The Effects of Vietnam’s Tourism Development and Payments for Forest Environmental Services Policies on Local Livelihoods in Phong Nha-Kẻ Bàng National Park Areas

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Abstract Phong Nha-Kẻ Bàng National Park (PNKB NP) is a world heritage site in Vietnam, where ecosystem conservation is accompanied by government policies intended to improve local livelihoods. Currently, two policies have been implemented: the tourism development and payments for forest environmental services (PFES) programs. This study employs both semi-structured and in-depth interviews to analyze the relationships between tourism development, ethnic differences, and the PFES in the PNKB NP area. The results are as follows. The PNKB NP has devoted much time to the tourism development policy, with some success. However, disparities in implementation have meant that central areas, such as Xuan Tien Village, have benefited significantly from tourism revenue, whereas remote areas, such as Rao Con village have not yet had the opportunity to participate in income-generating tourism activities. As a result, the gap between the livelihoods of the two villages has widened, exacerbated by inappropriate distributions of the financial budget (the Phong Nha fee). Moreover, the lack of participation in the policy by local residents has meant the PFES has had little effect on their livelihoods. Thus, although the aforementioned policies were expected to improve local livelihoods, this has not occurred, because the PFES mechanism does not sufficiently consider those living in the area.

Key words Phong Nha-Kẻ Bàng National Park, tourism, payments for forest environmental services, local livelihood, development disparity

Introduction

Tourism is a vital industry, worldwide (Goodwin 1998; Kuenzi and McNeely 2008). Here, sustainable tourism development goals have resulted in nature-based tourism becoming the fastest growing sector in the industry, thus garnering much attention from researchers. Nature-based tourism encourages the efficient use of resources to produce value for humanity. Thus, in addition to reaching economic targets, this incorporates both social and environmental goals (Luzar et al. 1995). However, when economic goals are prioritized, this can have negative environmental and community effects (Kuenzi and McNeely 2008).

Communities in Vietnam’s target areas have been affected differently by nature-based tourism. In general, the ethnic majority (Kinh people) have experienced positive effects, whereas ethnic minorities have struggled to maintain their livelihoods (Walle et al. 2000; Dang 2012; Nguyen et al. 2013). Although the Vietnamese government is aware of this problem, the measures it has taken to reduce this gap have not worked well (Fujii 2018). Thus, in order to reduce the disparities between ethnic groups, the state needs to apply development policies appropriate to each target group (World Bank 2009; Dang 2012; Fujii 2018).

The payments for forest environmental services (PFES) policy is an environmental conservation tool with numerous benefits (Miranda et al. 2003; Locatelli et al. 2008; Baker and Rice 2012). The goals of the PFES are to preserve the environment, develop people’s livelihoods, and enhance the local economy (Landell-Mills and Porras 2002; To et al. 2012; Pham et al. 2018). The PFES are transactions involving environmental goods between at least one seller and one buyer (Wunder 2005). Here, sellers have the right to manage and use environmental services (ES) demanded by buyers (usually organizations). In Vietnam, most ES buyers are suppliers of hydroelectricity, water, and tourism (Pham et al. 2013). And selling ES to hydropower and clean water companies has a clear oper-
Mai, T. K. V. and Kim D.-C.

This study analyzes the relationships between the following for the Phong Nha-Kẻ Bàng National Park (PNKB NP) area in Vietnam: tourism development, disparities between the development of the ethnic majority and minorities, and the PFES mechanism related to tourism, yielding three research questions:

1. What is the tourism development process in the PNKB NP area?
2. What disparities related to tourism development exist between the ethnic minorities and majority?
3. What is the mechanism behind the PFES in the PNKB NP area?

After discussing the positive and negative effects of tourism and the PFES on the livelihoods of local residents, several improvements to the current policies are proposed. The shared purpose of developing tourism and implementing the PFES is to improve local livelihoods.

