

Engineers Without Borders (Hong Kong)

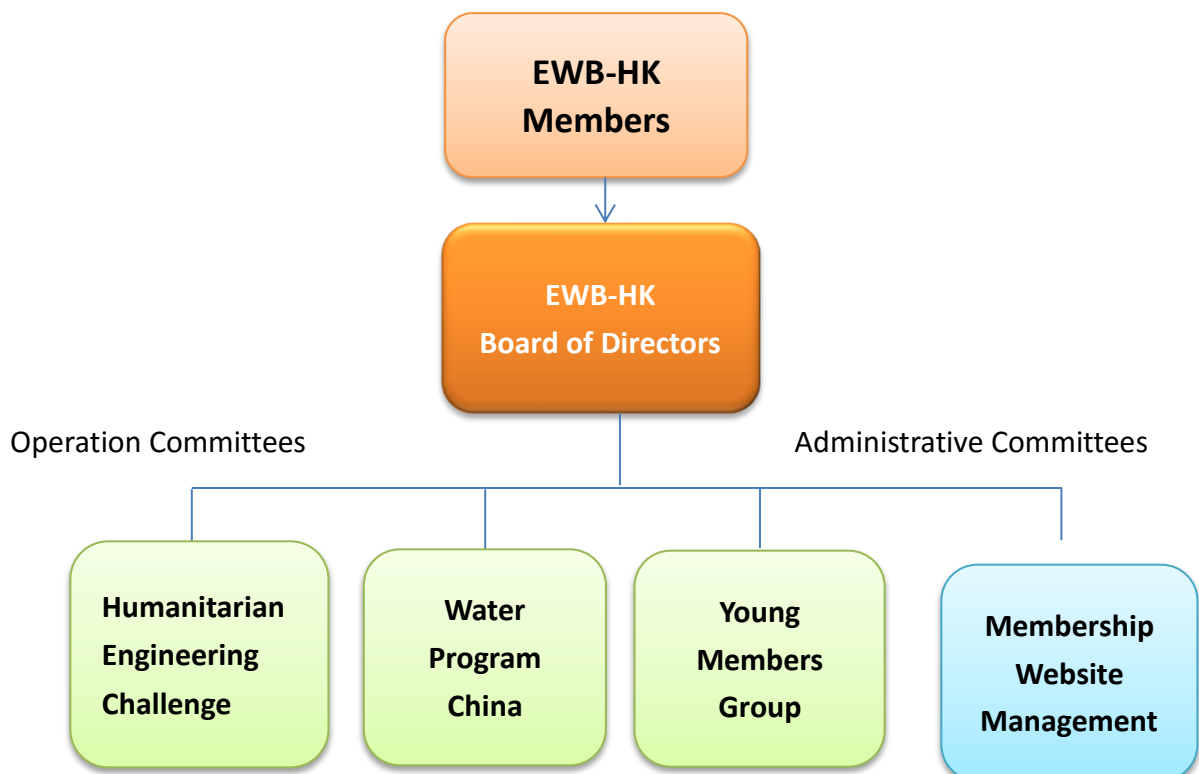
Annual Report 2015-2016

Foreword

1. Ever since July 2012 when EWB-HK reshaped its missions, EWB-HK invariably sets out its work in line with the new missions, which are repeated here:
 - a) To accelerate betterment in life of disadvantaged communities and promote sustainable development through the empowerment of engineering means.
 - b) To enhance the capacity of Hong Kong's professionals and the generations to come contributing to the communities in need.

Organization Chart

2.



Humanitarian Engineering Challenge

3. The Humanitarian Engineering Challenge team was set up to tackle humanitarian problems through engineering means and appropriate technology. Since its establishment in 2012, we aim at developing a framework for future actions by gathering the tools and methodologies for humanitarian works. In particular, household air pollution (HAP) has affected about 2.6 billion people and led to over 4 million premature deaths each year worldwide. As a result, clean cook stove design has been our application focus to address HAP starting 2013. Building on the advancement of various cook stove designs in the past few years, 2015-2016 has been a year of local deployment and final design refinement of our stoves.

