The upland agrarian ethnic minority groups in the borderland in Southwest China are facing modernization through eco-agriculture development programme.

Since its adaptation of the neo-liberal approach to development China has been experiencing impressive economic growth. China's GDP per capita in 1980 was US$ 194.805 and it grew up to US$10,261.679 in 2019 (world Bank, 2019). This growth is among the highest in the world. However, this broad-based growth is not always the solution for poverty (Morduch, 2000). Poverty still widely exists in rural areas and among marginalized ethnic people in China. In response to its poverty since the mid-1980s, the Chinese government has been working on various poverty alleviation programs (Meng, 2013). One of those programs currently being implemented is the eco-agriculture development program in rural regions. The aim of this project is to reduce poverty by modernizing traditional agriculture in poor areas. This essay is based on, a case study, by Gao Ze, about an ethnic minority group called Pumi people who have recently encountered the eco-agriculture project in Lanping county in Yunnan province in southwest China. In the context of the subsistence farming modernization to alleviate poverty, in this essay, I will first, discuss China's economic development from its economic reform and where it stands today. Secondly, I will talk about China's poverty reduction programs over the last 40 years and its targets. Thirdly, I will analyze the eco-agriculture program, its aims, its perspectives about development and poverty reduction on the one hand and Pumi local farmers on the other hand. I will then look into an alternative approach to development, which concerns more about actors, their perspectives, and their lived experiences. Finally, I will conclude with a summary of the essay.

In the global context historically, the global south is always seen as a periphery, underdeveloped, poor that west needs to develop the south. With the emergence of neoliberalism in the west, countries in the south were forced to open up their market and trade. In the name of food security, the green revolution in agriculture also introduced to the south. Today the poverty reduction is on the agenda (Potter et al, 2018). However, China has gained impressive economic growth from the marked-based economy reform in the late 1970s. China's agriculture imports and exports were relatively low before its WTO accession. Today China stands as the largest agricultural economy in the world and a leading importer and exporter of agricultural products. Since its market-based policy reform, China has been focusing on boosting its rural economy through agricultural modernization and diversification

of economic activities (Russell and Jeffries, 2009). After the reform, the collectivism in agriculture was abolished and the household contract responsibility system was established, which allowed households to contract or own lands for agricultural production. Following this China also reformed its policies around agricultural products, purchases, and distributions complemented with investments, technologies, and trade. As a result, the gross output value of agriculture increased from 46.1 billion Yuan in 1952 to 10,933.17 billion Yuan in 2017 (Zhixiong and Weidong, 2019). China's agricultural growth over 40 years is propelled by the use of technology such as hybrid seeds, irrigation, chemical fertilizer and pesticides, animal breeding. Agriculture plays a critical economic role in China. It is still changing as it responds to the rising and increasingly sophisticated demands of domestic and foreign consumers (Russell and Jeffries, 2009).

Agriculture has brought millions of people out of poverty in China and it continues to reduce poverty through agriculture today. The government of China has been carried out a series of poverty alleviation programs since its policy reform to bring people out of the absolute poverty line. These programs intensified after Xi Jinping became the president of China in 2013. Soon after Xi Jinping became president he proposed a targeted poverty alleviation to eliminate China's absolute poverty by 2020 then it became China's overarching national goal (Kuhu, 2019). The absolute poverty line was originally introduced by the World Bank in 1990, referring to living under $1.01 per day. Over time the extreme poverty line has been adjusted by the world Bank. Likewise, China also changed its definition of its poverty line over the last 40 years. The table below shows the changes in poverty line measures over time that China's poverty lines in Yuan per person per year and the World Bank's in USD per person per day. (Liu et al, 2019).

