National Park Management in Indonesia: The Use of Ecosystem Services to Support Its Financial Needs

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INTRODUCTION

The growing trends in the conservation forest management opens up opportunities for the use of ecosystem services. Indonesia has 54 national parks that can be utilized for generating incomes as well as conserving the biodiversity to eliminate the financial gap of national park management. To support the financial needs of national park management, the Government of Indonesia needs to regulate the potential ecosystem services, improve the service delivery to the stakeholders, and consider new ecosystem services in addition to invite new investors and/or new grants and implement the economic instruments of environment.

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This situation could be a problem. A study in 20 countries reveals four main reasons of the problems regarding the government allocation budget for PAs, namely: (1) lack of commitment; (2) legislative constraints; (3) policy and institution; and (4) the manager’s inability to manage the budget and the lack of technical knowledge associated with new financial mechanisms (Mulongoy et al., 2008). The allocation budget for PA management tends to be relatively smaller than the allocation for other sectors. Pabon-Zamora et al. (2008) found that the budget for environmental management in Brazil, Colombia, Mexico, and Costa Rica was 0.13%-0.64% of the GDP or 1.5%-4.5% of the total expenditure of those countries in 2000. Mulongoy et al. (2008) argued that this situation is caused by the weak bargaining position of the environmental sector. Comparing the allocation budget for PAs to the GDP, López-Ornat and Jiménez-Caballero (2006) found that only 0.1%-0.5% is allocated for the PA management. A recent assessment conducted by Castillo et al. (2016) shows that the PAs in Southeast Asia have experienced a financial gap between 25% (Malaysia) and 324% (Philippines), while Indonesia’s PAs are underfunded by between 160% to 162%.

In addition to government budgets resulting from usage fees, taxes and other fees, and subsidies and donations from international NGOs and aid agencies, other funding sources such as payments for ecosystem services continue to increase (Emerton et al., 2006; Pagiola et al., 2005; Wunder, 2005; Wunder et al., 2008; Engel et al., 2008). Above at all, sustainable financing is one of the backbones to enable effective PA management (Rylance, 2017). Thus, this study reviews the growth of the use of ecosystem services in Indonesia’s national parks, the current issues and the countermeasures to ensure that Indonesia’s national parks are sustainably funded.

2. Theory

2.1 The Development of Ecosystem Service Utilization in Indonesia’s National Park

Indonesian Government has taken initiatives to utilize ecosystem services in national parks since 1990. The enactment of Act No. 5/1990 enabled the sustainable use of a nature conservation area itself and the use of plants and wildlife species (Article 26). Under this regulation, the nature-based tourism came to be allowed in national parks although the tourism facilities can be only built in the utilization zone of the national parks based on the management plan. In addition, Act No. 41/1999 mentions that forest areas cannot be used in core and preservation zones of the national parks (Article 24). Furthermore, the replacement of Act No. 27/2003 concerning Geothermal with Act No. 21/2014 has encouraged the utilization of geothermal in PAs since it is no longer classified as mining activity (Article 24 paragraph (3)).

The enactment of Government Regulation No. 68/1998 concerning sanctuary reserves and nature conservation areas confirmed that the utilization zone of national parks can be used for nature-based tourism and recreation activities. Replacing this regulation, the enactment of Government Regulation No. 28/2011 concerning the management of sanctuary reserves and nature conservation areas provided opportunities to utilize the ecosystem services in Indonesia’s national parks. This regulation enabled the use of ecosystem services of national parks such as carbon storage and/or sequestration, water use and water energy, solar energy, and wind energy as well as nature-based tourism (Article 35). Since the issuance of Act No. 21/2014 mentioned above, Government Regulation No. 108/2015 was enacted to allow geothermal potential to be exploited from national parks, as one of ecosystem services.

2.2 The Management of Ecosystem Service-based Non Tax Revenue

Based on the data obtained from PNBP generated from the use of ecosystem services of national parks was divided by the Ministry of Environment and Forestry into two sources, license fees and levies (Ministry of Forestry, 2014). However, the Ministry of Environment and Forestry applies no tariff for research activities or cultural and religious activities.

