KALEKA

A New Subnational Alliance for Climate Change Mitigation and Adaptation

A Final Report of the IDRC 109103-003 Project Think Climate Indonesia

KALEKA

IDRC · CRDI
International Development Research Centre
Centre de recherches pour le développement international

OAK FOUNDATION

Table of content

1. INTRODUCTION

Kaleka's approach to tackling climate change has been so far focusing on climate mitigation through promoting low emission rural development. Our work aims to reduce greenhouse gas emissions by reducing deforestation and environmental degradation, including the exploitation of peatland and forests. Land uses are the major cause of greenhouse gas emissions in Indonesia. Our work also supports reforestation and the rehabilitation of critical ecosystems in order to reduce greenhouse gas emissions.

We research policy problems such as deforestation, fire, and ecosystem destruction by working directly with the actors who are responsible for managing the lands, focusing on the subnational level in Indonesia. We design policy innovations based on our research and then test them together with government, farmers and local communities as well as businesses. From this collaborative research, we produce research materials such as policy briefs and peer-reviewed publications based on databases of empirical data collected throughout the process. The research outputs are also shared and presented to the national government and ministries to influence national policies, laws, and regulations. These research outputs are given greater weights as they have been proven successful at the subnational level.

Through the IDRC grant, Kaleka aims to expand our focus on the climate-resilient farming system. This is an agricultural system that allows farmers to maintain food production when climate variability hits the agricultural production to an extreme level, for instance, longer drought seasons and excess rainfall in a shorter period. Several issues currently regarding food production under the changing climate are slow growth of crops impacting decreasing crop yields to crop failure and water uses competition between humans and crops. The climate-resilient farming system would become an adaptive strategy to ensure that farmers, the most vulnerable groups, could have less negative impacts on their food production and security by climate-related events such as drought and floods. Our focus on the climate-resilient farming system is specifically related to food production and security. We built our activities on the needs of our local partners such as food production during the drought in Nusa Tenggara Timur, diversification of oil palm farmers in Jambi and Central Kalimantan, and diversification of crops in Sulawesi Tenggara.

In April 2021, Kaleka - in addition to other think tanks including Kemitraan, PATTIRO, WRI Indonesia, and Kota Kita - signed a grant agreement with IDRC and Oak Foundation as part of a project entitled Think Climate Indonesia (TCI) – Organizational Strengthening and Core Research. The project is aimed to strengthen Kaleka's organizational capacity while building a network of

subnational non-government organizations in six provinces in Indonesia that are working in the fields of climate mitigation and adaptation. The specific objectives of the project are as follows:

1. To improve the organizational effectiveness of Kaleka and local partners to carry out research projects on climate change mitigation and adaptation
2. To improve the research quality of Kaleka and local partners on climate change mitigation and adaptation
3. To improve communications and policy outreach for climate change mitigation and adaptation
4. To develop an independent research program and/or strengthen current research initiatives addressing climate -- Building a robust database system from our pilot districts that serve a laboratory for climate action

2. PROJECT ACTIVITIES

To address the specific objectives above, the project carries out activities as described below:

1. A series of training for Kaleka's researchers to enable them to conduct research on climate change mitigation and adaptation. The training includes public communication, scientific writing, and data visualization.
2. A series of training for local partners including Serikat Petani Kelapa Sawit (SKPS), SERABUT Sulawesi Tenggara, Wahana Tani Mandiri (WTM) Nusa Tenggara Timur, Aliansi Masyarakat Adat Nusantara (AMAN) Kotawaringin Barat, and Yayasan Citra Mandiri Mentawai related to research methods, secondary data collection and management, and scientific writing.
3. Building a database system related to climate change integrated to the institutional website to provide access for public audiences and decision-makers. Secondary data collection and interviews with respondents were conducted to understand the impact of climate change at the ground level and the efforts that have been implemented and will be needed for climate change mitigation and adaptation.

3. RESULTS

3.1. Establishing Kolibri Alliance

Our IDRC–Oak Foundation-funded project led to the establishment of the Kolibri Alliance in 2021. The alliance is a network of local (subnational) non-profit organizations that aims to improve farming systems and enable smallholder farmers as well as forest dependent communities, especially women and youth, to enhance their livelihoods while protecting forests in Indonesia. The alliance was initiated by several non-profit organizations, including Kaleka, Aliansi Masyarakat Adat Nusantara (AMAN) Kotawaringin Barat, the Butuni People's School (SERABUT), Serikat Petani Kelapa Sawit (SPKS), Wahana Tani Mandiri (WTM), and the Citra Mandiri Mentawai Foundation (YCMM), as a platform to develop networking among civil society organizations to promote sustainability in research-based policies and expand the impact of real practices on sustainable resource management at the community level. Currently, the alliance has 6 members with the joining of the Aceh Indigenous Community Network (JKMA).

The Kolibri Alliance focuses on developing programs with a positive impact on environmental sustainability and community welfare. Currently there are two initial programs being implemented by each member, namely:

1. Building a network of subnational non-governmental organizations working in the field of climate mitigation and adaptation.

2. Community-based restoration improvement programs carried out by all members of the Kolibri Alliance at work sites.

To harmonize and accelerate the work through 2022, an in-person Kolibri's Coordination Meeting was held in Bali on 27-29 January 2022. Attended by more than 30 participants (19 women, 20 men), we shared ideas of building an alliance of local NGOs to develop research capacity including on climate mitigation and adaptation. On the second day of the meeting, two short coaching sessions on research and finance administration were carried out and attended by 18 participants (12 men, 6 women) of the local partners. The research coaching was intended to introduce approaches on methods development, data collection, and report writing on climate change research.

