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**Research Report**

## Containing Floods and Landslides Case Study of Alternative Risk Management in Kejajar Sub-District, Wonosobo, Central Java

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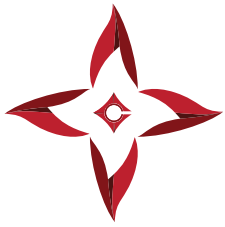
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**CIPS**

Center for Indonesian  
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## **Containing Floods and Landslides** Case Study of Alternative Risk Management in Kejajar Sub-district, Wonosobo, Central Java

By Hizkia Respatiadi

[www.cips-indonesia.org](http://www.cips-indonesia.org)



**Containing Floods and Landslides**  
**Case Study of Alternative Risk Management**  
**in Kejajar Sub-district, Wonosobo, Central Java**

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**Jakarta, Indonesia**

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## Glossary

Community Forestry	: State forest management focusing on the local community empowerment by improving their livelihoods while preserving the function of surrounding forests and natural environment (Forest Ministry Regulation 31/2001)
LMDH	: <i>Lembaga Masyarakat Desa Hutan</i> (Village Forestry Board)
Perum Perhutani	: Indonesian state-owned company for forest management

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## Executive Summary

Floods and landslides are major disasters in Kejajar sub-district in Wonosobo district, Central Java province. Occurring regularly every year, they have caused 35 recorded deaths and 31 serious injuries in Wonosobo since 2007.

Recent studies conducted by the Wonosobo local government show that potato farmers contribute to soil erosion that triggers these disasters. Driven by price incentives they continue planting potatoes even though the short roots of these plants do not stabilize the soil on volcanic slopes. Farmers need alternative sources of income in order to prevent erosion and to reduce the risk of floods and landslides.

Firstly, alternative crops such as *carica papayas* and *tamarillo fruit*, with roots that go deeper into the soil, should replace short-rooted potatoes as the main crops in the region. The alternative crops help maintain soil integrity during the rainy season and prevent erosion that leads to floods and landslides. The fact that they need less fertilizer and pesticides and are therefore cheaper to produce should be communicated to attract farmers.

Secondly, villagers need to apply the central government's community forestry policy and use newly granted property rights to manage state forest resources. By doing this, they gain additional sources of income while preserving the nature. Capacity-building programs are required to provide the farmers with the necessary skills in planning, organization, finance, and human resource management. These programs also need to engage farmers with external actors in neighboring villages, government agencies, business circles, and especially with Perum Perhutani, the state-owned enterprise for forest resource management.

Finally, the government needs to also lift import restrictions on horticultural products, including potatoes, as part of the Indonesian commitment to the ASEAN Economic Community. Current restrictions make potatoes in Indonesia more expensive than in neighboring countries. By easing import restrictions, the market for potatoes will be more competitive and prices will drop, which will motivate the farmers to plant substitutes of this crop.

Alternative crops, community forest preservation, and the lifting of import restrictions will, in turn, reduce the risk of dangerous floods and landslides.

## Kejajar Sub-District - Brief Topography and Demography

Kejajar is a sub-district and covers an area of 57.62 km<sup>2</sup> within the Wonosobo district. It is divided administratively into 16 villages<sup>1</sup> and is one of the highest regions in the island of Java with an altitude between 1,328 and 2,121 meters above sea level<sup>2</sup>. It shares Wonosobo's high precipitation rate of 3,500 – 4,000 mm rainfall per year<sup>3</sup>. This region is part of the Dieng High Plateau that is surrounded by the mountain range of Bisma<sup>4</sup>.

The total population of Kejajar is 42,417 people<sup>5</sup> with a workforce of 24,645<sup>6</sup>. The dominant occupation is farmers (60.57%) followed by farm workers (20.53%). 'Farmers' refers to those who possess their own farming lands, while 'farm workers' refers to those who work at the farming lands (e.g. as land cultivators, pickers, and carriers) without owning those lands. From 37,670 of the population aged 5 years and above, slightly more than half (51.78%) only completed primary school, 19.91% either did not complete or have not yet completed primary school, and 9.46% never attended any school<sup>7</sup>.