There are six types of license fees that can be generated from the use of ecosystem services of national parks. Firstly, the business license fee for the provision of nature-based tourism services (IIUPJWA in Indonesian) is charged to the prospective holders of business license for the provision of nature-based tourism services. Secondly, the business license fee for the provision of nature-based tourism facilities (IIUPSWA in Indonesian) is imposed on the prospective holders of the license for the provision of nature-based tourism facilities. Thirdly, the water use license fee (IUPA in Indonesian) is charged to the license holders of water use based on the use of the water source and the scale of the business/ investment. Next, the water energy use license fee (UPEA in Indonesian) is imposed to the license holders of water energy use based on the water source and the infrastructure and facilities in accordance with the generated electricity (micro hydro/ mini hydro). Another license fee is the geothermal exploration license fee (IIPJLPB-exploration in Indonesian), which is imposed on geothermal exploration activities. Finally, the geothermal exploitation and utilization license fee (IIPJLPB-exploitation and utilization in Indonesian) is imposed on the license holder of geothermal exploitation and utilization activities. These six fees are paid based on
a payment order issued by the billing officer or the designated officer recommended by the head of the national park office. The license holder of IIPJLPB, IUPA, and IUPEA must deposit into the recipient treasurer’s account no later than 24 working days, a maximum of 14 working days for the payment of IIUPIWA, and a maximum of 12 working days for the payment of IIPJLPB-exploitation and IIPIJPB-exploitation and utilization after the issuance of a payment order.

Levies can be divided into eight types. Firstly, the levy on transactions of carbon sequestration and/or carbon storage activities is charged on every transaction. Another levy on the revenue from nature-based tourism services (PHUPJWA in Indonesian) is imposed on the license holders once a month. Thirdly, a levy on the revenue of provision of nature-based tourism facilities (PHUPJWA in Indonesian) is charged at a rate of 10% of net profit once a year. An entrance fee is a levy imposed on the visitors and/or the accompanying vehicles (PMOWA in Indonesian), while another levy on services of nature-based tourism activities is imposed on visitors who conduct nature-based tourism activities, or conduct research or educational activities using state-owned property. A sixth levy on water use businesses (PUPA in Indonesian) is charged once a month to the license holder based on the generated electricity (micro hydro or mini hydro), and finally, a levy on geothermal use (PIPJLPB in Indonesian) is imposed based on the extent of activity area of geothermal use business.

As for the payment of license fees, the payment of the levy on transactions of carbon sequestration and/or carbon storage activities must be deposited no later than 60 working days, PHUPJWA must be deposited no later than 24 working days, and PHUPJWA, PUPA, and PUPEA must be deposited no later than 14 working days based on the payment order, while PMOWA and the levy on services of nature-based tourism activities must be deposited by the collecting officer once a month into the recipient treasurer's account. Furthermore, the recipient treasurer has to deposit PNBP as soon as possible into the State Treasury Fund through the tax payment banks. In the latest state accounting system (DJPB, 2017), all license fees and levies register into several account codes as seen on Table 1.

| Account Code | Description | Registered License Fee/Levy |
|--------------|-------------|-----------------------------|
| 425611       | Revenue from nature-based tourism | PHUPJWA, PHUPJWA, PMOWA, and the levy on services of nature-based tourism activities |
| 425612       | Revenue from the levy of services in the field of environment and forestry | PUPA, PUPEA, PIPJLPB |
| 425619       | Revenue from the levy of other services in the field of environment and forestry | the levy on transactions of carbon sequestration and/or carbon storage activities |

Source: DJPB (2017)

3. Research Method

To review the use of national park’s ecosystem services in order to support its financial needs, this paper is conducted drawing on qualitative research methods.

The first source of evidence for this research is in terms of publicly available documents, which are readily accessible. Documents include the governmental regulations and any government reports available to the public. In addition, internal records is provided to the researcher to improve understanding of the phenomenon at hand. The time frame in collecting this documentary evidence is limited, traced back to 1997 when the first regulation of the non tax revenue was released.

In this research, to corroborate the documentary findings, interview sessions with key participants is administered as further data sources. The researchers interviewed key persons working in this field, such as Head of Kutai National Park Office (KP1), Head of Kelimutu National Park Office (KP2), Head of Bukit Dua Belas National Park Office (KP3), Head of Bunaken National Park Office (KP4), and Former Head of Bromo Tengger Semeru National Park Office (KP5) by employing semi-structured questions to understand the use of ecosystem services at the national park level, the problems within, and the innovation carried out by the head of national park to optimize the use of ecosystem services.