4. Goals

- a) Introduce the public to the worldwide household air pollution issue.
- b) Familiarize with and develop tutorial materials for free 3D CAD design tools and 3D printing.
- c) Promote DIY approach to achieve massive deployment in humanitarian works.
- d) Develop Open Source Cookstoves Library (OSoCool) to share HEC designs and to build a culture of collaborative design improvement.
- e) Run workshops to check the feasibility and fine tune design information to prepare for future deployment.

5. Progress

- a) Developed tutorial materials for DIY construction and OpenSCAD 3D design. Team members have acquired relevant skills and gained familiarity with relevant tools and material which can be used in future design and construction projects.
- b) Organized a Hackathon for secondary school students in InnoCarnival 2015 to familiarize them with open source solar cooker design methodology. The competition went well, and it clearly showed that with clear guidelines, students could explore online open source design, make refinements, and document their designs.
- c) Conducted lecture for about 90 students in Hong Kong Design Institute (HKDI) on how clean cook stove design could combat the issue of household air pollution for disadvantaged communities as a theme project for their 3-week design exercise. In conjunction with guidance from HKDI lecturers, over 30 stoves have been designed.
- d) Hosted a one-day workshop with the members of Hong Kong Federation of Invention and Innovation (HKFii) for refining our rocket stove design. Various improvement ideas have been suggested and tried. Some of the ideas and some other elements inspired by that exercise were incorporated into the final design. EWB-HK members

involved also learned new workshop skills by closely working with the seasoned inventor-engineers.

- e) Conducted Po Toi Island feasibility study to investigate the possibility of Po Toi as our first deployment site and how we might help to improve their lives on the island. Through multiple visits and survey, the feasibility study team learned more about the situations and concerns of people related to Po Toi Island as well as the steps needed to engage in engineering projects of this nature. Dialogue with actual potential users of our works has opened for future works and review of deployment results.
- f) Provided consultation service on renewable energy facilities to Grace Charity's Farm. Proposals to use electricity in accordance with safety guidelines, use of solar water pump for irrigation, and pizza oven based on rocket stove have been presented.

6. The Way Forward

- a) Fabricate five rocket stoves for the deployment on Po Toi Island.
- b) Provide assistance on the rewiring of the Po Toi Village Office after its renovation.
- c) Document and release open source code of our clean cook stove designs over the years.

Water Program China

- 7. To follow through the objective set out last year, EWB-HK continues to collect, transport, store and purify water for places in need in China.

Progress

- 8. Apart from continuous testing and improving the ram pump system made of local materials in Wing Lam Garden at Hok Tau, Fanling, and Wing Lung Farm in Hang Hou. Saikung, we tried to bring the water up to 50 meters by the pump in Kadoorie Farm, Taiipo, at the end of 2015. However, because of various restrictions, we cannot meet the target.
- 9. In 2016, EWB-HK came across another ram pump in a village at Plover Cove Country Park, the performance of which is very steady. Hence we made reference to the technique and trialed that out at Wing Lam Garden. The result is that it greatly improves the steadiness of the pump. Besides, we made use of the ram pump to transport water to a tank at the rate of 1,000 litres per day, for the use of a cooling system in Wing Lam Garden.

10. In respect of water purification, we did laboratory tests for a center school of Shao Guan, Guangdong , China in October 2015 with a view to guaranteeing the safety of the water for students and teachers.

The Way Forward

11. EWB-HK is keen on developing water programs in China. However, we do not have connections on ground. Hence we greatly need the referral of potential beneficiaries by some on ground organizations. Green Action Charity Fund (GACF) mentioned below is one of them. If any Member has connections in this respect, please let us know.
12. EWB-HK will work with Green Action Charity Fund. Their vision is that “uncontaminated water is the basis of human life”. Hence they worked on afforestation in Guangdong and Shanxi to get water for over 20 years. For a site in Shanxi, the water produced by afforestation is not situated in a place easy for the villagers to get. So GACF invited EWB-HK to help in building a system to transport the water. In addition, we will also check if the water source is potable.
13. We will organize talks to let more volunteers know about water in all respects and to raise funds for specific projects.

