

Socioeconomic Impact Assessment of Dunantina- Dumpu Road Project: Henganofi to Ramu Road Connection between Heganofi & Ramu Districts in Papua New Guinea

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The value of roads to PNG's economy and its people can hardly be overstated. They are the arteries of PNG. They link farmers to markets and businesses to customers. They enable people and communities to access services and markets. As such, linking rural people by road access is a critical component of any country's development agenda. Papua New Guinea's population of almost 11.5 million is young and growing. It is estimated by the UNDP (2021) that its population growth rate is 3.1 percent and is estimated to reach 13 million by 2023. Almost 87 percent of the population is rural and dependent mainly on semi-subsistence agriculture. Only 68 per cent of PNG's rural population lives within two kilo metres of an all-season road. Much of PNG's 30,000 km road network is in poor condition, increasing road user costs and making sections of road impassable (Morona, 2022). This isolates large numbers of Papua New Guineans from markets and income-earning opportunities, as well as health and education services. Bad roads are a constraint to growth and a major cause of poverty and hardship.

The people of Henganofi, Unggai-Bena and Usino-Bundi have embraced the Road as their source of their livelihood. The local economy and its economic activities have improved significantly. The Dunantina-Dumpu Road starts from Kugumo, near Dirty Wara Bridge on the Highlands Highway Junction and ends in Dumpu connecting the Ramu-Madang Highway. It's a very significant project that will change people's lives forever. The results of the study indicated that the people's livelihood is not the same before the road construction. It has improved so much. They are able to market their produce in the local market, the number of people going to the market with their produce have increased, coffee production has also increased, more kids are going to school now than before. And if they are sick, they are able to have access to better health cares through their road. There are new developments in education sector and also the health sector. The number of primary schools have increased resulting in more children enrolment. The parents are able to pay for their schools. In general, there has been significant improvements in people's

living and their livelihood as a result of the road access. Furthermore, the findings indicate that the road has brought about significant improvements in these aspects, contributing to the overall development of the area.

However, they had experienced environmental challenges due to the road constructions and other related work on the road. They have seen landslides covering some of the food gardens. They also said, sometimes their drinking water were polluted. They have to walk long distances to fetch water. Apart from these environmental concerns, they had no major challenges or issues with the road construction. They further indicated that they would want their local member to pay for the environmental costs associated with it and the damages on existing small businesses.

The impacts of road infrastructure appear to benefit people more. Road connection is seen as a major parameter for economic growth and poverty reduction in PNG. Road infrastructure and services are retaining inclusive growth in PNG. This holds back living standards and hampers measures to reduce poverty. The road accessibility is seen as an enabler to other services like health and education. This road project from Henganofi to Ramu will provide direct access to over 25,000 people. Such road projects like this and others must be given priority for improved development indicators. Government policies and programmes should aim to:

- Improve living standards.
- Protect the most vulnerable.
- Enhance the business environment, and.
- Diversifying the nation's economic base.

To achieve these, the Government should consider connecting rural PNG by building more roads and giving access to 85 percent of the rural Papua New Guineans. Henganofi and Ramu Road project is testament to one of the success stories in connecting PNG. Improved roads have significant positive impacts on the lives of affected communities and road users.

Context and Background Overview

The Dunantina-Dumpu Road (Ramu-Henganofi Road) Project is a major link for Dunantina Local Level Government in Henganofi District including Upper Bena in Unggai-Bena District and Upper Ramu in Usino-Bundi District in Madang Province. The road serves a total population of approximately 25,000 men and women. The Dunantina-Dumpu Road starts from Kugumo, near Dirty Wara Bridge on the Highlands Highway Junction and ends in Dumpu connecting the Ramu-Madang Highway. Until to this day, the road was only accessible by 4-wheel drive vehicles. Maintenance was neglected by successive local MPs and was intervened occasionally by Eastern Highlands Provincial Administration. To date, with the intervention by the current MP, Hon. Robert ATIYABA, the road has been improved and graveled giving much needed access to 2-wheel drive trucks. The Dunantina-Dumpu Road Project represents a vital response to the connectivity challenges faced in rural PNG, with significant implications for the region's economic and social development. This project is in line with extensive research on the impacts of road development, showcasing the potential to drive positive changes in the region's rural communities.

In Rural Roads and Local Economic Development paper by Asher & Novosad

(2020), it is emphasized that national rural road programs facilitate the transition of the workforce from agriculture, although they tend to yield limited changes in agricultural outcomes, income, and village firm employment. This paper underscores the need for a more comprehensive approach to rural road development. Aligning with this perspective, the Ramu-Henganofi Road Project seeks to foster economic growth and reduce isolation in the region.

Further supporting this endeavor, Wiegand, Koomen, Pradhan, & Edmonds (2017) reported on their paper titled "The Impact of Road Development on Household Welfare in Rural PNG" highlighted that investments in sealing roads leading to nearest towns lead to improved household welfare, with quantile regression revealing the pro-poor effects of road development, particularly benefiting poorer, less educated, and female-led households.

As a backdrop to the Ramu-Henganofi Road Project, "Infrastructure expansion challenges sustainable development in PNG (Alamgir et al., 2019). It underscores the importance of evaluating the environmental, economic, and social aspects of extensive road expansion. This study reveals significant environmental and socioeconomic risks associated with such projects, including habitat dissection, forest disruption, deforestation, and adverse economic consequences (Alamgir et al., 2019). These findings emphasize the significance of a holistic evaluation of the Ramu-Henganofi Road Project, highlighting the importance of sustainable development over short-term economic considerations.

