TAY JUHANA FOUNDATION

ANNUAL REPORT 2020

NURTURING OUR FUTURE AGRICULTURE

CONTENT

& VISION MISSION

Our Vision

An ensured **food security** for humanity and the achievement of relevant Sustainable Development Goals through environmentally, socially, and economically **sustainable agriculture** system of **suboptimal** wetland, lowland, and flatland.

Our Mission

Catalyze **research and development** to advance sustainable agricultural innovation on suboptimal wetland, lowland, and flatland.

Educate all the relevant stakeholders on effective water management system in wetland agriculture.

Provide **consultancy** for independent and collaborative works on sustainable agriculture practice of suboptimal wetland, lowland, and flatland.

Facilitate the **advocacy** to stimulate change towards food resilience through relevant policy recommendations.

FOREWORD:
NURTURING OUR FUTURE AGRICULTURE

Within this past year, a lot of things happened. The arrival of Covid-19 affects not only our physical health but also many aspects of our life - from mobility to mental health. The nature of this pandemic made the world slows down, to the point it almost stopped. A similar situation is reflected in our agriculture sector, where Covid-19 causes a large-scale disruption to our agriculture and food chains in the system. To adapt to this change, all relevant stakeholders need to bounce back and strengthen the effort to ensure people are still getting food on their plates.

The pandemic has exposed further the vulnerability of our food-agriculture system. The story of the challenge stems from the green revolution almost a century ago. This agricultural revolution shed light on fulfilling people's food demand, yet the way we produce the food has become great pressure for Earth. The whole process from field to plate of our food needs to be transformed if humans want to live longer on this planet. In taking measures to improve food-agriculture system, the focus should be on increasing resilience to respond and adapt to disruption.

> "The way we nurture our agriculture system should be based on science and real-life situations coupled with an innovative approach to adapt in the uncertain future.

At TJF, we take our role to take care of the agriculture system and safeguard food security. We go back to basics and delve into the problem that hampers people's access to food. The threat of food crisis due to pandemic urges us to find the right answer based on both science and real-life situations.

Practicing sustainable agriculture is insufficient when we need to be innovative and adaptive - just like TJF's **marathon maneuver to promote food production in suboptimal lands** as one of the remedies in moving forward in this world full of unknowns.

Warm regards,
Board of Directors

PRELUDE:
A BUMPY RIDE CALLED 2020

At the end of 2019, we resolved to further manifest our effort in promoting sustainable agriculture in suboptimal land. Even our strategy for 2020 focused on grounding our research and reaching out to more audiences for knowledge dissemination. And then, the Covid-19 pandemic arrived. In a year where we plan to take more actions, the situation limits our movement.

Covid-19 arrived in early 2020 and brought change to the way we work. Being flustered for a while, our team was quick to adapt and develop the necessary protocol as a work guideline. This protocol is thoroughly utilized to support our foundation. Afterward, we realized that we need to re-strategy our plan for the rest of the year since we need to carefully consider the pandemic risk toward most of our offline activities. Subsequently, our resolution is to push forward and leverage the online platforms to continue nurturing safeguard food security for us and the next generation.

Nevertheless, our fight did not end there. Nowadays, with the abundance of information online, we compete to get attention. It became our utmost challenge in finding ways to carry on with the research and dissemination of the results. All to pursue our goal to make food production in suboptimal lands a norm.

> “After the needed restrategy due to Covid-19, we resolve to push forward and leverage online platform to continue our work nurturing the future of our agriculture.

Therefore, this annual report will provide you with a comprehensive yet compact narrative of our efforts this year in advancing our dream. We promise to **continue promoting suboptimal land to achieve the greater good:** improving global food security while combating the adverse effects of climate change and building self-sufficient communities.

TJF strives to promote suboptimal land to play a key role in achieving our food security, but what is it exactly?

sub·op·ti·mal land

/səbˈäptəməl land/
noun

Our Earth's terrestrial surface **with low productivity and reduced economic return that severely limits the agricultural uses.**
At a glance, it cannot seem to be utilized – be it too wet, too dry, too acidic, yet it can be optimized after proper and sustainable water, land, and crop management

OUR STRATEGIC RESEARCH

> “Research has always been TJF’s core and center

For an organization that aims to improve people’s awareness and knowledge on such a relatively **esoteric topic,** research has always been TJF’s core and center. Research is used as an instrument to advance the organization’s learning process, as the base for knowledge-sharing activities with peers and audiences.

We have conducted desk and field research in a range of themes pertinent to food and agriculture issues, especially in suboptimal land such as peatland. The following are the highlights of our strategic research in 2020.

