



Darwin Initiative, Darwin Plus and Illegal Wildlife Trade Challenge Fund Covid-19 Rapid Response Round - Final Report

Due within two months of the end date of the Rapid Response Round project

(maximum 6pages)

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If linked with an ongoing project, please include that project reference here (e.g. IWT001)	24-026
Project title	Covid-19 impacts on Indigenous food sovereignty, livelihoods and biodiversity, Guyana
Country/ies	Guyana
Lead organisation	Royal Holloway University of London (RHUL)
Partner institution(s)	North Rupununi District Development Board, Guyana (NRDDB), Ministry of Amerindian Affairs, Guyana (MoAA), Cobra Collective CIC, UK (CC)
Start/end date of project	01/01/2021 to 31/03/2021
Which fund was this project relevant to?	Darwin Initiative
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Project Leader name	Jay Mistry
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1. Project Summary

Our existing Darwin project (Ref. 24-026) highlights the importance of Indigenous rotational farming, or swidden agriculture, for culture, livelihoods and biodiversity. Compared to industrial agriculture, this traditional form of agriculture within forest environments improves soil water and nutrient retention, reduces erosion and degradation, increases agrobiodiversity, reduces carbon emissions, and enables carbon sequestration through biochar. At the same time, traditional food systems reinforce collectiveness, Indigenous knowledge and the adaptive capacity of local people to experiment and solve their own problems.

Anecdotal evidence suggested that many Indigenous communities in Guyana turned to traditional farming to survive during the pandemic. This presents potential livelihood and biodiversity opportunities and challenges. A more localised food system may promote food sovereignty and agrobiodiversity, and opportunities for greater traditional knowledge transmission. On the other hand, with greater areas of forest opened for farming, there is a potential for greater long-term impact on forest cover and biodiversity, especially if non-traditional practices are incentivised, such as mechanized agriculture using artificial pesticides and fertilizers.

Communities have a strong influence on what type of agriculture is championed and how and if the forest recovers after farming, including the potential for promoting forest recovery with species that have benefits to both people and wildlife, such as nut and fruit bearing species.

Our project therefore aimed to address the following questions:

- What are the short-term biodiversity, traditional knowledge, and livelihood impacts of this Covid-related resurgence in Indigenous forest-based rotational farming?
- What lessons can be learnt to sustain the benefits and mitigate the disadvantages in the long-term?

The project took place in the North Rupununi, Guyana, in 11 Indigenous communities represented by the North Rupununi District Development Board (NRDDDB) (see map below).



2. Project Achievements

The intended Outcome of the project was 'Enhanced Indigenous food sovereignty and agroecological knowledge that sustains livelihoods, culture and biodiversity by establishing an evidence base on the impacts of Covid-19 on Indigenous farming systems and forests'.

Main activities

We worked directly with Makushi and Wapichan community members from the North Rupununi villages of Annai, Apoteri, Aranaputa, CrashWater, Fair View, Kwatamang, Massara, Rewa, Rupertee, Wowetta and Yakarinta (Figure 1). We used two methods as follows:

- 1) An established household farming survey to assess changes in farming practices between 2012 and 2020-21 Covid-19 pandemic year. We used an established household survey about farming that was developed by Makushi researchers of NRDDDB as part of a Community Covid-19 Rapid Response RoundFinal Report Template 2021

Monitoring, Reporting and Verification (CMRV) REDD+ process in 2012. The survey contains questions on farm size, types, patterns, crops, economics, threats and challenges, importance to families and communities. This survey was adapted to include extra questions about farming responses to Covid-19. Household surveys took place in Annai (n=41), Aranaputa (n=11), CrashWater (n=14), Kwatamang (n=15), Massara (n=16), Wowetta (n=44) and Yakarinta (n=15). From the 156 household respondents, 87 were male and 69 were female.