**Figure 1**  
Map of Kejajar Sub-district (inset: Wonosobo District)



Source: 1. Statistics Indonesia (2014), *Kejajar sub-district in Figures 2014*  
2. Center for Volcanology and Geological Hazard Mitigation (2015)

<sup>1</sup> These villages are Buntu, Sigedang, Tambi, Kreo, Serang, Kejajar, Igirmranak, Surengede, Tieng, Parikesit, Sembungan, Jojogan, Patakbanteng, Dieng, Sikunang, and Campursari

<sup>2</sup> Statistics Indonesia (2016), *Kecamatan Kejajar dalam Angka 2016 [Kejajar Sub-district in Figures 2016]*, p.2

<sup>3</sup> Meteorology and Geophysics Agency (2016)

<sup>4</sup> This mountain range is formed by eight mountains, namely Mt. Patakbanteng, Mt. Merangkul, Mt. Prambanan, Mt. Seroja, Mt. Krecepi, Mt. Telerejo, Mt. Kempar, and Mt. Sembungan.

<sup>5</sup> See footnote 2, p.22

<sup>6</sup> Statistics Indonesia (2016), *Kecamatan Kejajar dalam Angka 2014 [Kejajar Sub-district in Figures 2014]*, p.36

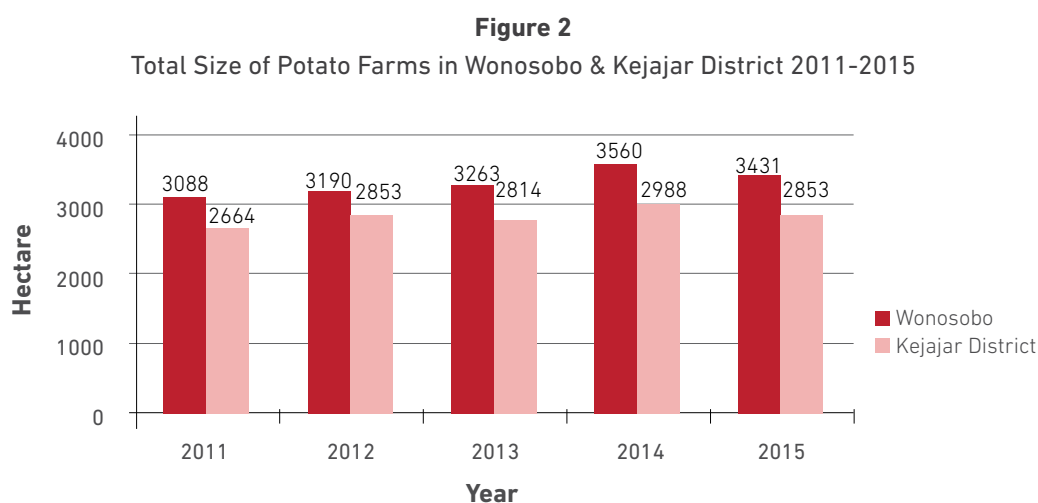
<sup>7</sup> See footnote 6, p. 41 – 42



## Potato Farming in Kejajar

Most farmers in Kejajar started planting potatoes in the 1980s when the crop was introduced by farmers from Pangalengan, West Java. Until today, the crop's ability to produce harvests up to three times per year and its high prices in the market makes it ideal for farmers who need a fast cash flow. According to the local government, potato farmers in Kejajar experienced their golden era in the early 1990s when potato prices and demand were high<sup>8</sup>. These circumstances even enabled them to fund their holy pilgrimage to Mecca, Saudi Arabia, which is considered a significant achievement in their religious life. Since then, potatoes have remained the most favored crop of these farmers. In January 2016, the farmers claimed they experienced the highest potato prices in recent years when prices per kilo reached IDR 12,000 – 14,000, which was twice the amount compared to December 2015<sup>9</sup>.

A study by the Dieng Recovery Task Force (TKPD)<sup>10</sup> – a government-organized team for the environmental preservation of the Dieng High Plateau – illustrates how the farmers have romanticized the economic benefits of potatoes. Nostalgic stories on how potato farmers experienced their best days in the 1990s have been passed down to younger generation. Farmers feel uncomfortable if they do not cultivate potatoes and there is a stigma that those who stopped cultivating potatoes are considered a failure and poor among the villagers.



