

PMHAZE

Annual Report 2022

Contents

PM Haze's Vision and Mission	3
About PM Haze	3
Governing Board.....	3
Governing Board Meetings.....	3
Roles and Responsibilities	4
Objectives.....	4
Policies	4
Funding Sources.....	4
Memberships	5
2022 Year in Review	5
Staffing.....	5
Outreach and Education	6
Programmes and Activities.....	6
Talks and Workshops at a glance	6
Community Events at a glance.....	8
Peatland Restoration Programme.....	11
Media Exposure (Digital and Traditional).....	17
Research.....	18
Financials.....	19
Future steps.....	20

President's Message

Dear Friends,

As we mark the end of pandemic measures in 2022, we also bid farewell to our Executive Director, Mr Benjamin Tay. I would like to extend our heartfelt appreciation for his invaluable contributions over the past three years. Under his leadership, our peatland restoration programme progressed smoothly and our haze-free foodstand campaign took off, thanks to his efforts in securing Packard Foundation as our outreach partner. We wish him all the best in his future endeavours. In his absence, I will be taking on the role of Executive Director until a suitable replacement is found. Additionally, we are delighted to welcome Ms Maznah Masop, our Director of Corporate Services, to assist us in outreach and administrative matters.

This year, we launched the second iteration of the haze-free foodstand campaign, with an expanded reach to many more small and home-based food businesses, encouraging their transition to sustainable palm oil. Furthermore, we have updated our supermarket guide to allow consumers to make informed choices about sustainable palm oil products. We have successfully showcased over 35 businesses and engaged with over a thousand members of the public.

Our restoration work at Sungai Tohor continues, thanks to the dedicated support of our project manager, Mr Azhari, allowing the community to plant almost ten thousand saplings and repair their existing canal blocks. Furthermore, he conducted a survey trip to Kalibandung, West Kalimantan, to assess the feasibility of expanding our peatland restoration efforts in the region. Moving forward, he will be planning our next steps and engaging with the local community.

While we push ahead with our efforts, we are cognizant of the inflationary rise in food prices. As such, we initiated a landscape study to better inform our palm oil campaign. We have also held a strategic meeting to align on the future activities of PM Haze. From our findings, we have decided to refocus our efforts on our peatland restoration programme, which better aligns with our stakeholders and allows us to examine the carbon-related aspects of our work. Nevertheless, we will continue to engage with the community and focus on youth engagement to raise awareness of our peatland restoration programme in Indonesia.

As we look forward to 2023, we anticipate the return of the haze as El Nino makes a comeback. We must prepare ourselves to respond to the haze and will look at establishing a support network. Although we face challenges, I remain hopeful that we will be able to rebuild our team and avoid masks becoming a seasonal wearable. Let us work together towards a haze-free future.

Yours sincerely,
Low Ying Hui

President,

PM

Haze

PM Haze's Vision and Mission

Vision: We envision a world where everyone feels responsible for the clean air we all enjoy.

Mission: We empower people with the values, knowledge and means to drive a movement to stop haze.

About PM Haze

PM Haze is a not-for-profit society registered in Singapore with charity status.

Unique Entity Number (UEN): T16SS0125L

Registered address: 8 Kitchener Link, #19-15, Singapore 207226

Governing Board

Name	Designation	Date of Appointment
Low Ying Hui	President	26 March 2022
Low Ching Chieh	Treasurer	26 March 2022
Yang Yang	Secretary	26 March 2022
Zhang Wen	Director at Large	26 March 2022

Governing Board Meetings

S/N	Meeting Date	Attendance
1	11 May 2022	Low Ying Hui, Low Ching Chieh, Yang Yang, Zhang Wen
2	8 June 2022	Low Ying Hui, Low Ching Chieh (Absent), Yang Yang, Zhang Wen
3	13 July 2022	Low Ying Hui, Low Ching Chieh (Absent), Yang Yang, Zhang Wen
4	10 August 2022	Low Ying Hui, Low Ching Chieh (Absent), Yang Yang, Zhang Wen
5	17 September 2022	Low Ying Hui, Low Ching Chieh (Absent), Yang Yang, Zhang Wen
6	12 October 2022	Low Ying Hui, Low Ching Chieh (Absent), Yang Yang, Zhang Wen
7	9 November 2022	Low Ying Hui, Low Ching Chieh (Absent), Yang Yang, Zhang Wen
8	7 December 2022	Low Ying Hui, Low Ching Chieh, Yang Yang, Zhang Wen