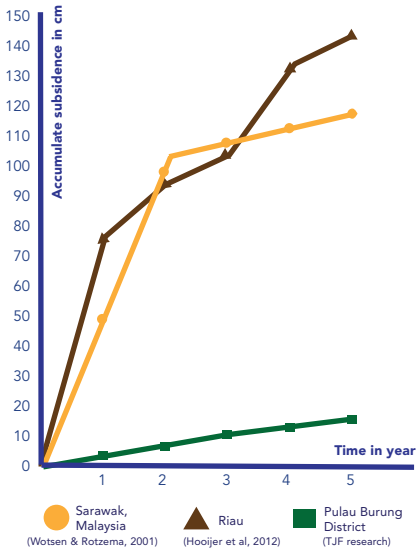
CARBON BALANCE OF PEATLAND AGRICULTURE

Peatland is an accumulated organic matter ecosystem under permanent water inundation. The land plays an important role in our life on Earth. One of the often highlighted is carbon storage. Despite the vital role, peatland all over the world is deteriorating. In Indonesia, peatland degradation is mainly due to over-drainage in land conversion into agriculture.

The impact of over-drainage leads to many catastrophes – flood, drought, subsidence, wildfire, and huge carbon release. In peatland, a low water table means a high subsidence rate, which also means higher carbon emission.

The knowledge of the carbon loss from agricultural activities in peatland is fragmented. Meanwhile, TJF understands that there are ways to safeguard peatland agriculture to be sustainable. The sustainability principles must consist of environment, social, and economic dimensions.

The challenge of peatland agriculture is often associated with minimizing carbon emission. The principle is to maintain high productivity without causing severe environmental degradation, and **this involves high water table maintenance** to reduce fire risk. Understanding the effect of water resource management on carbon loss also means understanding the sustainability of peatland agriculture.



The regulated water level in Pulau Burung minimizes subsidence rate, up to 40-70% compared to other area. Esp. during initial years of cultivation, where other peatland areas lost up to 100 cm.

RICE FARMING IN PEATLAND

The future of global food production is expected to fulfill 9.7 billion people by 2050. Agriculture intensification became the main strategies for providing food. However, intensification may degrade the lands because they exceed their capacity. Further, 24.3 million hectares of arable land globally have been converted into urban area in 1992-2015.

Since intensification has a limit in generating maximum yield, extensification is inevitable. Extensification means increasing food production through the expansion of new agricultural land. This is not deforestation. In fact, the practice should utilize the abandoned and degraded land to be enhanced for farming, such as suboptimal land.

“The rice distribution in our village totally depends on water transportation. It’s hard to cross the sea with strong wind and the canal is often covered with eceng gondok. It would be great if we can grow our own rice.”

A women farmer of one of Pulau Burung’s villages

Food security in Indonesia is highly associated with rice production. Over the years, the escalating number of rice consumption has raised concerns about production capacity. One of suboptimal lands that can serve for rice farming is peatland. Yet, **peatland agriculture has always been controversial,** especially since the failure of the Mega Rice Project (MRP) in 1996.

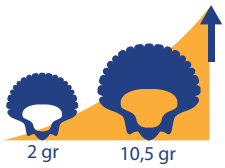
Research related to rice cultivation in peatland is also limited despite its opportunity. Rice farming in peatland must be implemented carefully to ensure the optimum yield of productivity. Our research in peatland in Pulau Burung District explores viable farming methods in managing the water, land, and crop varieties to produce rice sustainably. The result indicates rice varieties of Mekongga and IR64 are persistent to acidic water and pests. Yet, in the long run, food security can be enhanced by growing pineapple, corn, and tubers.

FARMER EMPOWERMENT IN AQUACULTURE

Aquaculture fisheries have been providing a vast contribution to Indonesia's economy and food production. While it is good news, the aquaculture sector's extensive development drives the aggressive mangrove conversion into unsustainable growth. A mangrove swamp is part of suboptimal land seen as unproductive but inherently has enormous ecosystem services, including food production.

Central Java is among the largest domestic producers with nearly 500,000 tons of aquaculture yields in 2017. This hefty contribution also comes with a challenge as abrasion and robs flood have adversely affected the farmers' ponds. The ponds have been severely damaged due to land subsidence, flood, and decreasing water quality. Despite the situation, the farmers were still seeking solutions to make their ponds productive again.