Young Members Group:

14. The second mission of EWB-HK is, “To enhance the capacity of the professionals in Hong Kong and the generations to come to contribute to the communities in need.” Hence emphasis was placed on the development of organization and structure of students in tertiary education and young persons, so that they can participate in the relevant services and organization development early in their lives, gather experience and trained as successors of EWB-HK.
15. EWB-HK’s YMG Committee is an executive committee under the direction of EWB-HK Board of Directors. EWB-HK believes that the collaboration with their YMG Committee and Student Chapters is crucial to the successful achievement of EWB-HK’s missions. The slogan of YMG is “Enlightened with Engineering, Serve the Community”.
16. There are 4 teams currently led and supported by the YMG Committee, which are : Service Trip team; (ii) Engineering Works Without Borders team; (iii) Waste Management Task Force; (iv) Training Team, and (iv) Student Chapter. In 2015, YMG started to arrange regular meeting on a bi-monthly basis, whilst the meeting is arranged

in 2 sessions, which are business discussion and sharing by guest speakers. YMG arranged sharing session in each bi-monthly meeting on the topics of leadership, communication, organization sustainability, humanitarian engineering, sustainable development goals, etc.

(i) Service Trip Team

17. The objective of Service Trip Team is to transform the disadvantaged villages into self-sustainable communities, through comprehensive community improvement programs in collaboration with relevant organizations in Hong Kong & overseas so as to deliver local services more effectively.

Progress:

18. Follow the 3-years plan for serving rural areas through engineering support and knowledge transfer, the team organized an overseas service trip on 23th June ~ 2nd July 2016 with 20 participants and 2 technical instructors. Last year, the team constructed book shelf, tables and chairs for a library. This year, a communal water tank with rainwater harvesting shelter was built in a local education center, together with hygiene and environmental protection education activities. Series of team building safety trainings, construction skill training workshops and evaluation meetings were arranged to facilitate the preparation of services trips, with the supports offered by Hong Kong Playground Association and training sponsor by Techoy Construction Co. Ltd.

The way forward:

19. The team is now preparing for the 3rd service trip to South East Asian Countries. The tentative date of the trip will be June 2017, so as to follow up the local needs being identified in the previous trips and the continuous communications with the local partners. Three service objectives were developed after the 2nd service trip, which are: Environmental & Hygiene Education, Water Capture & Filtration, Water Storage & Quality.

(ii) Engineering Works Without Borders (EWWB) Team

20. The objective of this team is to foster the connections amongst EWB-HK and overseas organizations with similar objectives as EWB. The team plans to encourage more experience, knowledge and skill exchanges through projects, group sharing and visits.

Progress:

21. On 24-26th January 2016, EWWB team organized a Singapore Delegation on topic of “Sustainable City in Singapore”. The delegates visited Sustainable Living Lab Makerspace, PUB NEWater Visitor Center, BCA Zero Energy Building. Also, meetup with EWB-Singapore, Engineering Good and EWB-HK Advisor Prof. Stephen Lau in National University of Singapore.
22. In February 2016, representative from EWWB also visited Myanmar and have dialogues with local NGOs and EWB Australia. EWWB wish to initiate possible cooperation in the future with multiple collaborations with local NGOs and EWB Australia and EWB Singapore to have sustainable development in the local community, and construct the future.

The way forward:

23. EWWB has already established connections with EWB Australia, EWB India (NPTI chapter), EWB Singapore, EWB South Africa (University of Cape Town chapter). EWWB aims to initiating and organizing sharing sessions, exchange and visits with overseas EWBs and similar organizations in the coming year.