Roles and Responsibilities

President

- Chair all General, Governing Board and Advisory Council meetings.
- Represent the Society in its dealings with external parties.
- Ensure the execution of all resolutions of the General Meetings.
- Develop effective and purposeful partnerships for fundraising and advocacy initiatives.
- Implement good governance structures and planning strategic direction for the society.

Secretary

- Keep all records, except financial, of the Society and shall be responsible for their correctness.
- Keep minutes of all General, Governing Board and Advisory Council meetings.
- Keep an up-to-date Register of Members at all times.

Treasurer

- Keep all funds and collect and disburse all monies on behalf of the Society, in accordance with the Governing Board's directions.
- Keep an account of all monetary transactions by the Society and be responsible for their correctness.
- Ensure all returns and documents pertaining to the accounts and taxation are duly prepared for submission as required by law and within the time prescribed.
- Ensure that policies and procedures laid out in the Society's Finance Code of Practice are adhered to.
- Will be required to audit each year's accounts before it is presented during the AGM.

Objectives

People's Movement to Stop Haze, known as PM Haze, is a charity focused on outreach, research and advocacy on the transboundary haze crisis. Our mission is to drive a movement to stop the haze by empowering the community with the knowledge, means and values.

Steering consumption patterns towards sustainable palm oil and paper, as well as assisting Indonesian and Malaysian farmers to create a sustainable livelihood are the two main ways we empower our community.

Policies

Funding Sources

PM Haze is financially supported by the Singapore Institute of International Affairs, the David and Lucille Packard Foundation and donations from private individuals.

Memberships

We operate a by-invitation-only membership structure where we involve people from Singapore that are passionate about solving the transboundary haze and can contribute their capacities and capabilities towards our cause.

PM Haze's activities are open to public participation. Talks, workshops, and community events are also conducted for the public for the purpose of raising awareness and advocacy on the root causes of transboundary haze.

2022 Year in Review

Staffing

Our manpower resources in 2022 are made up of full-time executives as well as part-time associates and interns. Earlier half of the year in May 2022, we saw the resignation of our Executive Director, Mr Benjamin Tay. Special thanks to Mr Tay for his contribution as our first-elected President before taking over the duties of Ms Zhang Wen in 2019.

Our 2 full-time employees, Ms Atikah Kasim, Manager and Ms Maria Hezri, Executive continued to manage the Outreach and Engagement for the Society while Mr Azhari Ahmad, our Community Development Manager, continued to provide the ground management and training to the communities at Sungai Tohor, Riau, Indonesia, where we carried out our Peatland Restoration programme since 2019.

In September 2022, we engaged Ms Maznah Masop on a contract for services basis to oversee our outreach and peatland restoration programmes and administration of the corporate services, reporting to our stakeholders and engaging other partners in sustainability. In addition, we took in several interns from the local universities to assist in carrying out the tasks of research and outreach programme.

Our volunteer board comprised 4 members who took care of both governance duties as well as actively carried out duties with regards to the Society's programmes and activities. In addition, we engaged volunteer advocates and skill-based volunteers to help in the implementation of both our outreach and peatland related programmes as well as our annual strategic plan discussion.

We could not have achieved all this without the hard work and efforts put in by all staff members, volunteers and interns of PM Haze. We look forward to further opportunities to work with diverse individuals to advocate against transboundary haze.

Outreach and Education

We continued our outreach programme for both offline and online and have achieved the following:

- Generated content for online and media platforms with a total reach of **1,451,454** and a total engagement of **181,111**;
- Organised **20** talks and workshops, and **3** community events with targeted communities;
- Continued to build new partnerships with **14** progressive businesses and make them advocates for haze-free practices.
- Developed a toolkit as a resource material for secondary students.

