

Asian Rural Future 2030

***Committee of International Affairs,
The Association of Rural Planning, Japan***

Asian Rural Future 2030

Edited by

Kako Inoue, Izuru Saizen, and Minori Tokito

Committee of International Affairs
The Association of Rural Planning, Japan



Committee of International Affairs, The Association of Rural Planning, Japan

Head of Committee, Board member Kako INOUE, University of Miyazaki
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Board member Mari TAKEDA, The University of Tokyo
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Miki NAKANO, Meiji University
Minori TOKITO, Kyoto University

The Association of Rural Planning, Japan

Kinoshitabiru 4F, 3-3-3 Kanda-Misakicho, Chiyoda-ku, Tokyo, 101-0061, Japan

Edited by Kako Inoue, Izuru Saizen, and Minori Tokito

Committee of International Affairs, The Association of Rural Planning, Japan

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List of Editors and Contributors

EDITORS

Part I

Izuru Saizen, Kyoto University, Japan

Minori Tokito, Kyoto University, Japan

Part II

Kako Inoue, University of Miyazaki, Japan

CONTRIBUTORS

Part I

Le Van An, Hue University of Agriculture and Forestry, Vietnam

Ernan Rustiadi, IPB University, Indonesia

Seung-Jong Bae, Seoul National University, Korea

Cristino L. Tiburan Jr., University of the Philippines Los Baños, Philippines

Part II

Midori Aoyagi, National Institute for Environmental Studies, Japan

Yasi Tian, Soochow University, China

Lei Wang, Soochow University, China

Minori Tokito, Kyoto University, Japan

Thi Thu Oanh Tran, Foundation for International Development/Relief (FIDR), Vietnam

Thi My Hoa Do, Foundation for International Development/Relief (FIDR), Vietnam

Nobuko Otsuki, Foundation for International Development/Relief (FIDR), Japan

Kako Inoue, University of Miyazaki, Japan

Saki Satoh, Norinchukin Research Institute Co., Ltd., Japan

Kohei Yagi, Kobe University, Japan

Johannes Wilhelm, Kumamoto University, Japan

Preface

Izuru Saizen

The Association of Rural Planning, Japan was founded in 1982 aiming at finding out the solution of issues in rural areas to create an energetic and attractive rural society while realizing a rich and beautiful rural environment. In 2021, the number of association members are around 900 having variety of majoring fields such as social science, economy, law, architecture, civil engineering, landscape architecture, geography, and environmental science. This variety of members' background have enabled the association to enforce researches not only in Japan but also in foreign countries so that international activities such as research collaboration, field visits, and international conferences became a sequence of the association activities. Accordingly, the association has contributed to real world and shared acquired professional knowledge of rural areas with researchers as well as practitioners in the world.

This book is one of the results of the association activities in 2021, being mainly related to Sustainable Development Goals' year, 2030. The Sustainable Development Goals, also known as the Global Goals, were adopted in 2015 as the universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030. With less than ten years left, now we need to consider a decade of ambitious action to deliver the Goals by 2030. Although debate at a global scale is heating up, there is a gap between global and local issues. Especially in rural areas, there are still many challenges to solve the actual social issues while no country is ignoring the importance of rural areas as a source of food for human beings as well as a landmark for natural environment.

This book consists of two parts. The first part is based on the online international symposium entitled "Asian Rural Future 2030" held on September 28, 2021, organized

by the association, where four researchers from four Asian countries, which are Indonesia, South Korea, Philippines, and Vietnam, presented what is currently going on around/in the rural areas of these countries and consider actual actions needed by 2030. The second part is series of the research articles by researchers who have a close relationship with the association and some of them presented their researches at the online international seminar held on February 27, 2021. These researches are treating social, environmental, and economic issues which rural areas are facing and the target study areas are Japan, China, Vietnam, and Myanmar. Treating domestic and international topics in rural areas, readers would be able to get extensive knowledge through this book.

The situation of rural areas in Asia are different from country to country. Developed countries in Asia, such as South Korea and Japan are facing population decrease, less use of agricultural lands. In Japan, agriculture, forestry and fisheries account for only 1.2% of GDP and more than 90% of the population lives in urban areas. Rural areas will not only see an increase in abundant land, but also an increase in the number of area where people don't live and there is a need to examine how to maintain and manage the rural areas. On the other hand, many developing countries in Asia are facing poverty, population increase, environmental degradation in rural areas. The aspects of these issues look different but all rural areas in these countries are losing their sustainability. This book is mainly edited by the committee members of the international affairs in the association. The committee members expect that this book will help readers grasp challenges at and assaults by Asian countries and understand future direction of our actions.

PART 1

Asian Rural Future 2030

– Country Reports –

Vietnam Agriculture & Rural

Current & Future Vision

Le Van An¹

¹Hue University of Agriculture and Forestry

Slide 1

I'm very happy to present my topic about the Vietnam Agriculture and Rural: Current and Future Vision. My presentation is in four parts. The first is general information of Vietnam, and then the second is Vietnam agriculture and rural situation at the moment, and the third is plan for rural and agriculture of Vietnam in the next five years and the vision for next 10 years, and the fourth is conclusions of my presentation.

Slide 2

First is some general information of Vietnam. The total population is over 97 million people with a population growth rate at 1.14% annually, and Vietnam is the 15th country population largest of the world. But in terms of the population in Vietnam, one very important character is there is over 62% of our population living in the rural that is maybe very different from some other countries.

Slide 3

In terms of population, as I mentioned, 97.5 million people of which we have about 49.8% male and female is remaining 50.2. The labor number is 54.8 million people which means for about 56% of the country's population.

Slide 4

In terms of the national GDP and economic, the Vietnam's national GDP is only about \$275 billion in 2020. The country's GDP growth rate was rather good in the last five years from 2006 to 2019, around 6.5% to 7% per year. But unfortunately by 2020 the growth rate was only 2.9% because of the global pandemic. Vietnam is still a poor country, low country in terms of the GDP per capita, about 2,700 USD per year.

Slide 5

In the economic sector, we can see the three main components is services, industry, and agriculture. During the past 10 years, a little bit change of each sector. The service increasing from 36% up to 41%. Industry increased, but not much, it's about 32% to 34%. The agriculture economic GDP decreased from around 19% to about 15% at the moment.

Slide 6

Secondly, about the population, in the rural, the total commune in Vietnam - the lowest admin unit in this is commune - is 8,297 communes and about 66,000 villages. The total household who are living in the countryside and in the rural

is about 16.8 million households. Among them, agricultural households are about nine million households and off-farm households are about eight million households. As I mentioned earlier, the total population in the rural is over 60 million people and the whole country has 54 different ethnic groups, in which the Kinh, the Vietnamese lowlanders, is majority, occupies 80% of the population and 20% left is for 53 other minority people.

In terms of the situation of the rural area is the electricity system. Vietnam government makes very big effort to provide the electricity system to the whole commune in the country. Only few villages, they are very far away from center still not access to the nation electricity.

Slide 7

In terms of roads, 99.67% of the commune has road access by car to the People Committee Office of the commune, that is a very important character. And about irrigation system, as Vietnam is based in the wetland rice cultivation, therefore irrigation plays very important. The total irrigation canals system is about 167,000 km, mainly supply water for rice cultivation and there are many pumping water stations.

Slide 8

In terms of school and kindergarten, as I informed you before is over 8,000 communes, the number of communes have the kindergarten is almost 99.6% and primary school is 99% and secondary school is 92%. Number of communes have the secondary school depending on the number of population.

Slide 9

For healthcare service, most of the commune 99% has the healthcare service, but only 34% of them have hospital and healthcare center with medical doctor only about 80%. For the facility of the commune, one very important is the community house as a place for commune to preserve the cultural and social activity, 60% of the commune, they have this community house.

Slide 10

For environment and facilities, about 42% of the commune, they have a system to treat the waste water in their system; and also about 40% of the commune, they have the solid waste collecting system. Less than 50% of the commune have those systems in general. Number nine is services of the bank. There are many kinds of banks, but the number of the commune has bank service in their commune is only 22%. That means commune's farmers have very few opportunities to access the bank, they must go to the district center.

Slide 11

In agricultural production, as I mentioned that number of households in agriculture is more than nine, about nine million households. But the number of cooperatives is about 7,000 and the same that number of enterprises, these production forms are not many at the moment. Number eleven, land area for agriculture is only about 5,500 to 6,000 sq. m per household.

Slide 12

But in the upland, they may have bigger size than the flatland. In agricultural production, we have crop farm, animal farm, aquaculture farm, forestry farm, and mix farm and salt production farm. The number of the farms mainly in animal production consists of 56% of the farm, the second is the crop farm, other kind of farm is not many as we can see in the presentation screen.

Slide 13

That is a very general information of the rural and agriculture in Vietnam at the moment. Now, I would like to talk with you about the achievement in Vietnam agriculture and rural.

The first achievement, I think the agriculture economic still plays very important to national GDP although it is not much. As I mentioned, it's about 15% to 20% of the national GDP, not like in Japan, you just hear that only 1% or 1.2%. In our country, it's still very important in terms of agricultural economy. The second is that agriculture is sector for the livelihoods of 62 million people who are living in rural. That means even the income in terms of economic still is not much, but the livelihood of many Vietnamese farmers and residents who are living in the agricultural and rural. We have also some products exported to the international market, as you may know, the rice or coffee or rubber latex, pepper, and so on and aquaculture products.

Slide 14

At the current, the constraints and challenges of rural and agricultural development in Vietnam is the lack of job education for farmer for workers. National statistics informed that about 89%, almost 90% of the farmers among 13 million people need to be trained because most of them don't have any training yet. Therefore, the government has a program on vocational training for farmers and agriculture workers. The second constraint in agriculture is the farm size. The land area and the farm size in Vietnam is very small and it is very difficult for us to industrialize in agriculture. At the moment, our government has a program on increasing the farm size. That is also very challenging, but one solution.

Slide 15

The third one is the small-scale production system. As I mentioned unit of production is households, but the cooperative model is very small because in the past the cooperative form was not much good for farmers. Therefore, at the moment, farmers work by individual, that is very constraint in agriculture production and marketing. The fourth is the pollution in rural and agriculture because of increasing the productivity and intensive farming.

Slide 16

Now, I would like to talk with you about the plan for rural and agriculture in Vietnam by 2025 and vision by 2030. This year Vietnam government just issued the national economic development plan and strategy, I would like to share with you some of our plan.

Slide 17

The objective of our plan for rural and agriculture for the next 10 years. One is to reform agriculture and rural, to develop agriculture and rural based on ecological agriculture, modern rural and smart farmers. That is three very important characters. The second objective of reform agricultural development is shifting from productivity to the economic business. That means in the past we want to increase the productivity, but now we have to think benefit of the production.

Slide 18

The third is we want to develop own type of agriculture production system to that smart agriculture and adapt to the climate change because Vietnam is affected by this a lot. Last one is upgrade infrastructure.

Slide 19

The expected output in terms of agriculture sector is about 3% increase in GDP of agriculture per year, but among them forestry and livestock play important.

Slide 20

We think the new rural commune is an important character in Vietnam, as I'll talk with you later on how the new rural commune in Vietnam looks like. At the moment, we are encouraging the farmers to develop what we call One Commune One Product. This is also our try to develop this program, and we want to increase the income per capita. Also, the forest cover of the whole country is about 42% of the land area.

Slide 21

In Vietnam, we set the new rural community or new rural communes with 19 characteristics. It covers all aspects of the livelihood of the people in the rural.

Slide 22

Then, the agenda for this solution, we have a four-point agenda. The first one is to reform the governance system of the country. The second is to transfer technology to improve production system in agriculture.

Slide 23

The third one is to reform agriculture to meet the requirements of the international market and climate change. The fourth one is to divide the country into four different economic zones. That is the main agenda for the agriculture development in our country.

Slide 24

The next is in terms of infrastructure, in terms of climate change and mobilize the resources for development

Slide 25

The next is in terms of infrastructure, in terms of climate change and mobilize the resources for development.

Slide 26

In general, we have some conclusions that in Vietnam agriculture plays important economic sector for the country and 60% of population lives in the rural. Agriculture in Vietnam produces many kinds of products, not only for domestic, but also for international market. However, agriculture production is facing challenges with climate change, with natural disasters, seawater intrusions, floods, typhoon, droughts, etc. The last one, agriculture products need to be improved to meet the demand of domestic and international market.

Slide 27

That is my presentation to you for overview of our country's agriculture and rural and agenda for the development in the next 10 years. Thank you very much for your attention and listening to my presentation.

Title Slide

Special International Symposium (Online) - Asian Rural Future 2030

VIETNAM AGRICULTURE & RURAL: Current & Future Vision

Le Van An, Assoc. Prof., PhD
Hue University of Agriculture and Forestry
Email: Levanan.huaf@gmail.com

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Slide 1

PRESENTATION CONTENT

1. General Information of Vietnam
2. Vietnam Agriculture and Rural situation
3. Plan of Rural and Agriculture of Vietnam by 2025 and vision 2030
4. Conclusions

2

Slide 2

I. INTRODUCTION TO VIETNAM



- Population: 97.582.694 (2020), growth rate 1.14% annual
- 1.25% of world population
7.881.262.907
(<https://danso.org/dan-so-the-gioi/>)
- The 15th country population of the world
- Density: 317 people/sq.km
- 62.66% of population living in rural
(<https://danso.org/viet-nam/>)

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Slide 3

I. INTRODUCTION TO VIETNAM

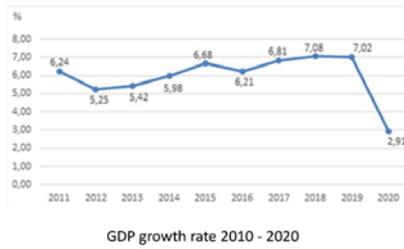
- Total population characters (2020):
 - Total: 97,582,694
 - Male: 49.8%
 - Female: 50.2%
 - Labour force at 15+: 54.8 million pers. (56% of Population)

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Slide 4

I. INTRODUCTION TO VIETNAM

- National GDP about 275 Billion USD (2020)
- National GDP growth rate:
 - 2016-2019: 6.78% annual
 - But 2020 is only 2.9% because of Covid-19
- Low National GDP and per capita

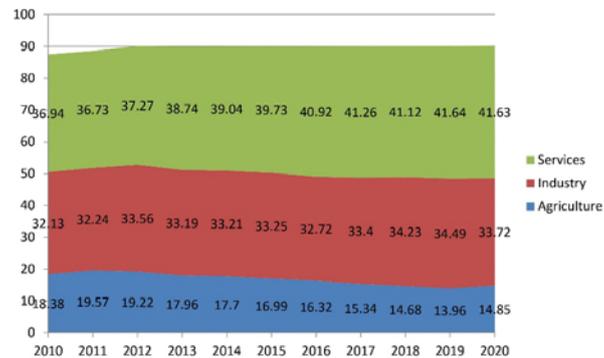


Source: <https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2021>

5

Slide 5

Economic Sectors to National GDP



<https://www.statista.com/statistics/444611/vietnam-gdp-distribution-across-economic-sectors/>

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Slide 6

II. VIETNAM RURAL & AGRICULTURE

A. Current situation of Rural (7/2020)

1. Population:
 - Total commune: 8,297 communes (lowest admin unit of governmental system); 66,206 villages
 - Total household: 16,800,470 households
 - Agricultural households: 9,108,129
 - Off-farm households: 8,580,000
 - Total population: 62,885,270 people (64.4%)
 - Total ethnics: 54 (majority is Kinh about 80%)
2. Electricity system:
 - 100% of communes have electricity
 - Only 681 villages in remote areas still not access to electricity

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Slide 7

II. VIETNAM RURAL & AGRICULTURE

A. Current situation (cont.)

3. Road
 - 99,67% of communes have road access to the People Committee Office of communes
4. Irrigation systems
 - Total of 167,860 km of canals supply water for cultivation (average 20 km canal/ commune)
 - 18,000 water pumping stations

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Slide 8

II. VIETNAM RURAL & AGRICULTURE

A. Current situation (cont.)

5. Schools and Kindergartens

	Number of communes	%
Total commune	8,297	
Communes have Kindergarten	8,265	99.61
Communes have Primary schools	8,232	99.22
Communes have Secondary schools	7,712	92.95

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Slide 9

II. VIETNAM RURAL & AGRICULTURE

A. Current situation (cont.)

6. Health care services

	Number of commune	%
Health care as Dispensary	8,241/(8,297)	99,33%
Health care Center as Clinic/hospital	2,838	34.21%
Health care center have medical doctor	6,572	79.2%

7. Facilities for culture

- 6,309 communes have Community House as learning and cultural conservation, 76.04%

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Slide 10

II. VIETNAM RURAL & AGRICULTURE

A. Current situation (cont.)

8. Environment and Facilities

- 3,498 communes have waste water treatment system, 42.16%
- 3,236 communes have solid waste collecting system, 39.0%

9. Services

- 1,836 communes have branch of the Bank, 22.13%

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Slide 11

II. VIETNAM RURAL & AGRICULTURE

A. Current situation (cont.)

10. Agricultural Production:

- Total number of Households: 9,108,129
- Total Cooperative: 7,418
- Total Enterprises: 7,471

11. Average Agricultural land of households: 5,500 – 6,000 sq. meters

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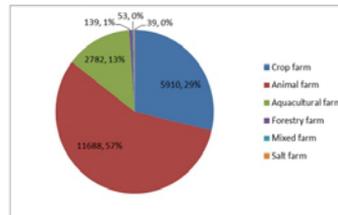
Slide 12

II. VIETNAM RURAL & AGRICULTURE

A. Current situation (Cont.)

12. Farm Types:

- Crops Farm: 5.910 (28,67%)
- Animal Farm: 11.688 (56,71%)
- Aquaculture Farm: 2.782 (13,50%)
- Forestry Farm: 139 (0,67%)
- Mix-farm: 53 (0,26%)
- Salt produce Farm: 39 (0,19%)
- Total: 20,611



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Slide 13

II. VIETNAM RURAL & AGRICULTURE

B. Achievement

1. Contribute of Agriculture in National GDP
2. Livelihoods for over 62 million people
3. Some products exported to international market:
Rice, Coffee, Rubber latex, Black pepper,
Shrimps, Cat-fish, fruits,...