Research Methodology

The field survey in the PNKB NP area was conducted between August 6, 2019, and September 5, 2019. First, the authors conducted personal interviews with PNKB NP management and local government officers, yielding an overall view of tourism development, the PFES implementation process, and people’s livelihood issues. Next, the authors interviewed the village heads of Xuan Tien village and Rao Con village. In-depth interviews were conducted to determine the village’s formation history and socioeconomic situation, as well as the relationship between the community and tourism activities and the PFES. In addition, issues specific to each village were identified. Sightseeing plays an important role in both study sites. In Xuan Tien village, located in the central area (neighboring the PNKB NP), the village head described the recent development of the Xuan Tien community. Rao Con village comprises ethnic minorities, and is located in a remote area. After collecting information from local administrators and making personal observations, the semi-structured household questionnaires were adjusted to better suit each research area. Then, the authors conducted random interviews with 10 households in Rao Con village which accounts for 19% of total households, and 31 households in Xuan Tien village which accounts for 14% of total households, respectively. The interviews were conducted in person, using the questions prepared in the questionnaire and the actual situation in each interview. The questions gathered information on the lives of the interviewees, the family’s income-generating jobs, and their awareness of local development policies, such as the tourism development process and/or PFES implementation. The authors asked similar questions during the interviews in order to cross-

Figure 1. Map of the Phong Nha-Kẻ Bàng National Park.
Source: People’s Committee of Quang Binh Province (2010), PNKB NP website (last accessed 23 September 2019).
check interviewees’ answers.

**Study Area**

**The PNKB NP**  The PNKB NP is located in Quang Binh Province, Central Vietnam. The national park is divided into two zones. The core zone covers 123,326 ha, and includes three subdivisions: a strictly protected zone, an ecological restoration zone, and an administrative and service zone. An additional extension zone is categorized as a special-use forest, and is included in the core zone. Then, a buffer zone covering 219,855 ha holds 13 communes. The PNKB NP was established on December 12, 2001. Later, it was recognized as a World Natural Heritage site in 2003, and then again in 2015 (see Figure 1).

Nature conservation in the PNKB NP area began in 1975. Access to the forest area was forbidden, and it was limited in size (5000 ha). The PNKB NP was officially established in 2001. Two years later, the PNKB NP was recognized by UNESCO as a World Natural Heritage site (see Table 1).

Currently, the area is managed by the PNKB NP management board, which was established in 2003. The board comprises three divisions and two centers (see Figure 2).

The Son Trach commune and two study villages  The Son Trach commune is noteworthy because it plays an

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### Table 1. History of the Phong Nha-Kẻ Bàng National Park

<table>
<thead>
<tr>
<th>Year</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>Visitors started to visit Phong Nha cave for the first time.</td>
</tr>
<tr>
<td>1937</td>
<td>The tourist office (Tourist Colonial en Indochine) published a brochure to promote tourism in Phong Nha. This site ranked second in Indochina for tourism.</td>
</tr>
<tr>
<td>After 1975</td>
<td>For the first time, the local government implemented resource conservation/protection.</td>
</tr>
<tr>
<td>1986</td>
<td>Phong Nha Nature Reserve (5000 ha) was listed in Vietnam’s Special Use Forest System on August 9, 1986.</td>
</tr>
<tr>
<td>1993</td>
<td>The reserve area was extended to 41,132 ha.</td>
</tr>
<tr>
<td>1994</td>
<td>A management board of the Phong Nha Nature Reserve was established.</td>
</tr>
<tr>
<td>2001</td>
<td>The Phong Nha Nature Reserve was upgraded to a national park (the PNKB NP).</td>
</tr>
<tr>
<td>2003</td>
<td>This park was inscribed on the World Natural Heritage List under Criterion (viii): to be outstanding examples representing major stages of earth’s history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features.</td>
</tr>
<tr>
<td>2009</td>
<td>Recognized as a special national monument by the Prime Minister’s Decision No. 1272/QĐ-TTg of August 12, 2009.</td>
</tr>
<tr>
<td>2013</td>
<td>The Prime Minister issued Decision No. 1062/QĐ-TTg, dated July 5, 2013, on adjusting the boundary of PNKB NP from 85,754 ha to a total area of 123,326 ha (an increase of 37,570 ha).</td>
</tr>
</tbody>
</table>
| 2015     | Included in the UNESCO World Heritage list for the second time, with two new criteria:  
| — criterion ix: to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals.  
| — criterion x: contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation. |

important role in the PNKB NP tourism process. One part of the commune belongs to the administrative and service zone (the core zone), whereas the other falls within the buffer zone.

To identify the disparities between villages and ethnic groups, the authors selected two study villages, both of which are located in the Son Trach commune: Xuan Tien village, and Rao Con village. Most residents in Xuan Tien village belong to the ethnic majority, the Kinh people. This village is located in the central area of the commune. In contrast, most residents of Rao Con village are Bru-Van Kieu, one of the ethnic minorities in Vietnam. This village is located in a more remote area (see Figure 3).

