POLICY BRIEF

A BASIC INCOME FOR NATURE AND CLIMATE IN *TANAH PAPUA*

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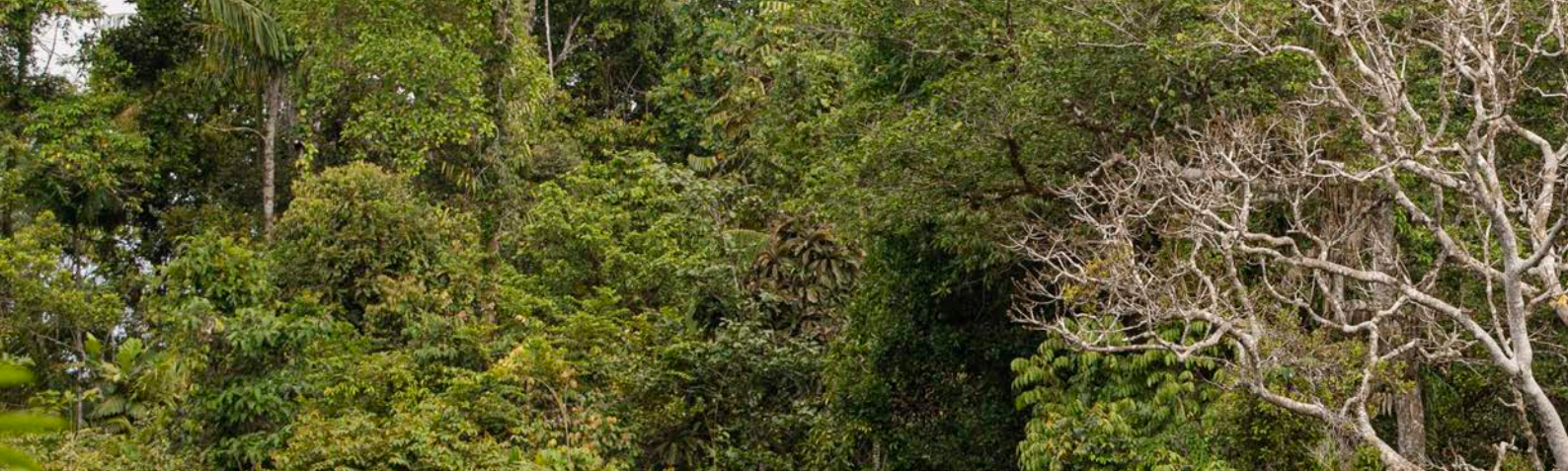

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AUTHOR: Fabian Schmidt-Pramov
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The need for new approaches to support forest conservation and indigenous peoples in *Tanah Papua*

Indonesia has the third largest area of tropical rainforest on the planet and is a priority country for international cooperation on reducing deforestation. It is the only country that has made strong progress in reducing deforestation in recent years.

Several REDD+ pilot regions such as East Kalimantan, Central Kalimantan and Jambi were set up by the Indonesian government and due to long-term support from donors and local as well as international NGOs, their provincial governments have gained substantial REDD+ implementation capacities. Most Indonesian REDD+ pilot regions are characterized by a high forest cover, high deforestation rates (HFHD) dynamic and some, such as Jambi, are already moving along the forest transition curve to become low forest cover, high deforestation rates (LFHD) jurisdictions. In general, incentives from REDD+ currently seem to be much greater for regions with a high (historic) deforestation context than for regions with high-forest cover and little (historic) deforestation.

When looking at potential future deforestation hotspots and the Indonesian jurisdictions with the largest remaining primary forest cover, West-Papua and Papua province in Indonesian New Guinea (*Tanah Papua* - **the Land of Papua**), a completely different reality emerges. These provinces suffered fewer human impacts than most tropical regions and remain relatively untouched, compared with Western Indonesia (Java, Sumatra and Indonesian Borneo). In these "high forest cover, low (historic) deforestation (HFLD)" jurisdictions REDD+ reaches its limits as addressing the "plus" components, which include forest conservation and paying for carbon stocks rather than emission reductions, is needed. Furthermore, capacities are much weaker than in the Indonesian REDD+ pilot regions and therefore new approaches to forest conservation are vital for the future of the forests and indigenous people in *Tanah Papua*.