Source: Statistics Indonesia: 1. Wonosobo in Figures 2015 2. Wonosobo in Figures 2016 3. Kejajar Sub-district in Figures 2014 4. Regional Statistics of Kejajar Sub-district 2015 5. Regional Statistics of Kejajar Sub-district 2016

“There is a stigma that those who stopped cultivating potatoes are considered a failure and poor among the villagers.”

<sup>8</sup> Interviews with the Dieng Recovery Task Force (TKPD) and Forestry Office of the Wonosobo local government (12 January 2016) and with farmers in Buntu, Tieng, and Sembungan villages (13 January 2016)

<sup>9</sup> Interview with farmers and traders in Sembungan (13 January 2016) and Surengede Village (14 January 2016)

<sup>10</sup> Dieng Recovery Task Force [TKPD] (2013), *Studi Evaluasi Pemulihan Dieng*, p.IV-7



Figure 2 shows that from 2011 to 2014, the size of potato farms in both Kejajar sub-district and Wonosobo district increased by 12 and 15 per cent respectively. In 2015 however, it slightly decreased by 4 and 3 per cent. The regional statistics office points out that, in recent years, there is a trend that some farmers starts developing tourism business in their villages as an alternative to farming<sup>11</sup>.

Despite the potato farmers' positive perception on their crop, potato farming in Kejajar carries a significant risk of disasters, such as floods and landslides<sup>12</sup>. This crop has fibrous roots with a maximum depth of 24-inches (60 cm)<sup>13</sup>. These roots are unable to maintain the soil integrity during heavy and/or continuous rain, which eventually leads to erosions.

To make matters worse, farmers prefer vertical farming<sup>14</sup> (see figure 3) as it is cheaper and suits the plants better than horizontal farming, such as terracing (see figure 4). Terracing is a farming technique where farmers plant their crops on pieces of sloped land that have been cut into a series of successively receding flat surfaces or platforms, which resemble steps in a staircase. Despite its ability to slow down the current of rainfall water (thus preventing erosion), potato farmers dislike this technique as it makes the water drown their potatoes and potentially makes them rot. Vertical farming adds considerably to erosion and to the risk of flooding and landslides.

**Figure 3**

Vertical Farming at Potato Farms in Kejajar sub-district, Wonosobo



Source: Managing Agency on Opak Serayu Progo Watershed (2016)<sup>15</sup>

<sup>11</sup> Statistics Indonesia (2016), *Statistik Daerah Kecamatan Kejajar 2016 [Regional Statistics of Kejajar Sub-district 2016]*, p.4

<sup>12</sup> See footnote 10, p. IV-1; Interview with the staff of Forestry Office of Wonosobo local government (12 January 2016)

<sup>13</sup> Shorter than the roots of cereal plants that could reach 47-inches (117.5 cm). See Yara (2015), 'Potato Characteristics'. Accessible on <http://www.yara.us/agriculture/crops/potato/key-facts/agronomic-principles/>

<sup>14</sup> Vertical farming is a farming technique whereas farmers plant their crops by directly following the high degree of inclination slope of their lands. Potato farmers prefer this technique to terracing as vertical farming allows the rainfall water to run quickly through their potatoes without submerging them like in terracing.

<sup>15</sup> Managing Agency on Opak Serayu Progo Watershed (2016), *Yang Mengalir dan Mengakar – Catatan Dokumentasi Proyek Penguatan Hutan dan DAS Berbasis Masyarakat [Flowing and Rooting – Documentary Report on Community-based Strengthening Project on Forests and Watershed]*, p.36



Source: CIPS' field research to Kejajar Sub-district, 14 January 2016

**Figure 5**  
Number of occurrences, casualties, and injured victims of floods and landslides  
in Wonosobo District 2007 – 2015