China and the World Bank's Measures of poverty lines

China's poverty lines			World Bank's poverty lines			
Poverty lines (yuan per person per year)	Year	Price base year	Absolute poverty lines (USD per person per day)	Relative poverty lines (USD per person per day)	Year	Price base year
100	1978	1978	1.01	—	1990	1985
865	2008	2000	1.08	—	1994	1993
2,300	2010	2010	1.25	2.0	2008	2005
2,536	2011	2010	1.90	3.1	2015	2011
2,952	2017	2010	1.90	3.1	2015	2011

Sources: Liu et al, 2019

These definitions of poverty by either China and the World Bank show, poverty being an economic phenomenon. To meet the target of absolute poverty reduction by 2020, various development programs and methods have been employed in China. For instance, modifying small traditional farming, moving people from remote areas to cities, providing education and training, etc. (Kuhu, 2019). On the one hand, China's growing consumer demand forces the government to invest more in commodity production. On the other hand, reaching out to remote places to increases agricultural production goes hand in hand. The poverty reduction program is now reached the most remote areas and mostly indigenous people who live in those remote areas are facing modernization in China.

The eco-agriculture is one of those poverty reduction projects now being introduced to Pumi farmers in Lanping county. Pumi people are a Tibetan-Burman speaking ethnic group mostly living in Yunnan Province in the China-Myanmar borderland. They are indigenous people and have been living in this region for generations. Pumis are one of the 56 officially recognized ethnic groups in China with a population of about 30,000. They are often located at an elevation above 2,700m. According to the government poverty measure, Lanping county is the most impoverished county in China. Therefore the Pumi people are being the key target of this eco-agriculture development project in this area. The project is being implemented, coordinated, and supervised by the provincial authorities (Gao, 2019).

The eco-agriculture is a state strategy for rural development and poverty reduction. It is operated under the government's policy called Comprehensive Agriculture Development (CAD), which is a strategy to transform subsistent farming and low yielding cropland to industrial farming and high yielding agricultural land (Veek and Shui, 2011). The eco-agriculture agenda in Langping county is initiated by Yunnan provincial government under the guidance of the central government. This development program in Lanping can be seen as the top-down approach of development (Potter et al, 2018). As above mentioned China has transformed its economy since its opening up for trade and market. However, self-sustained farmers like Pumi have not been benefited from China's GDP growth. Ravallion and Jalan argue that small investment by farmers brings little or no economic gain as a result households living in a remote area experience stagnation or decline. They called it a "geographic poverty trap" (Ravallion and Jalan, 1999, p. 303). The geographic location of Pumi village, Langpig county is mountainous and disconnected from mainland China. As this specific location is so isolated and hard to reach the standard assumption of a neoclassical growth model, the "trickle-down effects" (Potter et al, 2018 P.98) that these areas will eventually catch up with the rest seems quite unreal (Ravallion and Jalan, 1999).

For a long time, the remoteness has helped the indigenous people like Pumi to shield them from the dramatic social and political changes. Pumi have been an upland agrarian for generations. They have long-standing traditions, practices, and knowledge for adaptation to environmental changes. Sustainability is at the core of their agricultural practices and they know the importance of nature and biodiversity (Gao, 2019). They have been growing various indigenous bread of crops such as maize, oil peony, kidney beans, potatoes, barley, garlic, and also livestock. The seeds of these varieties of crops have been adopted by the Pumi farmers to fit the fragile and very harsh environment. They cultivate crops using barnyard manure. Barnyard manure is an organic compost for fertilizer, which is locally made simply by adding pine needles to the dung. It keeps the soil fertile. Pumi farmers rotate their farms, for instance, if they grow maize for the first year they grow barley for the second year and kidney beans for the third year. The rotation of farmland also gives the opportunity to pasture shift. They also intercrop crops. Intercropping is two or more crops growing in proximity to each other. These kinds of farmland management can help not only to balance the soil fertility and improve agricultural yields but also give food security. It shows the Pumi people's deep knowledge of

agrobiodiversity. The agrobiodiversity encompasses the variety of plants, animals, micro-organisms including structures and processes of food production and security that are necessary for sustaining key functions of the agroecosystem (Gao, 2019).