The region is of global importance for biodiversity conservation, climate change mitigation and cultural heritage. It is considered the most floristically diverse island in the world (Cámara-Leret et al., 2020) and harbors endemic fauna especially bird species, including birds of paradise (Marshall and Beehler, 2007). The region hosts various forest ecosystem such as extensive old growth forests, including high-carbon stock ecosystems like mangroves and peat swamps, in near pristine settings (Murdiyarso et al., 2015; Sasmito et al. 2020).

Protecting the primary forest of Papua, coupled with restoration of degraded lands, could avoid 2.8 – 3.3 gigatons of carbon dioxide emissions, which equals the baseline emissions projected for 2030 in Indonesia's NDC. Failing to protect these primary forests would put the whole Indonesian government's NDC out of reach making it even more difficult to achieve the Paris Agreement´s 1.5°C climate target. Just a small reduction of 17% of the current forest cover in *Tanah Papua* would release more CO_2 than Indonesia´s total projected emissions in 2030.

Unfortunately, the forests and ecosystems in both Papua and West Papua Provinces are under constant and increasing threat from industrial palm oil and pulpwood plantations, mining, and infrastructure development (e.g., Sloan et al., 2019). Deforestation rates are still very low when compared to other regions in Indonesia, but plantations and roads grew rapidly after 2011, peaked in 2015/16, and declined thereafter. A spatial model (Gaveau et al., 2021) predicts that an additional 4.5 Mio. ha of forest could be cleared by 2036 if *Tanah Papua* follows similar development trajectories like Indonesian Borneo.

Tanah Papua´s forests amount to over 34 million hectares, or 42% of Indonesia's remaining forests. With diminishing available land elsewhere, it is often feared that Papua will become the next hotspot for plantation expansion.

The forests in the region support local and mostly indigenous people who rely on it for food, medicine and cultural needs since centuries. Indigenous people can play a key role in protecting the forest against the encroachment. *Adat* land ownership is based on clan membership. Clans are part of a larger tribe, and membership is passed down for generations following ancestral heritage (e.g., Dewi, 2016). Indigenous Papuans had a crucial emotional attachment to clan lands as the land gives them "a very strong sense of place, origin and continuity". Emerging new relationships in agricultural production, however, have begun to introduce economic and cultural changes to indigenous land ownership and rights in some areas (Savitri, 2020).

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Despite trillions of rupiah in the regions Special Autonomy fund (*Dana Otonomi Khusus*), mining income, and rich natural resources, the percentage of poor people in *Tanah Papua* is more than double the Indonesian national average (Figure 1).

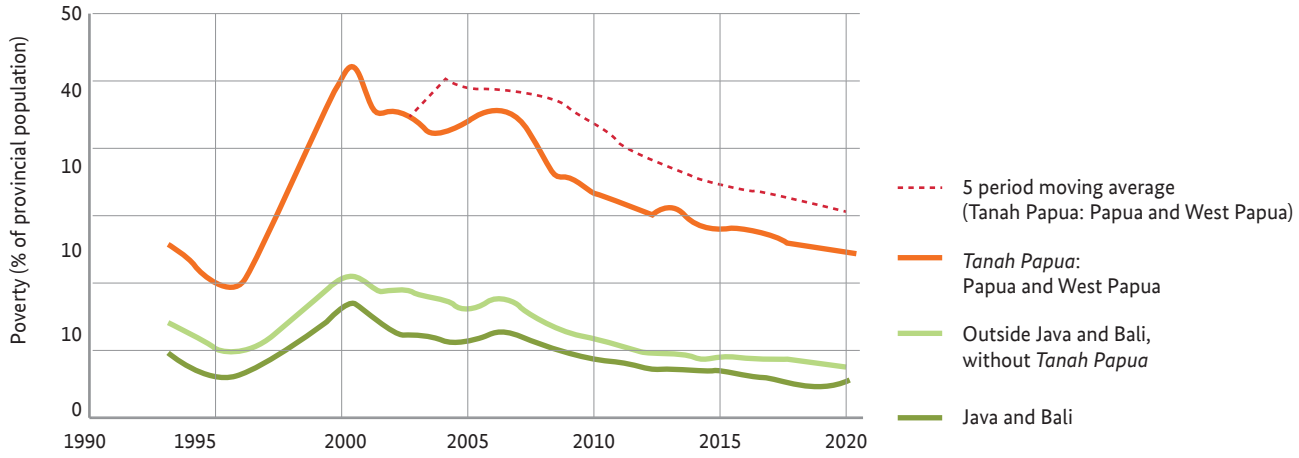

Figure 1: The trend in poverty as a percentage of population at the provincial level, 1993-2020 (Mumbunan et al, 2021).