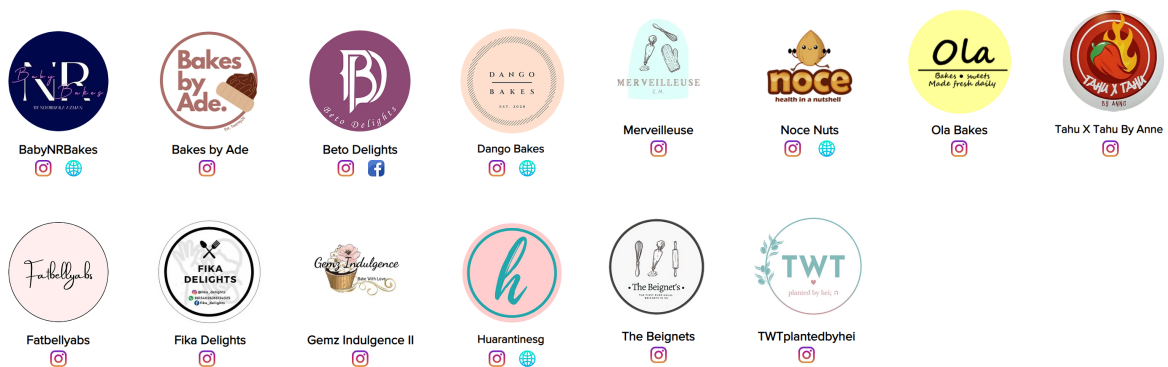
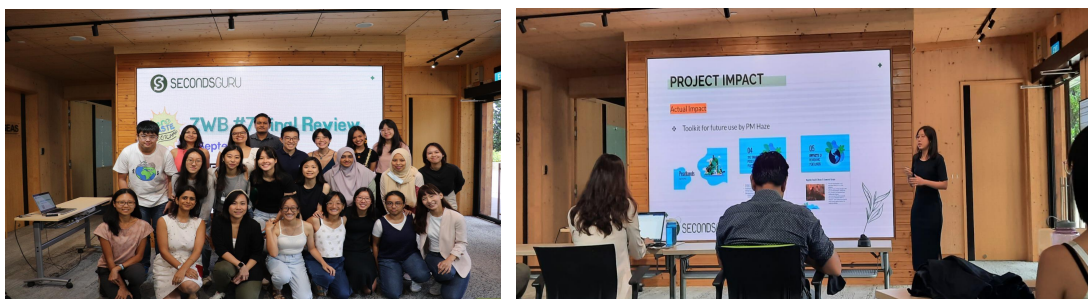


Figure 3. Some of our F&B Partners who advocate for haze-free practices and switched to using sustainable palm oil in their food ingredients.

Programmes and Activities

Talks and Workshops at a glance



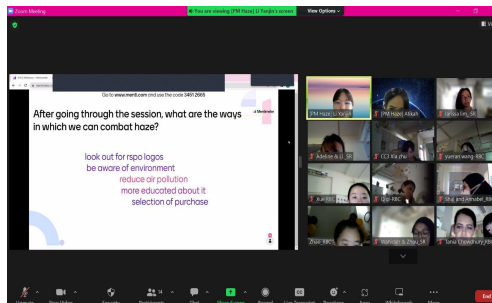
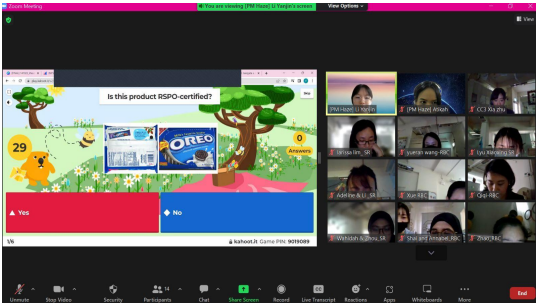
3 Sep 2022 @ Zero Waste Bootcamp