However, the eco-agriculture development project has its own standardized framework, methods, and systems embedded within its agenda for agricultural production, which is coordinated by the central government. Thiers argues that the eco-agriculture program in China has been used as a state coordinated market strategy. Likewise, in the eco-agriculture agenda, the government's first goal is to build market-oriented enterprises that will upgrade the local agricultural system and seek higher economic profit (Thiers, 2002). The provincial government is responsible for the implementation of the eco-agriculture agendas in targeted areas. In order to facilitate the implementation of the agendas, many agricultural specialists and development experts are being deployed on the ground. In Pumi eco-agriculture the deployed personnel are known as officials. The officials see the indigenous traditional farming practices as a backward and unregulated agriculture activity. They also see the Pumi's small-scale household-based faring as a hindrance to agricultural development. They
believe that local agriculture production can be more efficient through the use of scientific knowledge and technologies. However, they are concerned about Pumi's lack of education being the hard part of the process of implementation of the eco-agriculture agenda (Gao, 2019).

The eco-agriculture program's aim is to make the local farmers produce a large scale of agricultural production for the market. Therefore, their first task is to promote small household-based agricultural production to large-scale farming enterprises. To sustain the market the local farmers have to join big agricultural cooperatives or enterprises. The incentive to join these agricultural enterprises is market access. The businesses have a contract with supermarkets in cities and exporters. The enterprises sell only certain types of productions. Therefore, monocropping farming with standardised farming procedures was introduced to the local farmers. From the officials' perspectives, the standardized agricultural land use with less variety and more quantity would improve the farmers' efficiency in commodity agriculture. Also, it can b easily sustained by the deployment of technical specialists, breeding high yields seeds, using chemical fertilizers, pesticides, and providing farmers guidelines and pieces of training (Gao, 2019).

However, Gao finds in her field research, the officials who are responsible for training and monitoring Pumi farmers do not have a farming background. But they view scientific knowledge and technical skills are the panacea for all farming problems. They see the small scale subsistence farming as a cause of poverty and they use a guidebook to monitor the local farms and their farming. The guidebook contents with information about how to manage farmland to a standardized farming base. Most importantly they do not encourage the local farmers to practice agriculture as they used to such as farmland rotation, pasture shift, intercropping, or crop heterogeneity. They believe in the scientific way of farmland management through which the farmers would develop profitable eco-agriculture (Gao, 2019).

In contrast, Pumi farmers do not believe in large-scale farming and monoculture. They want to protect the variety of seeds that they have developed and saved over the years by themselves. However, they do not resist any external technical skills if it works for them but they also do not abandon their traditional farming techniques. Hanse, even though they joined the cooperatives for market access they kept some of their lands for traditional farming. They widely accepted the government's hybrid approach of farming techniques but they still use their own traditional techniques when the introduced technique does not work. For instance, after trying out hybrid maize for times they realized the maize was vulnerable to wind in steep terrains and they resumed their indigenous breed maize again. A medicinal herb called Chonglou is a highly specialized plant and its sprouts come from a biotech company, to them, the Pumi farmers started to grow them using their own barnyard manure. They find that the use of their own organic manure to grow hybrid or their traditional crops gives better yield because the organic manure keeps the soil rich and healthy. By using barnyard manure to grow crops they also cut the expenses and sell the product at a higher price (Gao, 2019). All these demonstrate that the Pumi farmers are not passive recipients.