Maternal death rate and child mortality are much higher compared with the rest of Indonesia. Child mortality in *Tanah Papua* is high at 85-100 out of 1000 live births, while the maternal death rate is three times higher than Indonesia's average.

Deforestation of indigenous land for large-scale plantations follows a certain pattern in *Tanah Papua* (Obidzinski et al., 2012). A lack of income and deprivation of the livelihood of indigenous populations causes some of its members to give up adat land at very low prices. In a recent case, an international oil palm company paid tribe members as little as 8 USD per hectare in compensation for their forested land that was converted into an oil palm plantation (Amindoni and Henschke, 2020).

A tailormade approach that directly targets local and indigenous communities in *Tanah Papua*, such as a Basic income for Nature and Climate (BINC) could therefore have an important impact on current land-use dynamics, poverty alleviation, climate change mitigation and biodiversity conservation. Furthermore, such an approach would reward the local stewards for preserving one of Indonesia´s and globally most important forests.

The focus of the action research

For the reason mentioned above, the "International forest-related climate finance project" implemented by GIZ and financed by Germany´s Federal Ministry for Environment, Nature Conservation and Nuclear Safety (BMU) engaged in early 2019 in an innovative action-oriented research project to investigate the potential for a basic income scheme linked to conservation in *Tanah Papua*. The research was led by the University of Indonesia´s "Basic income Lab" and implemented in close collaboration with the GIZ FORCLIME project in Indonesia. Sonny Mumbunan and a team of local researchers, including from *Tanah Papua*, conducted the work from March 2019 until April 2021.

The following research themes were covered:

- Demographics in *Tanah Papua*
- Learning from the experiences of other international basic income or similar schemes
- Learning from existing government led cash transfer programs in Indonesia
  - Universal Child Benefit program
  - Family Hope Program
- Carbon stock valuation
- Forest Carbon Dividend
- Feasibility and costs of a basic income pilot project
- Features of a basic Income in *Tanah Papua*

Besides the research activities the team of scientist engaged in public outreach activities and was very active in the national discourse on Basic Income schemes in Indonesia. Several events, workshops and webinars were organized to float the ideas and discuss the potential for a basic income for climate and nature. With the participation of world leading basic income experts (e.g. Philippe Van Parijs, the founder of the Basic Income Earth Network) a Basic income bootcamp was organized in Jakarta in February 2020.

On one hand the COVID-19 pandemic delayed the implementation of the research project, on the other hand the pandemic boosted the public interest in BINC approaches in Indonesia in general. BINC approaches were being discussed by national and local politicians and the lead scientist Sonny Mumbunan appeared frequently in the Indonesian media (TV talk shows, newspaper articles, etc.).

INSIGHTS GAINED AND LESSONS LEARNED

Learning from existing government led cash transfer programs in Indonesia

In *Tanah Papua*, the government of Indonesia is implementing two programs to address social protection aspects. Both programs are relevant for better understanding the context of a potential basic income for nature and climate. The Family Hope Program (*Program Keluarga Harapan* - PKH), is a conditional and targeted national program with a long history, while the Universal Child Benefit - UCB (*Program Bangga Papua*), is an unconditional and universal program in a pilot stage and focused only on the autonomous regions *Tanah Papua* and Aceh in selected districts (three districts in the Province of Papua).

With support from the World Bank, the Ministry of Social Affairs launched the Family Hope Program back in 2007. It aims at breaking the generational cycle of impoverished families too poor to afford healthcare and education for their children. It is a conditional cash transfer scheme. Payments are made on the condition that families keep their children in school and get them to a health clinic when needed. Eligible beneficiaries are families in the bottom 10% income percentile with pregnant mothers and/or children aged 0 to 18 years. The program provides cash payments ranging from IDR 550,000 (USD 38) to IDR 2.4 million (USD 165) for each family every year, depending on their size. The average amount received is about IDR 1.8 million (USD 124) which represents about 15% of what a poor family would spend in any given year. Additionally, participating families receive training sessions on several topics (e.g. health and nutrition, good parenting practices, child protection and financial management of family expenses). The Family Hope Program has evolved in the Indonesian governments' flagship social assistance program and nowadays covers more than 10 million families. It is financed by the Ministry of Social Affairs and with support from international partners, mainly the WorldBank.