Year	Floods			Landslides		
	Occurrence	Casualties	Injured	Occurrence	Casualties	Injured
2007	-	-	-	3	-	-
2008	2	4	-	4	6	2
2009	2	-	-	26	-	-
2010	1	1	-	18	7	10
2011	2	12	10	17	2	1
2012	-	-	-	2	-	-
2013	-	-	-	2	-	-
2014	2	-	-	3	3	6
2015	-	-	-	3	-	2
<b>TOTAL</b>	<b>9</b>	<b>17</b>	<b>10</b>	<b>78</b>	<b>18</b>	<b>21</b>

Source: (National Board for Disaster Management (2016), 'Data Informasi Bencana Indonesia [Database on Disasters in Indonesia]'. Accessible on <http://dibi.bnppb.go.id/>

Figure 5 shows that 9 floods and 78 landslides were recorded from 2007 to 2015, with landslides happening every single year. The highest frequency was in 2011 during the La Niña phenomenon which brought prolonged rainfalls in the Pacific region<sup>16</sup>. During this period, two floods and 17 landslides in Wonosobo claimed 14 lives. Between 2007 and 2015 there were 35 deaths and 31 people injured.

<sup>16</sup> NASA – Earth Observatory (2007), 'La Nina Strengthens in Autumn 2007'. Accessible on <http://earthobservatory.nasa.gov/IOTD/view.php?id=8201>



One of the most devastating periods of floods and landslides happened in 2011, in which there were 14 casualties and 11 people were injured. One of the survivors is **Budi (19)**, a resident of Tieng Village. He lost both his parents and his older sister who was carrying a baby at that time. The combination of rapidly rising water levels and tons of eroding soil brought down by the landslide killed Budi's family and made many other villagers unable to escape this tragedy.

## Community Forest Management

“In addition to providing livelihood for these people, the function of preserving the environment of the Dieng region also protects people from natural disasters.”

At the national level, the Ministry of Environment and Forestry plans to give 12.7 million hectares of state forest to the management of local communities in 33,000 villages across the country<sup>17</sup>. Perum Perhutani has issued a guideline on forest resource management with local communities<sup>18</sup>, which acknowledges the communities' rights to fair participation in the management and protection of forest resources. Every village must form a village forestry board<sup>19</sup> and agree on a profit-sharing model with Perum Perhutani<sup>20</sup>.

The Dieng Recovery Task Force proposed to develop non-farming methods as alternative sources of income for the people residing within the Dieng region, including in Kejajar<sup>21</sup>. In addition to providing livelihood for these people, the function of preserving the environment of the Dieng region also protects people from natural disasters. This is in line with the joint regulation between Wonosobo local government and Perum Perhutani to involve village communities in sustainable forest management<sup>22</sup>. According to this regulation, local communities will be trained in forest management and granted access to the benefits of forest resources.

The government's decision to utilize state forest resources as potential source of livelihood for the local communities is relevant to Kejajar. This sub-district has 2,463 ha of forest area, or 42.74 per cent of the region's total size of 5,762 ha.

<sup>17</sup> Ministry of Environment and Forestry (2016), 'Workshop Konsultasi Publik Peta Indikatif Areal Perhutanan Sosial dan Percepatan Perhutanan Sosial [Public Consultation Workshop on Indicative Map of Social Forestry Area]'. Accessible on <http://www.menlhk.go.id/berita-34-workshop-konsultasi-publik-peta-indikatif-areal-perhutanan-sosial-dan-percepatan-perhutanan-sosila-d.html>

<sup>18</sup> The Regulation of Perum Perhutani Board of Directors No. 682/KPTS/DIR/2009 on the Guidelines for Forest Resource Management with the Community (PHBM), signed in 2009.