Our research delves into one way to help the farmer by empowering them through coastal field school (CFS). The school supports the farmers observe what kinds of aquaculture products are viable for their local condition, how to sustainably cultivate them, and produce higher yields that positively affect their income. CFS facilitates the farmers to identify the problem they face and how to address them by **translating their ideas into actions.**



Increase the average weight of blood oyster up to

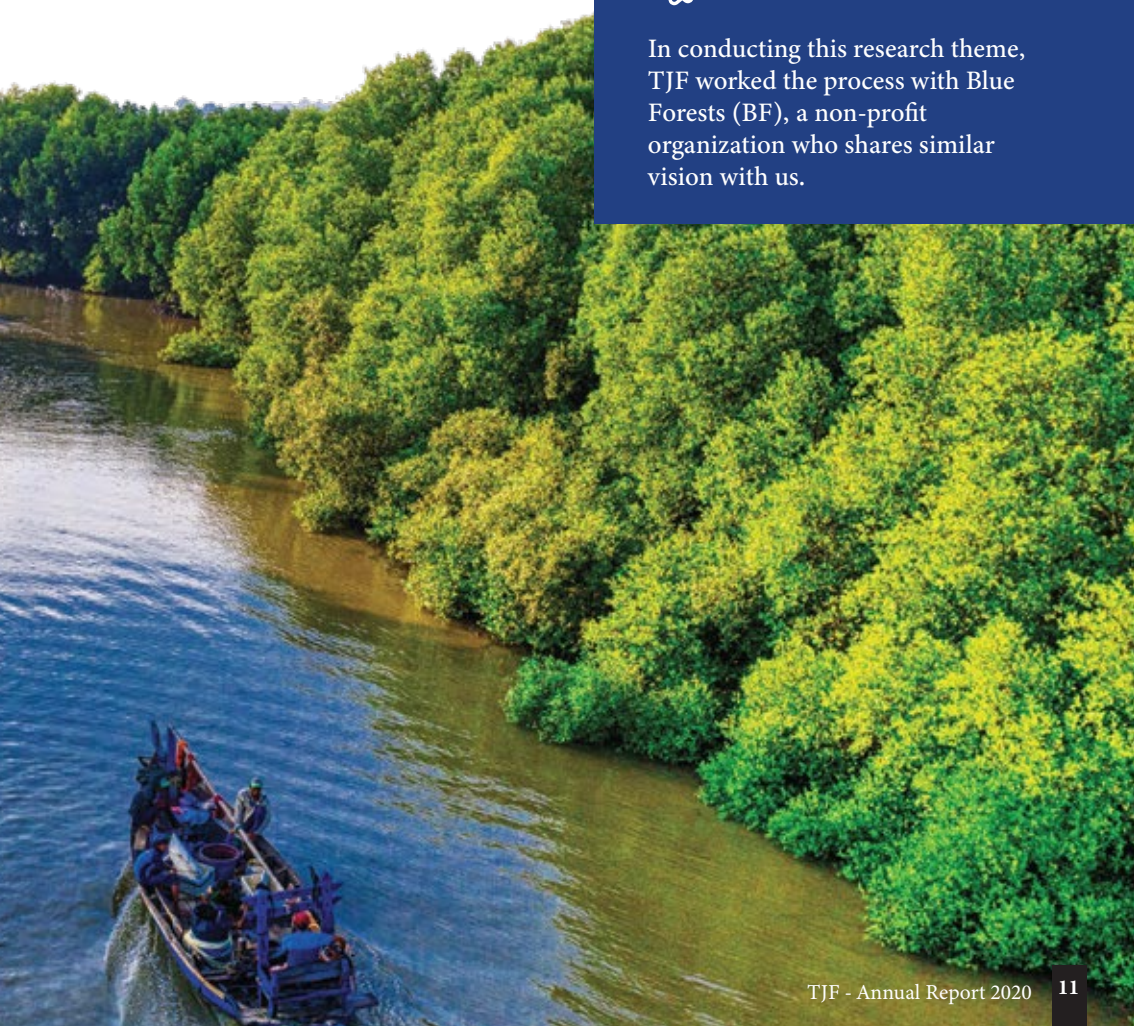
65%

Increase net income up to

30%

In Partnership with Blue Forests

In conducting this research theme, TJF worked the process with Blue Forests (BF), a non-profit organization who shares similar vision with us.



#KAWAL LUMBUNG PANGAN

A.k.a. #EscortingFoodEstate. This initiative to create this platform stems from our concern about the government of Indonesia's plan to implement food estate.