The Universal Child Benefit program is being piloted in Papua province since 2017 under the name **Bangun Generasi dan Keluarga Papua Sejahtera** (BANGGA Papua). The program was developed by the provincial government with technical assistance from development partners (e.g. UNICEF) and is funded by the province's special autonomy fund. It is of strategic importance for the provincial government and currently being implemented in three districts (Asmat, Paniai, and Lanny Jaya) with plans to eventually scale-up to the entire province. It aims at reducing poverty and improving health outcomes among indigenous Papuan children under the age of four through the provision of a monthly transfer of IDR 200,000 (approx. USD $14) (UNICEF and ODI, 2020). A prerequisite is having a citizenship documentation, birth certificates, and a bank account. Several global studies have proven the positive impacts of such approaches on helping to combat child poverty and improve child health and wellbeing (Shaefer et al., 2018; Brownell et al., 2016; Butcher, 2017; Akee et al., 2010). As the beneficiaries are all within a certain age group, the UCB already constitutes what is called a "categorical basic income".

Main lessons learned for *Tanah Papua:*

- Current existing government led cash transfer programs are insufficient and don't reach everybody in need. The payment methods used are costly for the programs and their beneficiaries alike.
- The Family Hope Program has limited coverage and experiences significant implementation challenges:
  - Beneficiaries in rural areas tend to not withdraw their social assistance as it requires financial literacy and travel to distant and often poorly accessible cities.
  - The mentoring and companion-based program implementation is increasingly challenging given the context in *Tanah Papua* (limited transport infrastructure, etc.)
  - The financial distribution process could be greatly improved by various means: (1) Dedicated staff at participating banks to handle the distribution to beneficiaries; (2) direct channeling to communities or groups instead of individuals; (3) Collaboration with local banks who have a better presence in the region than the current participating and mostly national banks; (4) Bypassing intermediaries at various stages so that the funds go directly to the beneficiaries, e.g. via eWallets (Mobile payment and money transfer).
- The Universal Child Benefit program has good coverage and impacts in pilot districts but lacks financial sustainability:
  - Coverage in pilot districts is currently 75% for targeted children but a significant number of children in need who are not indigenous are left behind.
  - The requirement to be indigenous Papuan is likely to be ineffective because it requires additional administrative costs for targeting, verification, and periodic census. Resources which could be reallocated otherwise to the program's participants.
  - The special autonomy fund is the only source of financing for the UCB pilot. The fund is often hampered by sudden changes in budget allocation and therefore unlikely to provide sustained funding. Additional financial resources could greatly improve the sustainability of the UCB pilot, expand the coverage to the entire province and make it universally available to all children in need.

Carbon storage depends heavily on the presence of high-carbon stock ecosystems such as peat forests and mangroves

Approximately 83% of Papua and West Papua lands are covered by forest. Primary dry land forest accounts for the largest area (47%), followed by secondary dry land forest (17%) and primary swamp forest (12%). The total above-ground and below-ground carbon stocks of the different land cover types range between 12.6 and 3.427 MtC for Papua province and between 11.6 and 951 MtC for West Papua. For both provinces, the largest carbon stocks (3.427 MtC for Papua and 951 MtC for West Papua) are found in primary swamp forest, where the most extensive peatland areas are found. This implies that primary dry land forests comprise the largest proportion of the land area (57%) but store only 38% of the total carbon stock, while primary swamp forests, which account for only approximately 15% of the land, contain 46% of the total carbon stock.

Looking more closely at the districts and municipalities, Mamberamo Raya contributes the largest forest carbon stock in Papua province, followed by Mappi, Asmat, Boven Digoel, and Mimika, whereas Teluk Bintuni contributes the highest carbon stock in West Papua, followed by Kaimana, Fakfak, South Sorong and Tambrauw. Mamberamo Raya outnumbers all districts due to its comparably large forest area.

The huge difference between peatland carbon storage compared to forests on mineral soil is very apparent in *Tanah Papua*. In the Mappi district in Papua province for instance, the estimated stock excluding peat soil carbon is 261 MtC. This number triples to 795.5 MtC when peat soil carbon storage is included. The same effect can also be seen in Teluk Bintuni in West Papua Province.