Assessment of the Impact Measures Taken to Maximize the Benefits of Road Sealing/Building Project

The "PNG's Medium-Term Development Plan IV (MTDP IV) 2023-2027" is highly relevant to the assessment of the economic impact of the Ramu-Henganofi Road Project. The following points illustrate the connection between MTDP IV and the assessment of the road project's economic impact:

- **Alignment with National Development Framework:** MTDP IV is an integral part of PNG's national development framework. It sets out the government's policy directions and strategic priority areas, including infrastructure development, which aligns with the objectives of the Ramu-Henganofi Road Project.
- **Economic Growth Targets:** The MTDP IV's goal to grow the economy to K200 billion by 2030 is directly related to the economic impact assessment of the road project. The road's potential to stimulate economic growth and contribute to this target is a key consideration.
- **Infrastructure Development:** The 'Connect PNG' component of MTDP IV focuses on land transport and other infrastructure improvements, which are closely connected to the development and upgrading of roads, such as the Ramu-Henganofi Road. These improvements are expected to have significant economic implications.
- **Quality of Life and Well-being:** The assessment of the Ramu-Henganofi Road Project's impact on household welfare, housing quality, and school enrollment aligns with MTDP IV's objectives to improve the well-being of

the population through better infrastructure and service delivery.

- **Economic Diversification:** The economic diversification facilitated by improved road infrastructure, as highlighted in the impact assessment, resonates with MTDP IV's focus on various economic sectors, such as agriculture and manufacturing, which aim to drive economic growth and diversification.
- **Integrated Development Framework:** The integration of the frameworks provided by MTDP IV, Vision 2050, and the specific goals of the Ramu-Henganofi Road Project demonstrates the government's commitment to holistic development, including economic growth, service delivery, and infrastructure development.

In summary, the "PNG's Medium Term Development Plan IV (MTDP IV) 2023-2027" provides the broader policy and strategic context for the assessment of the Ramu-Henganofi Road Project's economic impact. It underscores the government's commitment to achieving long-term development goals and the critical role of infrastructure improvements, making it a valuable reference for evaluating the road project's potential benefits and challenges.

The assessment of the economic impact of sealing and connecting the road between Henganofi and Ramu is critical in understanding the potential benefits and challenges associated with this infrastructure project. Incorporating the research findings from both "Social and Economic Impacts of Rural Road Improvements in the State of Tocantins, Brazil" and "The Impact of Road Development on Household Welfare in Rural Papua New Guinea." Wiegand et al.,

(2023), it enriches our assessment of the economic impact of the Ramu-Henganofi Road Project. These studies collectively offer a comprehensive understanding of the complex effects of road development on economic growth and household well-being, drawing from experiences in different geographical contexts.

Key Points and Findings to support the road infrastructure projects:

- **Infrastructure Challenges in PNG:** The study highlights the substantial infrastructure challenges faced by PNG during the research period. These challenges include limited road management capacity, resource competition between extraction industries and government entities, and disputes over land ownership near road construction sites (Gertler et al., 2022).
- **Geographical and Climatic Obstacles:** The rugged terrain, seismic activity, intense weathering, and high seasonal rainfall in PNG, particularly in the agricultural heartland of the Highlands region, posed significant obstacles to road construction and maintenance (Stead, 1990).
- **Data Sources:** The study relies on data from two comprehensive, nationally representative cross-sectional household surveys conducted in 1996 and 2009-2010. These surveys provide critical insights into various household indicators and the impact of road infrastructure on households (Wiegand et al., 2023).
- **Road Infrastructure Data:** The research leverages data from the Road Asset Management System, which supplies detailed information on road conditions, surface types, and quality. Despite budget constraints and challenges, PNG demonstrated an increasing awareness

of the importance of road infrastructure, with significant funding increases initiated in 2010 (Dornan, 2016).

- **Impact on Household Well-being:** Research findings highlight the positive impact of road infrastructure improvements on household well-being, housing quality, and school enrollment, particularly in disadvantaged and remote areas (Edmonds et al., 2018).
- **Economic Diversification:** The upgrade of roads has facilitated the shift of households away from subsistence agriculture towards more market-oriented activities, benefitting smallholder farmers and fostering economic diversification (Adukia et al., 2020).

Further, in the context of the Ramu-Henganofi Road Project, Papua New Guinea's Vision 2050 and the MTDP III align with the project's goals. MTDP III outlines key result areas (KRAs) that resonate with the seven pillars of Vision 2050, emphasizing economic development, infrastructure improvement, and service delivery enhancement. The road project contributes to MTDP III's KRAs concerning quality infrastructure and service delivery, fostering economic growth and better living standards in the Henganofi and Ramu districts. By integrating these frameworks, PNG strives to realize its long-term vision, enhancing economic growth, service delivery, and infrastructure development.

Road Project Impact of the Sustainable Development Agenda for District of Henganofi

Henganofi District is a district of the Eastern Highlands Province in PNG. According to Wikipedia, it has four local levels of government headed by a president and the four LLGs are Dunantina, Fayantina, Kafantina and Kamanantina.