foto: http://balitjestro.litbang.pertanian.go.id/

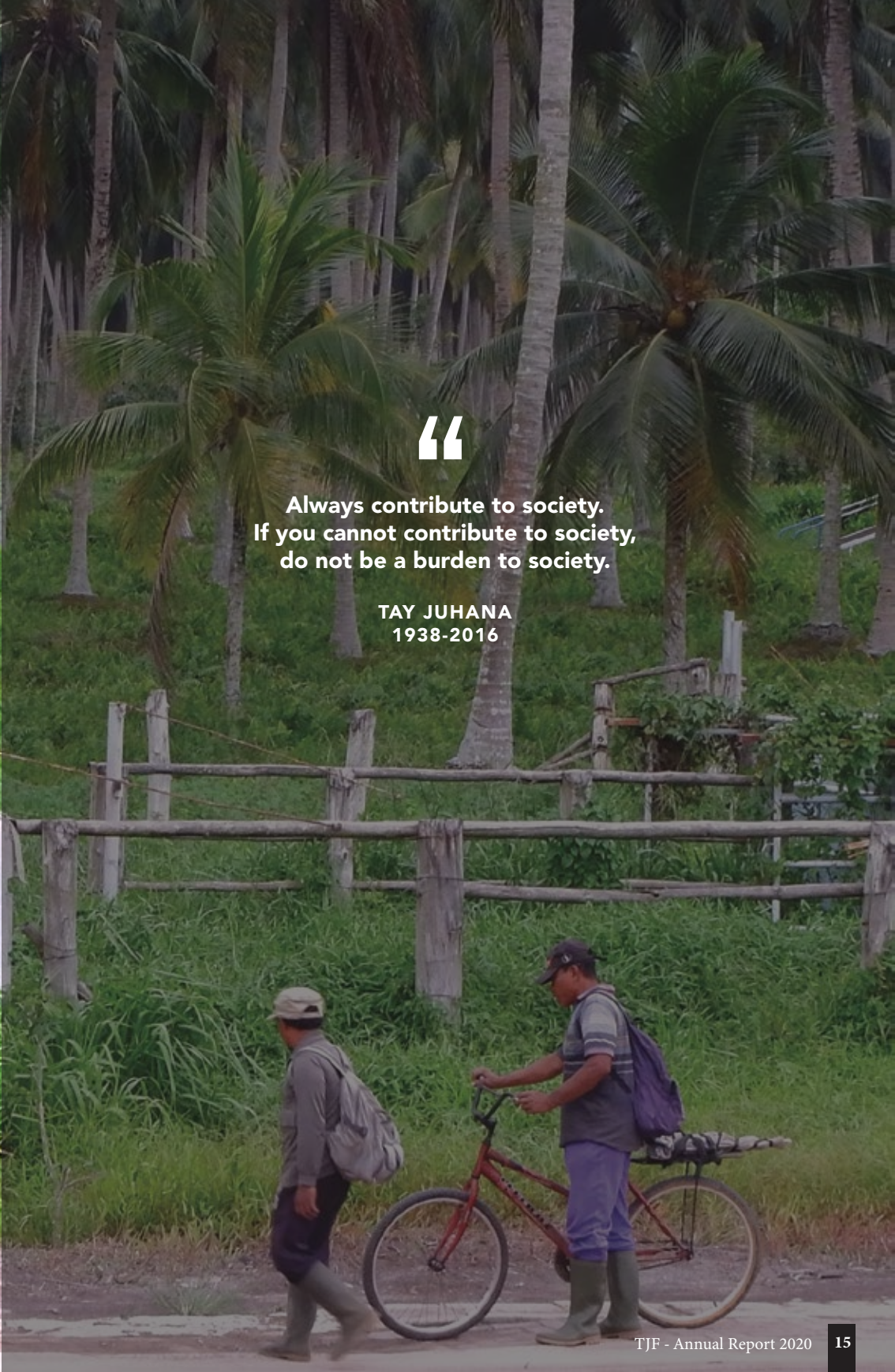
> We strive to reach all relevant stakeholders and advocate the best practices of addressing the food challenges

The particular case of the food estate plan in Central Kalimantan brings a lot of attention due to the past experience of similar initiatives. Not only the type of land in Central Kalimantan is complex for agriculture, but the **minimum involvement of local people** also made this plan prone to liability and thus should be closely guarded.

However, this platform's objective is not only specified for the establishment of the food estate plan in Central Kalimantan. Beyond, we strive to reach all relevant stakeholders and advocate the best practices of addressing the food challenges.

To fuel the discourse to ensure fair and sustainable implementation of the food estate plan, #KawalLumbungPangan leverages our platforms' online reach. Its main outlet is on TJF's website, where we can archive the conversation about the efforts. In addition, we update the latest news on our Instagram feed.

Our KLP updates on social media and website have received **feedback 267 times.** The live discussion about food estate was attended by >20 participants.

