the scope of permaculture design through the Permaculture Design Course in Timor-Leste 2016. Multiple activities such as visiting inspiring local organisations, discussing their projects, interacting with the tropical nature, attending workshops and designing work in a close-knit team consolidated our knowledge on environment and society in Timor-Leste. At its core, we strengthened partnerships with key local stakeholders. This is significant because the connection with local people is the foundation for the future activities of CERES Global. Especially, the relationship with ARTC is crucial because the permaculture design of Kadalak Dame is the start of a long-term project. Next, the ARTC and the Cathequist group will give us detailed feedback. The next group travelling to Aileu will add more value to the co-created design plan and implement the next stage of the project by working with the local people. The idea is that “Permies” from different parts of the world will join the next group in order to integrate ecological knowledge and social insight. Australian students who are knowledgeable in aquaponics can provide their expertise in the implementation phase. The trip was a great first step to catalyse the interactive and creative process of permaculture design in Kadalak Dame.