Eastern Highlands Provincial Government, Henganofi District and the National Government in collaboration with Non-Government Organizations (NGOs) are embarking on the government's 'connect PNG' vision of rural PNG and this is one of their priority projects to connect the rural people from this particular district. This project supports the DSP vision "Papua New Guinea will be a prosperous middle-income country by 2030" by embracing the economic corridor concept to open doors for greater investment opportunities domestically and internationally through wealth creation activities, improved infant mortality, enabling environment for proper education services to be provided and accessibility to health services" (DNPM, 2013).

The Henganofi-Ramu Road project will have great impact on the livelihood of the people living along the corridors of this very important road link. As in line to the national government's development plans in the (Vision 2050, MTDP, PNGDSP, NTS & MTTP) specifically highlights transport infrastructure as an "Enabler" in the attainment of the goals and objectives of the national government (DNPM, 2013). The people from both Henganofi and Ramu will benefit from this project. Derived from the higher visions of the national government the DOW-PNG in its Corporate Strategic Plan envisions a "Sustainable, well managed transport infrastructure – enhancing quality of life for all sections of the community" working in partnership with other sector partners like the (NRA) and (DOT) (DNPM, 2013).

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end

poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity (UN, 2015). PNG has adapted the UN's SDGs and came up with its own version known as the SDGs Goal 13 Roadmap. PNG's Sustainable Development Goal 13 Roadmap consists of a set of 30 actions ranging from topics in climate governance, energy, forestry, infrastructure, agriculture, minerals, health, biodiversity and tourism (UNDP, 2020). Through this infrastructure, the people from the Henganofi and Ramu Districts will experience flow of basic services health, education and access to urban markets to sell their local produces. This will improve their livelihoods away from poverty, hunger, disease and want, where all lives can be seen prospering.

The project supports the national governments plan to connect PNG through building of missing road links across the country. According to a report by Giraldo (2018), the PNG government plans to build more than 3,000 kilometers in new roads in the next five years, with a focus on connecting remote rural areas. The Henganofi District and the people will benefit greatly from this impact projects. The people will access to basic humanitarian services like, education, health and be able to engage in SME. They will also be able to sell their produces at the urban markets and earn incomes to sustain themselves and their families. This project is seen as a path to development and improving their livelihoods, the project highlights the hunger rural communities across both Henganofi and Ramu districts have for reliable roads, as well as the central government's current push to open up and integrate remote areas through an ambitious road expansion initiative.

Road Project Impact on Related Measures on the Households of the District of Henganofi

Henganofi District like most rural PNG has some remote and rural areas where the people are in dire need of basic services like health, education and infrastructure like roads to excess to urban centers. Road access is one of the key elements necessary for rural economic development, generally offering the sole means for connecting people to markets and public services. Better roads connect rural households to goods and labor markets, providing a greater variety and lower prices of essential inputs and consumption goods, as well as higher prices and demand for local products (Gibson & Rozelle, 2003). Increased market access may raise local productivity and wages, and enable the transformation from subsistence agriculture to growing cash crops and to non-agricultural activities, thus diversifying household income sources (Aggarwal, 2018; Mu & van de Walle, 2011). Better roads may also attract financial service providers, facilitating agricultural investments and consumption smoothing (Binswanger, Khandker, & Rosenzweig, 1993), and enhance access to and quality of services like schools and hospitals.

Wiegard (2018) in his report pointed out the benefits of sealing roads. From the study, it was discovered that most school age youths go as far as lower secondary. Most of them return back to the villages and become subsistent farmers while few end up in the urban centers in search of better lives. Such studies point to the fact that more opportunities will be given if the children of Henganofi and Ramu are given a sealed road. This goes on to indicate that more school age children will be able to go to schools and also the level of educational level for schooling for those living along

the corridors of this project. Likewise, a lot of households living along the stretch of this road and beyond will benefit a lot from accessing the road.

According to a report compiled in 2023 of a road in PNG, the estimates suggest that, between 1996 and 2010, upgrading 1 km of a route leading to the nearest town from a dirt to sealed road surface increased average household consumption by about 3.2 percent, raised the chance households lived in a house with a high-quality roof by about 1.3 percent points, reduced the probability a household relied on subsistence farming by 0.5 percent points, and increased the likelihood for a school-aged child to be enrolled in school by 1.4 percent points (Wiegard, Koomen, Pradham& Edmonds, 2023). This paper by Wiegard, Koomen, Pradham& Edmonds (2023) modelled population subgroups to see how the effect of road quality on consumption and poverty varies by remoteness of the household, its education level, and its demographic characteristics. It was discovered that the effects on consumption and poverty were at least twice as high for households living more than 30 km from the nearest town, when compared to those living closer than 30 km. In addition, the study applied a generalized quantile regression estimator to investigate how the effects of road infrastructure vary across the consumption distribution (Powell, 2020). This procedure examined how different consumption quantiles are affected while also accounting for covariates, making the results comparable to the results from our base specification. The estimates weakly indicate that the effect of upgrading dirt roads is higher for the poorest households, suggesting that road works can be considered anti-poverty measures in the case of rural PNG (Wiegard, Koomen, Pradham& Edmonds,

2023). This project currently being commissioned and carried out by the Heganofi DDA and the national government stands to benefit the people from this area.