3.2. Capacity building for the members of Kolibri Alliance

Efforts to improve the quality of research by Kaleka staff and local partners member of the Kolibri Alliance were carried out through (1) training, including English language training, proposal writing, and journal writing; and (2) training for local partners in conducting research related to climate change mitigation and adaptation along with scientific writing, and (3) research meetings and sharing sessions.

1. *Training on English, proposal writing, and journal writing.*

   - Training on English language skills consists of regular and IELTS preparation classes. The training on **IELTS Preparation** was attended by 4 people (1 man, 3 women). Skills gained from the training include comprehensive understanding and exercises to prepare for the IELTS test. The training also improved organizational capacity to engage with the international community, which is critical for accessing international publications in literature review as well as in completing a research project. This training also resulted in a comprehensive report from the language training institution to highlight each participant's improvements and future development suggestions.
   - Training on **Research Proposal Writing** was conducted to prepare our local partners to design proper research projects. Each local partner was represented by 2-3 delegates (average attendance 4 women, 6 men) in each session, which was held periodically from November 2021 to March 2022.
   - Training on **Journal Writing for Scientific Publication Purposes** was held monthly since January 2022 and attended by 15 Kaleka staff (12 women, 3 men). The training was aimed at enhancing the capacity of researchers to publish peer-reviewed articles based on their research results.
   - Training on **Report Writing and Presentation Skills** was attended by 16 people (6 male, 10 female). Skills gained from the training include improved skills for reporting and presenting in English. Participants gained an understanding of how to write a good report and make a presentation fluently in English, which encouraged them to become more comfortable and confident in using English to support their work. The language training institution provided a report to highlight the improvements in participants' English level of proficiency based on the pre- and post-tests as well as progress throughout the training that benefited each participant to keep improving their English skills after the training was completed.

Figure 1. Training material on Report Writing and Presentation Skills

- Training on **Policy Brief Writing** was held on 28-30 March 2023 hosted by PATTIRO (https://pattiro.org/2023/04/ringkasan-kebijakan-yang-efektif-sebagai-sarana-advokasi-kebijakan/?lang=en). A total of 5 representatives (2 women, 3 men) from Kaleka staff and members of the Kolibri Alliance attended the training, which was aimed at providing understanding and skills regarding writing and using policy briefs as a medium for the policy advocacy process. Participants gained an understanding of the process of making policy briefs such as conducting initial identification, transforming research results, building frameworks, writing policy briefs, and reviewing policy writings. Participants were also trained to design and draft policy briefs based on the results of the research that had been conducted.
- Training on **Virtual Meetings and Webinars** was attended by 17 participants (7 male, 10 female). Skills gained from the training include improved skills for organizing virtual meetings and webinars. With these improved skills, participants understood the stages of conducting virtual meetings and webinars optimally and effectively, where online meetings have become the new standard platform in response to the COVID-19 pandemic.

Figure 2. Policy Brief Training hosted by PATTIRO

2. *Training for local partners in conducting research related to climate change mitigation and adaptation along with scientific writing*

- Three training sessions on **Data Analysis and Visualization Using Excel** were conducted in collaboration with the Demographic Institute of the University of Indonesia on 1, 5, and 8 December 2022. The training was attended by in total 24 participants (12 men, 12 women) representatives from Kaleka and local partners. Through this training, participants were given an understanding of basic concepts of data analysis, methods in data processing, distinguishing quantitative and qualitative data, quantifying qualitative data, and understanding the data analysis process.
- Four training sessions on **Scientific Writing** were held on 12, 17, 18, and 26 July 2023. The training was aimed to help in total 24 participants (12 men, 12 women) develop their skills to write and publish journal papers. Participants learned all aspects of writing and publishing scientific articles, including developing a research question, writing a research proposal, learning to write a well presented report, and communicating their content effectively.

Following the research training, the participants were encouraged to conduct independent research to strengthen the capacity to carry out research on climate adaptation. They were asked to prepare a research proposal based on problems identified in each region as well as research objectives and methods. Through preparing the research proposals, local partners were trained to observe their surrounding environment and identify problems related to climate adaptation, energy equity, and poverty reduction. Preparation of the proposal was followed

with data collection, analysis, the preparation of reports, the formulation of conclusions and recommendations, and presentation of research results. The following are the stages in conducting independent research activities by local partners.

Research Proposal Preparation

To ensure high-quality results for adapting to and mitigating climate change across Indonesia, Kaleka and the five local partners have worked closely on developing research proposals in the area of climate change impact in the agricultural sector. The alliance members determined research topics and completed their research proposals. This included research topics on the impact of climate change on gender (SPKS), agricultural production (SERABUT, WTM), and Indigenous communities (AMAN, YCMM).

Data Collection and Analysis

Preliminary data collected through questionnaire surveys are key to unlocking specific mitigation and adaptation strategies unique to locals. Collection of the preliminary data was conducted with three baseline studies on the livelihoods of local communities (Baseline 1), the strategy for climate change adaptation (Baseline 2), and the impact of climate change on selected commodities (Baseline 3)

The Baseline 1 study was completed in March 2022. The preliminary data related to potential commodities from local partners in five provinces was collected using several methods including questionnaire surveys and direct observations in the field, supported by secondary data collected by local partners through in-depth interviews and FGD. The observed potential commodities were identified based on existing livelihoods such as agriculture, livestock raising, utilization of forest products, capture fisheries, and aquaculture, which were further detailed from its potential utilization and the number of farmers cultivating the particular commodity. The Baseline 2 and 3 were also completed. Data collection for the three baseline studies was completed and followed by data analysis and visualization.