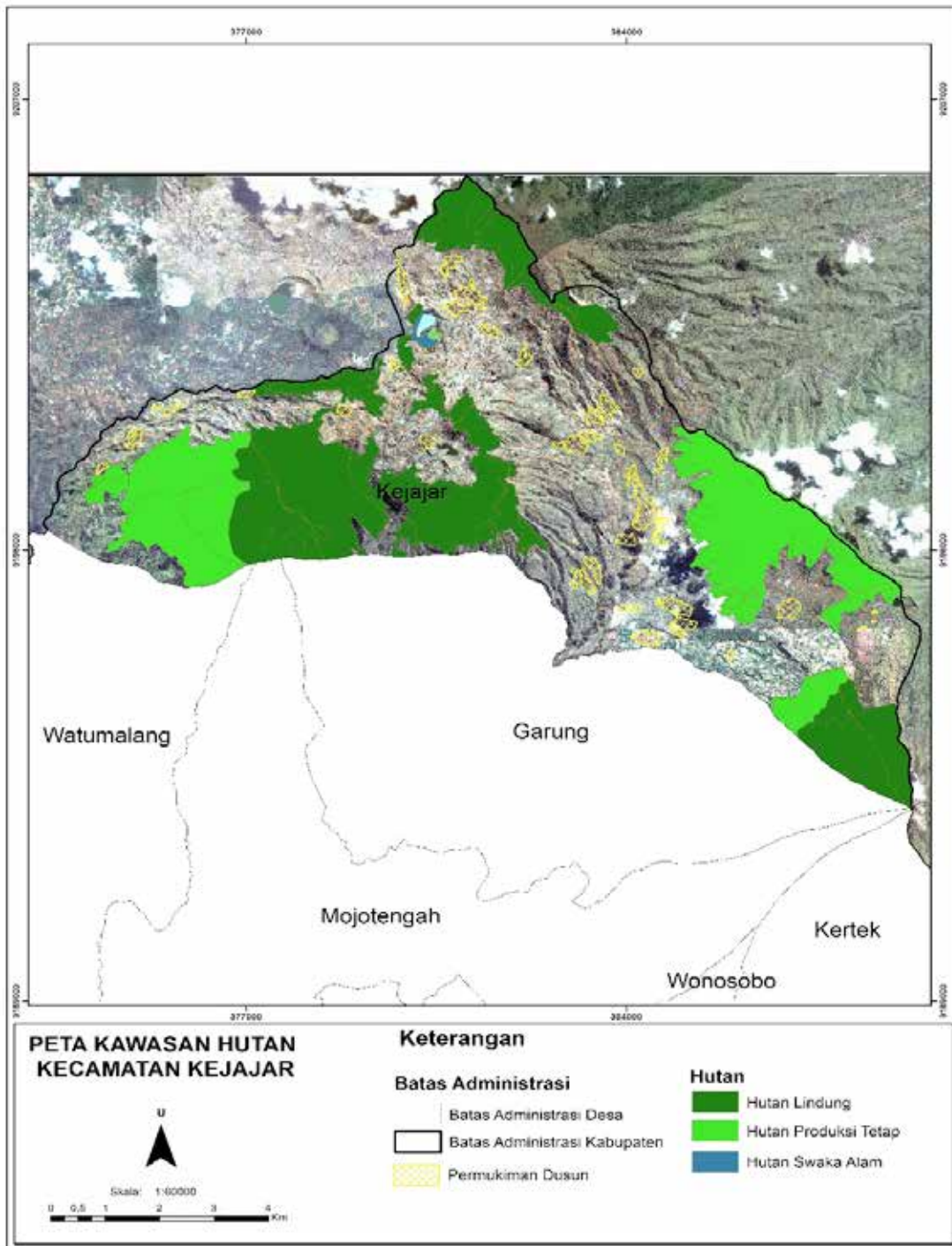
<sup>19</sup> Lembaga Masyarakat Desa Hutan (LMDH)

<sup>20</sup> Hasrul Hanif, Totok Dwi Diantoro, Ronald Ferdaus, Edi Suprpto. 2013. 'Transformasi Tata Kelola Hutan Jawa: Menuju Pengelolaan Hutan oleh Rakyat Pasca Implementasi Pengelolaan Hutan Bersama Masyarakat [Transformation of Forest Management in Java: Moving Towards Forest Management by the People After the Implementation of Forest Resource Management by the Community]'. In: Edi Suprpto & Agus Budi Purwanto (eds.) *Hutan Jawa: Kontestasi dan Kolaborasi [Forest in Java: Contest and Collaboration]*. Yogyakarta: Biro Penerbitan Arupa. pp.79-80. Accessible on <http://arupa.or.id/sources/uploads/2014/06/Hutan-Jawa-Kontestasi-dan-Kolaborasi-resize.pdf>

<sup>21</sup> Dieng Recovery Task Force [TKPD] (2013), *Studi Evaluasi Pemulihan Dieng*, p. V-8

<sup>22</sup> Joint regulation between Perum Perhutani Regional Division of Central Java and Wonosobo Regent No. 2871/044.3/Hukamas/I and 661/13/2006 on Sustainable Forest Resources Management (PSDHL), signed in 2006.