Purpose, Methodology, And Scope of the Scope of the Road Project Impact Assessment

The higher purpose of this project is for the provision of a safe and reliable road connectivity that should serve as an alternative highway for Eastern Highlands Province enhancing quality of life for all sections of the community as well as generating income earning activities .This project supports DSP vision “Papua New Guinea will be a prosperous middle-income country by 2030” by embracing the economic corridor concept to open doors for greater investment opportunities domestically and internationally through wealth creation activities, improved infant mortality, enabling environment for proper education services to be provided and accessibility to health services.

The national governments development plans in the (V2050, MTDP, PNGDSP, NTS & MTTP) specifically highlights transport infrastructure as an “Enabler” in the attainment of the goals and objectives of the national government. Derived from the higher visions of the national government the DOW – PNG in its Corporate Strategic Plan envisions a “Sustainable, well managed transport infrastructure – enhancing quality of life for all sections of the community” working in partnership with other sector partners like the (NRA) and (DOT).

The objectives of the Project are to:

1. To improve connectivity particularly for those in the remote areas

2. Improved public access to government services
3. Ownership through citizen participation in economic development.

This road when constructed will be an impetus for economic growth, enabling the rural population to have a greater participation in the economy and accessibility to basic government services such as education and health.

The connecting of the Dunantina-Dumpu Road will open doors to greater investment opportunities for Dunantina Local Level Government in Henganofi District, Upper Bena in Unggai-Bena District and Upper Ramu in Usino-Bundi District of Madang and Eastern Highlands Provinces domestically and internationally. Corridors of poverty in Dunantina-Dumpu Road will be transformed into economic corridors through a comprehensive and effective network of transport and utilities, quality education and health services. Within this section of road, businesses are able to operate at low-cost investments. By concentrating the construction of essential infrastructure within certain section of the road, the economic corridor approach takes advantage of the substantial economies of scale and scope associated with large service sector infrastructure. This reduces the cost to state owned enterprises and other providers of essential infrastructure, while raising their returns. Building on this infrastructure, effective sequential and spatial planning will help to expand economic activities like agriculture, tourism and informal business activities.

- Increase investment opportunities in the coffee industry through embracing the economic corridor concept designed to open up our country's significant natural resources for development. This road network has high coffee

production output in Henganofi District and Eastern Highlands Province as a whole.

- A good and improved road will reduce travelling time to destinations. Reduced travelling time to schools, markets, health centers and shopping centers. There will also be increase in number of PMV's and market stalls on road sides.
- Improvement in these roads will mean low transportation costs and farmers or locals will actively engage in agricultural production. Dunantina Local Level Government where the proposed road is located has been known for growing and supplying of cash crops such as potatoes and cabbage even with poor road condition. Improvements of roads such as this will certainly drive and increase production to meet market locally and in the country
- Upgrading of this road is required for the easy access to the proposed Dunantina High School at Rihona up in the mountain range of Dunantina Local Level Government in Henganofi District.

Increase tourism activities within the area where it is home to some of PNGs undisturbed wildlife as well as eco-tourism activities. This village is a home to two local leaders who first met the first Lutheran Missionaries into the EHP and the Highlands of PNG

The methodology applied involved interviews, observations, desktop studies and a district survey covering households, villagers and small holder farmers in Henganofi&Unggai-Bena District (EHP) &Usino-Buni District (Madang). A baseline questionnaire was designed to

capture the impacts of the road project. The areas covered were on the economic benefits, challenges the improvements and future prospects. The questionnaires were pre-tested and closely administered. The sample was chosen carefully for representativeness. Special consideration was accorded to those most affected, the households and the villages living along the main road sides and those who have small-holder holders, for example, coffee and food gardens and also those whose land is being constructed. Face to face interviews were conducted for the data collection. Both qualitative and quantitative methods were used to analyse the impact of the road project on household's economic benefits, environmental impacts, challenges & improvements and the future economic prospects. Demographic information on age, gender, marital status, place of residence, place of birth and their education level were also collected. This section also included types of employment they were engaged in. The data was analysed based on key objectives of the road project. Responses were subjected to triangulation, comparing section specific responses across a wide spectrum of respondents and data. Observation data was coded and analysed using excel spreadsheet and Stata 16.

The Impact Survey on Households and its people, October, 2023

Demographic Analysis

This project was undertaken in Henganofi&Unggai-Bena District of Eastern Highlands Province (EHP) and Usino-Bundi District in Madang. There were 50 respondents and were from

Hagere, Timreo, Titona, and Surinam Communities. 21 respondents were from Usino-Bundi District and 29 respondents from Henganofi&Unggai-Bena. There were three females headed households and 47 were male headed. During some of the interviews, both the husband and the wife were present. Each respondent represented their households. The respondents' population average was 46 years old. The oldest was 71 years and was Timreo village and was engaged in agricultural sector. And youngest being 24 years of age. He comes from Titona Community and was also engaged in agricultural sector. Most age group we interviewed were in their 30s (14 respondents) and followed by 50-year age category (12 respondents). The age distribution is shown in Figure 1.

Most of the respondents (34 respondents) were engaged in the agricultural sector. Seven respondents indicated that they have jobs related to trade and four (4) said they were unemployed. There was only person who said he was employed by the government. All the female respondents indicated that they were housewives as their primary responsibility. This is shown in Table 1 and also the distribution is graphed in Figure 2. All the 50 respondents were born in the village and they were living in the village when interviewed. They had first-hand experienced the life in the village, their village without the road connection and the experiences with the road connection. Forty-one respondents said they were married and with their husband/wife while five never married. Two respondents said they got divorced while another two indicated they got separated.