Xuan Tien village was formed in 1975, and covers just over 30 hectares. It is located in the center of the Son Trach commune and has a relatively large population (more than 1,000 people) with 226 households. In contrast, Rao Con village is located in a remote area, making it difficult to access the central area. The village was formed in 1986, and covers a large section of land (over 232 ha), despite its small population with 54 households.

The development disparity is evident in the latter’s poverty rate in 2018. The Xuan Tien community belongs to the wealthy group, with a 4% household poverty rate, lower than the average poverty rate of Son Trach commune (6.1%). The same rate in Rao Con village is 96%, which is the highest one in the commune, showing the extremely poor situation of the villagers (see Table 2).

The two villages were chosen because they illustrate the disparities related to tourism in this area. The Son Trach Commune has received much tourism-related investment. However, the budgets allocated to tourism development in the region seem uneven, with Xuan Tien village receiving far more than Rao Con village. The next section discusses these development disparities and their causes.

![Figure 3](image.png)

**Figure 3.** Locations of the two case studies.

Source: Field survey in 2019.

<table>
<thead>
<tr>
<th>Table 2. General information of the two villages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xuan Tien village</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Ethnic group</td>
</tr>
<tr>
<td>Acreage</td>
</tr>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Population</td>
</tr>
<tr>
<td>Poor household rate in 2018</td>
</tr>
<tr>
<td>History of forming village</td>
</tr>
</tbody>
</table>

Source: Field survey in 2019.
Findings

Tourism development in PNKB NP areas

Tourism in the PNKB NP prior to 2005 included two main tourist destinations, the Phong Nha cave and the Tien Son cave. After 2005, additional tourist sites were arranged by the PNKB NP management board, and tourist numbers increased. The reputation of the PNKB NP has continued to grow since 2013, when the Son Doong cave, the largest cave in the world, was opened to the public. Tour programs have been introduced to meet the needs of both domestic and international visitors. Although still based on the natural environment of the national park, visitors can participate in numerous activities, including trekking, sightseeing, adventure travelling, and water entertainment. Figure 4 also shows how tourist numbers and tourism revenue have increased over time, particularly since 2013.

The effects of tourism development on local livelihoods

The economic structure of the Son Trach Commune changed significantly between 2005 and 2018, with the agriculture and forestry sector exchanging positions with the service sector (see Table 3). In 2005, the economy of Son Trach depended mainly on agriculture and forestry (49%), whereas the service sector accounted for just one-third of the total economic value of the commune. By 2018, the service sector had flourished, accounting for more than half of the total economic value, whereas that related to agriculture and forestry had decreased sharply to 28%. The reason for this change was a strong development of tourism and related service activities. As a result, the economic structure has shifted from a focus on agriculture and forestry to one centered on tourism services (see Table 3).

Locals’ livelihoods in Xuan Tien village

The changes in the economic structure of the Son Trach commune have significantly affected the livelihoods of those living in Xuan Tien village. From the authors’ field survey, these changes can be divided into three stages, based on the main income-generating activities (see Table 4).

The early stage, from 1975 to 1997, was dominated by subsistence, with villagers depending mainly on rice cultivation, natural fishing, and forest exploitation.

In the next stage, from 1997 to 2013, several new income-generating activities were introduced. Farmers began raising more cattle and poultry, while others migrated to urban areas or out of the country to earn money for their families. At the same time, as the national park started to deploy tourism functions, few primitive tourism activities took place. Some villagers began providing boat services or working for tourism companies. At this stage, however, jobs in the tourism sector were not popular to attract many employees because the number of
tourists as well as income-generated tourism businesses were still limited.

Since 2013, tourism has become the main source of income for Xuan Tien villagers. During this period, the local government paid more attention to construction activities, aiming to improve infrastructure for tourism. In addition, due to the high potential growth in tourism near the national park, both outsiders and locals invested in tourism businesses such as hotels, restaurants and travel agencies, which were mostly concentrated in Xuan Tien. Many local people are now employed in tourism and cage fish farming, which provides food for local catering services. This growth in the tourism sector has resulted in increased land prices in Xuan Tien village. According to the village head, frontage ground in 2019 increased in value to more than 230 times its value in 2003. Some locals sold parts of their land in order to invest in tourism, while others stopped cultivating rice in order to participate in tourism-related jobs.

Xuan Tien Village is a tourism development center of the Son Trach commune. Owing to its favorable geographical location, the tourism sector started earlier here than in other villages, and benefited from many opportunities to develop. Villagers engage in tourism through various forms of waged work. According to the head of Xuan Tien village, more than 70% of the households are involved in tourism. Many of these came to the village to find tourism jobs, and include subsequent generations who inherited their family’s tourism businesses.