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Slide 14

II. VIETNAM RURAL & AGRICULTURE

C. Constrains and Challenges

1. Lack of job education for workers: 12.57 million farmers (89,97%) need to be trained
→ Vocational Training Program, Agricultural Extension Systems from Center to each Commune
2. Lands for farming of households are small and many plots (farm size)
→ Big size of farm models plan

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Slide 15

II. VIETNAM RURAL & AGRICULTURE

C. Constrains and Challenges (Cont.)

3. Small scale of Agricultural and None-Agricultural Farms
 - Cooperative models
4. Pollutions
 - Intensive system to multi aquaculture species in farming
 - Waste collection and treatment technology

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Slide 16

III. PLAN OF RURAL & AGRICULTURE IN VIETNAM BY 2025 AND VISION 2030

- The Resolution No. 50/NQ-CP date 20 May 2021 of Vietnam Government on Action plan for National Development
- The Decree No. 2547/QD-BNN date 8 June 2021 of Ministry of Agriculture and Rural Development on Agenda for Agriculture and Rural Development in Vietnam period 2021-2025 and vision 2030

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III. PLAN OF RURAL & AGRICULTURE IN VIETNAM BY 2025 AND VISION 2030

A. Objective:

- 1) Reform Agriculture and Rural, based on:
 - Ecological Agriculture
 - Modern Rural
 - Smart Farmers
- 2) Shifting from Productivity to Economic business

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Slide 18

III. PLAN OF RURAL & AGRICULTURE IN VIETNAM BY 2025 AND VISION 2030

A. Objective (cont.):

- 3) Small scale to large and medium scale of farming, smart agriculture and adaptive to climate change
- 4) Good infrastructure, efficiency, and protection of environment and natural resources

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III. PLAN OF RURAL & AGRICULTURE IN VIETNAM BY 2025 AND VISION 2030

B. Expected outputs

- GDP in Agriculture: 2.5-3.0 % increases annual
- Development of each sector:
 - Crops production increase 2.0-2.2%
 - Livestock: 4.0 – 4.5%
 - Aquaculture and Fishery: 3.5 – 4.0%
 - Forestry: 5.0 – 5.5%
 - Agricultural products export in 2025: 50 Billions USD

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III. PLAN OF RURAL & AGRICULTURE IN VIETNAM BY 2025 AND VISION 2030

B. Expected outputs (cont.)

- 80 % of total communes in whole country meet the requirements for ‘**New Rural Commune**’ set by 19 criteria (total 8,297)
- 10,000 products of “One Commune One Product – OCOP” programme
- Income per capita: 150 % by 2025 compare to 2020
- Forest cover area 42 %

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Slide 21

III. PLAN OF RURAL & AGRICULTURE IN VIETNAM BY 2025 AND VISION 2030

Summary 19 criteria of "New Rural Communities"			
1	Rural Planning	11	Number and Ratio of poor households
2	Roads and traffic systems	12	Percentage of labors have job
3	Irrigations	13	Community Cooperative/ organizations
4	Electricity supply systems	14	Education level and job training
5	Schools and kindergartens and facilities	15	Health care services
6	Public Infrastructural for Culture activities	16	Cultural
7	Public infrastructural for business	17	Environment and food safety
8	Public information systems	18	Social organizations
9	Accommodations	19	Security
10	Income per capital (from		

Slide 22

III. PLAN OF RURAL & AGRICULTURE IN VIETNAM BY 2025 AND VISION 2030

C. Main Agenda of Solutions

1. Reform and enhance capacity of Governance systems
 - Policy, solutions, decree, admin: reform, update and efficiency
 - Regional economic planning
2. Researches and transfer technologies to improve production systems
 - Research
 - Informative Technology
 - Training for farmers and workers

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Slide 23

III. PLAN OF RURAL & AGRICULTURE IN VIETNAM BY 2025 AND VISION 2030

C. Main Agenda of Solutions (cont.)

3. Reform Agricultural production to meet the requirements of international market and climate change
 - Sustainable Agriculture
 - Post-harvest technology
 - Marketing: Domestic and International markets
4. Economic Zone Development and Logistic

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Slide 24

III. PLAN OF RURAL & AGRICULTURE IN VIETNAM BY 2025 AND VISION 2030

C. Main Agenda of Solutions (cont.)

5. Infrastructure for Agriculture and Rural
 - Construction of the basic needs of agriculture and rural area
 - Connectivity among rural and rural with city
 - Construction and environmental, climate change concerns and sustainability
6. Adaptation and mitigation under climate change and natural disasters
 - Natural resources management
 - Forest protection and afforestation
 - Coping to climate change and disasters

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Slide 25

III. PLAN OF RURAL & AGRICULTURE IN VIETNAM BY 2025 AND VISION 2030

C. Main Agenda of Solutions (cont.)

7. Resources for Development
 - Mobilization resources (domestic and international)
 - Transparency information
 - Humane resource
 - Coordination among stakeholders

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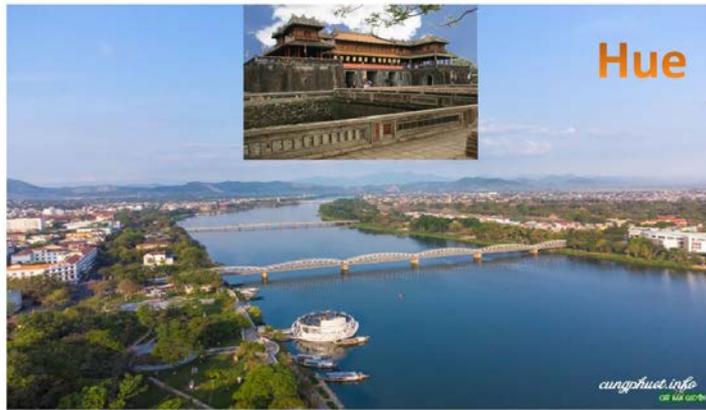
IV. CONCLUSIONS

1. Agriculture plays important economics sector in Vietnam
2. Over 60% of population lives in Rural and Vietnam Government has policies to improve situation of the Rural
3. Agriculture in Vietnam produces many products to the international markets
4. However, Agriculture production is facing challenges with climate changes and natural disasters (Seawater intrusion, floods, typhoons draught,...)
5. Agricultural products need to be improved to meet the demands of domestic and international market

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Thank you for your attention!



Making Rural Areas as Growth Centers in the Era of COVID-19 and Beyond: Indonesia Case

Ernan RUSTIADI^{1,2}, Andrea Emma PRAVITASARI^{1,2}, Siti WULANDARI^{1,2}, Setyardi Pratika MULYA^{1,2}, Vely Brian ROSANDI²

¹Center for Regional Analysis, Development and Planning (Crestpent/P4W) IPB University, INDONESIA

²Division of Regional Development Planning, Department of Soil Science and Land Resource, Faculty of Agriculture, IPB University, INDONESIA

My presentation title is Making Rural Areas as Growth Centers in the Era of Covid-19 and Beyond: Indonesia Case. This presentation is prepared by my team, Ernan Rustiadi, Dr. Andrea Emma, Siti Wulandari, Setyardi Pratika Mulya, Vely Brian Rosandi.

Slide 1

I think we are already now that urbanization is the global trend. Due to urbanization, the proportion of rural areas and the size of the rural population share tends to decrease.

Slide 2

When we talk about rural definition, there is no single definition of rural in the world. Instead, every country has its own criteria regarding what rural area means. However, we agree that rural means as follow:

- relatively low density
- in terms of the economy dominated by agriculture, natural resource-based activity, and community economic activities,
- in socio-cultural aspect, tends to be more homogenous than urban, and
- it has a low density built-up area and the land cover/land use tends to be dominated by agriculture, forest, and natural landscape.

Slide 3

In Indonesia, there are some definitions of rural. At least I'll explain here about four definitions of rural area. One definition came from the Ministry of Home Affairs. Villages (*desa*) are the smallest administrative unit in the country; it is distinguished to be two parts, namely "rural village" and "urban village". This urban villages are as also called *kelurahan*. This one is a non autonomous unit and located in urban or in city areas. and the next is definition from National Statistics Agency (BPS).

According to a specific calculation score, all *desa* or villages are split into urban and rural villages. These two definitions are administrative concepts/non-spatial approaches.

Slide 4

The last definition is from the Spatial Planning Law system based on a spatial map. The Ministry of Village refers to this definition. According to the definition from the spatial planning system, the rural areas based on their main activities are dominated by agriculture, and the definition is based on spatial situation.

Slide 5

Based on the definition of rural law, village is the smallest administrative unit in the country and has an autonomous function.

Slide 6

The third classification is used by our national statistics agency and its criteria has changed many times. The first definition was in 1961, and in 1971 we have a second definition.

Slide 7

In the 1980s, we had a new definition, and the last definition in 2010 that we use until now. According to the definition, an urban village has a population density of more than 5,000 people per sq. km and 25% of households work in agriculture. The quantities of certain facilities make the classification to be urban or rural.

Slide 8

We have been using such kind of scoring system. Our statistics agency (BPS) uses such a scoring system, and then all villages classified to be urban or rural.

Slide 9

This is the map of the urban and rural according to statistic agency. We can see here the example of West Java province. The red color means urban areas and the green one is rural. We can see here that the number of urban villages tend to increase, but since 2014 the increase of urban villages is not significant because since 2014 the government has a special village law that provides the amount of money to villages. Therefore, many villagers do not want to be categorized as urban villages anymore because if the urban were classified as not rural, they could not receive money from the government transfer system.

Slide 10

This is the situation of our population now. We now have 270 million people, and Indonesia is relatively diverse. But, unfortunately, we have a fairly vast country, two-thirds of the country is ocean, and the population is concentrated in Java Island. Java Island is only about 6% of the total area, but the population is about 55% of the country's total.

Slide 11 and Slide 12

When we see urbanization trend, we can see here from the graph, in 1976 we have 80% of the population stay in rural and only 20% in urban, but in 2014 the proportion of urban and rural about same (50%), and now rural area only have about 45% of the total population.

Slide 13

We have many issues regarding rural areas. One of the most critical issues is poverty. Two-thirds of poor Indonesian people stay in rural areas, and in many rural areas, we have a labor surplus, many smallholder farming systems, and many farmers without land. As result, the agricultural productivity is relatively low, and this causes vast disparities between urban and rural.

Slide 14

Many scientists and scholars say that the Indonesian development system is relatively urban biased. It means that urban tends to be more privileged than rural. On the rural side, there is sometimes a view that the modern and industrial sectors are rejected in rural areas, some rural want to keep the rural far from non-agricultural sectors, we call it as an urban phobia. In the post-COVID era, we have a severe problem because the economic growth is relatively low.

Slide 15

The number of poor population in the COVID era in 2020 tend to increase again because of low economic growth rate.

Slide 16

We have a trend of decreasing of rural poor, you can see here, this is the trend of the rural and urban poor, and can see here the two-thirds of poor are staying in rural area.

Slide 17

The poor population tend to increase in the last year until now because of the COVID-19 and we have a critical problem since the decreasing poverty level tends to be stagnant or relatively slow down, not fast anymore. For example, during Soeharto regime, the decrease of rural poor fast, but the decrease was relatively slight after that.

Slide 18

The government has many rural development programs, and one of the primary impact indicators for the programs is the village development level. We have a village development level system so-called village index. Every level has a different approach for development approach.

Slide 19

We have also to consider the type of villages. According to our statistics, 87% of the villages are still dominated by agriculture sector. In this 87% of the villages, agriculture is the main economic activity. On the other hand, some villages are dominated by manufacturing activities, and some are by service sector, and so on.

Slide 20

When we talk about our future of rural development, some scholars already have predictions of Indonesian rural. This is one of the books. I was involved in this book's writing, talking about our vision and our prediction about our rural in 2030. In this book, we write down that there will be a significant demographic change in our population. In rural population, the share of the rural population will be only 35%. On-farm agriculture and natural resource-based activities are no longer dominant for future job creation. There will be a slight difference in lifestyle between rural and urban. We emphasize the importance of decentralization and the devolution of local village governance system.

Slide 21

There is also a vision about rural areas in our spatial planning law. The aims of the rural spatial planning are the following:

- to empower rural communities,
- to protect the quality of the local environment,
- conservation of natural resources,
- preservation of local cultural heritage,
- protection of food agriculture production system in rural areas,
- and the last, maintaining the balance between urban and rural development.

Slide 22

In our National Midterm Development Plan, we also have some growth corridors. We have two types of growth corridors, urban-based growth corridors, and rural-based growth corridors. We have already identified some village areas that should be the growth centers in these growth corridors.

Slide 23

In our National Midterm Development Plan, the main objectives of rural development are:

- poverty alleviation,
- increase the capacity of local institutions and human resources,
- reducing gap between regions
- community empowerment,
- provision of vocational education,
- digital transformation,
- disaster resiliency, and

- fixing the problem on rural boundary arrangement.

Slide 24

According to the Ministry of Village, there is a specific program for five years, 2020 until 2024, to improve connectivity between rural, promote capacity building, increase investment, development of appropriate technology, environmental sustainability, improve social and cultural capital, and synergy and collaboration in rural development village.

Slide 25

SDGs are our primary goal in achieving the improvement of rural areas.

Slide 26

As we know, Indonesia has solid potential in the production system of various agricultural commodities. We are the biggest producer of palm oil, rubber, lead, rice, nickel, cacao, coffee, coal, and copper. It means that our agromaritime is quite a solid natural resource, and we are the second-largest country in terms of coastline, and have a mega biodiversity potential. The main agenda is to process the natural resources into intermediate goods to have more value-added in the future.

Slide 27

It means industrialization is becoming more critical in the future.

Slide 28

We have such kind of long-term projection about the role of agriculture and rural development for long-term vision 2045. For example, we can see here, we have a prediction about the rural population trend in the future and the plan of the share of agriculture economy, the trend of the bio-industrial sector, the proportion of the rural poor population should be decreased, and so on. It clarifies here that the bio-industry sector should become a leading sector in the future.