Tanah Papua's Carbon stock are worth billions

The valuation of forest carbon stock assumes that the price for 1 tonne of CO_2e stored in the forests of *Tanah Papua* is equal to the price of carbon in comparable initiatives taking place in a HFLD context. Under the REDD+ scheme in Guyana for example, Norway paid a carbon price of USD 5 per tCO_2e for avoided deforestation in the framework of their bilateral partnership.

Using the same carbon price, the total potential revenue that could be obtained from valuing the carbon stored in the forest ecosystems (above and below ground carbon) is USD 130 billion for Papua Province and USD 43 billion for West Papua. The average revenue at district level would be USD 4.5 billion for Papua province and USD 3.3 billion for West Papua province.

One could of course argue that the value of 1 tonne of CO2e stored is not the same as the value for 1 tonne of CO_2e from avoided deforestation. Nevertheless, even with a lower price for the tonne of CO_2e the value of the forests in *Tanah Papua* will be worth billions of dollars.

How a basic income for nature and climate could be financed and distributed

Based on the lessons learned from the existing government led cash transfer programs in Indonesia and from other international basic income or similar schemes, the demographics in *Tanah Papua*, the carbon stock assessment and valuation, the basic income for nature and climate proposal discussed here was derived.

At is core is the Forest Carbon Dividend (FCD). This dividend is generated from the earnings of the forest carbon stocks in *Tanah Papua*, which are put in a dedicated financial mechanism, the *Tanah Papua* Forest Carbon Fund. A portion of the total forest carbon revenues is shared with all residents of Papua, while at the same time revenues are channeled to different levels of government (provincial and national) to provide incentives for policy makers. Experiences from the Alaska Permanent Fund, a regional basic income scheme funded by oil and gas exploration and providing an average of approximately USD 1,600 annually directly to American Indian and Alaska Native resident, show the importance of not only providing direct incentives to residents but also to policy makers.

The revenues for the different levels of government are unrestricted, meaning that the decision on how to spend the revenues lays with the respective government recipients. The other revenues that are channeled through the *Tanah Papua* **Forest Carbon Fund** are restricted, meaning their use follows a set of criteria. The total net earnings of the *Tanah Papua* Forest Carbon Fund will be used for an inflation offset account and an earning reserve (see Figure 2). While the inflation offset account and an earning reserve are used to hedge against inflation risks and to stabilize the fund, the FCD is then partly shared as a payment with all qualified residents of *Tanah Papua*. However, the FCD depends on the available pool of funding and is not likely to cover the entire basic income and needs - it is therefore conceptually a "partial basic income". For this reason, it is suggested that proceeds from the *Tanah Papua* Forest Carbon Fund complement the UCB program currently being piloted in Papua province (Sihite and Mumbunan, 2021). The UCB is considered a "categorical basic income" scheme as recipients belong to a certain age group. So overall, the basic income for nature and climate for *Tanah Papua* would consist of the partial basic income for all residents and the categorical basic income in support of the Universal Child Benefit Program.

As the funding source for the UCB pilots is not sustainable, as previously described, the additional finance from the FCD and portions of the unrestricted forest carbon revenues could have a very positive impact. Theoretically, Indonesia's public finance system and Papua's special autonomy arrangements would allow for various kinds of financial sources such as the Special Autonomy Fund, ecological fiscal transfers (general purpose transfers and other transfers allocated in ways that consider the forest cover of the jurisdiction), reallocated non-merit subsidies (such as from fossil fuel subsidy), own-source revenues, rents from natural resources (e.g. proceeds from oil exploration in Teluk Bintuni, West Papua), or funds from debt for nature swaps.