**Figure 6**  
Forest Area in Kejajar Sub-district



Source: Directorate of Physical Infrastructure, Wonosobo Regional Agency for Planning and Development

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The large forest area surrounding Kejajar has the potential to become an alternative source of income for the villagers. By having access to this area, the villagers have different options of how they can utilize it. For example, the regional office of Perum Perhutani in Wonosobo plans to involve the villagers in developing coffee plantations in the outskirts of the state forest area<sup>23</sup>. Perum Perhutani stated that, as long as the forests are preserved, the company is also ready to support other initiatives offered by the villagers. The company supports infrastructure development, such as water pipelines, as well as production inputs such as seeds for alternative crops, including coffee and *tamarillo*.

The other option is the development of the tourism industry. Kejajar has various tourist destinations that have a certain business potential if they are being developed and managed professionally. Some villages already exploit the scenic views provided by the region's high altitude, such as Sembungan Village's Golden Sunrise Sikunir, Buntu Village's Cengkul Suri Sunset Hill, and Tieng Village's Silver Sunset. These tourist destinations can only be accessed through the state forests surrounding them.

However, traditional or cultural predispositions of the villagers and their limited professional skills have in some cases hindered the implementation of the community forestry policy. The villagers from Buntu, for example, were afraid that shifting from potato farming to tourism might cause undesired effects on the youth. Choosing, instead, the intercropping of silk trees, bamboo, tamarillo, and guava trees did not work. The villagers were not able to agree on a proper organization regarding the maintenance of the trees, the sharing of profits, and individual responsibilities in the implementation of the project<sup>24</sup>. Meanwhile, the villagers from Tieng were not enthusiastic about the shift away from potatoes as they needed the quick cash. They agreed that forest resources have potential long-term benefits but they preferred the quick benefits provided by potato farming<sup>25</sup>.

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<sup>23</sup> Interview with Cahyono, Administrator of Perum Perhutani Regional Office of Kedu Utara, Wonosobo, 27 September 2016

<sup>24</sup> Interview with Suroto, Head of Buntu Village Forestry Board, 28 April 2016.

<sup>25</sup> Interview with Arya Suwaton, Chief of Tieng Village, 13 January 2016.



## Recommendations

### Growing alternative crops while shifting away from potatoes

More than 60 per cent of villagers in Kejaran rely on farming as their main source of income. Therefore alternative crops with deep roots that prevent erosion better than potatoes must have comparative financial advantages in terms of production and maintenance cost, as well as sales prices.

Figures 7.1 to 7.4 below compare potatoes with alternative crops that have deep roots and are suitable for Kejaran's topography. The data has been obtained in interviews<sup>26</sup> with farmers and refers to their experiences between October 2015 and January 2016. Assuming each crop's rate of production stays the same throughout the year, this calculation does not take into account factors such as weather conditions, diseases, or plant mistreatment. The purpose of these figures is to show the comparative profit of each crop under the assumption of ideal conditions during the same period of time.

**Figure 7.1**  
**Potatoes**



Ready to harvest in: 3 to 4 months  
Lifetime: Seasonal; Crops must be re-planted after harvest  
Max number of harvest: Three times per year

Production cost per ha per harvest: IDR 40 million

- Fertilizer & pesticide: IDR 20 million
- Seeds: IDR 10 million
- Labor: IDR 10 million

Revenue per ha per harvest: IDR 85 million

- Average price/kg: IDR 8,500
- Productivity per ha: 10,000 kg/ha

Potential profit per ha per harvest: IDR 45 million  
Potential profit per ha per year (3 harvest seasons): IDR 135 million

**Figure 7.2**  
**Carica**



Ready to harvest in: 1 year  
Lifetime: More than 20 years  
Max number of harvest: Three times per month