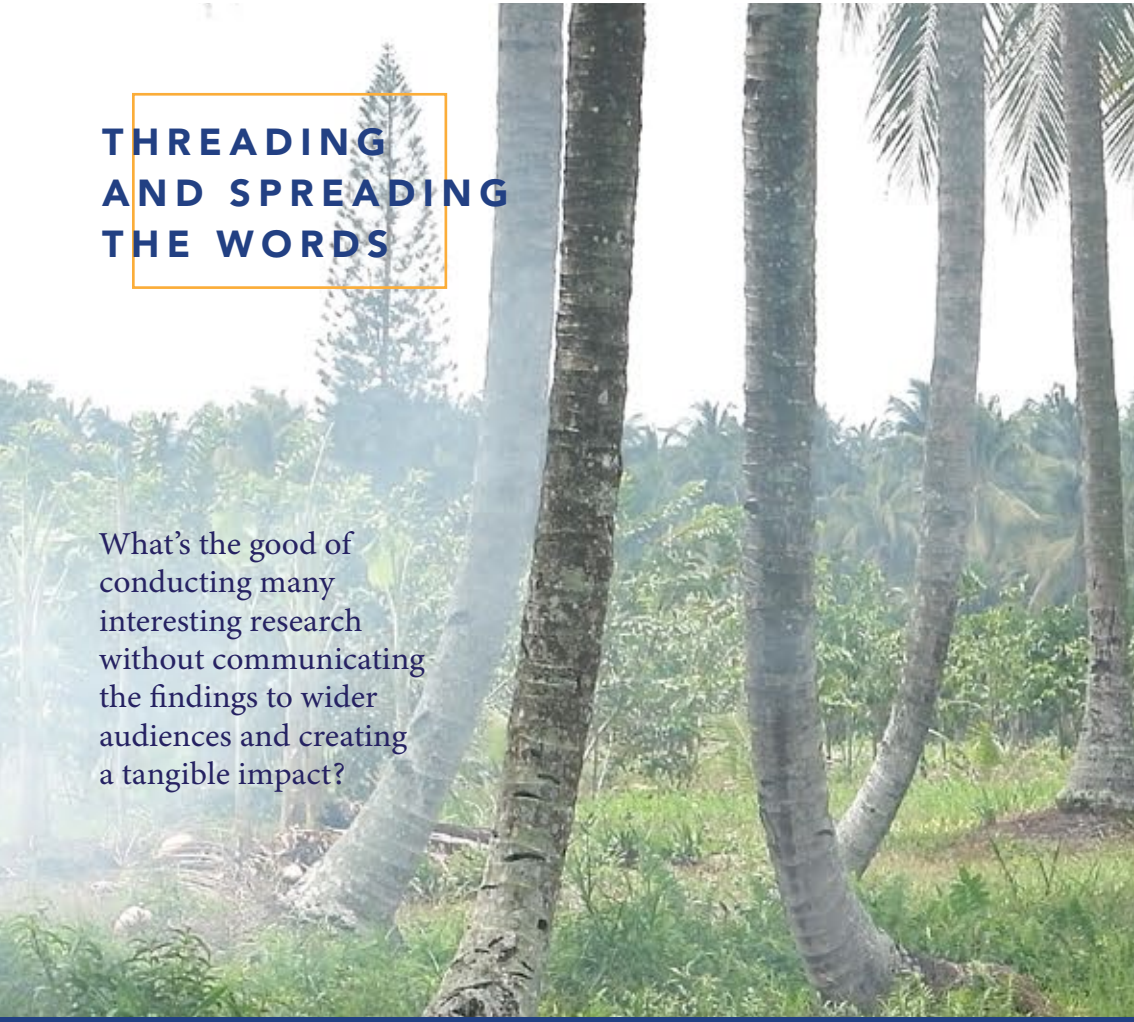


“

Always contribute to society.
If you cannot contribute to society,
do not be a burden to society.

TAY JUHANA
1938-2016

THREADING AND SPREADING THE WORDS



What's the good of conducting many interesting research without communicating the findings to wider audiences and creating a tangible impact?

Among the targeted audience, there is still an apparent gap in understanding the causes that TJF supports. The first step to close the gaps is to make available the tools to help various people with various backgrounds comprehend the reasons.

We tailor-made the contents for different audiences: from scientific articles, colorful infographics, audio visual narration, and interactive talks. By actively tailor-made the content and disseminate the findings from our research through multiple platforms, TJF aims to narrow these gaps.

BRIEF AND PROCEEDING

As our commitment to being always innovative and evidence-based, the organization's backbone is none other than the research. It is fundamental to produce such articles based on the scientific method. As part of scientific articles that we write, we regularly publish 'TJF Brief,' a 4-6 page summary about selected desk research.

We have also managed to publish some scientific articles in an indexed journal for proceeding.