Slide 29

We learn from the experiences of OECD countries regarding how these countries develop a new rural paradigm. In OECD countries, many rural areas are growing faster than urban economies. We can see here that among the OECD countries, the highest income countries have a high proportion of the rural population, such as Ireland and Norway, and so on. This means that people in rural areas can work with high productivity.

Slide 30

The key of the new rural paradigm in OECD is to increase the competitiveness of the rural and develop various sectors in rural areas, investment, and the role of all levels of government in rural development.

Slide 31

We have a vision to increase the capacity of local government. Now one-thirds of the government budget goes to the rural, and in rural areas, 95% of the money for their development still depends on the government budget. So in the future, we have to increase their capacity for income-generating activities, and in the future, we want to create effective convergence development between urban and rural.

Slide 32

Regarding agriculture development, our university in the past has been very successful in assisting the government in developing the so-called Indonesian Green Revolution. We have BIMAS, and IPB University has proposed this idea. This successful program transformed Indonesia from the largest rice importer country in the world into a self-sufficient rice-producing country in the 1980s. Recently, we have promoted a new rural and agricultural development, the so-called Agro-Maritime 4.0 agenda.

Slide 33

The Industrial Revolution 4.0 can increase rural development capacity by implementing innovation, digital systems, etc.

Slide 34

This is the example of how we promote precision village data in rural areas.

Slide 35

As concluding remarks, the sustainability of rural areas is critical for our food security and agriculture production system. Therefore, the role of multifunction agriculture is vital.

Rural is not only agriculture because rural also has many non-agricultural potentials. Rural development needs rural economies instead of agriculture, such as manufacturing, agro-tourism, communication, information technology, etc. Innovation-based bio-economy in rural area have been considered for future rural development and more convergence urban-rural development.

Slide 36

Thank you so much.

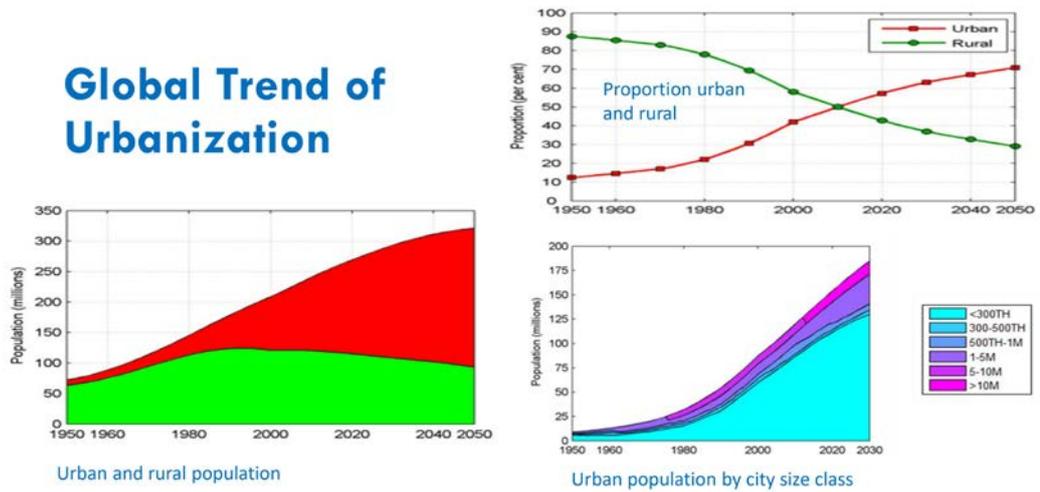
Title Slide

Special International Symposium (Online)
ASIAN RURAL FUTURE 2030
 Tuesday, 28 Sept 2021

Making Rural Areas as Growth Centers in The Era of COVID-19 and Beyond: Indonesia Case

Ernan Rustiadi
 Andrea Emma Pravitasari, Siti Wulandari
 Setyardi Pratika Mulya, Vely Brian Rosandi

Slide 1



Source : World Urbanization Prospects: The 2014 Revision. United Nations

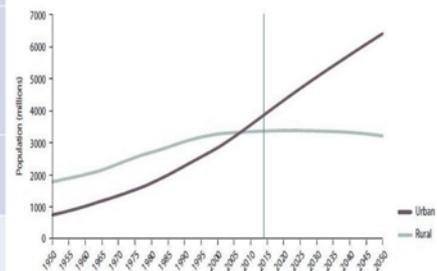
Slide 2

Defining Rural and Urban Area

There is no single definition of rural in the world. Every country in the world has its own criteria regarding the categorization of rural and urban areas

Aspects	Rural	Urban
Population density	Low dense	High dense
Main Economic activity	Agriculture & Natural Resource based Economy	Services, Commercial & Trading , Industry
Leading Economic system	Community Economy	Market Economy
Socio-culture	Homogenous Neighbourhood society	Plural and open Individualism
Spatial Characteristic (1) Built up area (2) Land cover/use	Low dense Agriculture, forest, natural ladscape domination,	High dense Housing, commercial, service activities

Urban and rural population of the world 1950-2050



The population growth and urbanization rate are considered still high for (more than 1% per annum) far more then next two decades including in rural

Slide 3

Four Concepts / Rural and Urban Definition in Indonesia



(1) Ministry of Home Affairs (Administration Concept)

Village → "Desa" (Regency/ Municipality)
 → "Kelurahan" (Municipality)

(2) National Statistics Agency/BPS (Podes) >>
 Based on criteria: population density, number of farm households, facilities, etc.

"Desa" → "Perdesaan" (rural) → Non- kelurahan
 → "Perkotaan" (urban) → Kelurahan/Sub district

Administration Concept

Non-spatial Approach

Slide 4

Four Concepts / Rural and Urban Definition in Indonesia



(3) Spatial Planning Law (UU 26/2007) and Derivatives of the Village Law: Through a functional (non-administrative) area approach

Rural Area → Definition based on Spatial Planning Law: UU Penataan Ruang (UU 26/2007) → Spatial Concept, Functional Area

→ Definition based on Village Law: UU Desa (UU 6/2014) → Administration Concept (village integration), Program Approach

Determination of Rural Areas based on Regent's Decree

(4) Village Law (UU 6/2014) and its derivatives (PP 8/2016; Permendes 5/2016; Kepdirjen PKP 14/2016)

Slide 5

Definitions of Rural Area in Indonesia



□ **"Rural" →** an area which has agriculture as main economic activity including natural resource management with the structure of function area for rural settlement, government and social services and economic activity.
(Law No.26/2007 on Spatial Planning)

- rural areas inside functional urban areas
- rural areas adjacent to functional urban areas
- rural areas that are far from functional urban areas/remote

□ **"Village and Customary Village (rural neighborhood) →**
 A legal administrative region which has autonomous authorities to regulate and manage their own government administrative and community interest based on the initiative of local community, the voice right and/or traditional right (Law No. 6/2014 on Village)

Slide 6

Changes of Urban and Rural Criteria in Indonesia



Year	Criteria of urban area
The 1961 Population Census	Village classified as urban area if fulfill one of these three following criteria: i) located in municipality ii) located in the capital city of district iii) More than 80 percent of population working in non agriculture sector, although rural area is not located in municipality and/or the capital city of district
The 1971 Population Census	Village classified as urban area if fulfill one of these four following criteria: i) located in municipality ii) located in the capital city of district iii) More than 80 percent of population working in non agriculture sector iv) More than 50 percent of population working in non agriculture sector and at least has three urban facilities (hospital/clinic, school and electricity)

Slide 7

Table 1. Changes of Urban and Rural Criteria in Indonesia

Year	Criteria of urban area
The 1980 and 1990 Population Censuses	There was a progressive change which the indicators of location were not longer be used. Scoring technique was applied for each variables: population density per square km, percentage of household working in agriculture sector and the availability of urban facilities. Based on the above indicators, village classified as urban if fulfill these following criteria: i) having a population density of 5,000 people or more per square kilometer ii) having 25 per cent or less of the households working in the agricultural sector iii) having eight or more kinds of urban facilities.
2000 and 2010 Population Censuses	There were some changes on urban definition which the variables of population density and percentage of household working in agriculture sector had been modified in term of scoring system. The fundamental change was also applied for urban facilities scoring system by using the accessibility to the facilities. Village classified as urban area if fulfill these following criteria: i) in areas that have a population density of 5,000 persons per square kilometer; ii) area in which 25 percent or less of the households work in the agricultural sector; and iii) areas in which there are eight or more specific kinds of urban facilities, including primary school or equivalent; junior high schools or equivalent; senior high schools or equivalent; cinemas; hospitals; maternity hospitals/mother-child hospitals; primary health care centre; roads that can accommodate three and four wheeled motorized vehicles; telephones; post offices; markets; with buildings; shopping centres; banks; factories; restaurants; public electricity and part equipment rental services.

Source: adopted from the Draft National Report on Habitat 2014, Urban Demography



Slide 8

Scoring Analysis for Status of Urban and Rural Villages (BPS, 2010)

Box 1. Scoring Analysis for Urban Indicators (Central Bureau of Statistic)

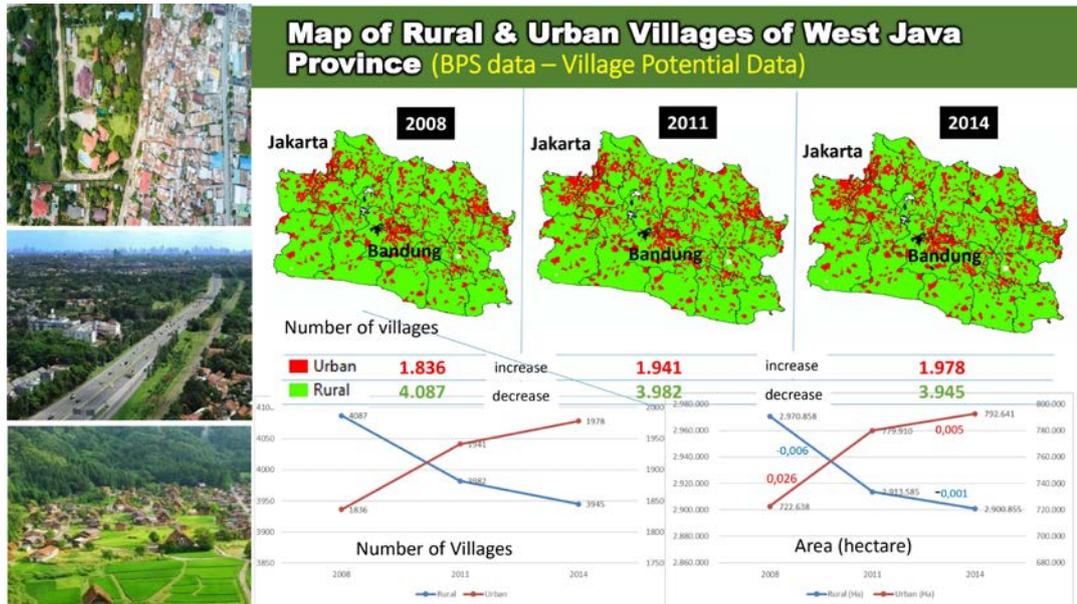
Indonesia Central Bureau of Statistic (BPS) defines urban as status of a urban village (kelurahan) which satisfies the criteria for classification of urban areas: population density, percentage of agricultural households and number of urban facilities.

Population density (person per km ²)	Score	Percentage of agricultural households	Score	Urban Facilities	Criteria	Score
< 500	1	> 70	1	Kindergarten	Available, or ≤ 2.5 km	1
500 – 1249	2	50-69.99	2	Junior High School	> 2.5 km	0
1250 – 2499	3	30-49.99	3	Senior High School	≤ 2 km	1
2500 – 3999	4	20-29.99	4	Market	> 2 km	0
4000 – 5999	5	15-19.99	5	Shops		0
6000 – 7499	6	10-14.99	6	Cinema	Available, or ≤ 5 km	1
7500 – 8499	7	5-9.99	7	Hospital	≥ 5 km	0
> 8500	8	< 5	8	Hotel/Billiard pool/disco/beauty shop	Available	1
Urban, total score ≥ 10				Percentage of household with telephone	≥ 8.00 < 8.00	1 0
Rural, total score < 10				Percentage of household with electricity	≥ 90.00 < 90.00	1 0

Source: Head of Indonesia Central Bureau of Statistic Decree, for Urban Rural Classification, 2010



Slide 9

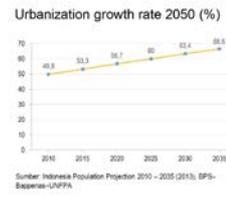
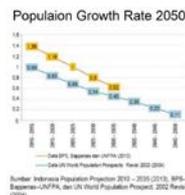
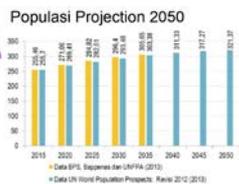


Slide 10



Slide 11

INDONESIA 2050 Population & Economy



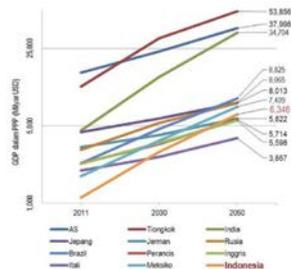
Emerging markets will dominate the world's top 10 economies in 2050 (GDP at PPPs)

	2016	2050	
China	1	1	China
US	2	2	India
India	3	3	US
Japan	4	4	Indonesia
Germany	5	5	Brazil
Russia	6	6	Russia
Brazil	7	7	Mexico
Indonesia	8	8	Japan
UK	9	9	Germany
France	10	10	UK

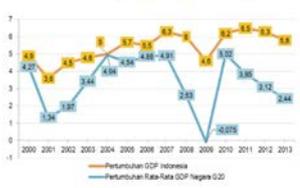
Legend: E7 economies (yellow), G7 economies (grey)

Sources: IMF for 2016 estimates, PwC analysis for projections to 2050

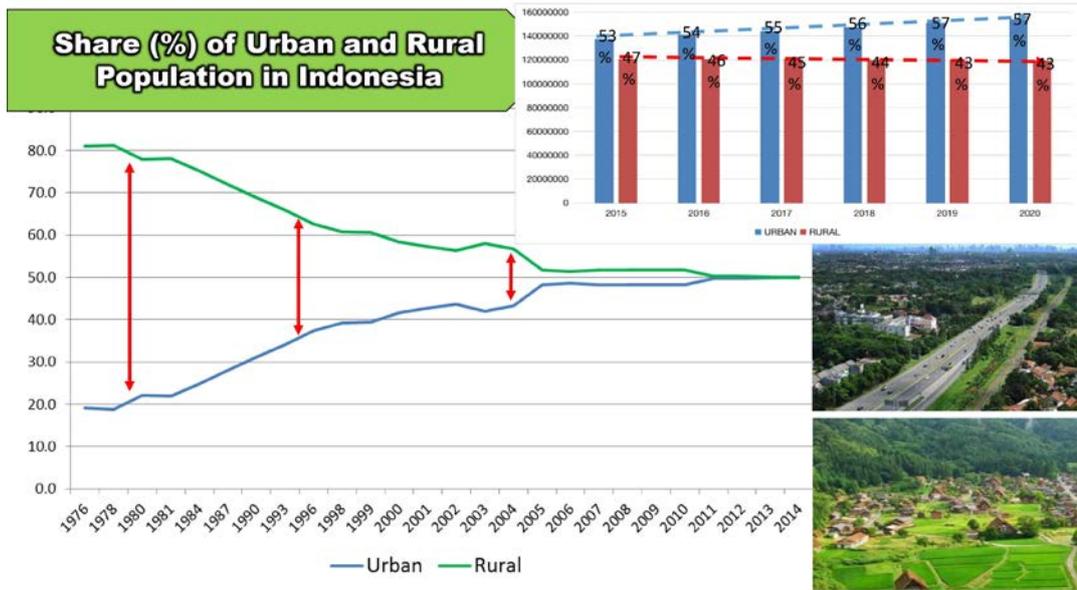
Peringkat Ekonomi actual dan Proyeksi berdasarkan GDP & PPP (milyar USD)



Perbandingan tren pertumbuhan ekonomi Indonesia terhadap negara-negara G20 (5)