24 Sep 2022 @ PCF SParkletots



12 Oct 2022 @ Rotary Club Singapore

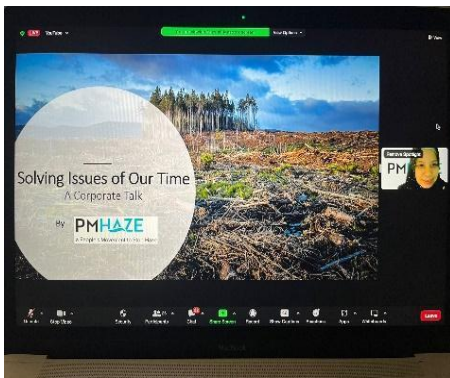


14 Oct 2022 @ My First Skool (Virtual)



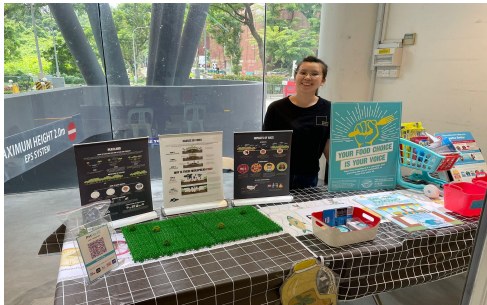
26 Oct 2022 @ SMU

11 Nov 2022 @ NUS



27 and 28 Feb 2023 @ Nu Skin Corporate Talks (virtual & outdoor)

Community Events at a glance



23 Sep to 2 Oct 2022 @ F1 Overdrive @ SCAPE



5 Nov 2022 @ BigV Recruitment Drive @ Woodlands Community Club

Calendar of Events

Our Calendar of events follows our project funding year which is from Feb 2022 to Feb 2023. The list of talks, workshops and community events is appended below:

Date	Event Name	Organiser(s)	Delivered by	Attendance
3 Mar 2022	Haze Advocacy Talk	Nanyang Girls High	Ben	20
4 Mar 2022	Career Awareness Talk	CHIJ OIQP	Ben	200

7 Mar 2022	BEnvOHS Workshop	University of Newcastle Singapore	Ben, Atikah, Maria	20
24 Mar 2022	Panel discussion for final year module, ENV4101 – Environmental Management in Singapore	National University of Singapore	Ben	37
30 May 2022	Zero Waste Bootcamp - Introduction to Peatlands	Secondsguru	Atikah, Maria	6
19 Aug 2022	Zero Waste Bootcamp - Peatlands Toolkit Presentation to Pei Cai Secondary School	Secondsguru	Team Re-Peat, Atikah, Maria, Yanjin	30
23 Aug 2022	Big Hearts Student Care - Pilot Programme (Lower Primary)	Big Hearts Student Care	Atikah, Maria, Yanjin	68
24 Aug 2022	Big Hearts Student Care - Pilot Programme (Upper Primary)	Big Hearts Student Care	Atikah, Maria, Yanjin	43
3 Sep 2022	Zero Waste Bootcamp - Final Review	Secondsguru	Team Re-Peat	35
24 Sep 2022	PCF Sparkletots Blk 556 Ang Mo Kio - Preschool Staff Corporate Workshop	PCF Sparkletots	Atikah, Maria, Yanjin	14
12 Oct 2022	Corporate Talk - Rotary Club @ Intercontinental Hotel	Rotary Club Singapore	Maznah, Ying Hui	50
14 Oct 2022	MFS Clementi Avenue 5 Blk 339 and 375 - Preschool Staff Corporate Workshop	My First Skool	Atikah, Yanjin	20
26 Oct 2022	SMU Module: Sustainability Law Sharing	Singapore Management University (SMU)	Zhang Wen	48
5 Nov 2022	BigV Recruitment Drive @ Woodlands Community Club - Sharing about Haze-Free Foodstand Campaign	BigV	Atikah, Maria, Amithra	20
11 Nov 2022	NUS ENV1101 Panel Discussion: Creating Change, Activating Communities	National University of Singapore (NUS)	Ying Hui	30
30 Jan 2023, 9, 14 & 21 Feb 2023	8th Zero Waste Bootcamp (ZWB8) - Introduction to haze and peatlands	Secondsguru	Maznah	43
10 Feb 2023	Casa Raudha Corporate Talk	Casa Raudha	Maznah, Amithra	10
22 Feb 2023	SUSS pre-trip lecture - Introduction to haze and peatlands	SUSS	Maznah, Puan Habsah (PM Haze's Malaysian Partner from Muslim Aid)	23
27 Feb 2023	Corporate Talk	Success Group	Maznah	27
28 Feb 2023	Corporate Talk	NK Walkers	Maznah	17
Community events				
3 Sep 2022	Zero Waste Bootcamp (Conclusion)	Secondsguru	Team Re-Peat	127