From Table 5, it is clear that the village participated in tourism soon after the industry formed in the PNKB NP. Located in the heart of the tourist area, accommodation facilities flourished. Many local people built small hotels/guesthouses or leased land to outside investors. Between 2004 and 2009, the village had six hotels, including guesthouses. Five years later, an additional 11 hotels had been built. This number continued to increase after 2016, with the addition of a further 26 establishments. Currently, the village boasts 43 accommodation facilities.

However, participating in tourism activities has meant that Xuan Tien villagers have needed to adapt to the characteristics of tourism, including its seasonality. During the off-season, villagers often participate in other jobs, working in small businesses or in part-time jobs in the construction field. However, the income from these activities is often insufficient to cover daily expenses.

The agricultural sector in Xuan Tien village has also changed with the development of tourism. Traditional farming activities (wet rice cultivation) have been gradually eliminated. Agricultural land has been converted to other purposes more suitable to the requirements of the village. For example, the farming of small cattle and buffalo, which employed free-grazing, was ineffective, and caused unsanitary conditions, has been abolished to promote a clean environment for tourism.

Locals’ livelihoods in Rao Con village

The Bru-Van Kieu people moved from the Truong Son commune to Rao Con village in 1986 to find land suitable for shifting cultivation. The village land belonged to the Bong Lai state forestry enterprise. From 1986 to 2000, the main income-generating activities were upland rice cultivation and forest exploitation. In this period, the local authority was still being formed, and so Rao Con village was not formally recognized by the local government.

Between 2000 and 2013, Rao Con villagers learnt about wet rice cultivation, which became their main food supply. During this period, the local government began to provide some support to the villagers, including, in 2009, building a primary/secondary school in the center of the village. In 2011, the local government issued personal ID

### Table 4. Changes in the livelihoods of people in Xuan Tien village

<table>
<thead>
<tr>
<th>Period</th>
<th>Agriculture</th>
<th>Forestry</th>
<th>Tourism</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975–1997</td>
<td>Paddy field</td>
<td>Illegal logging; Collecting non-timber forest products</td>
<td>Fishing</td>
<td></td>
</tr>
<tr>
<td>1997–2013</td>
<td>Paddy field; Cattle raising; Aquaculture</td>
<td>Illegal logging; Collecting non-timber forest products</td>
<td>Tour boat; Employees for tourism companies</td>
<td>Remittance from labor export; Fishing</td>
</tr>
<tr>
<td>2013–now</td>
<td>Aquaculture</td>
<td>Planting acacia trees</td>
<td>Tour boat; Employees; Small business; Photographer for tourists</td>
<td>Remittance from labor export; Fishing</td>
</tr>
</tbody>
</table>

Source: Field survey in 2019.

### Table 5. Number of newly constructed accommodation facilities since 2004

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of hotel/guesthouse</td>
<td>6</td>
<td>11</td>
<td>26</td>
<td>43</td>
</tr>
</tbody>
</table>

Source: Field survey in 2019.
cards to villagers and, two years later, negotiated with the Bong Lai state forestry enterprise to transfer the land use rights of the 232 ha to Rao Con village. This land allocation helped people escape from living and farming in an illegal situation, but led to restrictions on access to other forest areas and resources. After 2013, the income-generating activities of Rao Con villagers became more diverse, although they remain dependent on rice (see Table 6).

Thus, the authors’ fieldwork revealed little impact of tourism on the livelihoods of the Rao Con villagers.

Using the Phong Nha Fee to reduce disparity? The development of tourism has contributed to the budgets of local governments. The tourism center of the PNKB NP transfers a sum of money every year, called the Phong Nha fee, to the People’s Committee of the Son Trach commune. This money is used to improve the communal infrastructure and beautify the local environment (see Table 7).

The uneven development of tourism in the Son Trach commune has caused differences between areas in terms of their development level. The Phong Nha fee was intended to minimize this disparity. Instead, the fee has been used to improve Xuan Tien village, the central area of tourism. The reason for this concentrated investment came from the orientation for PNKB NP tourism development issued by the Vietnamese government. Accordingly, the process of infrastructure development began in the central area for tourism. As a result, the fee has widened the gaps between Xuan Tien village and the more remote villages in the Son Trach commune.