Slide 12



Slide 13

Rural Area's Key Issues in Indonesia

Instead of continuing a moderate-high national economic growth in the last decade (before Covid pandemic) Indonesia is still facing the following issues:

high population growth rate and job creation issues (unemployment)

high number population below poverty line

Vertical disparity, as well as regional disparity

- Persistent poverty rate
- Labor surplus in agriculture
- Domination of Landless/small scale farming system
- Low productivity of agricultural workers
- Persistent urban-rural inequality

Slide 14

INDONESIA RURAL ISSUES

Existing Problems

- **urban bias & urban phobia** → Rural areas are locked to be limited as raw materials production centers)
- Limited access to natural resources
- slow rate of poverty reduction in rural areas
- Natural resources depletion and environmental degradation

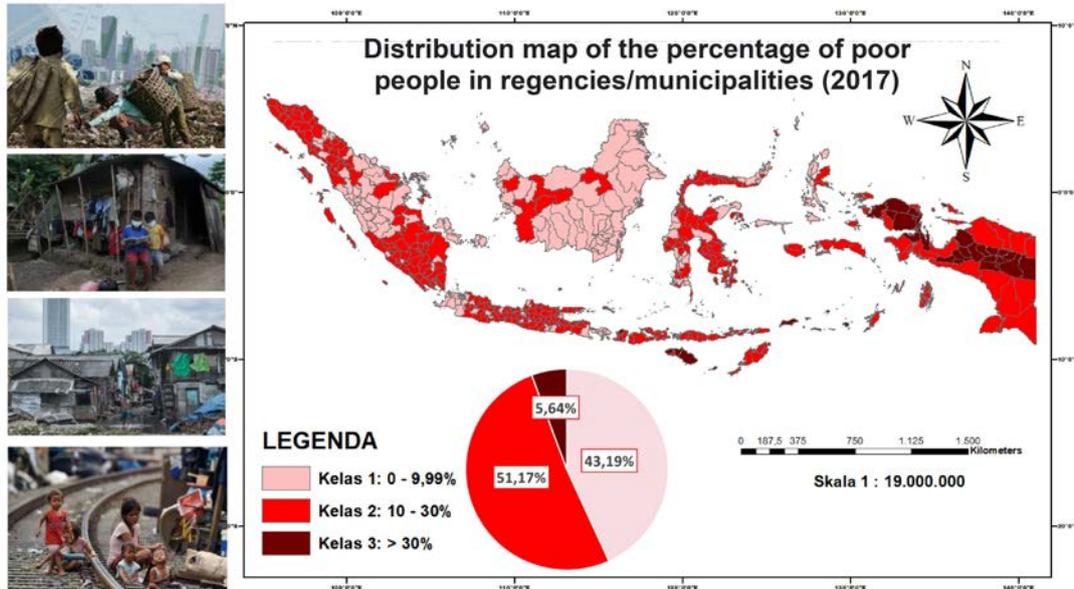
Impact of Covid-19

- Increased risk of exposure to Covid-19 due to deurbanization
- Increased economic vulnerability due to a diversified and specialized economic structure in the agricultural sector
- The acceleration of poverty reduction is in danger of being corrected due to the Covid-19 pandemic
- Disaster factors and the Covid-19 pandemic cause a double vulnerability for the rural economy

Need a Breakthrough of Perspectives and Ways of Action for Rural Economic Revitalization

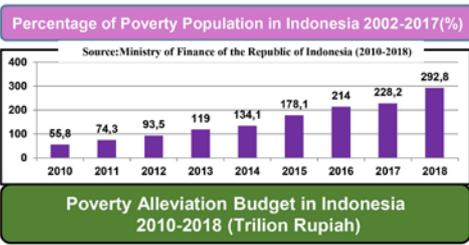
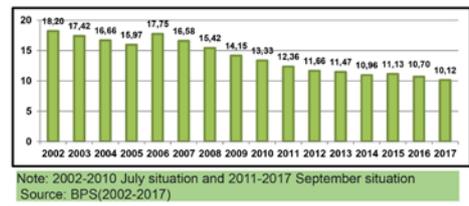
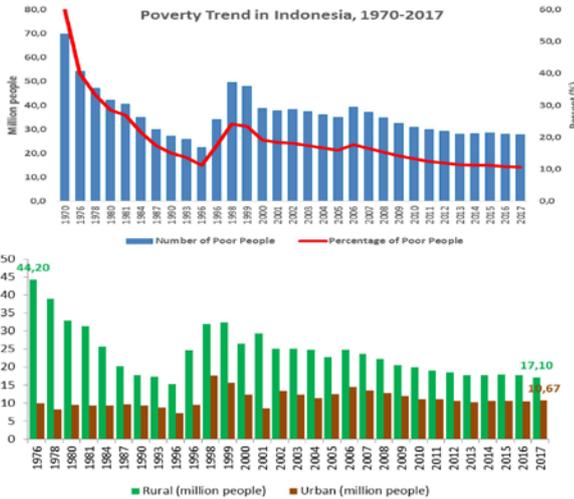
Rural Opportunity to Become the Main Power of National Economic Awakening

Slide 15



Slide 16

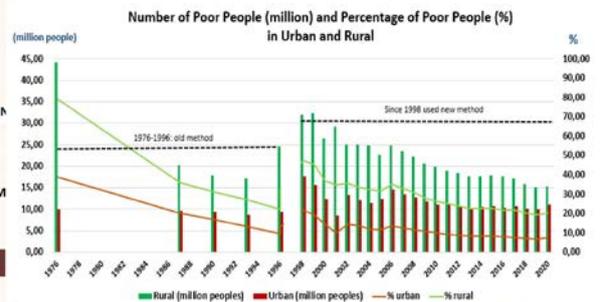
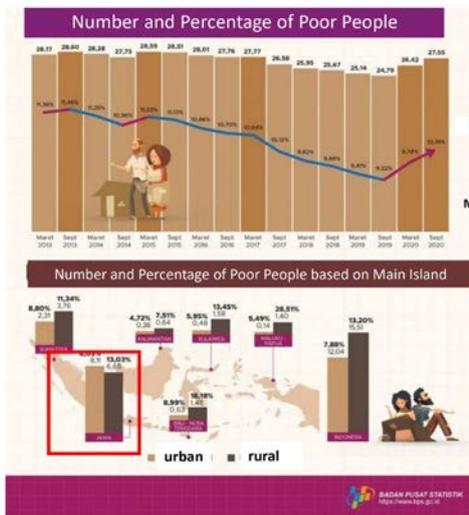
Urban-Rural Poverty in Indonesia



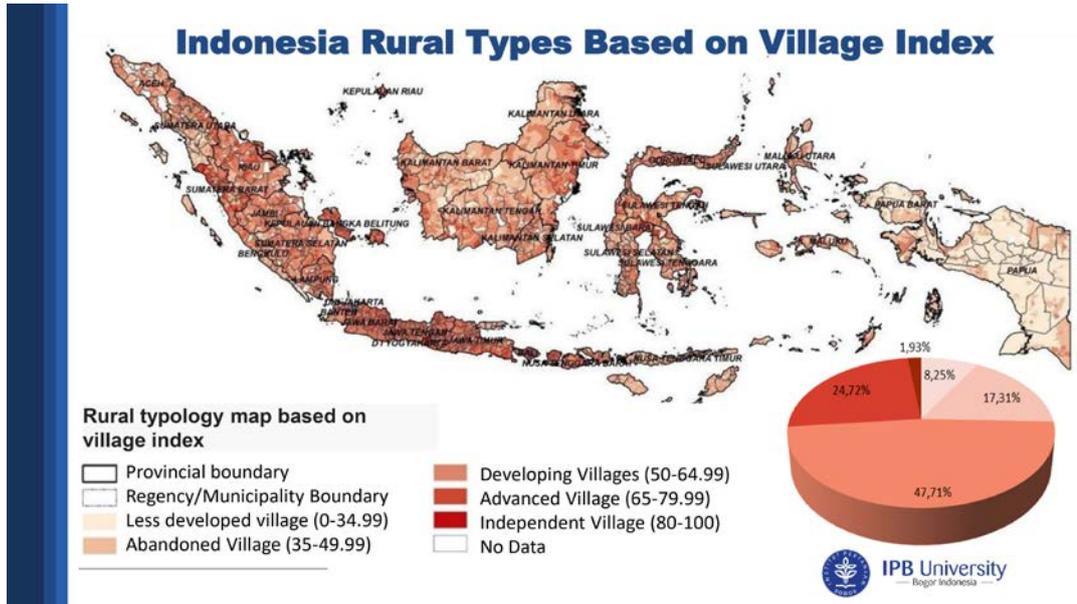
- Slow down poverty reduction rate in Indonesia's rurals
- 62% of the poor lived in rural areas

Slide 17

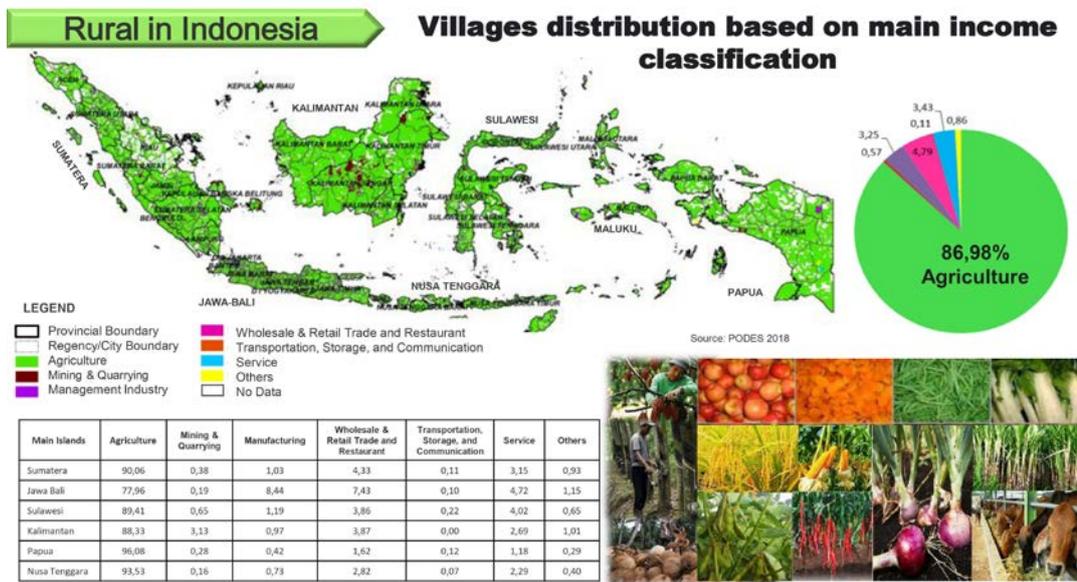
Increase in poverty rate before and during the pandemic



Slide 18

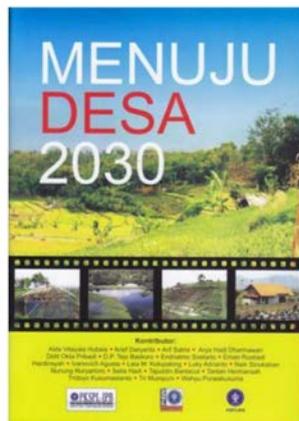


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Slide 20

Indonesian Rural Future 2030



- Demographic change (rural population share about 35-40% of population)
- The (on-farm) agricultural and natural resource based activities are no longer dominant in future job creation.
- Narrow differences in life style of rural and urban communities
- Decentralization and devolution of local (village) Governance system

Slide 21



1. Empowerment of rural communities;
2. Protection of the quality of the local environment and the area it supports;
3. Conservation of natural resources;
4. Preservation of local cultural heritage,
5. Protection of the eternal land area for food agriculture and food security;
6. Maintaining the balance of rural-urban development

Slide 22

Development Policies For Indonesia Rural Future



Urban and Rural based Growth Corridor in Mid-term National Development Plan 2020-2024



Slide 23

National Medium-Term Development Plan 2020-2024 on Rural Development (RPJMN 2020-2024)



(Source: Bappenas)

Slide 24

Strategic Plan - Ministry of Village, Development, and Disadvantaged Regions 2020-2024



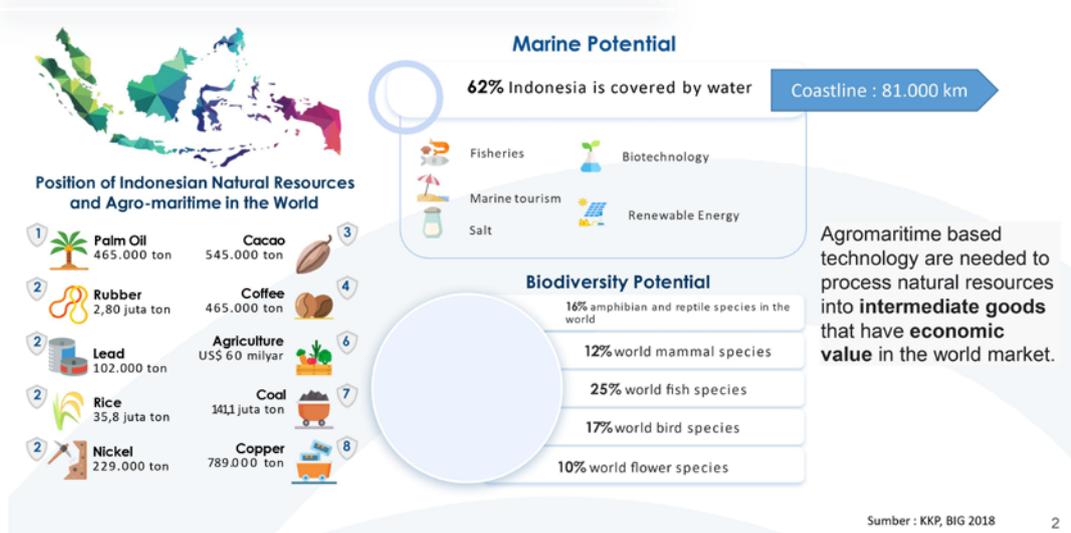
Slide 25

Indonesia Rural SDGs (Rural Development Vision 2030?)



Slide 26

Indonesia's Natural Resources



Slide 27

2
8

From Resource-driven Economy to Innovation-driven Economy



Resource-driven Economy
A nation which only relies on natural resources that are very limited



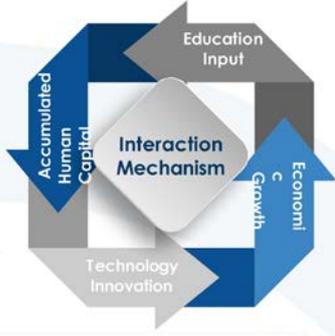
Innovation-driven Economy
An innovative nation mastering science & technology, independent, and globally competitive

Economic Growth is a sustainable increase of the domestic output (goods and services)

Main drivers of the long term economic growth are productivity, innovation, and income per capita.

21, which is **Innovation and investment** to boost economic growth. Investment is good boost the economy, however without investing to technology based innovation, the effort to escape the middle income trap will become more challenging.

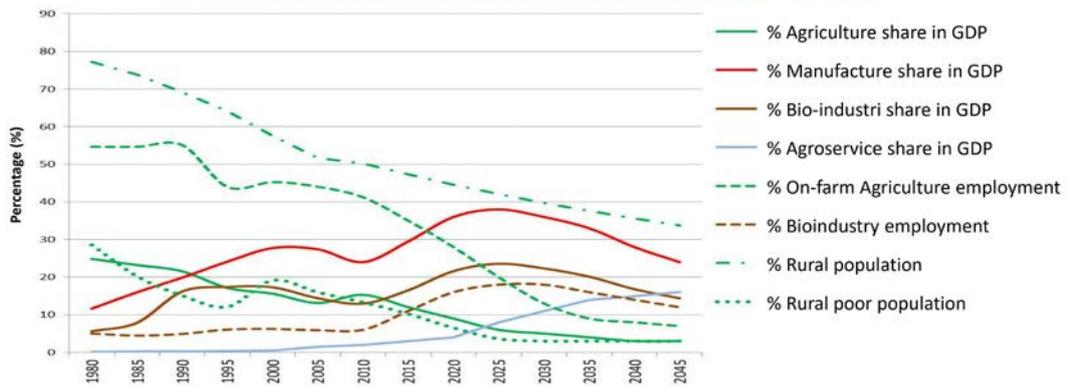
One of the concrete step is making innovation as the mainstream of economic structure.



