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Basic income for nature and climate: A forest carbon dividend in Tanah Papua

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Indonesia has the third largest area of tropical rainforest on the planet. However, deforestation is an ongoing issue and has led to one of the highest rates of primary forest loss in the tropics (Margono et al., 2014), contributing to the nation's ranking as one of the largest greenhouse gas (GHG) emitters globally (Austin et al., 2018). Nevertheless, the country is a priority for international cooperation on reducing deforestation and has made strong progress in this area in recent years.

Tanah Papua (the Land of Papua), which comprises the West Papua and Papua provinces in the Indonesian New Guinea, is a region of global importance for biodiversity conservation, climate change mitigation, and cultural heritage. It is the largest tropical island on earth and home to the largest carbon-dense rainforest in the Asia-Pacific region, which is also the third largest in the world. The carbon-rich mangroves of Papua form a large carbon sink with the plant and biomass pools of Papuan mangroves having some of the highest carbon values in Indonesia (Murdiyarso et al., 2015).

Threats on forest and biodiversity protection in Tanah Papua

Deforestation rates in Tanah Papua are still very low compared to other regions in Indonesia. But plantations and roads grew rapidly after 2011, peaking in 2015/16 and declining thereafter. With the diminishing forest land in other areas, it is often feared that Papua will become the next hotspot for industrial palm oil and pulpwood plantations, mining, and infrastructure development (e.g. Sloan et al., 2019).

Moreover, Tanah Papua has consistently had the highest proportion of poverty, low education and low health status in Indonesia, despite trillions of rupiah in the region's Special Autonomy fund (Dana Otonomi Khusus), mining income, and rich natural resources. A lack of income and being deprived of their livelihood has caused some of the indigenous to give up their land at a very low price. In a recent case, an international oil palm company paid tribe members as little as USD 8 per hectare in compensation for their forested land, which was then converted into an oil palm plantation (Amindoni and Henschke, 2020).

A tailor-made 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. Such an approach would reward the local stewards for preserving one of Indonesia's – and the world's – most important forests.

The carbon stock in Tanah Papua are worth billions

The forest in Tanah Papua stores large amount of carbon. Approximately 83% of the land in Papua and West Papua is covered by forest. This amounts to about 33.4 million hectares of forest area in both provinces: about 24.8 million hectares in Papua and about 8.6 million hectares in West Papua. The total above-ground and below-ground carbon stocks based on different land-cover types (i.e. primary dry land forest, secondary dry land forest, and primary swamp forest) range between 12.6 and 3.427 MtC in Papua and 11.6 and 951 MtC in West Papua (Mumbunan and Tazkiana, 2021).

The valuation of this large amount of carbon stock can generate billions in revenue. By assuming a carbon price of USD 5 per ton of CO2e as set under the Green Climate Fund schemes for the emission reduction from avoided deforestation, we estimated that the total potential revenue obtained from valuing the carbon stored in the Tanah Papua's forest (above and below ground) was USD 130 billion for Papua and USD 43 billion for West Papua. At the district level, the average revenue was estimated to be USD 4.5 billion in Papua and USD 3.3 billion in West Papua (Mumbunan and Tazkiana, 2021).

The concept of a Forest Carbon Dividend

The BINC in Tanah Papua is proposed to explore the possibility of a scheme that can encourage sustainable use and management of forest resources while at the same time contributing to the creation of social protection infrastructure in Tanah Papua where poverty rate remains the highest in Indonesia. It aims to provide a payment of dividend in the form of cash (or electronic money, such as e-money or e-wallet) that is distributed to all qualified residents in Tanah Papua (Mumbunan et al., 2021).

At the core of this approach is the Forest Carbon Dividend (FCD). It is funded from the earnings generated from a portion of the forest carbon stock valuation revenue in Tanah Papua that is managed in a permanent fund known as the Tanah Papua Forest Carbon Fund. The Fund is managed to create real returns for distribution while preserving the principal revenues for reinvestment. Figure 1 shows the financial flow of this concept, which comprises three key elements:

1) Financial resource mobilization. Revenue is collected from the valuation of forest carbon stock. This involves calculating the stock, pricing it, and determining the source of payment for the quantified and valued stocks. There are emerging sources of payments for the quantified and valued carbon stocks in Indonesia, such as, the results-based payments under the Forest Carbon Partnership Facility (FCPF) Carbon Fund and the results-based payment under the Green Climate Fund scheme in Indonesia.

2) Financial resource management. The revenue generated from carbon stock valuation is split into two kinds of allocation: (1) restricted revenue and (2) unrestricted revenue. The unrestricted revenues will be funneled to the central and provincial government and the decisions on how to spend the revenues lie with the respective government recipients. The restricted revenue will be allocated for the Tanah Papua Forest Carbon Fund and its use is restricted to this permanent endowment fund only. The Fund will be managed to create earnings with net earnings, subsequently placed into three different accounts: (i) an earning reserve, (ii) an inflation offset account, and (3) the FCD. While the earning reserve and the inflation offset account are used to hedge against inflation risks and to stabilize the fund, the FCD will be further distributed to the population in Tanah Papua.

3) Financial resource distribution. The earnings allocated to the FCD account will be shared as a dividend in the form of cash (or electronic money, such as e-money or e-wallet) to all qualified residents of Tanah Papua. Thus, something similar to the idea of a basic income is being developed here. The FCD distributes only the real returns from the Fund and is separated from the principal revenue so that this revenue can be reserved for reinvestment. The proceeds from the Fund could also be used to complement the funding for a Universal Child Benefit (UCB) pilot program in Papua province, a program that provides an inclusive child grant for all indigenous children under the age of four and is

considered to be a "categorical basic income" (Sihite and Mumbunan, 2021).