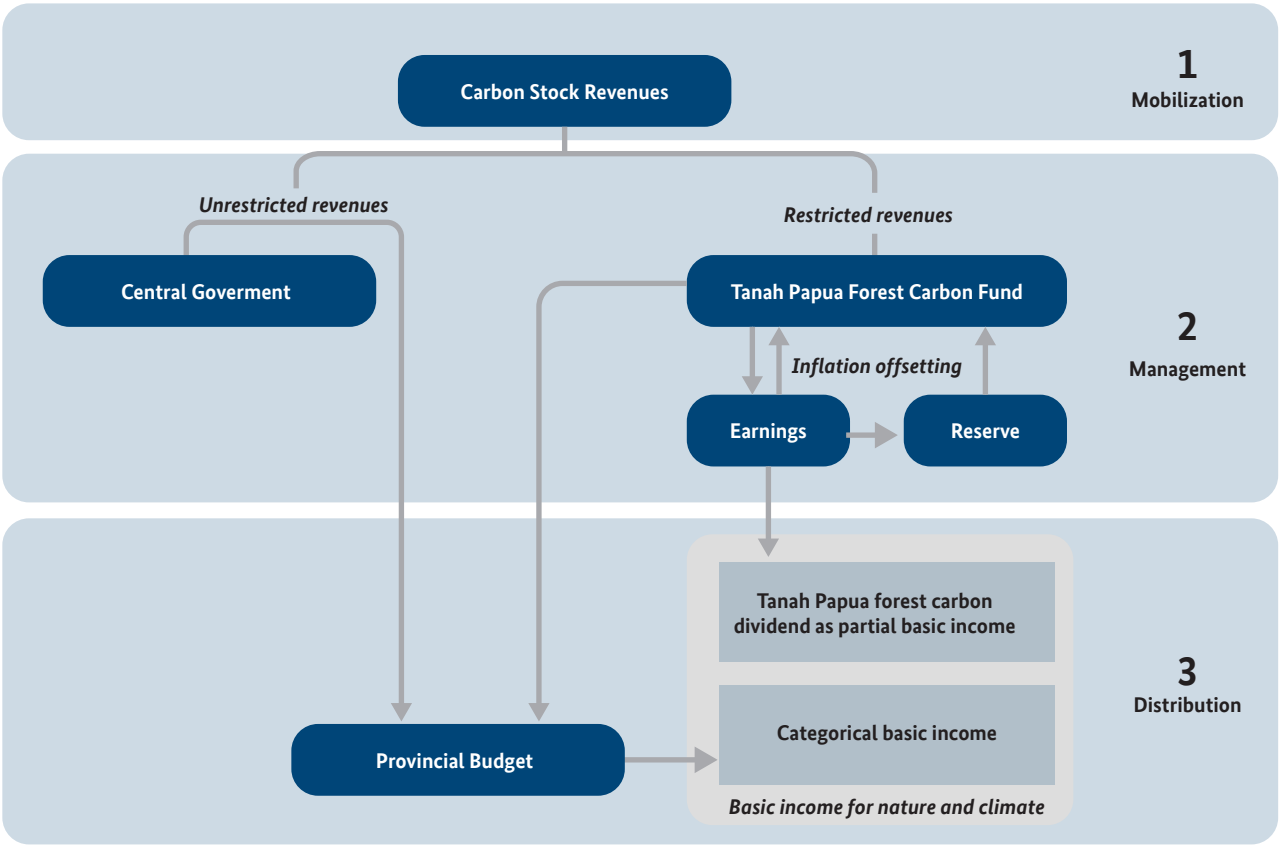

Figure 2: The Forest Carbon Dividend as part of an integrated concept of resource mobilization, management and distribution (Mumbunan et al, 2021).

Simulation of the basic income payments to residents

While the estimated value of the carbon stocks in Papua Province is USD 130 billion and USD 43 billion for West Papua, the estimated total forest carbon dividend obtained for Papua Province is approximately USD 4.5 billion and USD 1.5 billion for West Papua. Only this dividend, which consist of a real return that is separate from the principal, would be further distributed to citizens residing in ***Tanah Papua***.

The forest carbon dividend per capita depends of the population size and forest area of each jurisdiction. In Papua Province, the carbon dividend per capita ranges between USD 18 and USD 22,800, with an average of USD 2,400 and a relatively high standard deviation because of the Mamberamo Raya district. This district has a large forest area, but a relatively small population compared to all other jurisdictions.

In West Papua Province, the carbon dividend per capita ranges between USD 6.7 and USD 7780, with an average of USD 2190. Generally, highly populated urban districts (e.g. Jayapura, Sorong) have the lowest per capita carbon dividends while sparsely populated forested districts (e.g. Mamberamo Raya, Tambrauw) have the highest.

The partial basic income would be distributed to all residents in ***Tanah Papua*** with no conditions whatsoever attached making it a universal scheme. To ensure that the funds are distributed fairly two factors were considered. As Indigenous people own land and are entitled to their indigenous rights, affirmative principles were applied that would provide indigenous Papuans with an extra payment (See Figure 3).