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Long Term Projection of Indonesian Agriculture Sectors and Rural Development 1980-2045

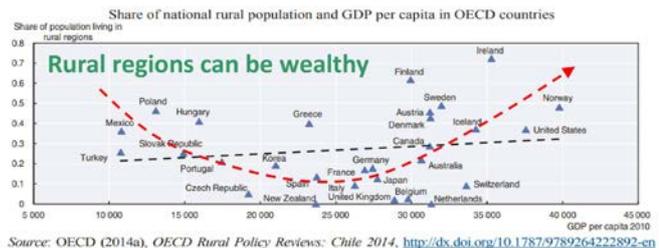
(Indonesian agricultural development longterm strategy, SIPP Ministry of Agriculture 2015)



Slide 29

Rural as Growth Centers

- Many OECD's rural regions were prospering, and in fact some rural regions grew faster than urban regions,
- Agriculture role was a still significant but declining factor in rural areas of all OECD countries, and that amenities provided opportunities for new forms of rural development



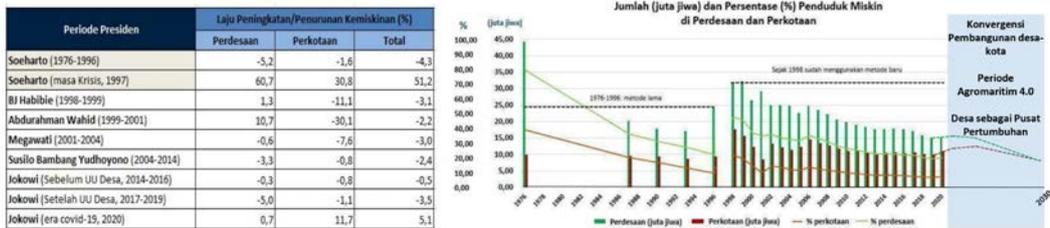
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THE NEW RURAL PARADIGM (OECD 2006)

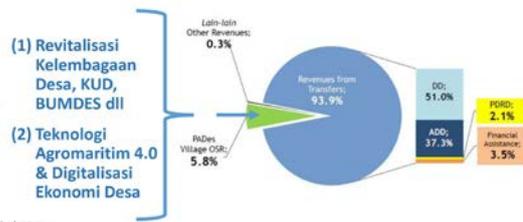
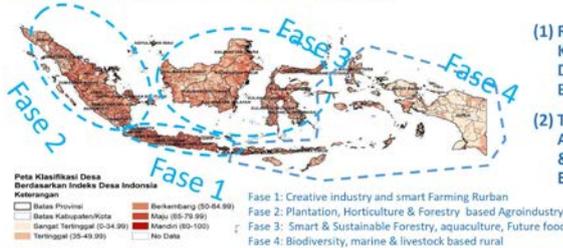
	Old approach	New approach
Objectives	Equalization, farm income, farm competitiveness	Competitiveness of rural areas, valorization of local assets, exploitation of unused resources
Key target sector	Agriculture	Various sectors of rural economies (ex. rural tourism, manufacturing, ICT industry, etc.)
Main tools	Subsidies	Investments
Key actors	National governments, farmers	All levels of government (supra-national, national, regional and local), various local stakeholders (public, private, NGOs)

Slide 31

Creating a convergence of Rural-Urban Development through agro-maritime-based growth



4 stages Agromaritim 4.0 Strategy

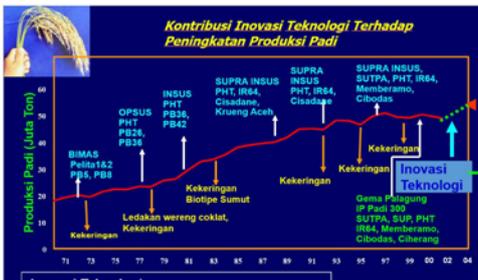


Slide 32

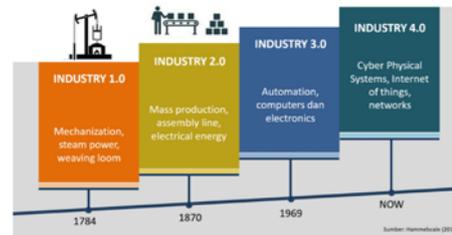
IPB contribution to Agriculture Development in Indonesia

In 1960s IPB University initiated "Indonesian Green Revolution": BIMAS

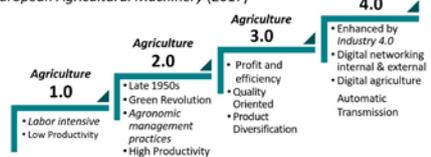
Transform Indonesia from the largest rice importer country to rice self-sufficiency in the mid 1980s

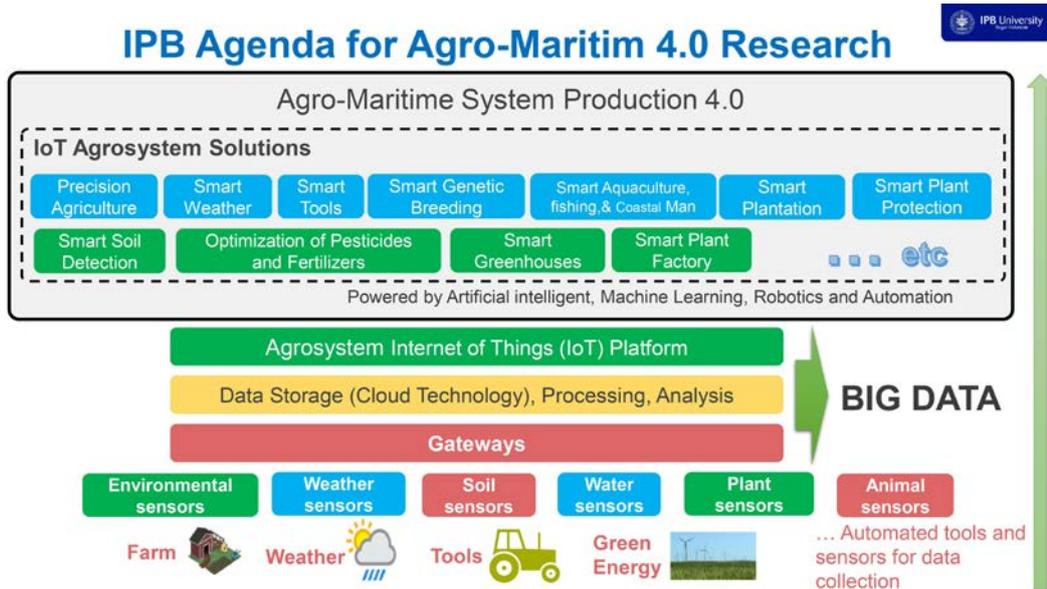


In 2018 IPB University promote Agro-Maritime 4.0 Agenda



Agriculture Revolution European Agricultural Machinery (2017)





PRECISION VILLAGE DATA

WITH DRONE PARTICIPATORY MAPPING APPROACH

"Data with high accuracy and precision to describe actual condition of the villages. The data is collected, validated, and verified by villagers with help from outside of the village (example from universities) with relatively low budget"

Problems faced by The Villages

47,13% data errors were found, the data doesn't match the actual condition in the villages. (Sjaf, et al. 2017).

Superiority

- Data quality (precise/not precise) decides the success of village development;
- Decides the accuracy of planning, implementation, monitoring, and evaluation of village development;
- Capture detail potentials of villages and existing households;
- Measures accurately the size of buildings on the villages;
- Villagers as the subject of planning and managing village data;

DRONE PARTICIPATORY MAPPING

PRECISION VILLAGE DATA MAPPING IN 21 DISTRICTS

1. Kab. Belitung Timur	9. Kab. Dompu
2. Kab. Berau	10. Kab. Banyumas
3. Kab. Lombok Barat	11. Kab. Cianjur
4. Kab. Konawe	12. Kab. Tabanan
5. Kab. Konawe Selatan	13. Kab. Tapanuli UT
6. Kab. Morowali Utara	14. Kab. Bekasi
7. Kab. Nunukan	15. Kab. Sukabumi
8. Kab. Bogor	16. Kab. Tasikmalaya
	17. Kab. Gianyar

Concluding Remarks

- Sustainability of rural area is one of key elements for food security and agriculture production system
- The role of multifunction agriculture: avoid the traditional view that focus on the narrow role of agriculture
- Rural development needs various sectors of rural economies instead of agriculture (eg. Manufacture, agro/eco-tourism, CIT)
- Agromaritim 4.0 (Innovation based Bio-economy) in rural areas have been considered for future rural development and a more convergence urban-rural development

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Issues and Alternatives for Sustainable Development of Rural Areas

Seung-Jong BAE

Seoul National University, Korea

What I'm going to present is about issues and alternatives for sustainable development of rural areas in Korea. There are three parts in this presentation. In the first part, I will present the process and crisis of rural development. In the next section, I will briefly explain changes of social value and policy environment in Korea. The last part is issues and alternatives for sustainable development of rural areas.

I'm sorry that some of the pictures are written in Korean, but you can catch the concept and contents.

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Contents

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The first part is about the history of rural development in Korea and the crisis in rural areas.

Slide 3

Korea tackled rural problems generally faced by developing countries in the 1960s. In the 1970s, the Saemaeul movement contributed to the modernization of rural communities by operating in rural living condition and production basis in a short period of 10 years. The Saemaeul movement was a government-led development program that resulted in a balanced growth. Currently, the new rural development plan in the mid of 1980s, the government setup a pilot program, the name is Comprehensive Rural Area Development Program. They were small in scale, brought about remarkable changes in the rural settlements. The build-a-village program, devised in the 2000s, aimed to improve the rural environment, expand the income source, and carry out subsidy-related projects. The program applied a bottom-up approach, in which village dwellers set up plans and selected target areas through competition. To identify growth elements within rural areas and use them to promote the local economy. The government implemented policies for rural tourism and the 6th industrialization on farming in 2010.

Slide 4

The budget for rural development projects has increased rapidly over the past 20 years, 560%. The business goal also changed overall from production-based businesses to living-based businesses. When dividing the business area into agriculture industry, rural areas, and people, the business area of rural areas was expanded from 35.7% to 42.5%. The basic rural infrastructure expansion and bottom-up development method were established. But, overlap and lack of linkage between projects still exist.

Slide 5

Despite these constant efforts, the quality of life of rural residents is still low. In Korea, there is a basic plan for quality of life. The third quality of life plan was for the years from 2015 to 2019 and was focused on improving the perceived quality of life. The 4th Master plan was established last year and is focused on resolving regional disparities and responding to diversify the policy demands. The health and welfare sector is the most important settlement with the largest disparity in satisfaction between urban residents and rural residents. Economic activities and job sector is a settlement condition with the lowest satisfaction.

Slide 6

Rural areas in Korea are at risk of population cliff and local extinction, national extinction risk index is 0.84, all non-metropolitan province and regions less than 1.0 in the extinction warning stage. In the figure below, the red color indicated the high risk of extinction; the figure on the left show the status in 2005, and the figure on the right show the figure in 2019. You can see the red color is gradually expanding. For example, Jeollanam-province (almost rural area) extinction risk index is 0.44, it is a stage of extinction risk.

Slide 7

Since 1960s, the rural population of Korea has continually decreased as a result of the rapid rural to urban migration and this caused economy recession as well as accelerated aging phenomena in the rural communities. Such problem got worse in smaller rural villages and marginal villages began to appear among the rural communities. In Korea, aging is a more serious issue in rural area than in urban area. The Korea 2010 census data showed the aged population in rural area was 20%, however the aged population in urban area was just only 9%. If this underlying trend in aging persists, the rural areas aged population for Korea is expected to approach 30% by 2030.

Slide 8

Now, I'd like to move to the second topic, which is on changes of social values and policy environment.

Slide 9

As everyone here knows, the 2030 Agenda for Sustainable Development was adopted by all United Nations member states in 2015. The agenda is aimed at inclusive sustainable development and poverty alleviation and inequality reduction. The World Economic Forum considered urban planning failure as one of the global risks. This means that urban problem should be solved through rural areas.

Slide 10

The Korean government declared vision and strategy for balanced national development in 2018 to achieve these sustainable development goals. Most of the areas with poor access to the services are located in rural areas. The vision is "Together, a new and better life". Three major strategies are about people, space, industry. Among those nine core tasks, those related to rural area was "reviving rural villages charmingly".

Slide 11

In order to achieve this core task, the concept of 365 life zone has been advocated. The goal is to strengthen the national responsibility for welfare programs that guarantee the national minimum, 365 means 30 minutes, it means guaranteeing access to basic life service such as retail, health, education within 30 minutes, and this means guaranteed access to higher life services in 60 minutes and emergencies systems in five minutes. We call it 365 life zone.

Slide 12

In addition, the trend of rural development was to identify through mega trend search and text mining. As you know, five mega trends in agriculture and rural areas are changes in demographic structure, development of advanced science and technology, climate change and resources value highlight, quality of life/environmental emphasize, acceleration of global economy integration. As a result of analyzing the trend of rural development in Korea, it was confirmed that the keywords were changed from function to space regeneration, from opinion to evidence, from resources to value, from individual to integration and smart.

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My final topic today is about Korea's efforts under the changed social value and policy environment. I will talk about issue and alternatives for systemic development of rural areas.

Slide 14

Despite many difficulties, signs of new potential and hope are emerging in rural areas. A new generation of young people such as those who return to the rural areas are flowing into the rural areas and the social value of rural areas are gradually spreading. Through the media such as TV or movie, rural areas are recognized as alternative space to realize a better quality of life and lifestyle. The OECD has announced that rural areas are at the stage of innovation that leads national economic growth and also socioeconomic organization to solve local problem on their own are increasing.

Slide 15

To keep pace with this phenomenon, various efforts are being made to improve the economic growth of rural areas and the quality of life of rural residents in Korea. I would like to explain this effort with five keywords. First keyword is regeneration. There was a shift from point to rural development to the spatial rural regeneration policy. In the past, the service facility was installed in each village, but this means installing facility in the central area and establishing of transportation network with the hinterland area considering the needs of rural regions. It is essential to strengthen the service delivery system such as demand-responsive transportation model. The photo below right shows various rural transportation models such as the 9-cent taxi and bus. A month ago, the New York Times published an article titled '9-Cent taxi Rides in Rural South Korea' as 'It's a Godsend'.

Slide 16

Second keyword is integration. It intends to create convergence of facility and provide public service through the living-type SOC project. For this purpose, we are creating a multiservice hub and school facility complex, and by remodeling idle facilities such as closed school in rural area, we will use it to meet local needs such as senior welfare center, shared child care facility, and shared living center. The picture show sample photos. This is living type SOC and multiservice hub using closed school and school facility complex.

Slide 17

Third keyword is evidence. We are promoting customized regional development by introducing a regional diagnosis system that evaluates the residential environment and economic conditions. We plan to establish the policy project direction according to regional diagnosis and set priority for each project. In addition, we are trying to prepare our feedback system through policy and monitoring of rural residents' feelings.

Slide 18

Fifth is the increasing in value by utilizing the multifunctional resources in rural areas. There is a demand for re-illumination of public value and creation of new value in agricultural and rural areas. As an example, the restoration of rurality and creation of healing space was shown.

Slide 19

Finally, in the era of the 4th industrial revolution, smart village projects are being promoted to bridge the gap with the cities through intelligent technology grafting. It is still being promoted as a pilot project, but it is gradually expanding.

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That's all I have to say about my presentation. I have enjoyed being here, and thank you for your attention today. Thank you.

Title Slide

Asian Rural Future 2030

Issues and Alternatives
for Sustainable Development of Rural Areas in Korea

2021. 9. 28.