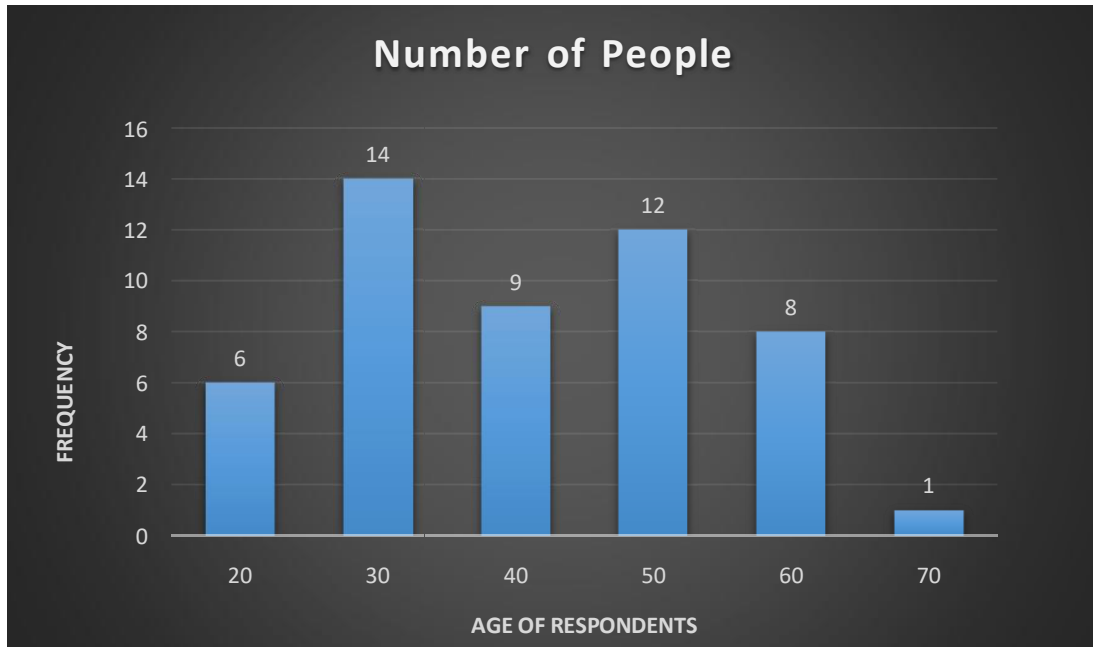


Figure 1: Bar graph showing the age category.

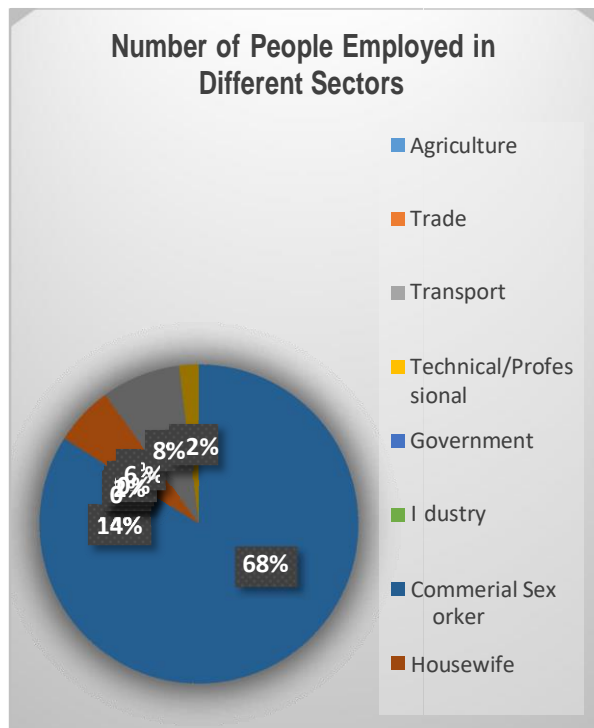
Table 1:Types of Employment Engaged

Types of Employment	Number of People Employed in Different Sectors
Agriculture	34
Trade	7
Transport	0
Technical/Professional	0
Government	1
Industry	0
Commercial Sex Worker	0
Housewife	3
Unemployed	4
Others	1
Total	50

Figure 2: Pie graph showing respondents' Industry of employment.

Education Levels

We asked the respondents if they had been to school. 46 respondents indicated that they have been to school whilst 4 said they did not. We further asked if they had no education, school years (1-12), trade certificate, other certificates, diplomas, bachelor's degree or postgraduate. 44 respondents said they have been to school years (years 1 to 12). Three respondents said they have never been to school and two (2) said they have trade certificates and only one (1) had a diploma. This is shown in Figure 3 below. Further four questions were asked: (1) Do you read newspaper? (2) Can you write a letter, (3) Can you do calculations and (4) final question was, do you use computer? These responses were either Yes or No. The results are tabulated in Table 2 below and shown graphically in Figure 4. The results indicate that most of the respondents did not have the chance to have a better education. As indicated in Figure 4, most of them did not read, write, calculate and even most of them did not know how to use a computer. These results indicate that, they have very limited education levels. It reflects that most of them did not have a chance to further their education. They had limited opportunities. One can conclude that, because they did not have accessibility to road before, it was unlikely for them to travel and attend schools. However, this has changed now that there are more enrolments and most of the children today have access to better education.