23 to 25 Sep 2022, 30 Sep to 2 Oct 2022	F1 Overdrive @ SCAPE*	SCAPE*	Atikah, Maria, Yanjin, Athaya, Anne, Maznah, Ying Hui, Yang Yang	117
5 Nov 2022	BigV Recruitment Drive @ Woodlands Community Club	BigV	Atikah, Maria, Amithra	20

Peatland Restoration Programme

PM Haze has laid the groundwork for a peatland restoration programme at Sungai Tohor Village, Tebing Tinggi, Riau since 2019. Our objectives were:

1. To take a scientific approach to community peatland restoration activities
2. To engage the local community in peatland restoration activities
3. To build a network of partners to collaborate in peatland restoration



Our programme has continued to receive support from Singapore Institute of International Affairs to fund our community-centric approach to peatland restoration in Sungai Tohor. The peatland restoration programme has the following impacts:

1. **Reduced fire and haze risks through peatland restoration.** With a two-pronged approach of rewetting and revegetation, the community were able to maintain the water level in the peatlands, and to revegetate the burnt area to increase peat soil humidity and decrease peat soil temperatures. There has been no report of fire at Sungai Tohor peatland forest since the inception of our programme in 2019.
2. **Enhanced community-centric peatland restoration model.** Community members are incentivised and empowered to participate in the peatland restoration activities. The community engagement techniques as well as the rewetting and revegetation techniques learned from the Sungai Tohor project has been documented by us since we piloted the project in 2019. This year, we have compiled our knowledge and developed the Tropical Peatland Restoration Toolkit to be used in other community-based peatland restoration projects in the future.
3. **Increased collaboration among regional stakeholders in peatland restoration.** We had new collaborations with Indonesian organisations this year when we did a feasibility study at West Kalimantan in the process of scaling up our pilot project. They are (a) Natural Capital Foundation Indonesia (YNKI), a non-governmental

organization founded in 2019 that focused on land spatial mapping and land-use planning to support conservation effort, support government's policy and long-term planning for parties that have interests in sustainable land use; and (b) Village Forest Management Foundation (LPHD) Kalibaru to obtain forest management decree in government's social forestry program. Such collaboration will deepen Singapore's contribution to resolve the transboundary haze crisis and co-create a collaborative environment to achieve our Haze-Free ASEAN goal.

Review

Our project funding allowed us to conduct work between February 2022 to February 2023 with the following deliverables:

1. Quarterly reports including progress to date, milestones, deliverables and issues arising from the project and solutions.
2. Final report including the community-centric peatland restoration model.

Peatlands restoration

Establish a nursery with a capacity for 10,000 saplings.

Towards the end of Q4, **9,560** seedlings have grown (or 96% survival rate) while **440** did not survived. The dead seedlings were replaced with saplings gathered from the young forest near the restoration site.



Canal block repairs

We have repaired 3 canal blocks and they are now functioning properly with the sluice gates totally opened so that the upstream water can be thrown off at the restoration site which is also inundated with water during high rainfall. Images below show the current condition of the canal blocks that have been repaired and are functioning properly.



Replanting of burnt peatland area with pioneer species

Throughout PY2022-2023, we have replanted a total of 8,595 saplings. In 4Q alone, we did land clearance and rescued natural vegetation, followed by replanting of 7,745 trees. The

trees planted are a mixture of 33% fast-growing species (pioneer) such as mahang, sebasa, tenggek burung and 67% slow-growing species (climax species) such as meranti, kelat, pelara and others.

Educate and build capacity with the community

Carry out socialization activities and events to build awareness among community. We conducted a total of 5 training sessions and 1 community event throughout the PY2022-2023 with a total number of 137 participants. In 4Q alone, we:

- (a) held a honeybee cultivation training which provides an alternative economic activity as the peat forest is a good habitat for honey and
- (b) organised an event, “Keep Peat from Fire” in commemoration of the World Wetlands Day (WWD). The purpose of this event was to educate the villagers and young people on the importance of peatlands and fire prevention.