SeungJong Bae
Seoul National University, Korea

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01

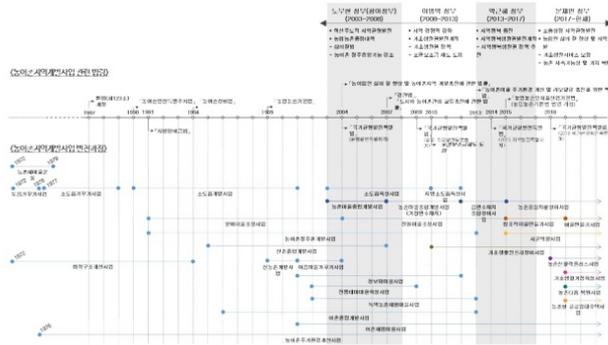
Process and Crisis of Rural Development

Slide 3

1.1 Process and Crisis of Rural Development

Process of rural development systems and projects

- '70 : the Saemaeul Movement → the modernization of rural communities
- '80s : Improving the settlement environment and promoting the industry
- '90s : The build-a-village program
- '00s : rural(green) tourism recreation, balanced development
- '10 : Introduction of a comprehensive subsidy system and promotion of general agricultural and fishing village development projects



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Slide 4

1.2 Process and Crisis of Rural Development

The budget for rural development projects has increased rapidly over the past 20 years

- The rapid increase in rural development project budget : 560% increase over 20 years
- Changes in business goals: improvement of living environment
- Changes in business support factors: rural areas (35.7% → 42.5%)
- Expanding basic infrastructure in rural areas and establishing a bottom-up development method → lack of overlap and linkage between projects

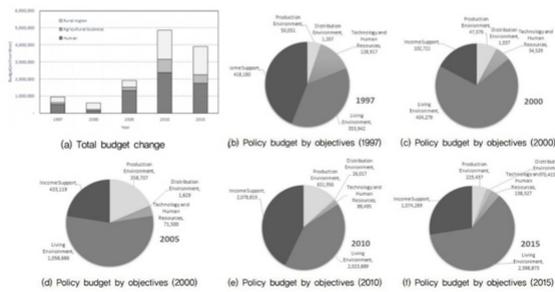


Fig. 1 Periodic budget change of rural development policy by project objectives (M/won)

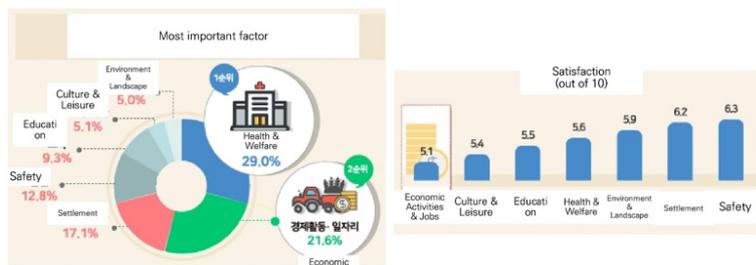
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Slide 5

1.3 Process and Crisis of Rural Development

The quality of life of rural residents is still low

- 3rd (15-19) Quality of Life Basic Plan (Improvement of perceived quality of life)
- 4th (20-24): Resolving regional disparities and responding to diversified policy demands
- Health and Welfare: most important settlement condition, the sector with the largest disparity in satisfaction between urban and rural residents
- Economic activities and jobs: settlement condition with the lowest satisfaction



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Slide 9

2.1 Changes of Social Values and Policy Environment

MDGs → SDGs

- The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015
- Inclusive Sustainable Development, Poverty Eradication and Inequality Reduction
- Global Risks(WEF) : Failure of urban planning



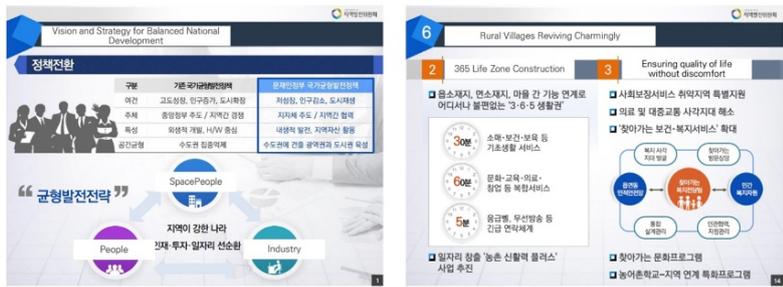
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Slide 10

2.2 Changes of Social Values and Policy Environment

Vision and Strategy for Balanced National Development(2018)

- Together, a new and better life
- Most(92.5%) of areas with poor access to services (lowest 20% of accessibility) are located in rural areas
- 3 Major Strategies: people, space, industry
- 9 Core Tasks: Reviving Rural Villages Charmingly



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Slide 11

2.3 Changes of Social Values and Policy Environment

365 Life Zone

- Reinforcement of national responsibility for welfare programs guaranteed to the national minimum
- Building 365 living areas without inconvenience anywhere in rural areas
- 30 minute : Basic life services (retail, health, education)
- 60 minute : Higher life services (culture, education, medical care, start-up)
- 5 minute : Emergency system



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Slide 12

2.4

Trend : Space · Regeneration · Evidence · Value · Smart

Changes of Social Values and Policy Environment

- Five Mega Trends in Agricultural and Rural Areas
 - Changes in demographic structure
 - Development of advanced science and technology
 - Climate change and resource value highlight
 - Quality of life/environment emphasis
 - Acceleration of global economic integration
- Rural Development Trend Exploration: Function → Space, Regeneration, Opinion → Evidence, Resources → Value, Individual → Integration, Smart

Keyword change in rural area

Keyword change in fishing village

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Slide 13

03

Issues and Alternatives for Sustainable Development of Rural Areas

Slide 14

3.1

New potential, Signs of hope

Issues and Alternatives for Sustainable Development of Rural Areas

- Population inflows such as returning to rural areas
 - (10)8,758 → (15)9,392 → (16)9,501 → (17)9,629, 51%(under 40%)
- Rural area : alternative space to realize a better quality of life and lifestyle
- Low Density Economy(OECD) : Rural areas are the stage of innovation that leads national economic growth
- Increasing social economy organizations to solve local problems

Returning to rural areas

Alternative space(media)

Low Density Economy

Year	2011	2012	2013	2014	2015	2016
사회적기업	96	125	191	264	334	401
마을기업	350	402	644	751	824	868
합동조합	10	10	10	10	10	10
합계	456	537	845	1,025	1,168	1,279

Social economy organizations

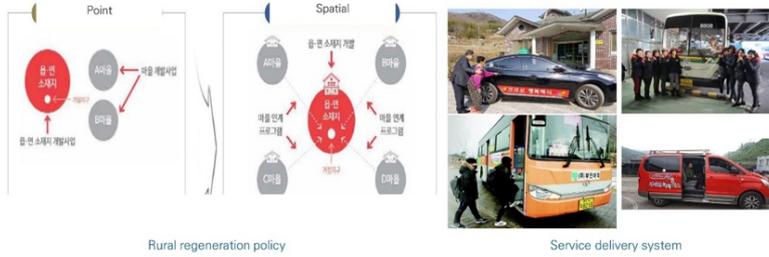
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3.2 Regeneration_Compact + Networking

Issues and Alternatives for Sustainable Development of Rural Areas

- Transition from 'point' rural development to 'spatial' rural regeneration policy
 - Revitalization of rural centers
 - Considering the needs of the hinterland, establish a base facility in the center and build a network with the hinterland village
- strengthening the service delivery system : a demand-responsive transportation model



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3.3 Integration of facilities and services

Issues and Alternatives for Sustainable Development of Rural Areas

- Living-type SOC: Concentrated investment in small-scale infrastructure centered that residents can easily feel and use
- Multi-Service hub
- School facility complex: Local facilities installed and operated within the school
- Remodeling idle facilities : to meet local needs, such as senior welfare centers, shared childcare facilities, and shared living



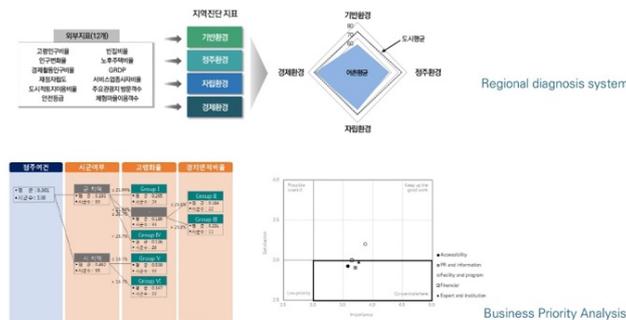
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3.4 Evidence_Project promotion based on regional diagnosis and monitoring

Issues and Alternatives for Sustainable Development of Rural Areas

- Promotion of customized regional development by introducing a regional diagnosis system that evaluates the residential environment and economic conditions
- Establish policy business directions according to regional diagnosis and set priorities for each business
- Establish a feedback system through policy and monitoring of rural residents' feelings



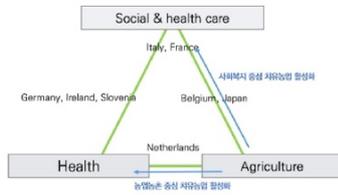
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3.5 Value_ Utilization of multifunctional resources in rural areas

Issues and Alternatives for Sustainable Development of Rural Areas

- Re-illumination of public value in agricultural and rural areas / demand for new value creation
- Restoration of rurality
- Creation of a healing space



Agro-Healing Space

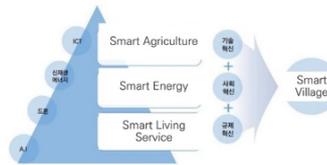
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3.6 Smart_ Better life in rural areas through intelligent technology grafting

Issues and Alternatives for Sustainable Development of Rural Areas

- Need to develop IT policies that digitize and connect rural areas
- Smart Village for Resolving the Urban-Rural Gap (2018) : pilot project
- Applying intelligent technology to enjoy the benefits of the 4th industrial revolution in rural areas : Solving current issues and improving living convenience



Smart Village

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Slide 20

Thank you

Issues and Alternatives for Sustainable Development of Rural Areas in Korea
Presented by S.J. Bae

The Philippines and its Strategies in Achieving Inclusive Growth and Resilient Communities

Cristino TIBURAN

Institute of Renewable Natural Resources, College of Forestry and Natural Resources, University of the Philippines Los Banos

Today, I will be presenting some strategies in the Philippines that are mainly anchored from the National Development Plan Framework and in the end provide you some programs that the government is currently implementing to achieve the vision of this particular plan, in particular this will focus mainly on programs that are being implemented by the Department of Environment and Natural Resources or DENR. Again, I'm Cristino Tiburan, Jr, an Associate Professor from the College of Forestry and Natural Resources at the University of the Philippines, Los Banos. First, I'm going to present some basic information about the Philippines, then proceed with the development plan framework, and finally provide you some programs on how to contribute to this development framework.

Slide 1

The Philippines like Indonesia is an archipelagic country that is composed of about 7,107 islands with three major islands, and these are Luzon in the north, Visayas in the middle, and Mindanao in the south. The total approximate area of the Philippines is about 30 million hectares. Furthermore, this is divided into 17 administrative regions, as you can see in the map, covering about 81 provinces or prefectures.

Slide 2

The population of the country is about 109 million as of the latest census in May 2020. This is about eight million higher than the previous census in 2015. The three regions with the highest population include Region IV-A where Laguna is located, the National Capital Region, and Region III. These three regions constitute about 38.6% already of the entire population of the Philippines. The Philippines Statistics Authority or PSA also estimates that by 2025 the population of the country will reach to about 115 million.

Slide 3

In terms of population in the upland, it is estimated that more than 20 million people lived in these areas way back in the early 2000s. It is composed mainly of indigenous people and some also came from migrants. It has been observed also that there has been a massive influx of migrants in these areas, especially in the 1960s and peaked between 1980 and 1985.

Slide 4

As for the annual growth rate in the country, the average growth rate in the Philippines is about 1.63 from the 2015

to 2020 demographic data. The highest annual growth rates in the regions were observed in BARMM or the Bangsamoro Autonomous Region of Muslim Mindanao, and then followed by Region IV-A and then Region III. At present, the National Capital Region has only about 0.97 annual growth rate despite the high population density in this region.

Slide 5

With regards to poverty, it is estimated that about 34% and 25% of the population in the rural areas in 2015 and 2018, respectively, are below the national poverty line. The graph below shows the percentage per region that is below the national poverty line.

Slide 6

In terms of economic performance, the Philippines has a steady growing economy before the pandemic hit the Philippines and other countries in the world. During that time, it has a GDP of about US \$362 billion in 2020. Also, the National Capital Region has the highest regional share in GDP which is about 37% and is followed by Region IV-A or CALABARZON which is about 16%.

Slide 7

Based on the record or reports of the Philippine Statistics Authority, the GDP has been reported to be around 11.8% between second quarter of 2020 and second quarter of 2021 despite the pandemic. The sectors on industry and services have been found to be the major contributors. However, it can also be observed that there is a contraction in the sector of agriculture, forestry, and fishery that experienced a negative 0.1%.

Slide 8

In terms of land resources and land classification in the country, the country is mainly divided into two types; the forest lands and the alienable and disposable land or A&D. Now, based on the Philippine Forestry Statistics, about 53% of the country is considered as forest land area while about 47% is A&D land. Forest lands include public forest, permanent forest or forest reserves, and forest reservations while A&D lands usually pertain to residential areas, agricultural lands, and other lands that are not declared as needed for forest purposes.

Slide 9

In terms of forest cover in the country, it is estimated that about 27 million hectares or 90% of the country is covered with lush vegetation during the Spanish regime in the Philippines. But this number drastically decreased from 57.3% in 1934 to about 23.4% or 7.01 million hectares in 2015. The latest land cover of the country is yet to be released hopefully during this last quarter of 2021.

Slide 10

These maps show the spatial distribution of forests in the Philippines in 2010 and 2015, and the forests in the Philippines are classified into three types; the closed forest, the open forest, and the mangrove forest. The total forest

cover of the country as of 2015 is about 7.01 million hectares. Based on this data, about 2.03 million hectares are closed forest, 4.68 million hectares are open forest, and about 0.3 million hectare is mangrove. Region II in the Philippines, this part is in the northern part of the country, has showed the highest total area of forest cover in the Philippines in both 2010 and 2015 periods.

Slide 11

Now, the total area of forests in 2015 is also a bit higher from the 2010 data. This is also true for both, closed and open forests, but a slight decrease in the mangrove forests was observed in 2015 as compared to 2010. These different graphs below show the distribution of the different forest types in the Philippines per region.

Slide 12

In 2016, President Rodrigo Duterte signed Executive Order No. 5 approving and adopting the 25-year long-term vision entitled “Ambisyon Natin 2040” as a guide for development planning. The preparation of the Philippine Development Plan is being led by the National Economic and Development Authority of the Philippines or NEDA. The first medium-term plan (2017-2022) and the succeeding Philippine Development Plan until 2040 shall be anchored to this long-term vision. The vision captures the dreams of every Filipino of having a life that is strongly rooted (*Matatag*), comfortable (*Maginhawa*), and secure (*Panatag*).

Slide 13

This is the long-term vision of the Ambisyon Natin 2040 – “the Philippines by 2040: matatag, maginhawa, and panatag na buhay. Now, the country is a prosperous middle-class society where no one is poor, people live long and healthy lives and are smart and innovative. The Philippines is a high-class society where families thrive in vibrant, culturally diverse, and resilient communities”.

Slide 14

Given the long-term vision, the first medium development plan was crafted where the government laid down a solid foundation for more inclusive growth, a high trust and resilient society, and a globally competitive knowledge economy. And that by the end of 2022, more Filipinos will be closer to achieving its aspiration to have a matatag, maginhawa and panatag na buhay. To achieve these targets, strategies were developed, and they fall under these three pillars – Enhancing the Social Fabric (*Malasakit*), Inequality-Reducing Transformation (*Pagbabago*), and Increasing Growth Potential (*Patuloy na Pag-unlad*). There are also cross-cutting strategies exemplified by the layer at the bottom, and this includes ensuring ecological integrity, clean and healthy environment. The sample programs that I will be showing you in a while will dwell mostly under this strategy.

Slide 15

The PDP is also anchored based on the Sustainable Development Goals or SDGs. The country’s initial list of Philippine SDG indicators covers 17 goals, 97 targets, and 155 indicators. It can be shown in the slide also the distribution of these indicators by Source Agency in terms of percentage. It can be observed that majority is drawn

from the Philippine Statistics Authority, followed by the Department of Education, and third is the Department of Environment and Natural Resources or DENR. Hence the importance of such agency in attaining the voluntary targets of the country.