4. Discussion

4.1 The Growth of the Use of National Parks’ Ecosystem Services

During the period 2011-2017, the number of visitors to Indonesia’s national parks slightly increased, from 1.66 million to 2.77 million visitors although it dropped to 2.17 million in 2015 (see Figure 1). The proportion of international tourists visiting national parks to local tourists does not show a significant growth during the period from 2011 to 2017. It was only 8.42%, 8.48%,
12.40%, 11.51%, 11.08%, 9.98%, and 9.34% respectively. There is a huge gap in number between the foreign tourists visiting Indonesia’s national parks and the total foreign tourist coming to Indonesia (see Figure 2). During the same period, the national parks can only attract 1.69%, 1.77%, 2.46%, 2.67%, 2.08%, and 2.33% of total foreign tourists visiting Indonesia, respectively.

Several problems still have to be overcome in order to increase tourist arrivals. Basic and supporting nature-based tourism facilities and infrastructure are limited; some access roads are not feasible; human resources that are skilled in language and interpretation are limited; national parks in Java, Bali, and Nusa Tenggara islands are more attractive for foreign tourists rather than other regions; some national parks have not yet undertaken a study of the carrying capacity of their area; service quality and safety of visitors are still not yet optimal; and the negative impact of visitor activities such as garbage and so forth is not handled optimally (PJLHK, 2018; KSDAE, 2017b). On the other hand, it is important to consider that the increasing number of visitors can result in disruption of life support systems and declining quality of ecosystems and habitats that sustain plants and wildlife. Most key persons (KP1, KP3, KP4, and KP5) stated that arranging the visiting schedule and tourist sites based on the number of tourists that can be accommodated would be the best way to prevent the excesses of mass tourism.

In addition, up to 2017, the growth of licenses for the use of ecosystem services in national parks shows the dominance of IUPJWA and IPA, with 172 units and 120 units respectively (see Figure 3). IUPSWA, IPEA, IUPA, IUPEA, and IPJLPB each contribute less than 10% of the total licenses (4.31%, 8.91%, 1.44%, 0.86%, and 0.57% respectively). Meanwhile, the use of conservation forests, including national parks, as the site of carbon sequestration and/ or carbon storage activities is still not regulated yet.

The use of ecosystem services contributes to the growth of PNBP. As mentioned before, there are four sources of PNBP generated from the use of national parks’ ecosystem services, namely: a) license fee in the field of environment and forestry, including IIUPSWA, IIUPJWA, IUPA, IUPEA, IIIPJLPB-exploration, and IIIPJLPB-exploitation and utilization (account code 425255); b) revenue from nature-based tourism, including PHUPSWA, PHUPJWA, PMOWA, and the levy on services of nature-based tourism activities (account code 425611); c) revenue from the levy of services in the field of environment and forestry, including PUPA, PUPEA, and PIIPJLPB (account code 425612), and d) revenue from the levy on transactions of carbon sequestration and/ or carbon storage activities (account code 425619). Figure 4 shows PNBP generated from the use of ecosystem services for the last five years. In total, PNBP grew significantly during 2013-2015, then it decelerated after 2015 although IUPA, IUPEA, PUPA, PUPEA, PUPJWA, and IIUPJWA were introduced as new sources of PNBP after the enactment of Government Regulation No. 12/2014 in 2014. Furthermore, Figure 7 also shows the contribution of ecosystem service-based PNBP to the total PNBP of the Ministry of Environment and Forestry. It has increased since 2013 at the following
rates each year: 1.09\%, 1.44\%, 2.22\%, 2.98\%, and 3.24\%, respectively. The first key person (KP1) said that the basic and supporting nature-based tourism facilities and infrastructure are limited and some access roads are not feasible. Besides that, the third informant (KP3) argued that knowledge and know-how of the officers necessary for promotion in order to attract tourists and the budget to conduct activities for the exploration of potential areas that can be turned into sources of PNBP are limited. Furthermore, KP4 argued that the development of new destinations requires investments in infrastructure and social capital for community empowerment.

This study finds that the preservation and protection of biodiversity and life support systems attract more and more people to visit the national parks, as seen in Figure 2, which led to an increase in ecosystem service-based PNBP, although its contribution to the total of PNBP of the Ministry of Environment and Forestry is still small. To maximize the use of national parks’ ecosystem services for sustainable financing to ensure effective management of Indonesia’s national parks, the authors stress the importance of the following three points: a) improvement in delivering services to the visitors, the investors, the communities, and other stakeholders; b) the revision of Government Regulation No. 12/2014 to include geothermal, solar power, and wind energy as PNBP sources; and c) the enactment of regulations to manage the use of solar power, wind energy, and carbon storage and/or carbon sequestration in Indonesia’s national parks and other PAs.