Photos below shows the honeybees cultivation training (left) and the WWD event attended by 80 people (right).



Community awareness survey

At the end of 2023, a community survey was conducted to 250 villagers at Sungai Tohor to assess their perception of peatland ecosystems and their role in the program.

Peatland Restoration Community Toolkit

We have also developed a toolkit aimed to give a layman overview of how to plan, develop and maintain a community-led peatland restoration programme for degraded peatlands. This is part of our efforts in knowledge management so that it can be used by others who are interested in developing similar community-led programmes, with a focus to empower the community and enable them to carry out restoration work.

Research & Monitoring

The community members at Sungai Tohor are also involved in monitoring the ecological impacts of the restoration efforts, to determine and understand the critical tolerance and threshold levels of ecological and hydrological systems, and their impact on ecosystem functions. For rewetting, monitoring peat water levels was done via dipwells as it is a simple and effective way of establishing the overall water budget of the site and changes over time,

as well as determining the net effect of changes to hydrology. Subsidence sticks were also constructed to complement dipwell readings for peat subsidence. For revegetation, survival rates and growth measurements of selected individuals of each species are monitored to ensure the seedlings are acclimatising well at the restoration sites.

Plant survival rate in the nursery

Survival rate data were collected from tree seedlings developed in the nursery every two weeks. The data measured included plant status (survived/unsurvived), plant height (cm), stem diameter (mm) and canopy width (cm). Of the 10,000 saplings planted and maintained at the nurseries, 96% have grown well while 4% did not survived.

Images below show the measurement and recording of plant survival rate in the nursery.



Plant survival rate at the restoration site

A total of 8,595 trees have been planted at the site, more than the 3,500 trees planted in 2022. Images below show the land clearance and tree planting activities.



Plant Growth Measurements

The plants at the restoration site grew well. Wet soil conditions have a good impact on plants to grow and develop. Good growth is not only in pioneer plants, but climax plants also grow well under the naturally formed shade. The measurement of plant growth, both in height and diameter of stem, is carried out every quarterly.

Images below show, on the left, the picture of plant growth measurement while the rest show pictures of some trees planted that grow well like selumar, resak and meranti.



Peat Water Levels

The peat water levels are measured every month at the restoration sites. The figure below is a record of the water level measurement at the 2 peatland restoration sites, Site I and II, from Jan 2021 to Jan 2023. Both sites show a general declined of the peat water level which is a positive effect of our rewetting work. The recommended peat water level in reducing the risk of fire is between 50 to 60 cm from the peat soil surface. We have indeed attained lower than 50cm level at both sites attributed by the high rainfall period. This 2-year record has proven that our canal blocking work has indeed produced a positive net effect of changes to hydrology at Sungai Tohor which helped in mitigating fire risk.

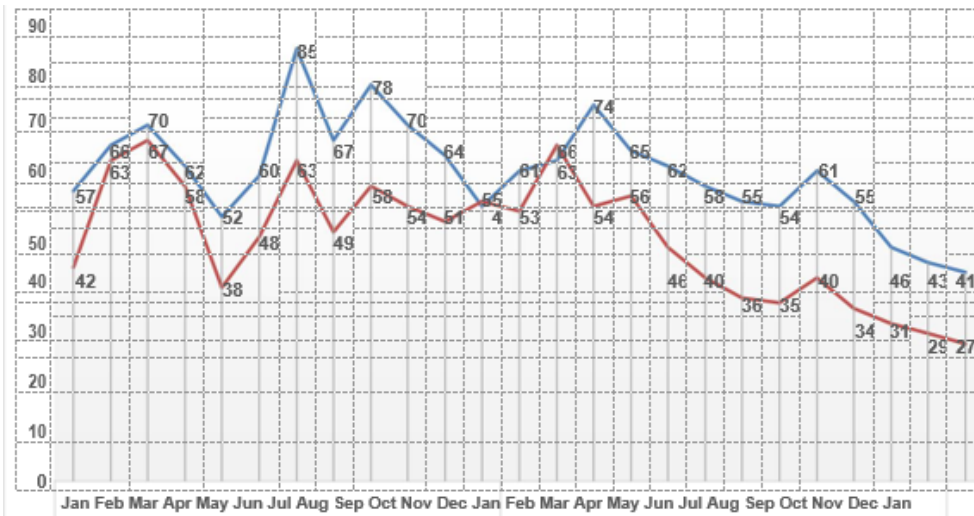


Figure 2: Peat water level observed at Site 1 and II between Jan 2021 and Jan 2023