Slide 16

Relative to the PDP, the Sustainable Development Goals or SDGs are also mapped and incorporated as priorities in the development plan. You can see here all the SDGs and where they are placed. For instance, under the Ensure ecological integrity, clean and healthy environment, you can find SDG 13, 14, and 15. These are focused on Climate Action, Life Below Water, and Life on Land.

Slide 17

The first medium-term PDP or the Philippine Development Plan was recently updated to address the current pandemic situation of the country. As indicated here, the strategic framework will mainly focus to achieving a healthy and resilient Philippines. The different pillars are still the same and now, the different strategies are termed revised strategies, focus into achieving this particular medium-term goal that would support also the 25-year vision by 2040.

Slide 18

Now, I'll be showing you some programs specifically from the government. An example of the strategy of the government, particularly at DENR or from the Department of Environment and Natural Resources is the National Greening Program that highly involved local communities, especially those living in the rural and upland areas. This has been launched way back in 2011 that aims to plant 1.5 billion of seedlings in 1.5 million hectares of public lands all over the country from 2011 to 2016. But before the program ended, it was further expanded and was already called the Expanded National Greening Program, and this was signed in the late of 2015. This is mainly to continue the rehabilitation of the remaining unproductive, denuded, and degraded forest lands in the country from 2016 to 2028. The total area to be rehabilitated in this Expanded National Greening Program is estimated around 7.1 million hectares.

Slide 19 and Slide 20

These are some photos of the program taken before and this one is taken more recently, as you can see, people are still wearing face masks.

Slide 21

Then, there's another current program of the government which is called the Integrated Natural Resources and Environmental Management Program or INREMP. This one aims to manage the upper river basins and watersheds to support poverty reduction, watershed management, biodiversity conservation, and climate change policy objectives. It also endeavors to develop capacities of the local governments, institutions, and upland communities. Under this program, community forestry investments sub-projects and natural resources management sub-projects were implemented as part of the entire program. The community forestry investment includes agroforestry, commercial tree plantation, and conservation farming. Meanwhile, the natural resources management includes community-based

protection and monitoring, reforestation, and assisted natural regeneration.

Slide 22

This program includes four initial sites distributed in the Philippines. One in Luzon, this is the Chico Upper River Basin. One in the Visayas, it's the Wahig-Inabanga. And then two in Mindanao, the Lake Lanao Upper River Basin and the Bukidnon Upper River Basin.

Slide 23 and Slide 24

These are some of the pictures on the evolution of some of the conservation farming learning sites in the different areas where INREMP was implemented. The conservation farming design is a combination of trees, fruit trees, and high value crops. This one is taken in October 2019. And then, when it was developed, this is the latest photo that was taken in November of 2020. Then another site, which was also taken initially in October 2019. And the last, I think is taken in December 2020.

Slide 25

This ends up my presentation, and I hope I have provided some insights now on how the Philippines is trying to respond to the need to uplift the lives of the Filipinos, especially those who are living in the uplands and in rural areas, in general. Again, thank you very much for your attention and good afternoon. Thank you.

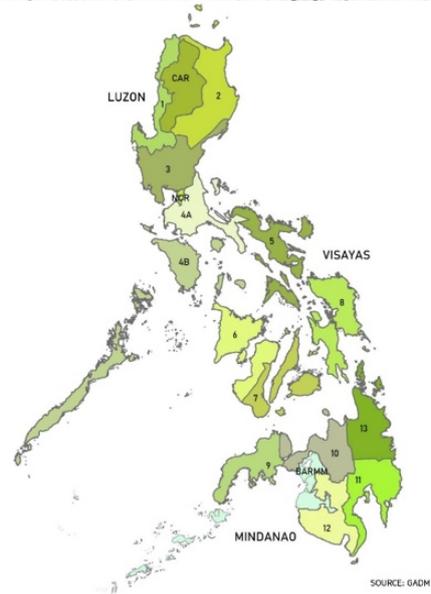
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Slide 1

THE PHILIPPINES

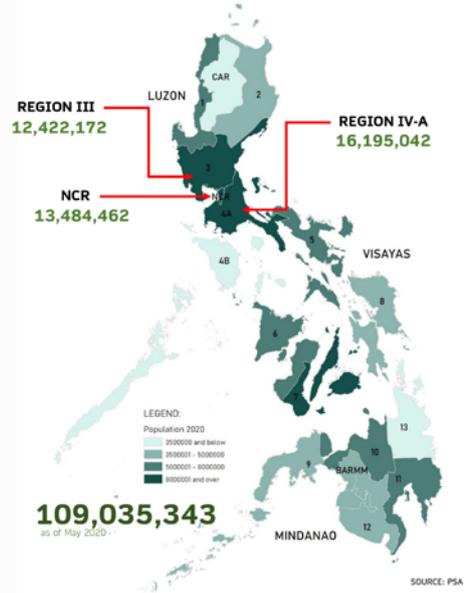
- ❑ archipelagic country with 7,107 islands
- ❑ 3 major islands
- ❑ total area is about 30M hectares
- ❑ 17 major administrative regions
- ❑ 81 provinces



Slide 2

POPULATION

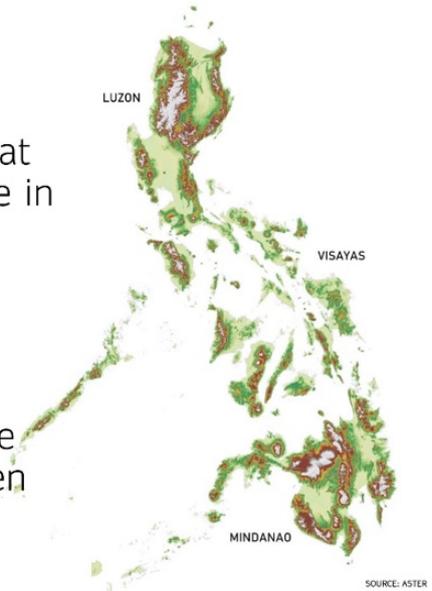
- ❑ 109M as of May 2020 compared to 101M in Aug 2015
- ❑ the combined population of the 3 regions constitute 38.6% of the entire population
- ❑ 115M by 2025



Slide 3

POPULATION

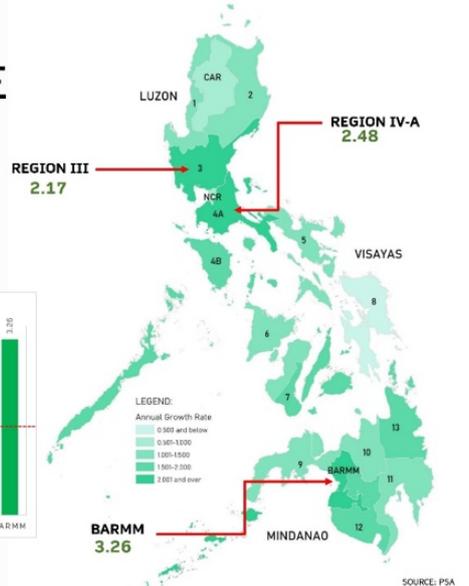
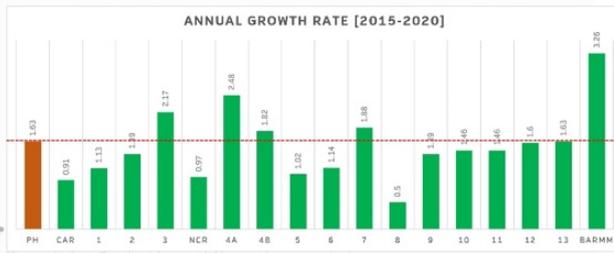
- Sajise (1998) estimated that more than **20M people** live in the **uplands**
- population falls into **two classes: indigenous and migrant**
- massive influx began in the **1960s** and **peaked** between **1980 and 1985**



Slide 4

ANNUAL GROWTH RATE

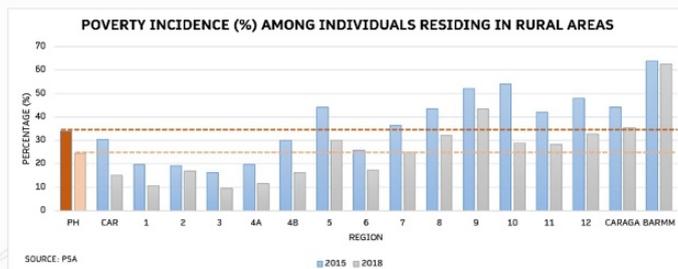
- annual growth rate in the country is about **1.63** (2015-2020)



Slide 5

NATIONAL POVERTY LINE

- **34%** and **25%** of the population in the rural areas is below the national poverty line in **2015** and **2018**, respectively



University of the Philippines
LOS BAÑOS

Slide 6

ECONOMIC PERFORMANCE

- the country has a steady growing economy before the pandemic with a **GDP of 362.24B USD in 2020**
- **NCR** has the **highest regional share (37%) in GDP from 2010-2018** and followed by **CALABARZON (16%)**



Slide 7

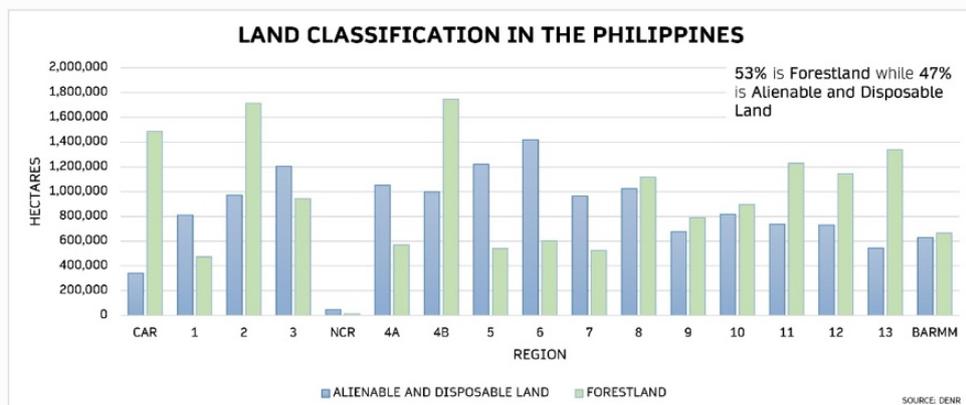
ECONOMIC PERFORMANCE

- between **Q2 2020** and **Q2 2021**, PSA reported an **11.8%** growth rate in **GDP**
- major contributors include **industry (20.8%)** and **services (9.6%)**
- **agriculture, forestry and fishery** experienced contraction of **-0.1%**

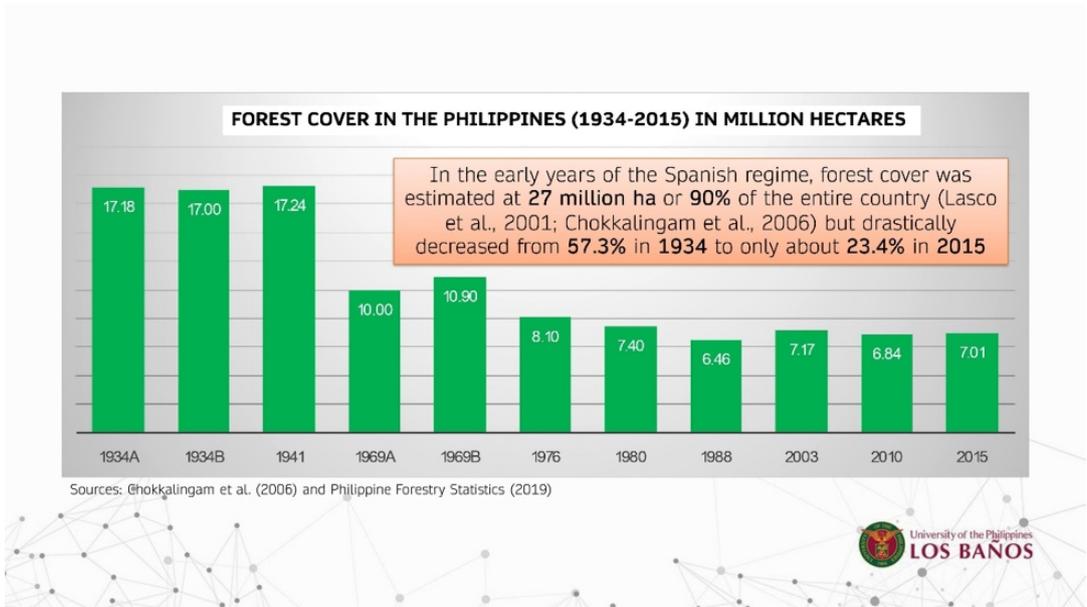


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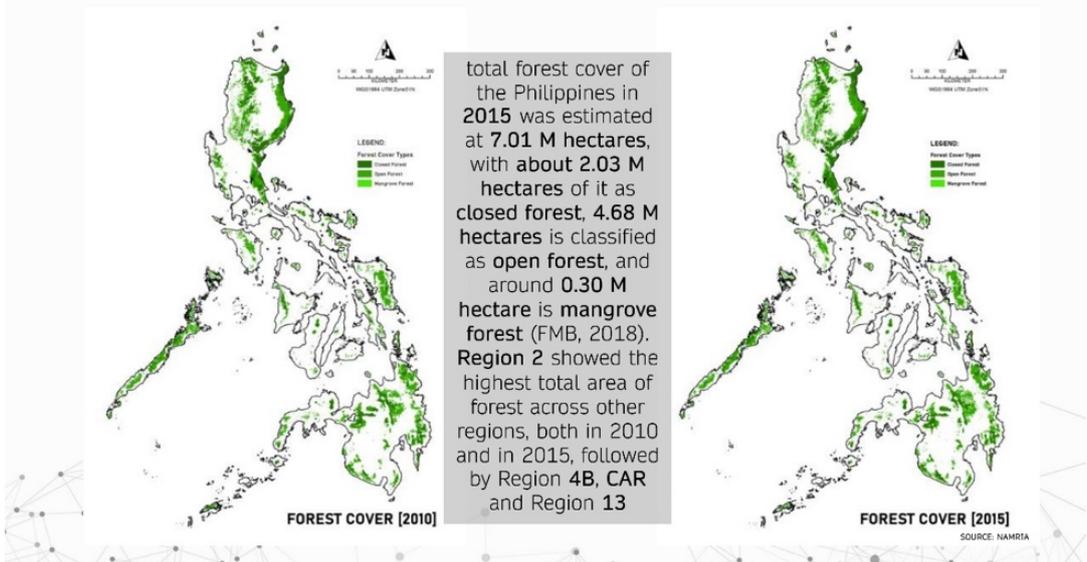
LAND RESOURCES



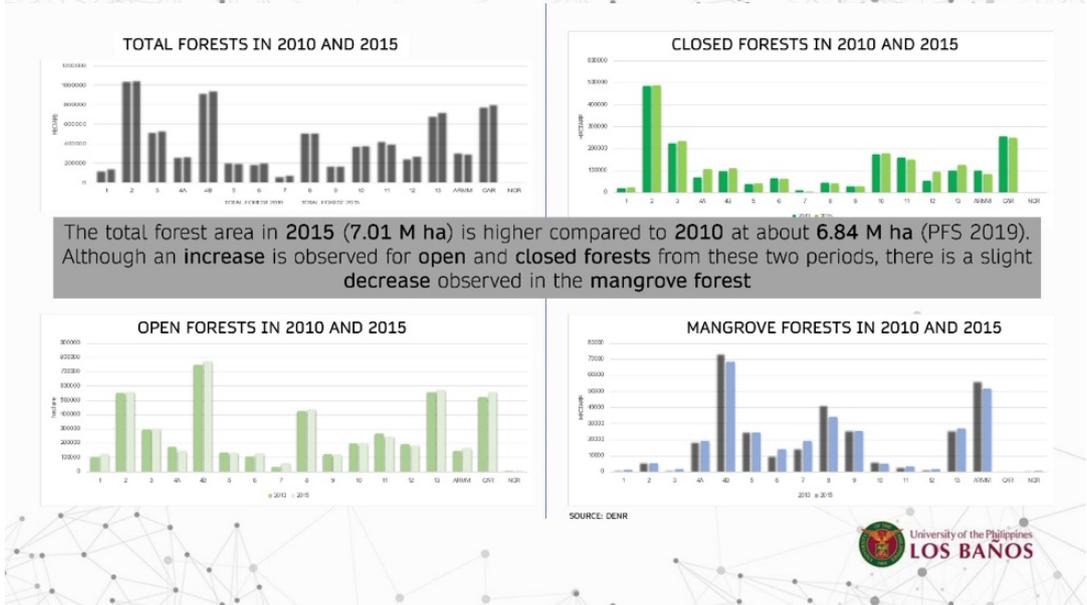
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Slide 10



Slide 11



Slide 12

PHILIPPINE DEVELOPMENT PLAN

2017-2022

- ❑ represents the **collective long-term vision** and aspirations of the Filipino people in the next 25 years with a vision entitled **“Ambisyon Natin 2040”**
- ❑ Filipinos aspire for a life that is **strongly-rooted** (matatag), **comfortable** (maginhawa), and **secure** (panatag)



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PHILIPPINE DEVELOPMENT PLAN

2017-2022

Long Term Vision

“The Philippines by 2040: matatag, maginhawa, at panatag na buhay. The country is a prosperous middle-class society where no one is poor. People live long and healthy lives and are smart and innovative. The Philippines is a high-trust society where families thrive in vibrant, culturally diverse, and resilient communities.”