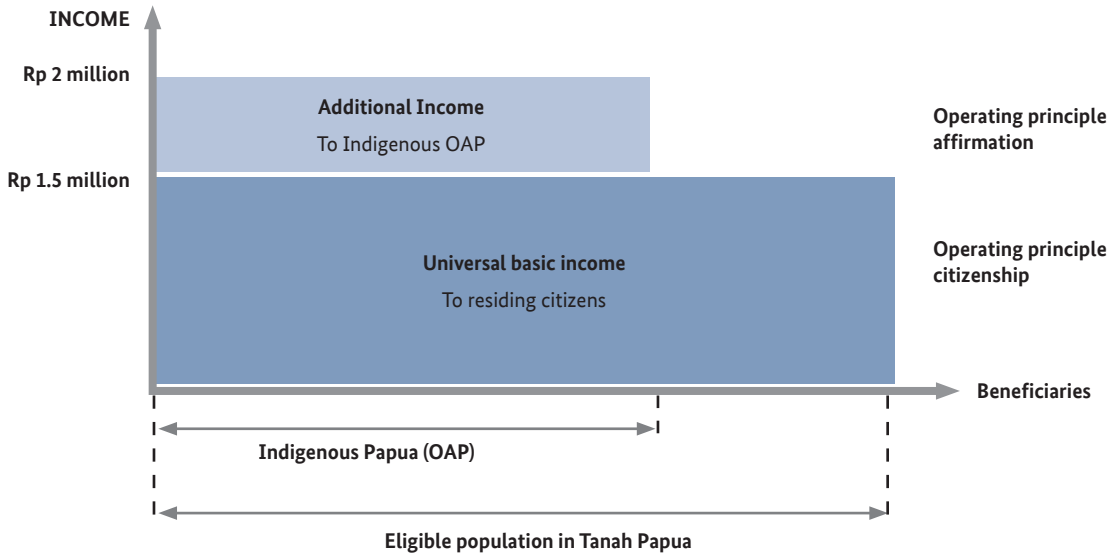

Figure 3: Beneficiary arrangements for a basic income in *Tanah Papua* (Mumbunan et al, 2021).

Furthermore, the age structure of the population was considered. To distribute the Forest Carbon Dividend, the "per capita dividend" was used as the baseline with varying allocation arrangements according to the age group. Children would receive 50% of the per capita dividend, the youth 75% and adults would receive the full amount.

Age group	*Tanah Papua*	Papua Province	West-Papua Province
Children (0-4)	1170	1200	1100
Youth (5-19)	1750	1800	1600
Adults (>20)	2330	2400	2200

Figure 4 Summary of the annual basic income in USD per person depending on age group and jurisdiction

The simulated annual BINC payments are substantial payments. However, looking at Indonesian minimum wage regulations the BINC payments for adults would still be below the minimum wage in these provinces. According to the Indonesian Ministry of Manpower decree from 2021, the monthly minimum wage set for Papua Province is IDR 3,500,000 compared to the monthly BINC of IDR 2,800,000, and in West Papua's IDR 3,100,00 compared to the monthly BINC of IDR 2,300,000.

Beyond the simulations for the **"*Tanah Papua* Forest Carbon Dividend partial basic income"** it was also assessed how the forest carbon dividend could be used to improve the already existing categorical basic income scheme, namely the UCB pilot program. Financing this program via the Forest Carbon Dividend is likely to be more sustainable than compared to the current funding source, the Special Autonomy Fund. The Indonesian government has plans to revise special autonomy funding arrangements, which would put the continuation of the UCB pilot program at risk. On one hand the Forest Carbon Dividend, could theoretically be used for scaling up the UCB pilot program to the whole province. On the other hand, the UCB program could last for as long as the forests are protected and the Forest Carbon Dividend flows.

DISCUSSION AND RECOMMENDATIONS

The results from this research underscore that a proposed basic income for nature and climate could address the global importance of *Tanah Papua'*s forest while at the same time tackling poverty and providing social protection for the people. The proposed scheme could provide tangible and immediate benefits to the stewards of the forests and decision makers at various government levels alike.

It is apparent that the standing carbon stocks of *Tanah Papua'*s forest have an enormous financial value, if their valuation follows the carbon pricing logic of comparable REDD+ initiatives in a HFLD context.