4.2 Current Issues and Countermeasures

4.2.1 Current Issues

There are several current issues identified by this study. Firstly, national parks as tourist attractions still face some problems, such as human resources whose language and interpretation skills are limited; national parks in Java, Bali, and Nusa Tenggara islands are more attractive for foreign tourists rather than other regions; some national parks have not yet undertaken a study of the carrying capacity of their area; service quality and safety of visitors are still not yet optimal; and the negative impact of visitor activities such as garbage and so forth is not handled optimally (PJLHK, 2018; KSDAE, 2017b). Figure 4 Contribution of Ecosystem Service-based PNBP to the Total PNBP of the Ministry of Environment and Forestry (in billion rupiah) Source: Analytical result, 2018

Secondly, Government Regulation No. 12/2014 concerning Sources and Tariffs on Sources of Non-Tax Revenue Applicable in the Ministry of Forestry does not include geothermal, solar power, and wind energy as PNBP sources. Besides that, according to KP4’s information, there is still a lack of understanding of this regulation among businessmen and small businesses. In addition, there is no implementing regulation to manage the use of solar power, wind energy, and carbon storage and/or carbon sequestration in Indonesia’s national parks and other PAs.

Thirdly, the weak and ineffective cooperation with the other ministries, private sector, communities, NGOs, local leaders, environmental activists, and scientists from local universities means that the problems of national park management cannot be resolved. For example, the second key person (KP2) said that some foreign tourists enter into the national park area through illegal footpaths, local communities around the national park area are reluctant to pay the entrance fees because they assume that the national park area is their ancestral land, and the construction of supporting facilities in the national park area is refused by some people. Moreover, KP4 listed...
other problems including the lack of awareness of domestic tourists to pay entrance fees, travel tour agents who do not pay the entrance fees that have been collected from the tourists to the park management, limited understanding of local governments related to the park area and the national park office as the management authority of the national park. The use of national parks’ ecosystem services can generate more PNBP while all stakeholders of national parks can build strong and effective cooperation among them.

Finally, those issues can be reflected in the low PNBP generated from the use of ecosystem services compared with the annual budget of Indonesia’s national parks from 2013 to 2017 (see Figure 5). This figure shows that efforts are needed to increase PNBP from the use of national parks’ ecosystem services before it can become the main source of sustainably financed national parks. Various countermeasures are performed by all levels in the Ministry of Environment and Forestry to increase PNBP from the use of national parks’ ecosystem services, as outlined below.

4.2.2 Countermeasures

To make sure that the use of ecosystem services can generate more PNBP effectively, the current issues above have to be tackled. To improve the service quality of national parks as tourist destinations in 2018, KSDAE developed an electronic system for PNBP from the nature-based tourism (e-PNBP) and an online monitoring system for IUPSWA and IUPJWA. It also conducted a study on the needs of Indonesia nature-based tourism infrastructure and its budgeting in Indonesia for the period 2020-2024, and is reviewing the proposed site design and detailed engineering design of nature-based tourism infrastructure. It also manages nature-based tourism partnerships, builds community-based tourism facilities and infrastructure, and promotes national park tourism (Prihadi et al., 2017). Besides that, KP2 suggested building surveillance shelters on illegal footpaths to prevent illegal visitors. KP2 and KP4 also suggested improving ticketing surveillance systems on the nature-based tourism sites. KP3 suggested including officers in multimedia training to improve their promotion and marketing skills. Moreover, some national park offices have cooperated with insurance companies to give insurance to the visitors, such as Gunung Merbabu, Gunung Merapi, and Gunung Gede Pangrango (KSDAE, 2018).

Secondly, the revision of Government Regulation No. 12/2014 urgently needs to include geothermal, solar power, and wind energy as sources of PNBP for the Ministry of Environment and Forestry. The Ministry of Environment and Forestry needs to coordinate with the Ministry of Finance to ensure this revision can be done. Furthermore, in October 2017, PJLHK implemented focus group discussions on the use of wind and solar energy services in conservation forests. The purpose of this was to obtain detailed and complete information on how to use wind energy and solar thermal energy as basic input for preparing the regulation of wind and solar thermal services in conservation forests (PJLHK, 2017). Moreover, to regulate the use of carbon services in the conservation forest, KSDAE has prepared a set of policy drafts in the form of Ministerial Regulation concerning Utilization of Forest Carbon Service in Conservation Forest Area in 2016 (KSDAE, 2018). The enactment of these implementing regulations is very important to improve the utilization management of wind and solar energy services and carbon services in the PAs.