Our newest and groundbreaking research titled "Minimizing carbon loss through integrated water resource management on peatland utilization in Pulau Burung, Riau, Indonesia" is now available for citation in **Environment, Energy, and Earth Science (E3S) Web of Conferences.**

OUR 2020 BRIEF

- COVID-19: Implication to Food Security
- COVID-19: A Zoonosis Related to Deforestation and Foodborne Disease
- Strengthening Farmers Resilience and Rural Food System in Response to the Pandemic
- How Diversification Helps Preventing the Food Crisis?
- Suboptimal Land Series: An introduction to sustainable agriculture practice on suboptimal land
- Suboptimal Land Series – Part 2: Can we practice sustainable agriculture on suboptimal land?

Scan **here** to find more about our publication

In total, our publications in 2020 have been read and downloaded 900 times, recommended 7 times, and cited 5 times.

INFOGRAPHIC SERIES

In ensuring that the knowledge that reaches the people is easily understood, we make efforts to translate the knowledge into something **easily perceived** with the right context.

Therefore, we made a series of visualizations to explain the findings from our research and collaborations. These infographics series include our research themes, from carbon in peatland agriculture, farmer empowerment in coastal area, food diversification, to agriculture in suboptimal lands.

In 2020, we have two special themes namely Peatland Series and Mangrove Series, where both have received feedback 385 times.

Scan **here** for more of our infographic

SCIENTIFIC CONFERENCE

Academic events such as conferences, seminars, and paper presentations are great mediums to **deliver our research results** and ideas to a broader scientific community.

Due to the pandemic, some events this year were postponed or canceled while others adapted to virtual ones. In 2020, TJF participated in 3 international conferences where we also submitted papers for proceeding.

We realize the importance of video quality through these virtual events to convey our findings' main ideas.

27-28 October 2020
The 6th International Conference on Tropical and Coastal Region Eco-Development with the theme "Sustainable Development in Coastal Area"

We are among 118 papers accepted for the event.

13-14 October 2020
The 3rd International Conference on Sustainable Innovations with the theme "Resilient Agricultural Practices to Strengthen Food Security"

We are among 64 papers accepted for the event.
Our team received 'Best Presentation Award'

7-8 September 2020
The 6th International Conference on Science and Technology

We are among 187 papers accepted for the event.

Scan here to watch more of our videos

T-TALK

Scan **here** to watch more of our videos

TJF Talk, or T-Talk, borrows its spirit from the famous T initial event as the knowledge-sharing platform in a rather informal setting and using layman language. By organizing T-Talk regularly, the members are accustomed to identify themes about our causes, conduct independent desk research, and communicate the findings.

The last two T-Talk were conducted virtually with recorded videos uploaded on our Youtube. The effort not only enriched the capacity the team had but also trained the team to communicate effectively. In the long run, T-Talk will be held for a larger audience to support further the team's ability to **influence the community and the decision-makers** using science-based insights.

INSTAGRAM LIVE

Once in a while, we need a **refreshing chat with a friend.** It is even more amazing when we can have a fruitful discussion in this chat. This is what we aim to recreate by having a series of Instagram Live sessions (IG Live) - to make the knowledge dissemination derived from our research and programs to be more casual.

Nearing the end of this year, we did a series of IG Live to discuss peatland agriculture - from the controversy surrounding them to the principle of sustainable peatland agriculture practices. Since these events were made in relaxed settings, our researchers can address more curiosities from the audience who asked questions.

In three events, we have an average of 8-9 people joining our Live. The five recorded videos of IG Live and T-Talk have been viewed 345 times.

Scan **here** for full videos

CHALLENGE'S CALL

There are many ways to appeal to people to support the cause we believe in. One of them is to entice them to join an active engagement, such as participating in a competition and challenge. After all, who doesn't love a challenge?

In 2020, we organized two social media challenges using a **pop-culture approach** yet containing self-reflective messages pertinent to our focus. This way, we wish to increase audiences' awareness and knowledge by exposing the issues pertinent to food security and sustainable agriculture around us and making them relevant.

Two challenges we did in 2020 were conducted during Ramadhan, which is the holy fasting month for Moslems, and to celebrate Independence Day of Indonesia.

During Ramadhan, the challenge engaged the audience to share the picture of their favorite foods and the unlikely story behind them. Meanwhile, the August edition asked the audiences' perspectives about food and agriculture challenges still faced by Indonesia even after 75 years of independence, in the form of a comic strip. From these challenges, not only we obtained the level of apprehension about these issues in public, but we also gained like-minded individuals who could be our allies.

The Winner of Our Comic Strip Competition

The author, Dinni Tresnadewi N., highlights the chain of problem from wasting food that results in decreasing resources for food production.

More than **135 participants** were involved in our 2 challenges.

OUR JOURNEY WITH...