Preliminary findings

The livelihoods study was completed and the data were analyzed. Potential commodities that should be further researched as they may be impacted by climate change were identified. The data on climate change adaptation strategies was collected to understand existing local strategies to adapt to climate change. Four aspects investigated were perception of climate change, water management, disaster management, and social network. Three potential strategies that should be further researched as they may be relevant to climate change adaptation were identified: planting more productive crops, maintaining their land, and diversification.

Result Presentation

Kaleka and the five members of the Kolibri Alliance successfully completed their proposals of research and presented their work in May, June, and July 2022. This presentation contributed to improving public speaking for academic audiences. Moreover, this activity is also in part of monitoring and evaluation of their progress in carrying out research as per their proposal.

3. *Research meetings and sharing sessions*

Monthly research meetings were held to discuss various aspects related to research. The meetings were attended by Kaleka staff and on several occasions the alliance members also had the opportunity to join the meetings to ensure the transfer of knowledge among all alliance members. This activity helped participants optimize their ongoing research initiatives and enhance their competency in scientific research practices. Topics discussed in the meetings included how to make effective powerpoint presentations (PPTs), formulate research themes, write effectively for certain audiences, and present the process of collecting, analyzing, and visualizing the results of data analysis.

Two sharing sessions were held to increase the knowledge of Kaleka staff and alliance members and discussed various topics related to researching the impact of climate change on agricultural commodities.

a. Resource Management in Coastal Areas and Small Islands was held on 1 November 2022. The sharing session was attended by 53 participants (31 women, 22 men) from Kaleka staff and six alliance members. Participants gained knowledge about understanding the impact of climate change and developing adaptation strategies for the management of coastal ecosystems and small islands through an approach with socio ecological systems.

b. Integrated Farming Systems was held on 15 December 2022. The sharing session was attended by 52 participants (29 women, 23 men) from Kaleka staff and six alliance members. Participants gained knowledge about introducing a farming system that combines crop cultivation, plantations, animal husbandry, fisheries, forestry, and other fields of science and technology together in one area of land for a certain time unit that is managed in an integrated and ecological manner to obtain increased economic value, efficiency, and productivity levels.

3.3. Strengthening independent research programs

In addition to trainings, developing and/or strengthening independent research programs was carried out through five main activities: (1) building a strong database system from pilot districts that functions as a "climate action" laboratory; (2) managing and developing a dataset to provide a baseline before climate actions; (3) developing protocols for data use, sharing, and access; (4) supporting local partners and target groups in updating the database; and (5) establishing a database for policy related to climate change mitigation and adaptation.

1. **Building a strong database system from pilot districts that functions as a "climate action" laboratory (Climate Field School)**

   To increase the ability of alliance members to conduct research, particularly field data collection, as well as improve their climate literacy and climate information for agriculture, we have successfully delivered the Sekolah Lapang Iklim, Climate Field School, in collaboration with the Agency of Meteorology, Climatology, and Geophysics (BMKG), on 18-22 April 2022, at Buton District, Sulawesi Tenggara. Fourteen participants from six members of our alliance have gained an understanding of climate change and developed the capacity to monitor the phenomena, particularly those affecting their agriculture practices. Each of the participants was capable of transferring their knowledge and skills in generating a wider community concerned with climate adaptation and mitigation.

Figure 3. Participants of Climate Field School with participants from Kolibri Alliance across 6 districts

Upon completing the field school, local partners then disseminated this knowledge to associated farmers, as well as academia and the public in the later stage. Accommodated by a reporting platform developed by Kaleka, Garda Iklim, the public is able to contribute in building a climate database under the climate science activity. Additionally, to support our alliance members in collecting climate related data, we worked with BMKG to demonstrate how an ombrometer works. Each partner then built their own ombrometer using household items and developed their own climate station. It improved the accuracy of rain monitoring and standardized the data collection process across stations.

2. **Managing and developing a dataset to provide a baseline before climate actions**

Involving farmers in building a climate database requires innovative communication. We launched a social media-based platform for collecting citizen reports, under the name of "Garda Iklim," which runs as a Facebook group, considering that farmer communities are quite engaged in this platform. By involving farmers and broader citizens in the process of communicating climate change, it is hoped that the understanding is rapidly spread both vertically and horizontally across communities.

Kaleka also maintained a platform for managing and disseminating knowledge in the relevance of agriculture, environment, and youth called Tanibaik. We moved forward to integrate the two platforms (Garda Iklim and Tanibaik) to provide a one-for-all-purpose site. Farmers, other partners, and our youth community are able to access this integrated platform seamlessly.

We also connected this integrated platform with our social media to facilitate better outreach. From our initial research, farmer communities are more active on Facebook, with the youth on Instagram, while professional partners, such as universities and research institutes, are more active on LinkedIn. By connecting those social media platforms into our new integrated platform, we are hoping to create a larger virtual community with similar concerns in sustainable agriculture and environmental management.

3. **Developing protocols for data use, sharing, and access**

Two data protocols have been prepared in the form of Standard Operating Procedures (SOPs) on (1) the Data Use and Sharing Protocol, and (2) the Data Protection and Use. The first SOP has been completed and rules regarding the data exchange mechanism will be developed. The second SOP has been prepared and approved by all local partners and will be tested.

4. **Supporting local partners and target groups in updating the database**

   To support local partners in updating the database (currently under maintenance in Data and Information of Kolibri Alliance website https://kolibri.or.id), Kaleka provides assistance for local partners to collect Citizen Science data (temperature, humidity, rainfall, width of water bodies). Kaleka also continues to update the Garda Iklim platform, such as by creating the feature Garda Terdepan to make it easier for local partners to access and share data. Collaboration with BMKG also continues to be developed.