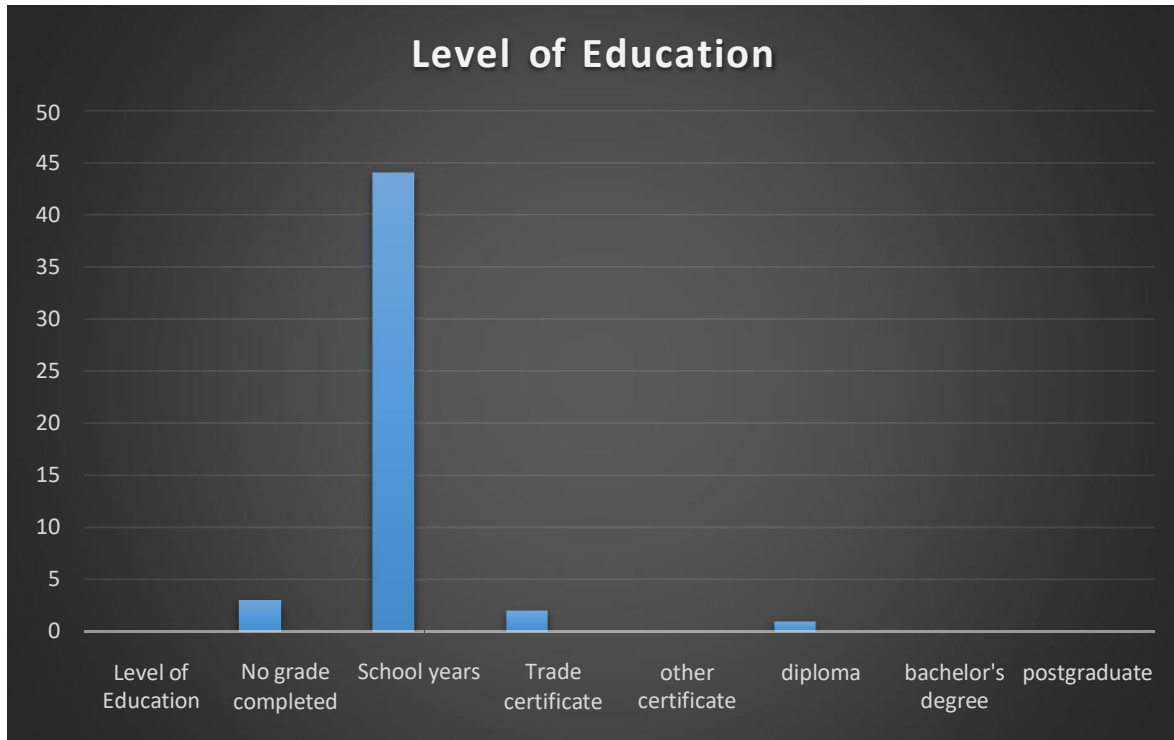


Figure 3: Bar graph showing respondents' Level of Education.

Table 2: Fluency in Reading, Writing, Calculations & Use of Computer

Level of Education	Yes	No	Total
Read	29	21	50
Write	18	32	50
Calculations	20	30	50
Computer Use	8	42	50

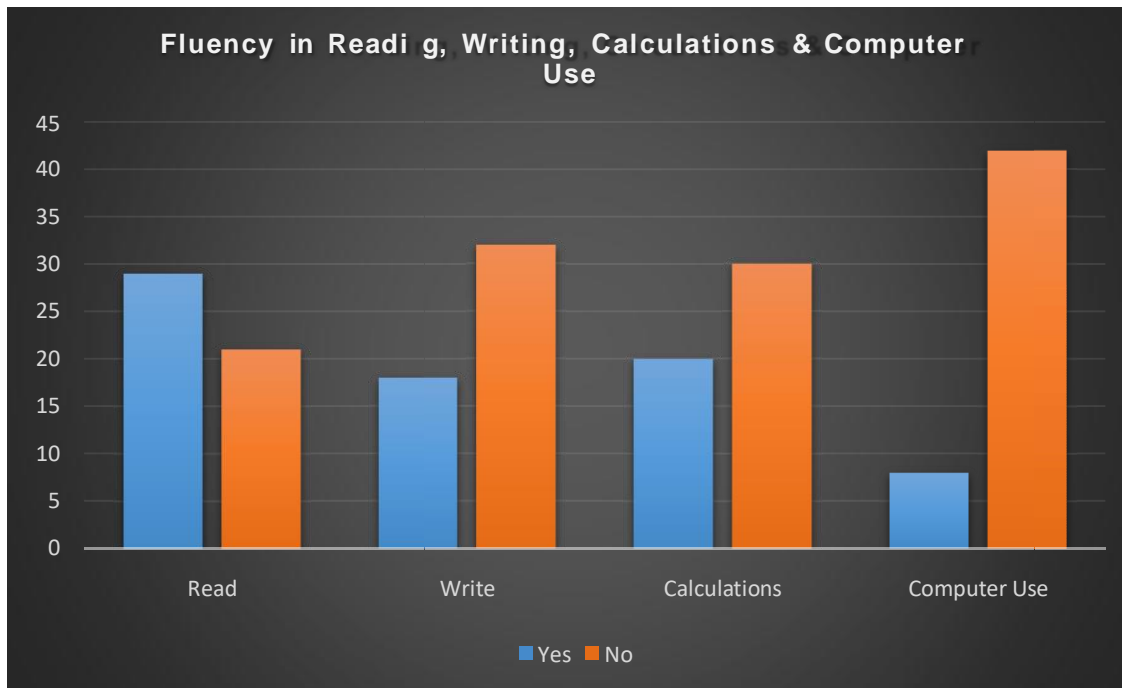


Figure 4: Bar graph showing respondents' Fluency in Reading, Writing, Calculations & Computer Use.