### Table 6. Changes in the livelihoods of people in Rao Con village

<table>
<thead>
<tr>
<th>Period</th>
<th>Agriculture</th>
<th>Forestry</th>
<th>Tourism</th>
<th>Government support</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986–2000</td>
<td>Shifting cultivation</td>
<td>Exploiting forest products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000–2013</td>
<td>Shifting cultivation, Paddy field</td>
<td>Illegal logging; Collecting non-timber forest products</td>
<td>Homestay but a few times a year</td>
<td>30 kg rice per person per year</td>
</tr>
<tr>
<td>2013–Present</td>
<td>Paddy field, Raising cattle</td>
<td>Planting acacia trees; Illegal logging; Collecting non-timber forest products</td>
<td></td>
<td>30 kg rice per person per year</td>
</tr>
</tbody>
</table>

Source: Field survey in 2019.

### Table 7. Phong Nha fee and its contribution to Son Trach commune

<table>
<thead>
<tr>
<th>Content</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phong Nha fee</td>
<td>5.50 billions VND (241,557 USD)</td>
<td>6.07 billions VND (267,413 USD)</td>
<td>8.13 billions VND (350,507 USD)</td>
</tr>
<tr>
<td>Annual budget of Son Trach commune</td>
<td>7.15 billions VND (314,023 USD)</td>
<td>12.02 billions VND (529,539 USD)</td>
<td>28.02 billions VND (1,208,019 USD)</td>
</tr>
<tr>
<td>Ratio of Phong Nha fee to annual budget of Son Trach commune</td>
<td>76.92%</td>
<td>50.50%</td>
<td>29.01%</td>
</tr>
</tbody>
</table>

*2016: 1 USD=22,769 VND; **2017: 1 USD=22,699 VND; *** 2018: 1 USD=23,195 VND.

Source: Field survey in 2019.

The PFES in the PNKB NP

The PFES policy exists to protect and preserve the natural environment, and has proven successful in many provinces in Vietnam. In addition, the PFES usually has a positive impact on society and local communities. As a result, its implementation in the PNKB NP was expected to improve locals’ living standards and reduce the development gaps between ethnic groups.

The forest environmental services (FES) provided by the PFES program in the PNKB NP protect the natural landscape and conserve the biodiversity of forest ecosystems for tourism. There are two forms of FES: 1) leasing the tourism environment to tourism companies, and 2) cooperating with tourism companies to help run their businesses. In addition, the PFES money is paid directly by the forest users (e.g., tourism companies) to the forest environment service providers (e.g., the PNKB NP) (see Figure 5).

Between 2011 and 2013, the PFES was collected only from tickets to Paradise Cave, a popular tourist destination in the PNKB NP, totaling about 390 million VND for this period. Subsequently, owing to the increase in the number of tourists and tour companies who made these payments, the income generated by the PFES increased to 6.35 billion VND in 2016 and 8.02 billion VND in 2018. This money was supposed to be used for activities related to PFES implementations and the operation of the PNKB NP management board.
The PFES implementation mechanism is shown in Figure 5. The PFES buyers are tourism companies, and the PFES supplier (the forest owner) is the PNKB NP. However, local people do not share in the benefits of the policy. Instead, their participation is limited to providing a labor force (e.g., members of patrol teams). In addition, the number of members is limited. As a result, the PFES policy in the PNKB NP has not facilitated locals’ participation in the benefits of tourism in the area.

Effect of the PFES on Rao Con villagers Rao Con village would appear to be ideally suited to policies related to allocating forest to a local community. The lives of these villagers have centered on the forest for many years, and so they possess appropriate experience and indigenous knowledge to support patrolling and protecting the forest. In addition, the villagers’ income is not currently enough to sustain their daily lives. Therefore, participating in the PFES and benefiting from this policy would be a good opportunity for them to enhance their income.

However, in reality, the only provider of FES was the PNKB NP and the PNKB NP management board as a representative, because they had the right to use the land in the national park and, thus, receive the resulting profit. Thus, the PFES program had no effect on the livelihoods of those living near the national park.

In addition, the PFES area lay within the core zone, which was protected by the Forest Protection Department (forest rangers) of the PNKB NP. The forest ranger team comprised about 100 people, and was responsible for protecting the forest in the national park. They also hired a support team (54 members). Because this force was able to patrol and protect the forests, the Rao Con villagers had no opportunity to join a patrol team and, thus, receive a salary.