2) Participatory video to explore the positive and negative impacts of Covid-19 on local livelihoods. After further consultation with the NRDDDB, participatory video was used to focus: 1) farming and Covid-19; the impact of Covid-19 on people, community life and traditional knowledge, and; leadership during the pandemic. Participatory video was facilitated by experienced Indigenous senior researchers of the NRDDDB (part of our existing project) in the villages of Aranaputa (n=7), Annai (n=13), Rupertee (n=13), Kwatamang (n=10), Apoteri (n=8), Fair View (n=9), Rewa (n=7) and Wowetta (n=12). From the 79 storytellers, 32 were male and 47 were female.

The editing of the videos was completed by the Indigenous senior researchers. Drafts of final videos were screened back to the communities for final comments and changes, and to obtain final consent for sharing and distribution.

These videos were then screened to Indigenous organisation leaders Nicholas Fredericks (South Rupununi District Council), Rudolph Roberts (Kanuku Mountains Community Representative Group) and Ivor Marslow (North Rupununi District Development Board), the Ministry of Amerindian Affairs and Ministry of Agriculture to assess responses and actions, and links to current and future policy priorities.

At the same time, satellite Synthetic Aperture Radar (SAR) based change detection analyses were carried out to estimate the type and extent of deforestation and forest degradation during the 2020-21 Covid-19 pandemic year and the three years leading up to the pandemic. We made use of the ESA-Sentinel-1 IW-GRDH data archive to analyse the forest cover changes that occurred in the North Rupununi over 2017-2021. A novel forest change detection approach, developed by the Cobra Collective (CC), was applied to provide continuous and near-real time (monthly) information on forest disturbances. Forest cover change analyses were performed paying special attention to the identification of any significant variation in the deforestation trends which may be associated with the Covid-19 pandemic. We also extended a Google Earth Engine Web-application, which has already been set-up for use within the North Rupununi region in a UK Space Agency project, to provide a user-friendly tool to support the monitoring of deforestation.

This project built on existing and long-term collaborations in Guyana to maximise efficiency and value for money in project delivery. Considering the very short timeframe of the project of three months, and the considerable fieldwork/dissemination elements of the work, we were able to successfully achieve all the objectives as a result of effectiveness of the partnership and the extensive experience and contextual knowledge of the project team. In the household surveys and participatory video, we aimed to obtain a gender balance of respondents / storytellers. We ensured that all partners were aware of safeguarding issues and followed the Right of Free, Prior and Informed Consent (FPIC) processes stated in the 2007 United Nations Declaration on the Rights of Indigenous Peoples, including informing participants of project details, aim, methodology, conditions of participation and intended output distribution. Our existing project Guyanese permit and RHUL ethics form were reviewed in line with project activities, and updated as necessary. The Guyanese project team members assessed health and safety, with a specific focus on Covid, working closely with village leaders on safety measures and access.

Overall, we managed to carry out all the intended activities. One of the problems we encountered was locating the community members that had previously been trained in the use of the survey data collection app. In addition, these community members, called CREWs had not used the survey data collection app for a few years, and so needed some re-training. However, due to Covid, group meetings were still limited during the project period, so there were few opportunities to train them which resulted in some survey responses being inconsistent / incomplete. In addition, the smart phones used for collect data previously were no

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longer in working order and CREWs had to use their personal phones for the surveys. This created compatibility issues in terms of the software needed to carry out the surveys and the ground truthing activities (for the remote sensing), resulting on only land use verification occurring and helping to verify area size of disturbance. In addition, the household survey from 2018 was incomplete, so it was not possible to make many comparisons to this year. Although the focus of the project was on Indigenous farming, discussions with the NRDDDB at the start of the project identified an interest in exploring leadership responses during Covid. So, this element was added to the participatory video component.

Main achievements

A report outlining the project and its findings can be found in Annex 1.

Our SMART objectives were, and achievements are:

1) Develop an evidence base on the impacts of forced Covid-19 're-localization' on Indigenous farming, particularly on methods of production, agrobiodiversity, food preparation and consumption, and the transmission of knowledge between elders and youth.

Indicator 1a. Report combining farming survey from 2020 and prior 8 years and participatory video data produced.

MoV: See Annex 1 and report published on project website at <https://cobracollective.org/resources/>

Indicator 1b. At least 3 participatory videos on Indigenous farming and food sovereignty produced.