Road Awareness

When asked if the respondents were aware of the road project, all of them indicated that they were aware. This indicated that all the information regarding the road project connecting Ramu and Henganofi has been made known to all the villages and the communities. Further questions were asked if they had personally used the road for travel or for other purposes. All of the respondents have used the road. This suggests that the individuals have actively utilized the road for various reasons. It can be for economic reasons, for hospital runs, attending schools, can be used for gardening and for other purposes as well. The results further showed that 86 percent of them use the road daily while 14 percent indicated that they have used the road on a weekly basis. It can be further reiterated that road access to the people has achieved its full purpose for whatever reasons intended for. Road is an enabler to other

services and this is indicated by the frequency of the respondents. Hence in summary, the results confirm that the road connecting Ramu and Henganofi is widely known and used by the people. They also have full information on the construction of the road project. These results provide valuable insights into the road's significance within the local community.

Impact of the sealed road

In this section, we investigated the perceived impact of the sealed road between Ramu and Henganofi on the local economy, its economic activities, and local businesses and entrepreneurs. A question was asked to seek information on how the sealing of the road has affected the local economy. Respondents were provided with options. The results showed that 90 percent of the respondents said, if the road is sealed, it will significantly improve their local economy. This in itself is a positive perception regarding the road's positive impact on the local economy. Further questions regarding the impact of economic

activities in the district was asked. The question was “if they had noticed an increase in economic activities such as trade, business, agriculture and other related activities”. All of the respondents said, they have seen and observed improvements and increases in the economic activity of the district. They said they have seen more people selling vegetables in the market, coffee production increased, more kids going to school and if they sick, they were able to have access to better health cares. There were new developments in education and also the health sector. It further went on to explain that in general, there significant improvements as a result of the road access. Furthermore, the findings indicate a consensus that the road has brought about significant improvements in these aspects, contributing to the overall development of the area.

If the road will be sealed, almost 95 percent of the respondents indicated that they will benefit directly. They will have access to the market for the cash crops, health accessibility, education and other government services. They also said, they will have access to employment opportunities outside of their district. However, the study asked if they had experienced challenges due to the road construction. The only issues (30 participants indicated) they had was destructions of their environment. They have seen landslides covering some of the food gardens. They also said, sometimes their drinking water was polluted. They have walk long distance to fetch water. Apart from these environmental concerns, they had no major challenges or issues with the road construction. They further indicated that they would want their local member to pay for the environmental costs associated with it. They said they would

want taper tanks to be installed nearby for them so they can save time and energy walking long distances.

Future economic prospects

Henganofi&Unggai-Bena District of EHP and Ramu District in Madang road connection is one of the missing links that would connect these two provinces including excess to urban centers like Lae in Morobe Province, Goroka in EHP and Ramu in Madang. This also fulfils the government’s policy to connect PNG. The people living in the remote part of these two provinces will benefit from the road project. As in line with the Department of Works (DOW) Report compiled in 2013, said Dunantina-Dumpu Road Project will be a safe and reliable road connectivity. It will enhance the quality of life. It creates income earning opportunities that can further used for education, health and improving their livelihoods.

This project supports DSP vision “Papua New Guinea will be a prosperous middle-income country by 2030” by embracing the economic corridor concept to open doors for greater investment opportunities through wealth creation activities, improved infant mortality, enabling environment for proper education services to be provided and accessibility to health services. The national governments development plans in the (Vision 2050, MTDP, PNGDSP, NTS & MTTP) highlights transport infrastructure as an “enabler” in the attainment of the goals and objectives of the national government. The people living along the corridors of this project will benefit by improving their socioeconomic status and their livelihood in general. Building a road would improve access to jobs, education, health care, and other services for the people. According to Robinson (1999), effective and efficient road transport can lead to higher incomes

and greater economic well-being. The study further explained that the economy in the vicinity of the road may benefit if a road is improved or new access is provided. It may be easier to make trips to farms or markets, or other commercial centres for the people (Robinson, 1999). There may be benefits to agricultural producers because of reduced transport costs which enable higher prices to be obtained at the farm gate for goods that are produced.

Road links play a crucial role in the economic development of a region or country. They provide a convenient and efficient mode of transportation for goods and services, thereby contributing to the growth of the economy. According to Azmanali (2023), improved road infrastructure enables the smooth flow of goods and services, thereby reducing the transportation time and cost. This, in turn, makes the goods and services more accessible to a larger audience, leading to increased trade and commerce. The Henganofi-Ramu Road construction project will also provide employment opportunities to a large number of people, including engineers, construction workers, and suppliers of construction materials. These employment opportunities will help in reducing poverty and will improving the standard of living for many people. Moreover, road construction project will likewise contribute to the development of the local economy by providing employment opportunities and generating revenue for the local community. The people from this region stand to benefit a lot from building of this road link between the two provinces.