Production cost per ha per harvest: IDR 136,000

- Fertilizer & pesticide: IDR 86,000
- Seeds: Not required as farmers could grow a new carica tree by using grafting from other fully-grown carica tree
- Labor: IDR 50,000

Revenue per ha per harvest: IDR 4,800,000

- Average price/kg: IDR 4,800
- Productivity per ha: 1,000 kg/ha

Potential profit per ha per harvest: IDR 4,664,000  
Potential profit per ha per year (36 harvest seasons): IDR 167 million

<sup>26</sup> Interview with members of Dieng Recovery Task Force and farmers in the villages of Buntu, Tieng, Igermanak, Surengede, and Sembungan, 13 – 14 January 2016

**Figure 7.3**

**Tamarillo**



Ready to harvest in: 6 months

Lifetime: 3 years

Max number of harvest: Twice per month

Production cost per ha per harvest: IDR 205,000

- Fertilizer & pesticide: IDR 130,000
- Seeds: Not required as farmers could grow a new tree by using grafting from other fully-grown tamarillo tree
- Labor: IDR 75,000

Revenue per ha per harvest: IDR 6,300,000

- Average price/kg: IDR 6,300
- Productivity per ha: 1,000 kg/ha

Potential profit per ha per harvest: IDR 6,095,000

Potential profit per ha per year (24 harvest seasons): IDR 146 million

**Figure 7.4**

**Asparagus<sup>27</sup>**



Ready to harvest in: 1 year

Lifetime: 15 years

Max number of harvest: 7 times per year (once every two days in two-weeks period)

Production cost per ha per harvest: IDR 7,385,000

- Fertilizer & pesticide: IDR 440,000
- Seeds: IDR 6,700,000
- Labor: IDR 245,000

Revenue per ha per harvest: IDR 29,750,000

- Average price/kg: IDR 36,000
- Productivity per ha: 500 kg/ha

Potential profit per ha per harvest: IDR 22,365,000

Potential profit per ha per year (7 harvest seasons): IDR 156.5 million

Figures 7.1 to 7.4 above shows that alternative crops have the potential to generate higher profit compared to potatoes. To achieve this potential, farmers must cooperate with the local government, more experienced farmers, and business communities. The local government can help facilitating the training programs conducted by more experienced farmers to help other farmers in learning how to grow and maintain the crops. It can also connect farmers with the relevant business circles who may be interested as buyers and investors. The availability of training programs, buyers, and potential project investors will make alternative crops more interesting to farmers.

<sup>27</sup> With proper maintenance, asparagus roots can reach up to 10.5 feet or around 3.15 meters into the ground. See Soil and Health Library (2017), accessible on <http://soilandhealth.org/wp-content/uploads/01aglibrary/010137veg.roots/010137ch6.html>



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“  
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”

### Reaching the full potential of community forestry

Farmers should explore the potential of community forestry and their newly gained rights to manage state forests for their own benefits. Some farmers – like those in Buntu Village – are still concerned with the cultural impact caused by shifting from farming to non-farming business (e.g. forestry tourism). Villagers like these need to be exposed to the experiences of neighboring village forestry boards. This might provide clarity and a more optimistic outlook on the benefits of developing the local economy. The exposure will provide broader options in agriculture, manufacturing, tourism as well as other service industries that emanate from the right to utilize forest resources. Local government agencies need to provide practical guidance that help villagers seeing how property rights can improve the livelihoods of people in their village.

Capacity-building programs and the transfer of know-how from one village to the other help the villagers gain the required skills in managing the forest resources. Other villages can learn from each other on how to manage development projects, be it intercropping, tourism, or other business sectors; learning management skills such as planning, organization, finance, and human resource management. To minimize risks, trying small-scale, short-term projects is recommended as these prototypes can improve future endeavors. Short-term wins help building confidence and inspire the implementation of larger-scale projects.

The villagers need to cooperate with external actors to gain support for their local development projects. According the current regulations, Perum Perhutani needs to be involved as this company controls the state forests surrounding the villages. The village forestry boards need to build strategic relationships with Perum Perhutani and local government agencies on the district and sub-district levels. They also need to verify the feasibility of their development projects by engaging with relevant business circles, such as the agroindustry for intercropping and travel agencies for tourism. Academic institutions in nearby cities may be able to provide fresh and innovative insights regarding the development potential of their region.