Date	Jan22	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Okt	Nov	Des	Jan 23	Feb
SS1	106	106	106	106	106	104	104	101	100	100	106	107	104	104
SS2	103	102	102	102	102	100	100	100	100	100	102	102	101	101
SS3	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SS4	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SS5	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SS6	101	101	101	101	100	100	100	100	100	100	101	101	100	100



Peat Subsidence Levels

Subsidence sticks have been used for the monthly readings of peat subsidence. The table below shows the record of the peat subsidence level in a slightly more than 1 year period, between Jan 2022 and Feb 2023, reflecting land stability attributed by the revegetation work, strengthened by the tree roots, and not “disappeared” due to deforestation. Figure below shows the process of measuring peat subsidence carried out every month.

We have laid the groundwork in the peatland restoration programme and will continue to update our progress in the next annual report and track the impact of our programme very closely.

Survey of village at Kalibandung, West Kalimantan

Study trip to Kalibandung, West Kalimantan between 13 and 18 May 2022 to assess problems and opportunities and potential development of the community-led peatland restoration work in the area. From this study, PM Haze hopes to expand its work beyond Sungai Tohor community in FY2023 onwards.

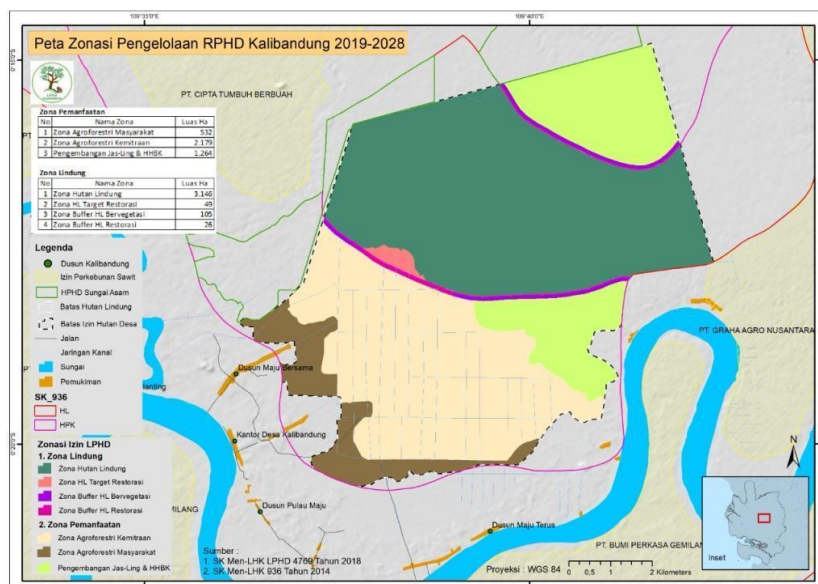


Figure 3: The area of Kalibandung village including the village forest with a total area of 12,000 ha

Media Exposure (Digital and Traditional)

Review

Social media reach for all activities	1,451,454
Social media engagement for all activities	181,111

With the support of Packard's Foundation, in 2022, we continued to forge a partnership with local marketing agency, Patata-ta-ta to improve our social media presence. Our aim is to generate materials that allow for better understanding of the haze issue and promote solutions at the consumer level. We want to promote business and market transformation, providing resources for businesses and consumers to go haze free. We attained beyond our target in terms of social media reach and engagement on Facebook and Instagram through our 3 accounts namely @hazefreefoodstand, @pmhaze and @protectourpeatlands.

For our peatland restoration work at Sungai Tohor, we were constantly featured by the local media, providing exposure and updates of the community-led programme at Sungai Tohor. There was a total of 4 media reports there.