The proposed scheme is based on action research in the region, literature review and modelling approaches. Testing the BINC approach under real world conditions in collaboration with the local and provincial governments and stakeholders in *Tanah Papua* would now be the logical next step. The Forest and Climate Change Program (FORCLIME), currently being implemented by GIZ in *Tanah Papua*, together with the scientists have prepared the ground for piloting this seemingly innovative approach. Funding for such a real-world pilot has not been secured yet.

In terms of implementation structure, population dynamics, forest cover and political will the conditions in Tambrauw district in West-Papua seem to best suited for a pilot project.

The BMU funding that kick-started this important action research project has ended in April 2021. Further funding was secured by the Freiburg Institute for Basic Income Studies (FRIBIS) to continue the theoretical research as well as for the continuation of a policy dialogue at sub-national, national, and international levels.

Other donors are now urgently needed to fund a pilot project to test the Basic Income for nature and climate. This would underscore the importance of Nature-based Solutions and send important signals to the Indonesian government, the international community, and the people of *Tanah Papua*.

Only a very small number of Basic Income schemes have been implemented globally so the environmental impacts of the proposed basic income for nature and climate in *Tanah Papua* remain hypothetical.

The Basic Income financed through the Alaska Permanent Fund (APF) for example has initially led to increased consumption. Several studies have documented the positive correlation between income and per capita emissions (e.g. Ivanova et al. 2018, Hubacek et al., 2017). However, after years of implementation the beneficiaries of the APF began to use their proceeds more towards charitable activities and away from material consumption (Goldsmith, 2012), indicating possible positive ecological impacts.

The Environmental Kuznets Curve is often used to describe the relationship between economic growth and environmental quality, even though the evidence is highly contested.

The Environmental Kuznets Curve is often used to describe the relationship between economic growth and environmental quality, even though the evidence is highly contested.

Income may not increase emission indefinitely but induce environmental conservation at a point where income levels are high enough to increase demand for better environmental quality or reduce poverty and inequality-related degradation. Nevertheless, it remains unknown at what level of income the turning point is reached and what level of Basic income would be required. With these various possibilities, the ecological impact of BINC distribution in most schemes is, at best, ambiguous.

Compared to Alaska, *Tanah Papua* has a very specific context and the ecological impact is likely to differ. The population in *Tanah Papua* consist of mainly Indigenous people who depend on forest resources for subsistence livelihoods and foster intimate relationship with their lands and the natural world. It is assumed that a BINC paid to individuals in this ecologically relevant context will likely induce ecological benefit. Especially considering current behavioral patterns where indigenous communities give up their land because of the lack of other income sources. Furthermore, implicit conditioning of the use of the proceeds could be triggered via nudging mechanism in the form of campaigns regarding the expected use of the BINC payments for nature- and climate-related purposes (Maitri and Mumbunan, 2021).

CONCLUSION

Innovative approaches for conserving tropical forest areas are emerging from the scientific community. They are focused on priority areas critical for biodiversity conservation or climate change mitigation and adaptation. Recent proposals for a Conservation Basic Income (CBI) scheme (e.g. Fletcher and Büscher, 2020), provide conceptual ideas of a basic income scheme promoting biodiversity conservation through cash payments to individuals living in critical conservation areas. While the study of Fletcher and Büscher remains vague on how such basic schemes would be operationalized, the researchers from the University of Indonesia (Mumbunan et. al., 2021) have come forward with a much more concrete proposal for a basic income for nature and climate in *Tanah Papua*, Indonesian New Guinea.

Given that the region has the highest poverty rates in Indonesia, a basic income scheme for nature and climate linked to the extent of the remaining forest cover could provide a powerful incentive to protect standing forests. The proposed design creates not only a incentive for the local population, but for all levels of the Indonesian government where power over land-use decisions is concentrated.

Given that the region has the highest poverty rates in Indonesia, a basic income scheme for nature and climate linked to the extent of the remaining forest cover could provide a powerful incentive to protect standing forests.

The indigenous people of Papua have maintained their forests over centuries. Other than in approaches such as REDD+, they would be the direct beneficiaries of the basic income scheme that would establish a highly transparent and accountable payment distribution mechanism and governance structure. This lowers the risk of elite capture and provides direct financial support for citizens in Indonesia´s economically most disadvantaged region. A region of utmost global importance for biodiversity conservation and for avoiding climate breakdown.

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