Although, the officials have a strong will to transform the Pumi's traditional farming to large industrialized agriculture, their lived experiences and deep knowledge about nature and agrobiodiversity has weakened the radical interferences. The officials' technocratic approaches to agricultural development undermine the local farmers' long-standing knowledge. On the other, the local farmers did not believe in large-scale farming and monoculture. It shows that there is a divergence in understanding of agriculture between the government's agriculture experts and the Pumi local farmers. However, Pumi's sophistication of farming enables them to modernize the modern agricultural technic with their own. It demonstrates Rigg's claim that

local people “can influence events, resist domination, and build alternative futures” (Rigg, 2007. P.20). The Pumi eco-culture project shows that agents (officials) need to understand the perspectives of actors (Pumi farmers) and their lived experiences in order for development initiatives to be relevant to the people that they are claiming to help. With this actor-oriented approach, one could switch the focus in development from looking just the economic performance in GDP towards understanding the situations for people who are being impacted by development. Rigg argues that taking the local people and their everyday experiences into account are important not only for macro and micro level of interpretation or understanding about neoliberalism but it also forces a consideration to the development agencies (Rigg, 2007).

To sum up, since China’s opening up its economy is growing exponentially but rather unevenly. Poverty still exists in some rural regions and among ethnic minorities in China. Poverty reduction is a global agenda but china is intensely engaging with its poverty alleviation program to meet the target of absolute poverty elimination by 2020. The most effective and practical project being carried out is eco-agriculture. With the agricultural project, they can reach the most remote regions where generally people live on subsistence farming. The eco-agriculture aim is to transform subsistence farming to large industrial agriculture. The Pumi farmers were one of the targeted people by the eco-agriculture development program. However, the Pumi people have a long-standing very sophisticated knowledge of farming. Although the farmers were open to external intervention and external technical skills they protected their traditional farming and used them when the external techniques did not work. Therefore the Pumi farmers are not passive recipients. The development agents need to understand actors’ perspectives and take into account their lived experiences. This approach could prevent development failure.

References

Gao, Z. (2019) *Organic Farming is Coming to Our Valley: The Development of Pumi Eco-Agriculture and the Indigenisation of Modernity in Sino-Myanmar Borderlands.* Master's Thesis Uppsala University.

Gregory, V. and Shui, W. (2011) *China's Quiet Agricultural Revolution: Policy and Programs of the New Millennium*. Eurasian Geography and Economics, 52:2, 242-263, DOI: 10.2747/1539-7216.52.2.242

Jeffries, R.H., 2010. *China's agricultural modernization*. Nova Science Publishers. See here. https://agris.fao.org/agris-search/search.do?recordID=US201300139854

Kuhu, R.L (2019) *Targeted Poverty Alleviation: The China Story the Bust Be Told*. See here; **http://en.people.cn/n3/2019/0912/c90000-9614316.html**

Liu, M. et al. (2019) *China's poverty alleviation over the last 40 years: successes and challenges.* see here **https://doi.org/10.1111/1467-8489.12353**

Meng, L. (2013) *Evaluating China's poverty alleviation program: A regression discontinuity approach*. Department of Economics, School of Economics and Management, Tsinghua University, Beijing 100084, China

Morduch, J. (2000) *Reforming poverty alleviation policies*. In: Krueger, A. (Ed.), Economic Policy Reform: The Second Stage. University of Chicago Press, Chicago.

Rigg, J. (2007) *An Everyday Geography of the Global South.* Routledge, London. See here. https://books.google.ie/books?hl=en&lr=&id=-yYGwPNmjb8C&oi=fnd&pg=PP1&dq=development+geography+and+global+south+&ots=FEwZHdUDBZ&sig=F3pFbjURj3qUAFYbnvMLxT-Ot3c&redir_esc=y#v=onepage&q=development%20geography%20and%20global%20south&f=false

Williams, G., Meth, P. and Willis, K. (2014) *Geographies of developing areas: The Global South in a changing world*. Routledge.
Potter et al. (2018) *Geographies of Development: An Introduction to Development Studies.* Routledge, London

World Bank (2019) https://data.worldbank.org/indicator/NY.GDP.PCAP.CD

Zhixiong, D., & Weidong, X. (2019) *Seven decades of china's agricultural development*: Achievements, experience and outlook. *China Economist, 14*(1), 2-33.