One of the respondents said that “this could open ‘desired economic opportunities’ while another mentioned “better health

services.” Also, one of them stated that “I want this high way to be a safe and best trade route for people up in the highlands and my people in Ramu”. The Henganofiand Ramu Valleys have abundant and fertile customary land. According to Morona (2022) the lack of proper road network has affected the conversion of the land resources for the socio- economic benefit of the region’s rural dwellers. Investing in good road networks can make it possible for the poor rural population to access markets for their garden produce. This will enable them to generate income from the cash crops. She further explained that “improving roads network will enable financial institutions to establish branches and to operate in the rural areas and remote areas this two provinces.” This will open up the opportunity for the rural folks to be financially included- the rural farmers will have access to much needed financial services (savings and borrowings). Investing in good road networks in the rural areas is indispensable for country’s export of agricultural products. PNG can export more agricultural products which in turn, will potentially increase the country’s Gross Domestic Product (GDP) (Morona, 2022). Thus, more people from rural areas will have access to better education and the standard of living will improve.

In the study most of the people agreed that this impact project will give them opportunities in the Small and Medium Enterprises (SME). Almost all of the respondent when asked to make further comments if they have any said “they would be able to engage in small projects like poultry, sewing and operating trade stores. With new opportunities like the road infrastructure comes other service.” This statement has merits because one of the major obstacles facing businesses in PNG

was “poor transport infrastructure and deficiencies in utilities infrastructure and skill shortages (ADB, 2014). So, investing in rural roads will stimulate the rural economy which will, in turn, reduce the country’s poverty rates.

A further interesting comment made by almost all of the respondents was;

“we have had no proper negotiations with either the constructor or the local MP before the road constructions began.” We want to be part of this road building exercise because this project is directly benefitting us. We are not against this project by questioning it, but we thought it would be an added bonus for this exercise if we take ownership of the project by being engaged. At the end of the project life, we will be the end-users of this project and benefit from it. We want to take pride in it and participate in it too.”

They said building of this much needed infrastructure will open new corridors of opportunity for them and for the wider community. Another person has this to say, “we have suffered in the dark for too long. It's time for a brighter future with the road connecting us to others.” Another person added his comment “the ILG will safeguard our land rights, and I'm confident that this project will be a game-changer.” These comments indicate that, the people have cherished this development opportunity and wants it to be looked after, supported and maintained.

A community leader from the Ramu area where the road will be built through his customary land to connect Heganofi road had this to say when asked.

“As the Chairman, landowner, and councilor, I have engaged in discussions with all of our community leaders from neighboring areas and conducted a

community awareness campaign about the significance of the road. After extensive deliberation, we collectively passed a resolution stating that we will not raise any complaints or claims regarding environmental damage. We have endured lack of connectivity for far too long and now eagerly seek the road services that will connect us with the Henganofi community and other highland communities. Furthermore, we anticipate no land disputes, as we have our ILG (Incorporated Land Group) in place, which clearly defines our land boundaries. Consequently, I am confident that there will be no obstacles along the way, given that we recognize the road's substantial and enduring benefits and its role in facilitating other essential services.”

Such revelation and statement are a clear indication that people from both sides of these two provinces whole heartedly welcome the news of a road link to be constructed to connect the two provinces. This will be another alternative road after the main Okuk Highway.

Policy Options

The Henganofi-Ramu Road Project fits in well with the national governments ‘connect PNG’ Act 2021 that was passed in parliament. According to the Act 2021, the purpose of this Act is to commit the State through a multi-year financing plan to fund the Connect PNG program to connect PNG by a national road network and its related facilities to materially improve national productivity or economic, environmental and social sustainability (Connect PNG Act, 2021). The national government sees that with good road networks, rural population will have better opportunity to access health care facilities, education and accesses to urban markets for selling of agricultural produces. The livelihoods of

the people would increase as a results and the poverty level will decrease.

Developed under the Marape government, the Department of Works Connect PNG Policy 2020-2040 guides the development of vital road links in the country which aims to connect communities across PNG for an increase to untapped economic potential, especially for SMEs and agriculture (PNG Business News, 2020). This project highlights road transport as the dominant road in the PNG and as part of the Vision 2050, apart from electricity airport development, energy and power supply. It is part of the government's response in alleviating the road problem in PNG and will construct, repair and rehabilitate a total length of 4,200km of standard 2 lane economic highways and 16,000km of provincial and district main backbone highway at a price of K20 billion in a span of five years (PNG Business News, 2020). So, the Henganofi-Ramu Road Project captures and implements the national government's vision and policy to connect rural PNG to the urban centers by 2040.

To conclude, the proposed missing link road connection between Henganofi in the Eastern Highlands and Ramu in the Madang provinces stand to benefit people from both sides of these provinces. Both of this district have very fertile valleys that can be converted and cultivated into farms for growing cash crops like coffee, raising cattle and other commercial produces. The people of the opportunity to sell their produces in the urban main markets in Madang, Goroka and Lae through this road connections. This will in turn improve their live hoods. Road construction is a crucial aspect of modern society and has a significant impact on various aspects of human life. Improved road infrastructure

promotes economic development, enhances accessibility and connectivity, provides employment opportunities, improves transportation safety, and has positive environmental impacts. It is essential for the local MP with support from the national government and other NGOs to invest in this road construction and maintenance to ensure that the benefits of modern society are accessible to all. So, the importance of road construction for modern society can be seen in its role in; economic development, improved accessibility and connectivity, employment opportunities and safer transportation.

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