MoV: videos posted on community video database www.comunityownedolutions.org and distributed to communities:

The impacts of Covid-19 on Indigenous farming: <https://communityownedolutions.org/video-post/the-impacts-of-covid-19-on-indigenous-farming/>

Impact of Covid-19 on community life: <https://communityownedolutions.org/video-post/impact-of-covid-19-on-community-life/>

Leadership during the Covid-19 pandemic: <https://communityownedolutions.org/video-post/leadership-during-the-covid-19-pandemic/>

2) Evaluate the impact that increased Indigenous farming practices have exerted on forests during the forced Covid-19 're-localization' period.

Indicator 2a. Satellite radar analyses of land cover and land use changes in 2020 and prior 4 years (2017-2019) including impact on extent, type and distribution of deforestation.

MoV: see Annex 1 and report published on project website at <https://cobracollective.org/resources/>

MoV: online mapping application: <https://ruizramosjavier.users.earthengine.app/view/covid-19-impacts-on-indigenous-food-sovereignty-guyana>

3) Develop actions and policy priorities to address both short-term and long-term Indigenous food sovereignty concerns.

Indicator 3a. At least two video-mediated dialogues initiated between Indigenous communities and local / national decision-makers.

MoV: see Annex 1 for report that includes decision-makers' responses and actions, published on project website at <https://cobracollective.org/resources/> Dialogues carried out with Indigenous leaders, Ministry of Amerindian Affairs and the Ministry of Agriculture.

Indicator 3b. Traditional Knowledge National Action Plan revised according to project findings.

MoV: Revisions to Traditional Knowledge National Action Plan will be incorporated into final version (once national consultations are completed).

Results summary

Our findings show that in the short term, the Covid-19 pandemic resulted in many Indigenous community members losing paid work, including in the tourism sector. At the same time, many communities felt vulnerable staying in their villages, especially those with easy access from the main Georgetown to Lethem road, and thus retreated to their farms or backdams for safety. People turned to using their traditional medicines to both prevent, alleviate symptoms of the virus, and to strengthen their immune systems using therapies that include ginger, garlic and honey. There seems to have been a general sense of solidarity amongst community members, with people organising patrols and look-outs to protect their villages (through, for example, supporting road blocks to prevent non-community members from entering their village) and helping others with food and safety equipment. On the other hand, fear and misconceptions, possibly due to lack of awareness, also caused challenges in some communities. People who exhibited symptoms or were diagnosed but later recovered were sometimes stigmatised. This may be linked to the movement of community members from central village lands to their farms.

With more people needing to farm for survival and being located at their farms, overall there was an increased reporting of farming activity. With schools closed, whole households were able to participate in farming and/or move to the backdam. Thus it gave time for people to reconnect with different members of their families and communities, and a greater exchange of knowledge, not only about farming, but also other livelihood activities such as fishing and hunting. Some people have used the resurgence in farming to make a business, providing and selling produce, including cassava bi-products, to other community members locally.

This resurgence in traditional farming interest by community members during the pandemic is in the context of broader trends over the last 10 years. Farm sizes have increased, more households have multiple farms and fallow periods have decreased. There is an indication that a larger proportion of farms being cut are in minabs or fallow areas within secondary forest, which may have long-term consequences for the biodiversity of the forest landscape and carbon sequestration. Although a greater quantity of cassava and diversity of other crops were planted during the pandemic, there has also been a significant drop over time in the varieties of cassava used by farmers, with a current reliance on a handful of landraces.

The remote sensing shows that the increase in farming interest and activity by communities does not translate into a significantly greater area of forest being opened during the Covid pandemic. In fact, the remote sensing analysis indicates that compared to previous years, the 2020-2021 pandemic year had less deforestation from farming (and fires). Although people cut new farms during the pandemic, many also may have intensified farming activity on already established farms. The levels of deforestation are a complex mix of farming, fires, climate (wetter/drier years) and governance (political factors driving economic and infrastructure developments), and require further detailed investigation. For example, the exponential rise in deforestation rates from 2017 to 2020 may have been fuelled by significant development investment by the incumbent governing political party as national elections neared (these eventually took place on the 2nd of March 2020). The remote sensing analysis shows that there was an explosive grow in deforestation as a result of roadworks. Improvements in transportation access for commercial activities may have, in turn, incentivised more farming and other commercial activities, such as logging, commercial fishing, and cattle ranching. Greater farming, ranching and extractive activities, may, in turn, have resulted in more wildfires being set, as people needed to facilitate access to the landscape.