5. **Establishing a database for policy related to climate change mitigation and adaptation.**

   The national database will include a district profile that visually displays data variables such as climate, adaptation strategies, and district government efforts and plans to mitigate climate change. District profiles will appear on the Kolibri Alliance website (https://kolibri.or.id), which is currently being beta-tested. In the initial stage, five districts will be displayed, namely Sikka, Kotawaringin Barat, Tanjung Jabung Barat, and Buton. The district profile view is intended to help audiences learn more about the respective districts and the work being done by Alliance members.

4. KEY ACHIEVEMENTS

4.1. Improved research capacity

Kaleka and local partners' research capacity on climate change mitigation and adaptation has improved. Six research activities were completed during the project duration:

1. "Assessing Perceptions and Adaptation Responses to Climate Change among Smallholder Farmers in Indonesia's Climatic Region," conducted by Kaleka, investigates the correlation between factors that influence farmers' responses to climate change and their adaptation in Indonesia. This research aimed to understand: (1) farmers' perception of climate change, (2) their adaptation strategies, such as changing planting times and livelihood diversification, and (3) the driving factors influencing their adaptation strategies. Data was collected from a total of 125 farmers across six districts reflecting the prevailing climate patterns on Indonesia's major island. The binary logistic regression method was employed to clarify the independent variables that influence which strategies are adapted to climate change.

Prior to conducting the statistical test to examine the driving factors influencing farmers' adaptation strategies, a correlation test was performed to assess multicollinearity, which indicates the presence of variables that are highly correlated with each other. The research findings highlight climate information as the most significant factor impacting farmers' decisions to plant more productive plants/intercropping. In addition, gender and education emerge as highly influential factors, indicating their strong impact on farmers' adoption of land maintenance practices. By identifying these key drivers, policymakers can develop targeted interventions to enhance the adaptive capacity of farmers and mitigate the adverse effects of climate change according to their climate pattern.

2. "Livelihood of Oil Palm Society: Study on Women Farmers Adaptation and the Role of Village Farmer Organizations in Coping with the Impact of Climate Change," conducted by SPKS in Tanjung Jabung Barat District, aimed to (1) explore the forms and impacts of climate change experienced by women oil palm farmers; (2) explore the adaptation of female oil palm farmer households to the impacts of climate change such as weather changes, erratic rainfall, floods, droughts, and land fires; and (3) identify the role of institutions in supporting women oil palm farmers in facing the impacts of climate change. Data was collected through in-depth interviews, observation, Focus Group Discussion (FGD), and literature review. The results show that (1) the impacts of climate change that are closely related to and experienced by women farmers are natural disasters that affect access to food and clean water as well as health vulnerabilities; (2) climate change has a significant impact on the productivity of oil palm plants and farmers' production costs; (3) female farmers may utilize and manage family resources but decisions regarding financial management are held by men; and (4) the livelihood strategy for women oil palm farmers is carried out through diversification, extensification, and intensification of agriculture.

3. "The Impacts of Climate Change on Livelihoods of Indigenous Community of Mentawai," conducted by YCMM in Mentawai District, aimed to describe the phenomenon of climate change, its impact on society, and adaptation strategies. Data was collected through the observation of 20 respondents (6 women, 14 men) who described the changing climate in Mentawai islands from the point of view of indigenous Mentawai farmers. The study includes insights on Mentawai farmer's behavior, subjective motives, feelings, and emotions of the people observed. The results of the research show that (1) the phenomenon of climate change has been consciously felt by the Mentawai Indigenous people, (2) the impact of climate change greatly affects their livelihoods, and (3) mitigation and adaptation strategies or actions are needed for climate change in Mentawai District.

4. “The Coconut Farmers Adaptation Strategies in Coping with Climate Change: A Study in Lasalimu Sub-district, Buton District,” conducted by SERABUT in Buton District, aimed to analyze and understand the adaptation strategies used by coconut farmers facing climate change. Data was collected through observation, in-depth interviews, questionnaires, group interviews (participant observation), and archival study. Thirty coconut farmers, 16 men and 14 women, were selected. The research results show that (1) climate change results in seasonal changes that makes it difficult for farmers to determine planting times and increased pest problems, (2) the quantity and quality of coconut products has decreased from year to year due to the decreasing quality of coconut trees due to hot weather and the increasing number of pests (pigs and monkeys), and (3) farmers take strategic steps towards adaptation by starting to produce a coconut oil and planting several short-term crops to increase household income.
5. “The Impact of Climate Change towards Farmers Income and Livelihoods,” conducted by WTM in Sikka District, aims to describe the impacts of climate change (1) felt directly and indirectly by farmers and (2) on income and changes in farmers' livelihoods. Data was collected through direct interviews with 49 farmers (2 women, 47 men) and a literature review. The results of the research show that in the last 10 years climate change has had a negative impact on farmers in Sikka District and farming strategies have not been able to overcome the impact of climate change.
6. “The Impacts of Climate Change and Governmental Policy on Livelihoods of Indigenous Communities in Kubu Village,” conducted by AMAN in Kotawaringin Barat District, aims to (1) describe the impact of climate change on livelihoods and environmental conservation and (2) describe the impact of government policies on livelihoods and environmental conservation. Data was collected through in-depth interviews and FGD with 10 women traditional farmers determined through snowball sampling. The initial results of the research show that (1) women traditional farmers have local knowledge to forecast weather but in the last 6-7 years the local calendar cannot be used to predict, allegedly because of the conversion of forest land to oil palm and mining; (2) the majority of women traditional farmers have very low levels of education, lack training to improve their capacity, and lack creativity and innovation in diversifying derivative products from farming; and (3) most of the farm produce is only sufficient for daily needs.