THE PEOPLE OF PULAU BURUNG

Since the inception of this foundation, we bonded deeply with the local stakeholders in Pulau Burung District, Indragiri Hilir Regency, Riau Province. Most of our observations, especially about peatland, were studied in the district and coordinated with Sambu Group's team. Due to the Covid-19 pandemic, we only had a one-time field visit there, back in February 2020. For the rest of the year, we have remote coordination with the people who stay on site. Fortunately, the well-planned collaboration and intensive communication can support the necessary data collection and analysis for the strategic research we conducted.

In Pulau Burung, with the assistance from Sambu Group, we manage to collect findings from these three themes: sustainable coconut plantation in peatland, feasibility of peatland rice farming, and minimizing carbon emissions in peatland agriculture. In the findings, the highlight appears as the underlying principle of sustainable agriculture in peatland is **the way of managing the water resources: preserve, not drain.**

> "Pulau Burung's suboptimal land has an overlapping feature of flat, low, wet, and peat lands. The local people realize that water management becomes the most important aspect for sustainability.

A FOUNDATION CALLED BLUE FORESTS

foto: Blue Forests

Like a child making a new friend at a new school, we are excited to meet a like-minded partner to take one step closer together to the shared dream. The year 2020 is the start of our collaboration with Blue Forests (BF), a non-profit organization with a vision of providing a healthy environment to create resilient communities in critical watershed systems. The intersection of the two organizations lies in both object and subject of our advocacy. TJF and BF can operate in coastal ecosystems that can belong to both watershed landscape and suboptimal lands by their characteristics. In addition, we both put the focus on the people, especially farmers (and fishers).

To converge our focus to answer the long term challenge we face today, our collaboration was decided to **look deeper into aquaculture farmers** in Demak Regency.

BLUE FORESTS
Yayasan Hutan Biru

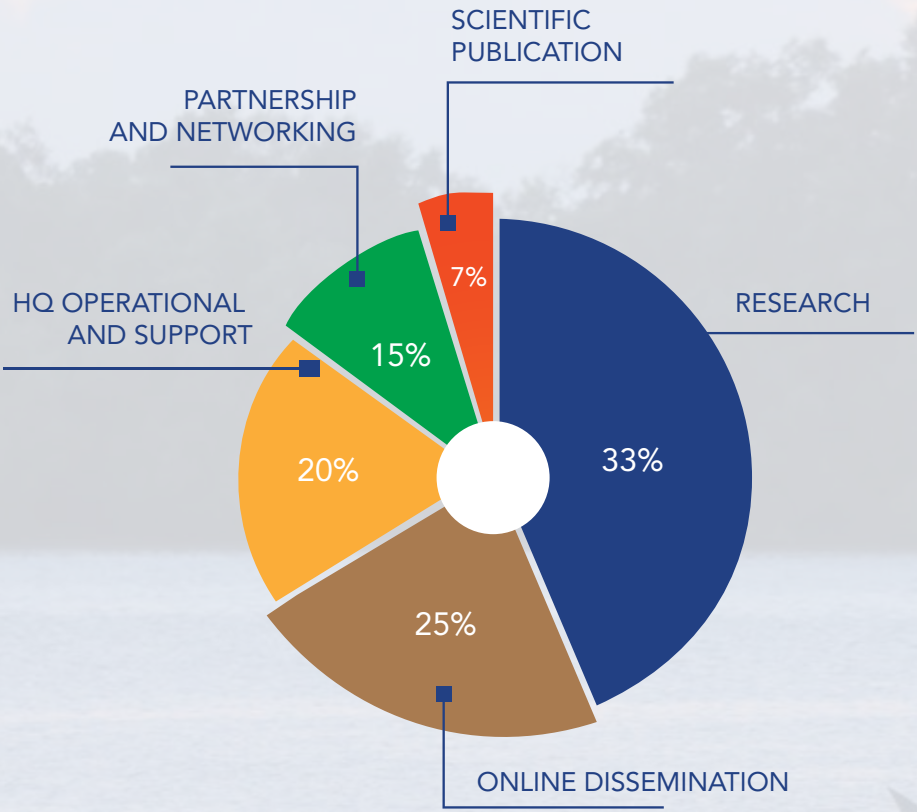
BF had another collaboration in the form of field school which targeted households who depend on their livelihoods to aquaculture but facing environmental degradation - that also negatively affected the pond's productivity.

Again, due to pandemic, the data collection was conducted by BF's field team staying in Demak. The analysis and writing was done mainly by TJF team with the support of BF team for reviewing. In the coming year, our collaboration will continue to examine what we can do to improve farmer resilience.

FUND ALLOCATION

Stepping into our third active year, we prepare to expand our field activities and networks. In reality, we could not realize many of our plans and pivot to push our online presence instead. We endeavored to be resilient and adaptive to make the most of this **unforeseen circumstance.**

This fund allocation compares the percentage of funds for each activity group. It should provide you with insights into our priorities on an aggregated level. TJF's budget realization this year is allocated to five categories, as displayed in the graph.