Thirdly, national park offices have built cooperation agreements with several stakeholders to improve the implementation of national park functions and to contribute to the strategic infrastructure development. Since 2015, there are 20 cooperation agreements on...
strategic development and 90 cooperation agreements on functional improvements done by national park offices and stakeholders (KSDAE, 2016; 2017a; 2018). For example, cooperation with the Papuan Governor on the Habema-Yuguru-Kenyam road development that crosses Lorentz National Park; cooperation between Gunung Gede Pangrango National Park Office and the President Director of PT. Asuransi Amanahjiwa Giri Artha on touristor insurance program and nature-based tourism development at Gunung Gede Pangrango; cooperation between Gunung Gede Pangrango National Park Office and Director of Fontis Aquam Vivam on strengthening the function of Gunung Gede Pangrango through area protection, nature-based tourism development and community empowerment; cooperation between Betung Kerihun Danau Sentarum National Park Office with Faculty of Forestry at the University of Tanjung Pura on strengthening education, research and development of natural resources conservation. In 2018, KSDAE plans to establish 20 new cooperation agreements (Prihadi et al., 2017). To support this plan, KP4 as the Head of Bunaken National Park Office said that Bunaken National Park Office plans to establish 6 cooperation agreements to improve: a) the nature-based tourism and to build tourism facilities and infrastructures; b) the land boundaries of Bunaken National Park area; c) the ecotourism development in traditional zone with the community of Popareng village, Minahasa Selatan regency; d) the ecotourism development in traditional zone with the community of Poopoh village, Minahasa regency; e) to optimize the management of PMOWA to Bunaken areas and to Gunung Tumpa Grand Forest Park; and f) to raise the community awareness of solid waste management.

Finally, besides generating PNBP, generating grants from both international agencies and local agencies can assist the government allocation budget to improve the management effectiveness of Indonesia’s national parks. Until December 2017, there were 4 international grants in 5 national parks with commitment value of 151.92 billion rupiah and 12 local grants in 5 national parks with commitment value of 14.15 billion rupiah (Rocan, 2018). Furthermore, in 2018, nature-based tourism facilities and infrastructure will be built in 3 national parks financed by Islamic-based Government Securities (Prihadi et al., 2017), valued at as much as 51 billion rupiah (DJPPR, 2017).

In addition, on 10th November 2017, the Jokowi Administration enacted Government Regulation No. 46/2017 to provide a set of economic instruments to encourage the central government, local governments, or each person toward the preservation of environmental functions (PORI, 2017). There are 15 operational economic instruments regulated by this policy, including: a) natural resources and environmental accounts; b) preparation of gross domestic product and gross regional domestic product of the environment; c) payment for ecosystem services amongst regions; d) embedding environmental cost to the production cost or cost of activities; e) guarantee fund for environmental recovery; f) environmental restoration fund; g) trust fund or conservation assistance; h) development of environmentally friendly label system; i) procurement of environmentally friendly goods and services; j) application of environmental tax, environmental levy, and environmental subsidy; k) development of an environmentally friendly financial institutions; l) development of a trading system in license for waste disposal and/or emissions; m) development of environmental insurance; n) development of payment for ecosystem services system; and o) development of performance award system in the field of environmental protection and management.

5. Conclusion

The established ecosystem services of Indonesia’s national parks are nature-based tourism, water use and water energy use, geothermal services, and forest carbon services. But, since Government Regulation No. 12/2014 does not include geothermal, solar power, and wind energy as PNBP sources and there is no implementing regulation to manage the use of solar power, wind energy, and carbon storage and/or carbon sequestration in the Indonesia’s national parks and other PAs, the sources of PNBP are only nature-based tourism, the use of water, and the use of water energy. The contribution of ecosystem service-based PNBP to the total PNBP of the Ministry of Environment and Forestry has increased since 2013, 1.09%, 1.44%, 2.22%, 2.98%, and 3.24%, respectively. Compared to the annual budget of national parks between 2014 and 2017, PNBP generated during this period is 12.33%, 15.55%, 23.48%, and 15.82%, respectively. The current challenges for ensuring the sustainable finance of Indonesia’s national parks include lack of basic and supporting infrastructure and facilities, lack of skilful human resources, some sources of PNBP from the use of national parks’ ecosystem services not being regulated, and the weak and ineffective cooperation with stakeholders. To tackle these issues, in 2018, KSDAE is in the process of: (a) developing an electronic system for PNBP from the nature-based tourism (e-PNBP) and an online monitoring system for IUPSWA and IUPJWA; (b) making a study on the needs of Indonesia nature-based tourism infrastructure and its budgeting in Indonesia 2020-2024; (c) reviewing the proposed site design and detailed engineering design of nature-based tourism infrastructure; (d) managing the nature-based tourism partnership; (e) building community-based tourism facilities and infrastructures; and (f) promoting national park tourism.
References

Bovarnick, Andrew, Jaime Fernandez-Baca, Jose Galindo, and Helen Negret. (2010). Financial Sustainability of Protected Areas in Latin America and the Caribbean: Investment Policy Guidance. United Nations Development Programme (UNDP) and The Nature Conservancy (TNC).