The break-down in commercial activities, as a result of post-election disinvestment and the later onset of Covid-related travel restrictions, combined with the significant increase in rainfall result from the La Nina phenomenon, may explain the sudden and drastic drop in overall deforestation rates from the extreme peak of 2019-2020 to the drastically reduced figures for 2020-2021. However, this 'big-picture' hypothesis may mask the more granular and nuanced results emerging from the community-based surveys, which indicate a resurgence in interest for traditional farming practices.

So, overall, there may have been a drop in deforestation rates emerging from commercial farming activities, but the community interviews suggest that subsistence farming may have actually increased. This complex development can be seen in the distinction between the Aranaputa and Annai/Rupertee/Wowetta region deforestation trends, where the greater focus

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on commercial agriculture in Aranaputa actually saw a major crash in deforestation rates during 2020-2021, compared to a much more modest fall in Annai/Rupertree/Wowetta region, which has a less developed commercial sector.

This project contributes towards the wider aims of the Darwin Initiative to promote biodiversity and alleviate poverty. Indigenous farming, which is predominantly swidden farming, is the central facet of Indigenous culture and livelihoods, and is generally practised in a sustainable way maintaining biodiversity. The evidence gathered from the project provides a window into a unique moment in time as the Covid-19 pandemic promoted a forced 're-localization' experiment. We showed that the short-term effects were an increase in farming activity and a resurgence in interest in farming, with a decrease in deforestation. However, this is within a broader trend of increasing deforestation, decreasing fallow times and loss of cassava varieties, that has long-term implications for food sovereignty and biodiversity conservation.

As a result of the project, we have increased the capacity of Indigenous communities to reflect upon the importance of self-sufficiency and food sovereignty, building confidence that they have the means to act collectively to mitigate short-term crises such as Covid-19. Working closely with the NRDDDB, we have also increased their capacity for research and communication about the impacts and responses to crises such as the pandemic. By involving key partners, such as the Ministry of Amerindian Affairs, in the research, we have been able to present and get greater representation of Indigenous realities and lived experiences during the pandemic to relevant government agencies and Indigenous associations. This will improve the valuing of traditional knowledge and community-driven responses to Covid-19 by local and national decision-makers, which in the long run may lead to better practices of engagement, agenda setting, and programme planning and delivery. Our existing Darwin project has developed a Traditional Knowledge National Action Plan (TKNAP) which has been in public consultation since February 2021. We aim to feed the results of this project into the TKNAP as it is finalised over July 2021.

3. Lessons learnt

On reflection, perhaps we were too ambitious in the objectives of this project, considering the three-month timeframe and the ongoing Covid-related restrictions in Guyana. Of the fieldwork aspects of the project, the participatory video worked very well as it was facilitated by existing Darwin project staff and experienced Indigenous researchers. The household survey was more challenging (for the reasons mentioned above). Thus, perhaps we should have only built on / followed methodologies, such as participatory video, that we were already using in the Main project and which we had the capacity to implement rigorously. This would be a recommendation to others doing similar projects.

From Darwin, all administration and communications were excellent during the project. However, RHUL as lead partner treated this project as a new project rather than a 'sister' project to the Main project, and insisted on a full new funding agreement with partners, due diligence checks, and ethical review. This took a considerable amount of time and effort on behalf of the project leader and Guyanese partners; the latter being challenging to communicate with in normal times and even more difficult as a result of the pandemic. Perhaps in the future, Darwin could recommend the minimum administrative/management required from lead organisations if projects are directly linked to existing (successfully running) projects.

4. Other comments and feedback

Although the project activities were completed within the three-month period, we had delays in reporting as a result of rising cases of Covid in Guyana since march 2021, and in-country staff falling ill.