Note: Excluding salary and allowance of the team

MEET THE PEOPLE

Besides the continuous support from TJF partners, none of the progress in nurturing credibility would have happened without our committed team. Thank you for making everything possible, this year and every year.

General Director
Tay Enoku

Executive Director
Tay Ciaying

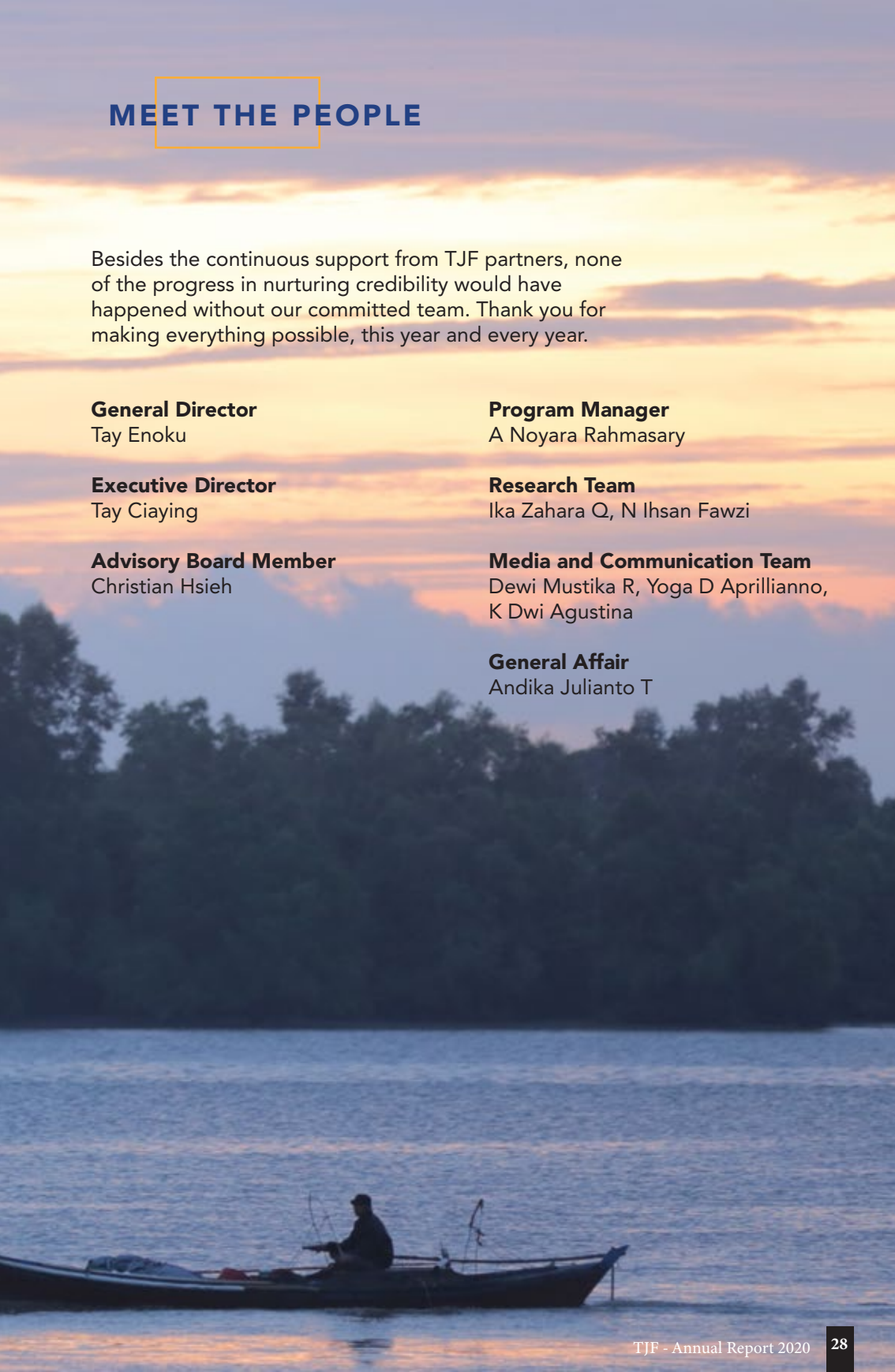
Advisory Board Member
Christian Hsieh

Program Manager
A Noyara Rahmasary

Research Team
Ika Zahara Q, N Ihsan Fawzi

Media and Communication Team
Dewi Mustika R, Yoga D Aprillianno, K Dwi Agustina

General Affair
Andika Julianto T



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