(iii) Waste Management Task Force (WMTF)

24. In 2014, several young persons and students who were interested in the waste issues formed the Waste Management Task Force. The objectives of this task force are: (i) To initiate projects related to solving environmental problem in Hong Kong; (ii) To raise the awareness of people on waste reduction, subsequently leading to behavioral change in the society

Progress:

25. WMTF team members joined the EWWB visit to Singapore in January 2015, and investigated local waste management measures. Some internal knowledge exchange gatherings conducted in this year. Also, WMTF member participated other organization’s waste audit activity so as to acquire more experience.

The way forward:

26. In the coming year, WMTF will recruit new members and to continue knowledge exchange. Planning and organizing of more waste management projects, technical and experience sharing, workshops and visits can be carried out once a new team is formed.

(iv) Training Team

27. Training Team was formed in September 2016. The objectives of this team are to build up the team spirits of our volunteers and enrich their knowledge and skills in engineering applications. On 8-10th October 2016, Training Team organized a leadership training camp on the topic of “Leadership is our lifestyle” in the HKPA Tung Chung Campsite and Pui O Tent Campsite, with working young persons and tertiary students participants.

(v) Student Chapter

28. With the support from the Centre of Global Engagement (GCE) of the Hong Kong University of Science and Technology (HKUST), a new EWB-HK HKUST Student Chapter was formed on August 2016. The objective of student chapter is to provide a platform for students to learn with first-hand experience on how to solve community challenges with engineering solutions. The EWB-HK HKPolyU Student Chapter was formed in September 2016.

Progress:

29. In the past year, HKUST Student Chapter organized some activities and supported several HKUST engineering services information & sharing sessions and Engineering Week Exhibition in the HKUST campus, so as to convey the vision of voluntarily engineering services and the information of EWB-HK projects / activities to HKUST students. The student chapter organized visit to ShenZhen Qianhai Shenzhen-Hong Kong Youth Innovation and Entrepreneur Hub and ShenZhen Hi-Tech Fair, Hong Kong Hysan Place green building, APAS R&D Center in the Hong Kong Productivity Council, Tesla Motors Center.

The way forward:

30. EWB-HK intends to resume the University of Hong Kong (HKU) student chapter and to cultivate the new student chapter in the Hong Kong Polytechnic University (HKPolyU). They will go on close coordination with the existing volunteers who are studying in HKU and aims to develop a new HKU Student Chapter..

Webmaster Committee

31. In view of the fact that uploading to the existing website is difficult for laymen, information on the existing website is grossly outdated. A committee was restructured in February 2016 to collect feedback from all Board Members and Committee Heads so as to build a new website that will be much more user friendly and suit the organization well. Work is underway smoothly and a new website should be launched next year.

Membership Services

32. Currently, EWB-HK is entirely operated by volunteers. Many Members joined EWB-HK and left. The turnover is quite high. It is encountering difficulties in planning and running projects/ activities. Meanwhile, its monetary deposit is not sufficient for EWB-HK's long term development. To understand our Members more, a Membership Committee was set up in August 2016 with a view to communicating with the Members, getting to know their expectations, digging up more resources from them to serve EWB-HK, etc.

Organization Work

Change of Entity

33. EWB-HK was registered as a Society on 8 June 2008 aiming for rehabilitation works in response to the Sichuan earthquakes on 12 May 2008. In view of the massive resources ploughed in the quake areas by the Chinese central government, there was not much room for NGOs like EWB-HK to work in after mid-2009. Since then, EWB-HK relocated its resources to some other projects, serving disadvantaged communities and those in need.

34. In early 2012, we considered it was time for EWB-HK to be changed to a limited company in order to limit the liability of the serving volunteers, committee members and directors. After a long process of drafting and reshaping the vision, missions and objects of the articles of association of the new company, Engineers Without Borders (Hong Kong) Limited was finally incorporated on 12 August 2015.

35. Central Filing

The Central Filing System was practically stopped in operation since the volunteers responsible left one after another. It will be picked up only after recruitment of new volunteers.

– 0 – 0 – 0 –

Prepared by: The Board of Directors, Engineers Without Borders (Hong Kong) Limited

Date: 10 October 2016