4.2. Improved organizational effectiveness

In order to increase the organizational effectiveness of Kaleka and alliance members, a project monitoring platform called “Tertata” has been developed. The development of the first phase of the Tertata platform has been completed with three main features, namely programs, human resources, and accounting. The platform has been reviewed and piloted internally. Currently, the platform is in the second phase of development where two new features are added, namely administration and management. The development of the Tertata platform aims at presenting a complete, clear, integrated, and user-friendly data process and management. The platform integrates data from various units and provides complete data at every stage of the business process from planning, budgeting, implementation to monitoring and evaluation. The platform also has a file sharing feature and will be integrated with Kaleka Satu Data, a database system for all impact data through a website-based system.

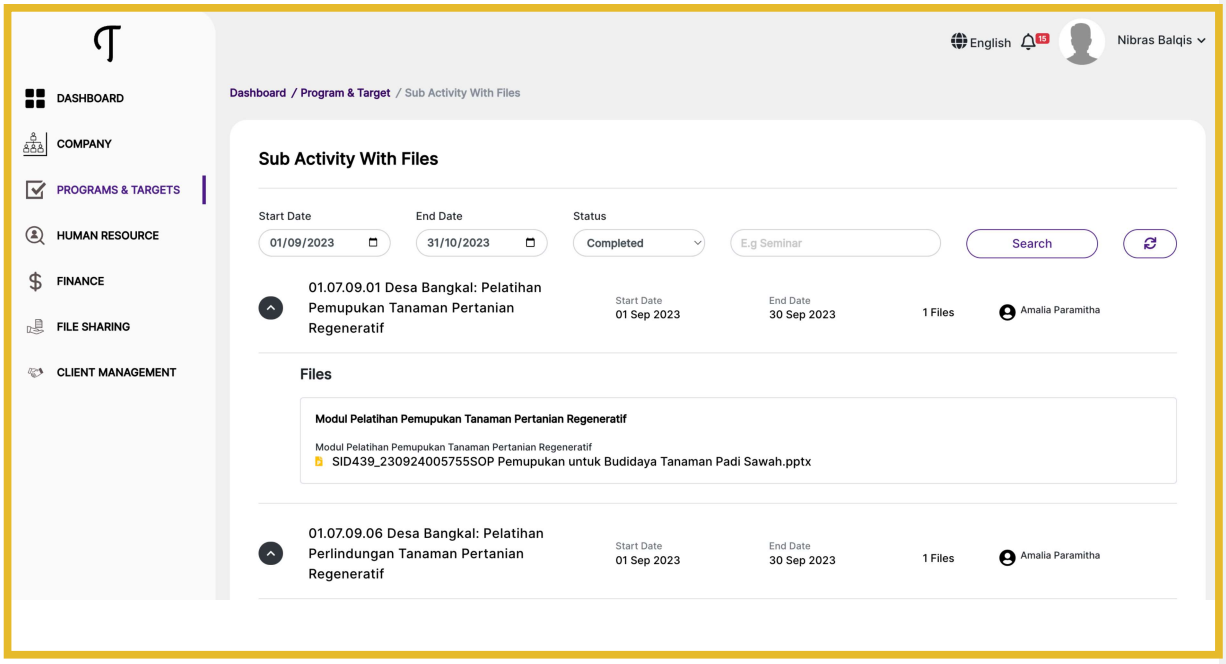

Figure 4. Tertata platform and features developed to improve organizational management

The Tertata platform has been developed and undergone significant changes from the previous version, although it is still under improvement and therefore cannot yet be disseminated to alliance members. In the meantime, Kaleka has built two other tools for the alliance, namely a website and an application for restoration monitoring, co-funded by the Climate and Land Use Alliance (CLUA).

In addition to Tertata, the Kolibri Alliance website was built to communicate alliance members’ work to the public. It provides information about the profiles

of the alliance and its members; the latest information on the activities of each alliance member according to their respective regions; a learning platform containing a forum for questions and answers (QnA), standard operating procedures (SOPs), and manuals, publications, and training materials; and a donation page developed based on the crowdfunding concept.

"Restoration Monitoring Application" provides information related to restoration activities in the villages assisted by Kaleka, from pre-planting and planting to post-planting activities. The pre-planting activities include Free Prior Informed Consent (FPIC), the dissemination process, the establishment of village teams, the determination of plant species, the construction of nurseries, and the sites. The planting activities include time, type of land clearing, types of plants, and cropping patterns. The post-planting activities include planting verification, monitoring, and maintenance. The application also provides a map of restoration sites, land biophysical conditions (soil/ecosystem type, land cover, soil pH), land ownership (land status/legality, forest area type, memorandum of understanding), plant information, and other information related to restoration activities. The application can be used as a medium for monitoring the restoration activities that have been carried out and as a guide in carrying out restoration activities in other villages.