Buckley, Ralf. (2012). Tourism, Conservation and the Aichi Targets. Parks, Vol. 18 (2), pp. 12–19.

Castillo, Gem, Somaly Chan, Wenjun Li, Yanbo Li, H. Luthfi Fatah, Sivannakone Malivarn, Kian Foh Lee, Alexander Anda, Prinarat Laengcharoen, and Chien Pham Duc. (2016). Improving the Performance of Protected Areas: An Assessment from across Southeast Asia. Economy and Environment Program for Southeast Asia (EEPSEA): Laguna

DJPB. (2017). Keputusan Direktur Jenderal Perbendaharaan Nomor KEP-617/PB/2017 tentang Perubahan atas Keputusan Direktur Jenderal Perbendaharaan Nomor KEP-617/PB/2017 tentang Pemutakhiran Kodefikasi Segmen Akun pada Bagan Akun Standar. DJPB: Jakarta.

DJPPR. (2017). Forum Koordinasi Kebijakan Pembiayaan Proyek SBSN: Pembiayaan Produktif Mendukung APBN Yang Berkualitas. Direktorat Jenderal Pengelolaan Pembiayaan Dan Risiko, Kementerian Keuangan. Retrieved from http://www.djppr.kemenkeu.go.id/page/load/2036/keterangan-pers-forum-koordinasi-kebijakan-pembiayaan-proyek-sbsn-pembiayaan-produktif-mendukung-apbn-yang-berkualitas. (in Indonesian) [Accessed on July 02, 2018].

Emerton, Lucy, Joshua Bishop, and Lee Thomas. (2006). Sustainable Financing of Protected Areas: A Global Review of Challenges and Options. In IUCN Best Practice Protected Area Guidelines Series No. 13. IUCN: Gland.

Engel, Stefanie, Stefano Pagiola, and Sven Wunder. (2008). Designing Payments for Environmental Services in Theory and Practice: An Overview of the Issues. Ecological Economics, Vol. 65 (4), pp. 663–674.

Ervin, Jamison, Sarat Babu Gidda, Rolla Salem, and Jesse Mohr. (2008). The PoWPA—a Review of Global Implementation. Parks Journal, Vol. 17, pp. 4–11.

———. (2014). Forestry Statistics of Indonesia 2013. Kemenhut: Jakarta.

KSDAE. (2016). Laporan Capaian Renja 2015 dan Progres Capaian Renstra 2015-2019 Sampai Tahun 2015 Direktorat Jenderal KSDAE. KSDAE KLHK: Jakarta. (in Indonesian)
Zuleika, and Ernatia Wati. (2017). *Rencana Kerja Direktorat Jenderal Konservasi Sumber Daya Alam dan Ekosistem Tahun 2018*. KSDAE KLHK: Jakarta. (in Indonesian)

Rocan. (2018). *Rekapitulasi Pelaksanaan Hibah Program / Proyek Kerjasama dengan Dana Hibah Kementerian Lingkungan Hidup dan Kehutanan sampai dengan Triwulan IV 2017*. Biro Perencanaan KLHK: Jakarta. (in Indonesian)

Rylance, Andrew. (2017). *Estimating Tourism’s Contribution to Conservation Area Financing in Mozambique*. Tourism and Hospitality Research, Vol. 17 (1), pp. 24–33.

Wiratno. (2018). *Sepuluh Cara (Baru) Mengelola Kawasan Konservasi di Indonesia: Membangun Learning Organization*. KSDAE KLHK: Jakarta (in Indonesian).

Wunder, Sven. (2005). *Payments for Environmental Services: Some Nuts and Bolts*. CIFOR Occasional Paper, Vol. 42, pp. 3–4.

Wunder, Sven, Stefanie Engel, and Stefano Pagiola. (2008). *Taking Stock: A Comparative Analysis of Payments for Environmental Services Programs in Developed and Developing Countries*. Ecological Economics, Vol. 65 (4), pp. 834–852.