Figure 4. Two news in the local media about the activity by PM haze and EKA in October 2022



Figure 5. The World Wetlands Day (WWD) event received media attention and was mentioned by 2 local media, [SinkapInfo](#) and [Alreinameia](#).



Research

Review of sustainable certifications in Singapore

In this research, we aim to understand how sustainable certifications in Singapore engage stakeholders. This is done via in-person or email interviews with the following organisations: Forest Stewardship Council (FSC), Programme for the Endorsement of Forest Certification Schemes (PEFC), Rainforest Alliance (RA), and B Corp (BC). Singapore Environment Council (SEC) declined to participate.

The key findings of our interviews are:

- Almost all respondents believe that engaging the supply side (brands, suppliers, farmers, etc) and/or policymaking side will result in higher impact compared to the demand side.
- The most important performance indicators for certification bodies are the number of certified companies (and product lines), not the amount of certified goods sold, as it may not be possible to obtain this information.
- Currently, there is low uptake of certified sustainable goods, despite highly educated and high awareness of the public on sustainability issues. Cost (and sometimes quality) is still prioritised over sustainability.
- Challenges faced include lack of awareness on sustainable certifications and their labels, lack of enforcement, and certification costs.
- Environmental non-governmental organizations (ENGOS) can contribute to greater awareness by advocating for their importance, partnering with businesses and stakeholders, and providing education and support for certification implementation.
- Involvement of marketplaces (online and offline) to promote certified products is key.

These findings revealed that there remains a large gap in the public's awareness on sustainable certifications and translating knowledge into action.

Objectives of Palm Oil Landscape Study

Supported by Packard's Foundation, we started a research project on the landscape of sustainable palm oil consumption in Singapore by identifying key sectors and the factors affecting the demand for sustainable palm oil in these sectors. The research also aimed at:

1. Exploring the current practices in respect of sustainable palm oil in these sectors and the opportunities to do more, by using case studies.
2. Developing deeper insights into the online shopping platforms sector and to find effective ways - by way of a survey - to encourage an increased adoption of sustainable palm oil products through these platforms.
3. Critically reflecting on the role of certifications in encouraging sustainable consumption by businesses and ensuring production by plantations, as well as its effects on the livelihoods of people living in the affected areas.

The results of the landscape study will inform our outreach strategy moving forward.

Financials

Transactions

The Charity has total funds of \$309,002 for the year ended 31 December 2022. The largest expenditure is staff salary totalling to \$120,994, followed by ground projects expenses totalling to \$30,099. Largest income is from grants \$74,700, followed by speaker fees totalling \$28,900.

Plans and Commitments

The Charity and its Board is committed to maintain a healthy cash flow for its core activities by monitoring its income closely and taking the appropriate measures to ensure that the Charity remains solvent. Such measures include and are not limited to alternative sources of institutional funding, income streams from donations, crowdfunding and educational trips. Expenditure will be limited to staff salaries and project costs for ground projects and outreach activities.

Future steps

At the Annual Strategic Meeting held on November 19, 2022, it was collectively decided that the primary focus of our efforts would be directed towards peatland restoration work. Additionally, we resolved to incorporate carbon narratives into our communications strategy, both online and on social media platforms, as well as offline in the organization of talks and educational events.

Collaboration with local and regional partners remains integral to our campaigns, with a particular emphasis on cross-promotion wherever possible. In order to ensure the long-term sustainability of our peatland restoration projects, we intend to train locals to carry out ground projects. Continuation of knowledge sharing between our partners is seen as a valuable opportunity for all parties involved.

Despite facing challenges in attracting talent, we remain committed to our objectives and will conduct ad-hoc activities upon request while refraining from participating in roadshows. However, we will continue with overseas trips and possibly expand locations to multiple sites across Indonesia and Malaysia.

Furthermore, we have resolved to focus on working with the NUS Centre for Nature-based Climate Solutions on a peatland restoration study. This strategic collaboration will be instrumental in deepening our scientific approach to peatland restoration work and building capabilities to support carbon-offset related projects in the future.

As the haze season approaches, we are also taking proactive measures to build a support network consisting of organizations that can respond quickly to the haze, safeguarding vulnerable members of the public from the health impacts of the haze.