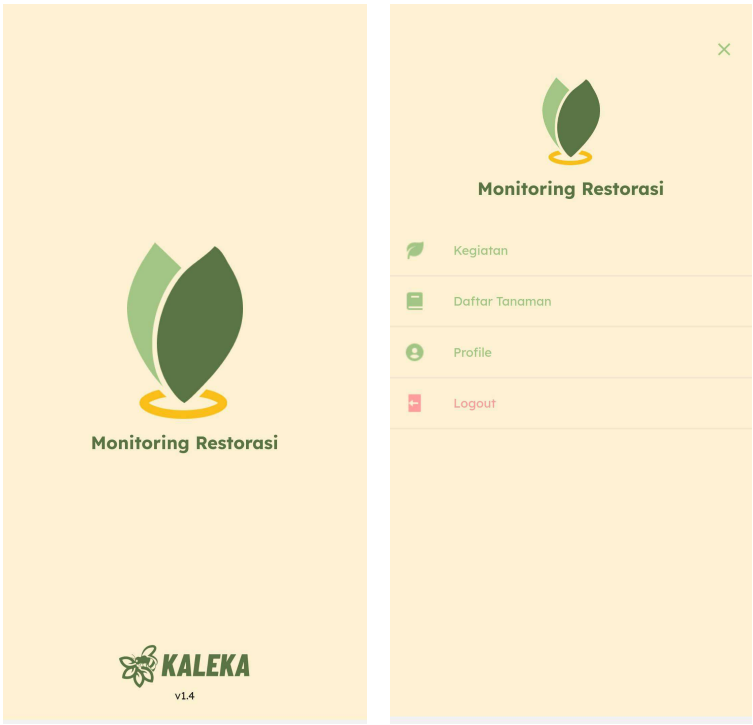

Figure 5. An application developed to assist the local communities to monitor restoration

4.3. Improved GESI integration in research and organizations

The integration of GESI in research and organizations has been carried out in various channels, including:

- Priority for participants in activities such as training was given to women to ensure they always participated in the training activities. In our training sessions, we tracked the gender balance in the attendance list.
- We actively encouraged our project team and regional partners to have a fair representation of women. In the field, our local partners always host women farmers, especially in socialization and baseline study sessions. In the field, our local partners always host specific sessions for data collection with women farmers.
- One of the local partners (SPKS) conducted research with a focus on women through the study title "Livelihood of Oil Palm Society: Study on Women Farmers Adaptation and The Role of Farmer Organizations in the Village in Coping with the Impact of Climate Change" located in Tanjung Jabung Barat District, Jambi Province.
- A woman executive director leads our organization, Kaleka, and we have a balanced number of women involved in our project team. With our local partners, we have engaged women in project implementation since the beginning of the project. For example, one of the research team members from SPKS, another local partner, is a woman who is keen to integrate gender issues into their research project.
- **AMAN** has a women's wing organization called AMAN Women (Perempuan AMAN) made up of individual Indigenous women who struggle against various forms of oppression, injustice, exploitation, and loss of their rights as both women and Indigenous people.
- **SERABUT** conducted an event collaboration with women farmers in Kumbewaha Village to produce virgin coconut oil (VCO). This has upgraded the women farmers skills in post-harvest processing of coconut to add more value in the product.

4.4. Citizen Science Program

Efforts to improve policy outreach related to climate change are carried out by utilizing internet-based technology. The development of Tanibaik (https://tanibaik.kaleka.id/), a platform that integrates several data and information, is intended to make it easier for users to obtain information related to climate change mitigation and adaptation. The Citizen Science Program (CSP) was followed with the establishment of Garda Iklim (the Climate Guard), our Facebook group-based community. To give centralized access to our vast knowledge system, the Garda Iklim has been incorporated with Tanibaik, a dedicated platform for managing and disseminating knowledge about the relevance of agriculture, environment,

and youth. The platform will also be linked with "Info BMKG," a platform managed by the Agency of Meteorology, Climatology, and Geophysics (BMKG), to provide communities better access to information on climate and weather. The platform was available to the public in June 2023. Alliance members and farmers who have used the Tanibaik platform have shown a good response and high interest. Pocket books and videos are the favorite choices for farmers to gain knowledge about certain commodities they cultivate. To support local partners and target groups in updating the database, Kaleka aids alliance members in collecting and analyzing research data and Citizen Science data. In addition, phone credit incentive assistance is also provided to facilitate the process of updating data. Each piece of uploaded data will generate points that will be documented by the administrator and accumulated within a month to calculate the points for winning the incentives.

From the series of CSP, we have gathered some preliminary, simple monitoring reports in our Facebook group, Garda Iklim. As per September 2022, 16 farmers were engaged with CSP, this number increased to 42 farmers in September 2023. This increased number of members is expected to contribute significantly to the data collected along with the addition of the type of data collected, namely data on the condition of the plantation. Assistance for alliance members to collect Citizen Scientist data (temperature, humidity, rainfall, width of water bodies, data on garden conditions) continues.

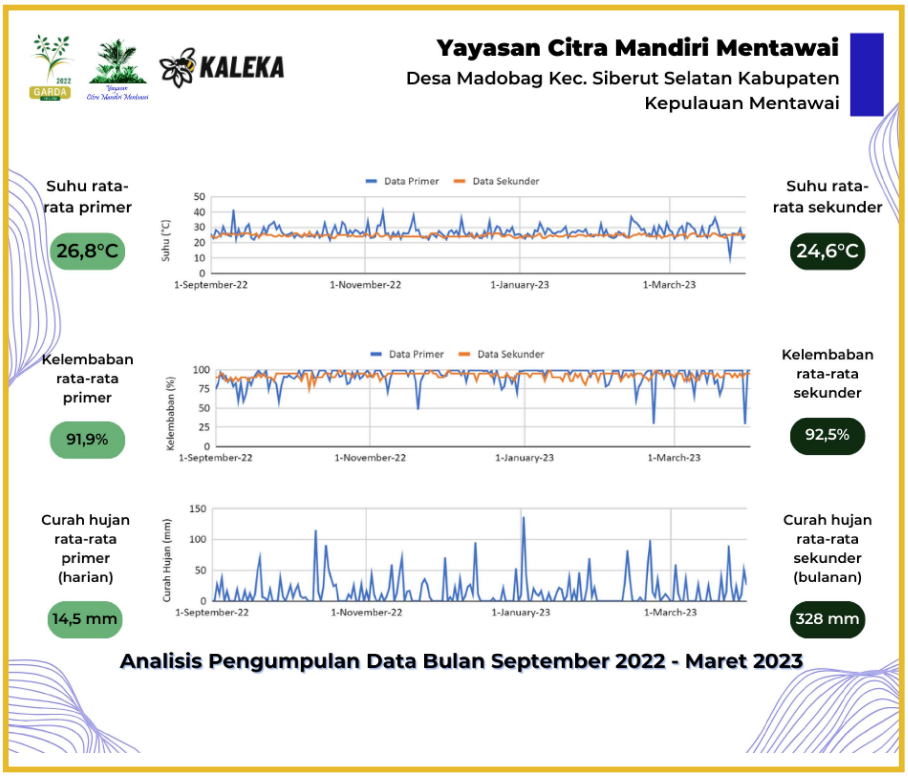

Figure 6. An infographic on temperature, humidity, and precipitation in Mentawai district