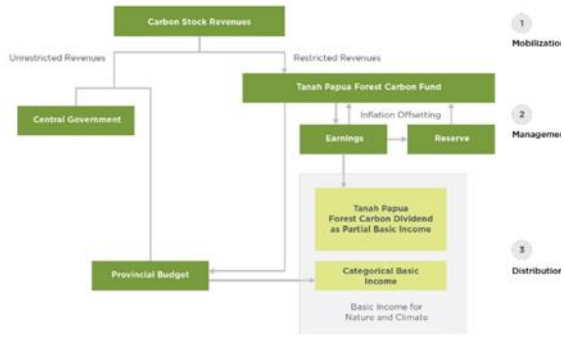

Figure 1 The Forest Carbon Dividend as part of an integrated concept of resource mobilization, management, and distribution (Mumbunan et al., 2021).

The simulation of per capita dividend and its distribution to residents

Based on the estimated value of carbon stocks in Papua (USD 130 billion) and West Papua (USD 43 billion), we estimated that the earnings that can be generated from the Fund to be allocated for the FCD is approximately USD 4.5 billion for Papua and USD 1.5 billion for West Papua (Mumbunan and Tazkiana, 2021).

The FCD per capita depends on the population size and forest area of each jurisdiction. In West Papua, the per capita FCD ranges between USD 6.7 and USD 7,780 annually with an average of USD 2,190. In Papua, the FCD per capita ranges between USD 18 and USD 22,800 annually, with an average of USD 2,400 and a relatively high standard deviation due to Memberamo Raya district that has a large forest area but a relatively small population compared to the other jurisdictions. The simulation also showed that highly-populated and developed urban districts with little forest (e.g. Jayapura city, Sorong city) have the lowest per capita dividends while sparsely populated districts with large forest area (e.g. Memberamo Raya, Tambrauw) have the highest per capita dividend.

To ensure fair distribution of the dividend, two factors are considered: affirmative principle and age structure. The affirmative principle provides indigenous Papuans with an extra payment given that they own land and are entitled to their indigenous rights. For age structure, the "per capita dividend" was used as the baseline and varying allocation arrangements are made according to age groups: children (0-4 years old) receive 50% of the baseline, the youth (5-19 years old) receive 75%, and adults (20 years old and older) receive the full baseline amount (see Figure 2).

Age group	Annual per capita basic income (in USD)		
	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 2 Summary estimate of the annual basic income amount per capita (in USD) according to age group and jurisdiction (Schmidt-Pramov, 2021).

The features of the Forest Carbon Dividend as BINC

The FCD intends to resemble the idea of a basic income in the context of nature and climate significance. Some explanation regarding the features of FCD that is being proposed here are as follows.

1) The definition of 'basic'. The 'basic' in basic income remains highly debated and the term is not defined in the proposed design here. The capacity of the scheme to cover the entire basic income and all the needs depends on the pool of funds available to be shared with each individual. The estimated per capita

amount of the FCD remains below the Indonesian minimum wage regulation in both provinces. Therefore, the FCD is not likely to cover the entire basic income of the recipient and, hence, constitute a "partial basic income". The FCD, thus, can serve as a basic amount intended to be supplemented with other benefits sources or as a complement to the existing cash assistance program, such as, the categorical basic income scheme in Papua province, the UCB.

2) The universality. The FCD is proposed to be a universal scheme, meaning that the dividend will be shared among all qualifying residents in Tanah Papua. Qualification will be applied based on the length of residency (to be determined), where only those who have lived in Tanah Papua for the minimum required duration are eligible for the dividend.

3) The unconditionality. While a key criteria of a basic income is being unconditional, the FCD also expects a certain degree of natural and climate outcomes. The conditionality does not necessarily have to be pure but the defining criterion for a basic income can be relaxed without losing the overall perspective of why a basic income exists in the first place. Further discussion on this can be found in Mumbunan and Maitri (2022).

4) The regularity of payment. The FCD is intended to be a regular payment. The interval of the payment may be adjusted for reasons related to the way the funds are managed and shared. The FCD would be tied along a transparently defined monitoring system based on forest cover assessments. If emissions from deforestation and forest degradation increases or carbon removal decreases dramatically, the basic income scheme may be compromised.

Tanah Papua has a very specific context in terms of ecological significance. This means that the environmental impact as a result of the basic income scheme can be significant. An income scheme linked to forest-based climate change mitigation and nature conservation could serve as a powerful incentive for the local population to maintain their forest land to enable a lasting basic income payment. More importantly, distributing part of the revenue to levels of government will create incentives among elected public officials at various jurisdictional levels to put in place conducive policies, law enforcement and extension services that place value on the environmental services and sustainable use of forests.

An article on this concept will be published in the next edition of the Green European Perspective on Basic Income magazine. The first report and a policy brief were also published to provide the conceptual basis of the approach. Further research will continue to be implemented to explore the feasibility of FCD in Tanah Papua and facilitate policy dialogue at sub-national, national, and international levels. The research will be done collaboratively between the Freiburg Institute for Basic Income Studies (FRIBIS) and the Basic Income Lab at the Research Center for Climate Change of the University of Indonesia (RCCC UI).

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