In its current implementation in the PNKB NP, locals cannot choose whether or not to participate in the PFES. The reason for this problem originated in the process of determining the FES provider. According to Vietnam’s PFES regulations, FES tourism providers are those authorized by the state to manage and use forests for tourism development. However, the authors suggest that those who have exploited forests and forestlands, but are restricted to use and to access to them for tourism should also be considered as FES providers. The livelihoods of the Rao Con villagers depend heavily on forest resources, and so they have committed to not exploiting these resources. As such, they have decided to sacrifice their benefits in order to support forest protection and provide FES for tourism, regardless of whether or not they understand the PFES program. This decision changed their lives and has caused numerous difficulties. Therefore, their role in providing FES should be considered, and they should benefit from the PFES policy.

Because many studies have shown that the economic benefits of participating in the PFES are limited, few people are willing to do so (Pham et al. 2013; Pham et al. 2018; Ubukata and Truong 2019). However, the Rao Con villagers should be given the opportunity to understand the PFES, enabling them to make a more considered decision on whether or not to participate in the program. In practice, their contribution to the PFES implementation has not been recognized; thus, they are not considered an FES provider.

Effect of the PFES on Xuan Tien villagers In contrast to Rao Con village, Xuan Tien village lies in the tourism development center of the PNKB NP, and so people have benefited from the PFES indirectly.

According to the definition of the PFES for tourism, these villagers have benefited from tourism, and so belong to the PFES’s buyer group. However, because most of their tourism businesses are small-scale, the current PFES policy does not specify their role. Therefore, they
did not pay any money. The payments were collected only from large businesses and the entrance tickets of visitors. As a result, that FES users must pay money for their consumption was not fully implemented.

As noted earlier, the goal of the PFES as a tool to reduce the disparities between ethnic groups has not been accomplished. The definitions of FES buyers and providers were too strict, which limited the participation of villages in the program. As a result, a redistribution of income was unlikely, and the disparities between the ethnic groups remained.

**Conclusion**

Tourism activities are not new in the PNKB NP, and have clearly contributed to the growth of the local economy and improved local livelihoods. However, disparities exist between two ethnic groups—the ethnic majority (the Kinh people) and an ethnic minority (the Bru-Van Kieu people)—owing to their contrasting access to tourism.

The livelihoods of the villagers in Xuan Tien have been greatly improved by tourism. Being located in the central area of the PNKB NP’s tourism development plan, the village has been assisted significantly in upgrading its infrastructure to serve local tourism. The villagers have also benefited from the many tourism-related jobs available. As a result, their main income-generating activities have changed over the past 20 years from agriculture-based to tourism-based activities.

In contrast, the strong development of tourism has had no effect on the livelihoods of those living in Rao Con village. There are several reasons for this. The early stage of the tourism development plan focused on the central region of the Son Trach commune, which meant that remote areas, such as Rao Con village, received very little support in terms of improving their infrastructure or investing in tourism. Moreover, the poor road infrastructure around Rao Con village restricted the participation of villagers in tourism. The latter problem was the result of a lack of investment, which stemmed from the former problem. Therefore, the livelihood of those living in Rao Con village was still largely based on agriculture and government subsidies.

Because tourism activities operate within the national park area, local authorities were able to distribute the budgets reasonably to mitigate developmental disparities. The Phong Nha fee is derived from the revenue of local tourism activities and is used to improve the infrastructure in the Son Trach commune to serve tourism development. If local governments could use this revenue to invest in remote areas, this would help to close the gaps between ethnic groups. However, most of the Phong Nha fee was invested in areas in which tourism activities developed most. As a result, remote areas benefited very little from the fee. The benefit-sharing mechanism was conducted inappropriately, increasing the inequality between ethnic groups.

The PFES policy is an administrative tool that was expected to reduce the inequality between ethnic groups. The PFES policy for tourism in the PNKB NP corresponds to that of the Vietnamese government. However, it does not appear to be able to achieve the societal goals of the original PFES concept. With the implementation of the PFES as a “closed box”, local people could not participate in the program. For example, those living in Rao Con village should be considered FES providers and, thus, should have the right to decide whether to join the PFES program. Moreover, Xuan Tien village uses FES for tourism activities, but does not pay the PFES fee. As a result, the PFES policy has not been able to reduce the development gaps between ethnic groups in the area.

**Acknowledgements**

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**Notes**

1. The PFES is collected at different prices. For example, for the Va and Nuoc Nut cave tours, the fee is 168,000 VND/tourist; however, for the Sinh Ton and Thuy Cung cave tours, the fee is 115,500 VND/tourist.

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