5. COMMUNICATION AND DISSEMINATION

5.1. Communication

Aside from communicating through Kaleka's own platforms, the alliance has also built and maintained relationships with journalists and media at both national and international levels. At the national level are Media Indonesia, Bisnis Indonesia, Tempo.com, Kompas, and Katadata.co.id; at the international level are ABC Australia, Mongabay, and The Conversation. This collaboration with the media aims to help Kaleka's publications reach wider audiences.

In particular for The Conversation and ABC Australia, Kaleka has published articles related to climate change:

- The Conversation, September 2021, "Farmers and fishermen cannot face global warming alone, they have to work in groups" (https://theconversation.com/petani-dan-nelayan-tak-bisa-menghadapi-pemanasan-global-sendirian-harus-berkelompok-168618).
- ABC Australia, November 2021, "Climate Change Impacts Young Indonesian Farmers, Especially Large Crop Failures" (https://www.abc.net.au/indonesian/2021-11-01/dampak-perubahan-iklim-bagi-petani-muda-indonesia/100584750).

We enhanced our social media, as our main communication stream, with contents from our past and ongoing activities in the field. Some activities published in our media platforms are about the Sekolah Lapang Iklim, the Citizen Science Program, and our engagement in the Think Climate Indonesia (TCI) Forum Dialogue. Kaleka has engaged with wider communication actors including three international and five national media. Kaleka's platform for communicating this project is also available for public access at https://kaleka.id/think-climate-indonesia.

Media outreach has been carried out by optimizing Kaleka's social media through uploading information and news related to the Kolibri Alliance that have been broadcast on Kaleka's Instagram. Articles, such as "Collaboration is needed, Kolibri Alliance is here," will be uploaded to the website.

5.2. Dissemination of findings

- Research conducted by Kaleka using data collected by local partners has been compiled and drafted into a paper, "Assessing perceptions and adaptation responses to climate change among smallholder farmers in Indonesia climatic region" that will be submitted to a peer reviewed journal and presented at an international conference. https://docs.google.com/document/d/1kAeAybO8__fMr9UzpNeKIwL1JY6FrIeBJCct__Ns8fY/edit
- Mansuetus Darto (M) shared SPKS' research results on the climate change impacts in oil palm plantations at a public discussion on 20 August 2022 held by CIFOR Indonesia entitled "Palm Oil and Environmental Sustainability: Facing Food, Climate and Energy Crises" (https://www.youtube.com/watch?v=HrSFZjzHMYs). This event enriched public understanding of the climate crises and the consequences to communities.
- Irsan Nassa (M) shared SERABUT's key findings through a collaborative webinar hosted by Kota Kita and Kaleka on 23 August 2023 entitled "TCI Forum Dialogue #5: Mutual Collaboration in Addressing Climate Change: The Citizen Science Movement." The webinar highlighted the significance of citizen science research and the involvement of grassroots organizations in creating an inclusive environment for climate research.
- A website for Kolibri Alliance (https://dev.kolibri.or.id/) is currently being developed and beta-tested. It will contain data on profile districts and climate research conducted by members of the Alliance.
- Kolibri Alliance also presents on Instagram (https://www.instagram.com/aliansikolibri/) and Facebook (https://www.facebook.com/aliansikolibri). Contents are currently curated to introduce the Alliance to a wider audience and inform them of the works done by each Alliance member. Social media will play an important role in the Alliance's member recruitment strategy as well as escalating crowdfunding campaigns.

Figure 7. Mansuetus Darto (M), second from the right, as a key person at the public discussion on the climate change impacts in oil palm plantations

6. COLLABORATIVE ACTIVITIES WITH TCI

6.1. Think Climate Forum dialogue series

- Kaleka participated in three forums dialogue of Think Climate Indonesia (TCI) held with TCI partners (Kemitraan, Pattiro, WRI, Kota Kita). The forum was developed to enhance further collaborative actions and scheduled to be delivered once in every six month period. This forum provided a networking and peer-learning experience for our staff.
- The first dialogue, hosted by Kota Kita, which aimed to address gender and social inclusion in climate actions was held on 6 April 2022 with the title Unpacking Gender and Social Inclusion Approaches in Indonesia's Climate Actions. Kaleka provided the expert in gender studies, Prof. Sulistyowati Irianto, who emphasized the importance of access to justice through four pillars — legal reform, climate change legal literacy, access to legal identity, and access to legal aid — to tackle poverty alleviation and climate change. This first forum dialogue was covered in this publication: https://kotakita.org/kota-kita-and-think-climate-indonesia-partners-kick-off-tci-forum-with-a-dialogue-on-gesi-in-indonesias-climate-actions.
- On 25 August 2022, Kaleka participated in the second TCI Forum Dialogue hosted by PATTIRO under the title of Supporting Indonesia's NDC Reform Efforts to Reduce Climate Change Impacts. Bernadinus Steni, an environmental lawyer and our chairman, highlighted that multi stakeholder cooperation and collaboration are essential to the success of interventions, including the rules and public policies that support those interventions. This second forum dialogue was covered in this publication: https://pattiro.org/2022/08/siaran-pers-tci-forum-perlunya-kolaborasi-untuk-aksi-perubahan-iklim/.
- The Think Climate Indonesia (TCI) Forum #3 was held on 1 March 2023 hosted by Kemitraan and Kota Kita under the title of What are the Top Climate Issues for Indonesian Youths During this Political Year. The forum represented community groups and movements from various sectors such as transportation, renewable energy, forestry, agriculture, and different regions such as East Java, Central Java, Jakarta, South Sulawesi, West Sumatra, East Kalimantan, Aceh, among others.