“The village forestry boards need to build strategic relationships with Perum Perhutani and local government agencies on the district and sub-district levels.”

## Easing import restrictions on horticultural products

Fresh potatoes in Indonesia are currently more expensive than those in neighbouring countries. Figure 8 shows that potato prices in Jakarta are more expensive compared to their prices in capital cities of Malaysia, the Philippines, and Vietnam. They are also more expensive than potatoes sold in the capital cities of countries with large population such as China and India.

**Figure 8**

Comparison of Consumer Prices of Potatoes in Jakarta and Several Other Asian Capital Cities

City/Country	Consumer Price (USD/kg)
Jakarta, Indonesia	1.47
Manila, The Philippines	1.38
Kuala Lumpur, Malaysia	0.98
Hanoi, Vietnam	0.97
Beijing, China	0.86
New Delhi, India	0.35

Source: Numbeo<sup>28</sup>

“The policy to protect the natural environment of the Dieng region, including the Kejajar sub-district, can only work if the villagers are provided with alternatives that have comparable economic benefits.”

High potato prices in Indonesia are mainly caused by a number of trade restrictions and non-tariff measures on potato imports<sup>29–30</sup>. The government imposes import quota determined annually by inter-government agencies' coordination meetings. Furthermore, it stipulates that only licensed companies can import the crops. To obtain the license, the companies must possess their own cold storage and transport capacities, and they must obtain an import recommendation from the Ministry of Agriculture. These circumstances are unfavourable to small-scale potato importers with limited infrastructure and without extensive political connections. With a limited supply of imported potatoes in the country, the potato market becomes less competitive and this incentivises the farmers in Kejajar to keep on planting potatoes despite the risk of disasters they bring along.

As the government pledged its commitment to join the ASEAN Economic Community (AEC)<sup>31</sup>, it must ease import restrictions on horticultural products and allow for a more competitive market for potatoes. Once potato prices go down due to market competition, the farmers will be encouraged to use alternative crops and community forestry as alternative sources of income. The policy to protect the natural environment of the Dieng region, including the Kejajar sub-district, can only work if the villagers are provided with alternatives that have comparable economic benefits. In the long run, the villagers will gradually change their predispositions and, with partial property rights in place, they will start managing their resources in a more sustainable way.

<sup>28</sup> Numbeo (2017), 'Cost of Living'. Accessible on <https://www.numbeo.com/cost-of-living/>, Accessed 26 Jan 2017

<sup>29</sup> The Regulation of the Minister of Trade 71/2015 on Imported Horticulture Products.

<sup>30</sup> United States Department of Agriculture (USDA) (2015), 'Ministry of Trade Changes Horticulture Import Regulation' in Global Agricultural Information Network (GAIN) No. ID533, p.1

<sup>31</sup> All signatories, including Indonesia, must remove all tariff and non-tariff barriers in the international trade between ASEAN countries in accordance with agreed schedules (ASEAN Economic Community Blueprint, 2007, pp. 7–8)







## ABOUT THE AUTHOR

**Hizkia Respatiadi** is a Researcher at Center for Indonesian Policy Studies. His research encompasses several policy issues related to the CIPS focus area on Trade and Livelihood, including trade policies on agriculture and food commodities, as well as property rights and community forestry. He leads the Affordable Food for the Poor project that aims to lower basic food prices in Indonesia by reducing trade barriers between Indonesia and other countries.

Previously, Hizkia worked as a civil servant at the Indonesian Ministry of Foreign Affairs. His international experience includes a posting period to the Indonesian Embassy in Zimbabwe, and short-term assignments to the United Kingdom and several countries in Asia and Africa.

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**Trade and Livelihood:** CIPS exposes the adverse effects of economic restrictions and formulates policy options that allow Indonesians to support their own livelihood and their natural environment.

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**International Labour Migration:** CIPS suggests policies that facilitate low-skilled labour migration as it is of critical importance for the income generation and capacity development of marginalized communities in Indonesia.

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