- Kaleka leads the process and releases local climate information to influence policy formulation among stakeholders. At this point, good progress has been made, with an overview of this project available at https://kaleka.id/think-climate-indonesia. This page provides quick access to what the alliance has been doing in relation with the Think Climate Indonesia initiative and acts as an independent communication platform to accompany engagement with the media.
- Kaleka joined in yet another TCI Forum Dialogue co-hosted with Kota Kita. Speakers from Kota Kita, Kaleka, KEHATI, ICRAF, BRIN, and SERABUT were invited to give a talk on inclusive climate research on 22 August 2023. Key highlights of the talk emphasized the importance of crowdsourcing as an alternative method to better disseminate climate research to the public.

6.2. Collaborative activities beyond TCI

- In 2021, Kemitraan developed an online application, the "Mitra Gambut", a sharing space for communities to provide information on peatland management. Using the expertise and lessons learned in developing apps on data collection from the community, Kaleka collaborated with Kemitraan to explore the possibilities to improve Tanibaik and ensure the long-term use of the platform. With an improved Tanibaik platform, farmers and broader public communities are expected to take part in collecting agricultural climate-related data.
- The successful implementation of the Climate Field School with BMKG has developed into plans for several other collaborations. The Cooperation Agreement with the BMKG included collaboration in disseminating information related to climate change, providing speakers for information dissemination, and opening access to share information provided on the Info BMKG platform such as forecasts for weather, climate, air quality, and earthquakes.
- In 2022, Kolibri Alliance received support from the Climate and Land Use Alliance (CLUA) to strengthen the alliance secretariat in carrying out community based restoration in different degraded ecosystems in four alliance members' districts.

Figure 8. Kanisius Garu (M) from WTM showing the ombrometer he made to help him measure rainfall in Done Village, Sikka District.

Annex: New partnership and adopted innovation

(Report for the CRFS/IDRC program

Here we present outcomes related to the number and stories of partnerships (new or strengthened) that increase influence and support, in addition to the number and stories of innovations* adopted by food systems actors to support healthy and sustainable food systems and climate resilience.

No	Outcome	Description
1	New/strengthened partnerships that increase influence and support healthy, sustainable, resilient food systems and climate resilience	Kaleka has developed a new partnership with Meteorology, Climatology, and Geophysical Agency to conduct **Climate Field School.** It aims to improve knowledge and skills of our farmers and local partner organizations in coping with climate change. This school was aimed to equip our local partners with adequate knowledge to train their local communities in observing and reporting weather and climate events.
		Kaleka has developed a new partnership with Demographic Institute of the University of Indonesia to organize **training sessions on data analysis and visualization using excel** in December 2022 and was attended by representatives of all Kolibri Alliance members.
		SPKS has developed a new partnership with The Indonesian Palm Oil Plantation Fund Management Agency (BPDPKS) and Indonesian Palm Oil Association (GAPKI) to promote higher incentives for the oil palm replanting program for smallholders (Peremajaan Sawit Rakyat - PSR).
2	Innovations* adopted by food systems actors	Through the network, our local partners shared lessons including on the various traditional knowledge existing in respective districts on climate adaptation strategies. Local practices such as Kaombo in Southeast Sulawesi and Kerakera in West Papua have been implemented to utilize the natural resources sustainably from one generation to another, which is essential in coping with climate change.

		Kaleka has organized a Climate Field School which includes farmers in the activity of climate observation and reporting. The field school which is originally hosted by the Agency of Meteorology, Climatology and Geophysics is modified into a training for trainer concept involving our local partner delegates. The trainees are expected to pass the knowledge to peer farmers and surrounding communities. Thus they are capable of observing weather and climate events in the citizen science program, particularly those related to farming activities. Through six partners we are allying with, we hope to reach a national level of citizen science's activity to benefit farmers and farming communities to adapt to climate change. Kaleka's role is in developing the citizen science platform where farmers and broader communities could exchange information in relation to climate change mitigation and adaptation.

*Innovations refer to **technologies, methods, and processes resulting from IDRC-supported research to tackle specific issues/problems.** Solutions can be understood as improved, alternative, or new ways of doing or organizing something. When it does achieve this result, "innovation" becomes an outcome. Examples of innovations that illustrate what innovations could be (purposefully broad):

- **Technology:** seeds, post-management machinery, vaccines;
- **Policy innovation:** new policy recommendations, norms, regulations;
- **Process/Method/Best practices:** farm management practices, innovative business venture approaches, changes in practice resulting from a policy directive.

BOGOR
Jl. Guntur No. 32, RT 03/ RW 03
Babakan, Bogor Tengah, Kota Bogor
Jawa Barat, 161288

+62 251 8368349
info@kaleka.id
kaleka.id

DENPASAR, BALI
Jl. Padang Galak No. 17
Kesiman Petilan, Denpasar Timur
Bali, 80237

+62 361 4721370
info@kaleka.id
kaleka.id