- Ambisyon Natin 2040



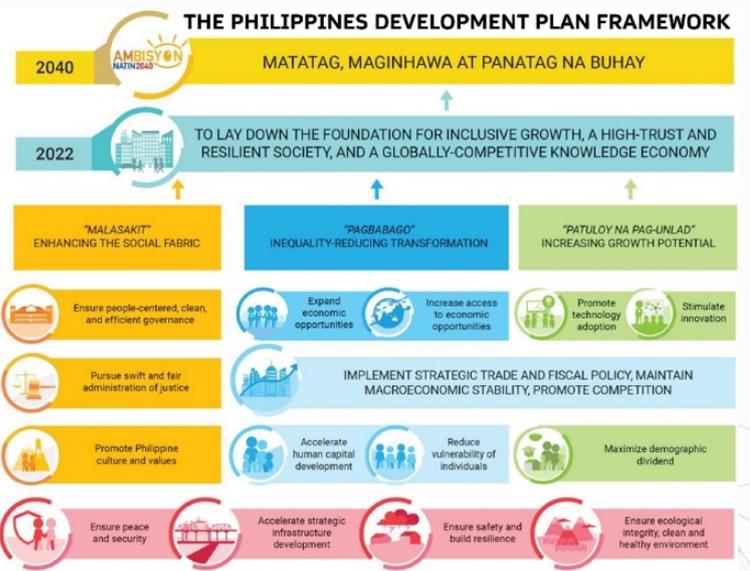
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THE PHILIPPINES DEVELOPMENT PLAN FRAMEWORK

“The **Malasakit** pillar is about enhancing the social fabric. The strategies aim to build the foundations for a high-trust society by ensuring a clean, efficient, and people-centered governance; guaranteeing swift and fair administration of justice; and increasing awareness of the different cultures and values across Philippine society.”

“The **Pagbabago** pillar is about effecting inequality-reducing transformation. It consists of strategies to expand economic opportunities, accelerate human capital development, reduce vulnerability, and build safe and secure communities.”

“The **Patuloy na Pag-unlad** pillar is about increasing potential growth. It consists of strategies to enhance the factors necessary to accelerate and sustain growth and development through 2040. It is about promoting science, technology, and innovation. It also covers strategies to reap the demographic dividend.”



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SOME DENR PROGRAMS...

National Greening Program

- on Feb 24, 2011, the country launched through EO 26 the National Greening Program (NGP) that aims to plant 1.5B seedlings in 1.5M hectares of public lands all over the country from 2011 to 2016
- the Expanded NGP through EO 193 was signed on Nov 12, 2015 that will rehabilitate all the remaining unproductive, denuded and degraded forestlands estimated at 7.1M hectares from 2016 to 2028



Slide 19



Slide 20



Slide 21

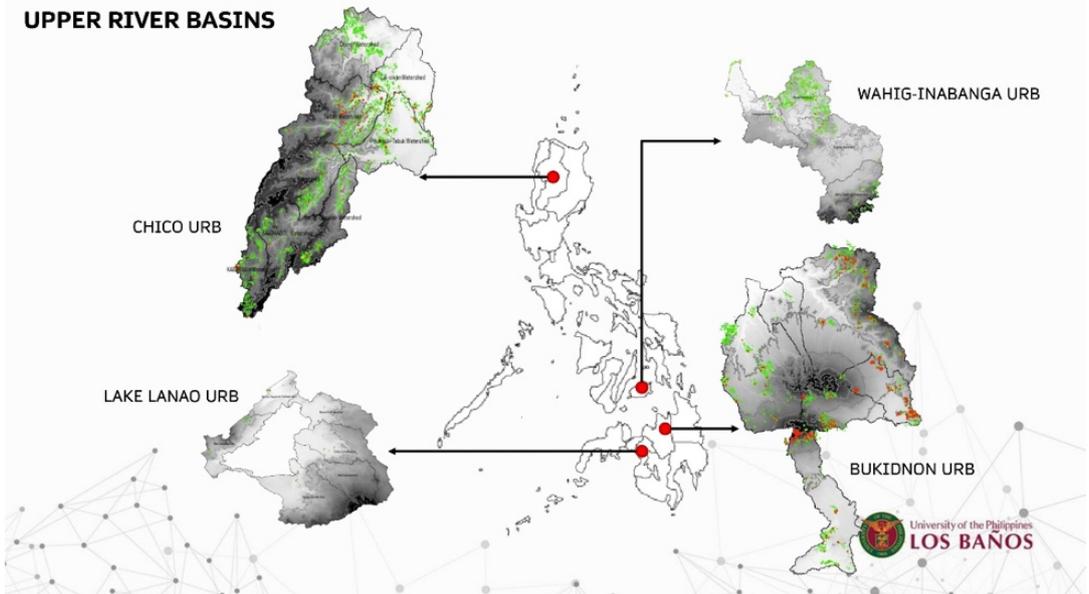
Integrated Natural Resources & Environmental Program (INREMP)

- aims to manage the upper river basins and component watersheds to support poverty reduction, watershed management, biodiversity conservation, and climate change policy objectives with emphasis on developing the capacities of the local governments, institutions and upland communities as development partners



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UPPER RIVER BASINS



Slide 23

OCTOBER 2019

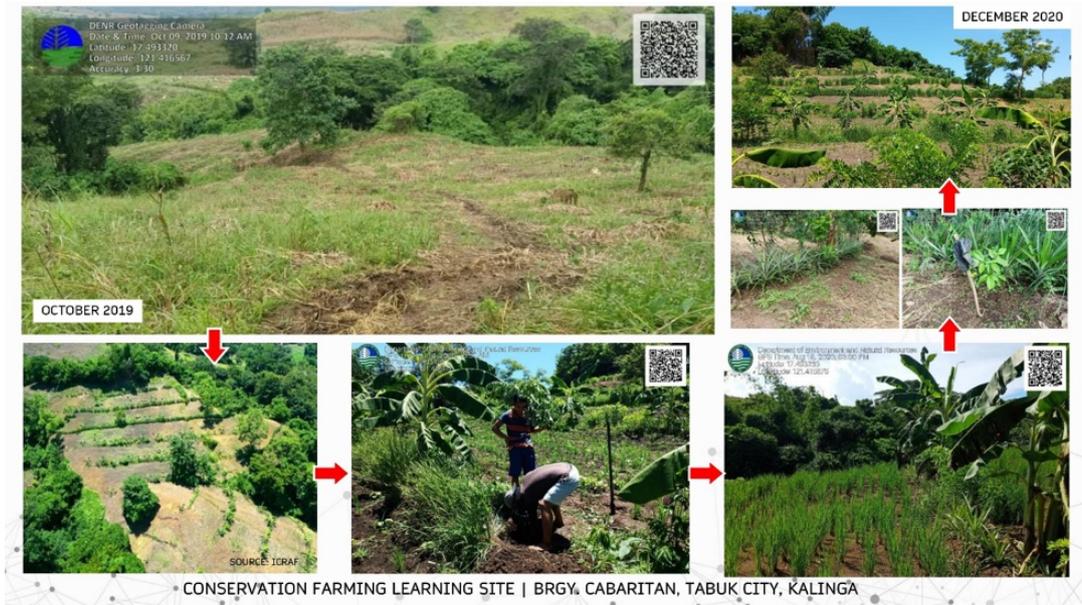
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NOVEMBER 2020

CONSERVATION FARMING LEARNING SITE | BRGY. KARIKITAN, CONNER, APAYAO

Asian Rural Future 2030

Slide 24



Slide 25



PART 2

Research Articles and Discussions

A Study on Energy Poverty in Myanmar

Result from the Myanmar survey in 2018

Midori AOYAGI¹

¹National Institute for Environmental Studies

Keywords : *Energy Poverty, Myanmar, 30-households-in-depth-interview, The nationally representative sample survey*

1. INTRODUCTION

One of the current policy goals of developing countries in Asia and other parts of the world is to improve the quality of life of the people by promoting the improvement of social systems and infrastructure as well as economic development. Energy conversion plays a significant role for the achievement of this goal. In the Millennium Development Goals (MDG) of the 2000s, energy poverty was not yet a topic of discussion. However, in the Sustainable Development Goals (SDGs) adopted by the UN General Assembly in 2015, energy poverty was specifically listed as a goal as "Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all.

Rural communities in developing countries often use solid fuels that are readily and cheaply available in their rural areas, such as wood charcoal, rice husks, and wheat straw. They have been shown to cause indoor air pollution and have adverse health effects (e.g. Carvalho et al. 2019). Replacing these fuels with liquid fuels such as kerosene, or gaseous fuels such as natural gas or propane gas, would significantly improve the situation. In addition, electrification can bring about a major shift in the quality of life. In this paper, we discuss the results of a survey and analysis of the increase in energy consumption in Myanmar, which is closely related to this improvement in the quality of life.

2. ENERGY POVERTY IN ASIAN DEVELOPING COUNTRIES

The discussion of energy poverty was first proposed in the UK as an issue of fuel poverty. The objective was to analyze the lives of the poor households in terms of energy consumption, which is essential for daily life such as cooking and heating, and to reflect this in policy. Bradshaw and Hutton (1983) pointed out that not only regular "poverty" but also fuel poverty is an important aspect of social policy in terms of welfare. This is because adequate warmth is a matter of life and death in the cold climate of the UK. Boardman (2010) discussed the actual situation in the UK in relation to absolute and relative poverty. He also pointed out the need the investigation of energy prices, economic trends and related policies, as well as the need to look at social exclusion. As a result, he proposed a definition of fuel poverty as "spending more than 10% of income on energy". Moore (2012) showed that the number of fuel-poor households varied widely by definition. He used that variation to discuss the meaning of the definition and its policy implications. The initial discussion in the UK often used "fuel poverty," but recent international discussions of "energy poverty" have expanded the term to include all energy use, not just heating.

These discussions have been applied to developing countries because of the growing importance of the quality of

life in developing countries. Discussions such as the "capability approach" by Sen (e.g., 1999) and Nussbaum (e.g., 2011) (e.g., Taku Kurosaki & Koji Yamazaki, 2017) and the Human Development Index (HDI) (e.g., UNDP, 2019), which was developed mainly by the United Nations Development Programme, are the background to these discussions. The capability approach proposes an assessment of the "capability" (capability: realization of the functionings that the person chooses) of various aspects of life (functionings: e.g., being in good health, getting a job, working, etc.) (e.g., Day et al, 2016). Energy is considered to form the basis of this "capability". In developing countries, socioeconomic development is a social priority, and energy consumption has to increase for this reason. All the people in the world should get rid of energy poverty, but at the same time, various negative aspects of energy consumption (air pollution, climate change, etc.) should be minimized. The discussion of energy poverty provides a concrete policy for considering this issue. In the latest debates on energy poverty in developing countries, the main target is to shift from traditional biomass-based energy use to clean, high-calorie, and still highly versatile energy (e.g. Day et al, 2016), such as LPG, electricity, etc.

Energy poverty has two aspects. The first is accessibility, where modern energy is not available due to lack of available infrastructure. The second is inaccessibility due to inability to bear the cost, such as high electricity prices. In the former case, for example, the transmission line is not available. The latter affordability is a major problem in poverty in developed countries. However, in general, both are problematic in developing countries (Khanna et al, 2019). In general, energy poverty is more serious in rural areas than in urban areas (Phoumin & Kimura 2019, Shi 2019). However, in countries such as China, which is experiencing rapid economic growth, when energy consumption per household is calculated, the results show that rural consumption has been higher since the late 2000s. This is due to the greater use of non-market fuels, such as agricultural residues (Li, Chen & Liu 2019). Developing countries are not uniformly characterized.

Energy transition can also accomplish reducing health hazards due to indoor air pollution (Carvalho et al, 2019). Electrification is one of the results of improving the quality of life, as well as a means of further improving the quality of life (Oum, 2019 etc.). The availability of stable, well-lit lighting creates a variety of working environments in the home. This will increase the means of income security. It also improves the learning environment for children and extends their schooling period (IFAD, 2019). It also increases the likelihood of obtaining a higher income-earning job. It also contributes to the improvement of socioeconomic quality in various aspects, such as the promotion of local industries, including agricultural production and small and medium-sized manufacturing, and the upgrading of medical welfare (Oum, 2019, etc.).

Since 2010, there have been a number of studies on energy poverty and energy transition, including studies from a macro perspective using country-level statistics (Batinge, Musango, & Brent, 2019, Carvalho, et al, 2019, Khanna, et al, 2019, Li, et al, 2019, Oum, 2019, Phoumin & Kimura, 2019, Sovacool, 2013a, Zhang, et. al,2019), and from the perspective of consumers (Zhang, Li, & Han,2019; Smits, 2015). Smits (2015) reported in detail on how people actually use energy in their daily lives (specifically appliances, cooking, lighting, information, entertainment, etc.) in Thailand and other countries such as Laos, and how rural communities far from cities have adopted electricity.

In this paper, we investigate the current status of energy poverty in Myanmar. Myanmar is in the process of energy transition, with the electricity rate estimated at 78% in Yangon, the largest city, and 34% in the country as a whole as of 2015. We chose Myanmar as our target country for the following reason. The country was rated the worst among Southeast Asian countries in all socioeconomic indicators before 2010 (Sovacool, 2013b). However, since the

democratization of the regime in 2010, the country has gradually increased its economic activity. Then, after the 2016 general elections, for the first time, a government without the backing of the military was established. Since then, economic activity has accelerated, and the country is currently in the "take-off" stage. Since it borders the peninsular countries of Southeast Asia, it is affected by the economic activities of those countries that are currently experiencing rapid growth. In addition, development assistance projects from abroad are becoming more active. The number of ODA projects from Japan is also increasing (JETRO Yangon Office, 2017). However, this trend has not yet reached the rural areas. People in rural areas are left behind in poverty in many areas. Those are the main reasons why the country is an important place to consider for sustainable development including energy poverty.

3. SURVEY

The data analyzed in this paper are from a survey conducted by the author in May-July 2018 with the cooperation of a local survey professional organization. The survey consists of the following two parts: The first part is a household visit survey of 30 households conducted in May of 2018 ("Household Detailed Survey"). The other is a survey with a representative sample of 1,000 adults aged 18 and above in Myanmar conducted in June-July 2018 through random sampling ("National Random Survey"). This combination of surveys with different methods is called a combined survey (Kleih & Wilson, 2001, etc.).

The Household Detailed Survey was conducted in three regions: Yangon and its suburbs, Shan State (a highland area close to Thailand and China), and Magway Region (an arid area in the middle reaches of the Ayeyarwady River). Five (5) households each from urban and rural areas were selected for the survey, making a total of 10 households in each region, and a total of 30 households in the country. The target households were selected so that their incomes were distributed from the low level to the high level in each survey area. The survey was conducted by a professional interviewer, a transcriber, a video recorder, a translator between Myanmar and English, and the author. In principle, the survey was carried out in Myanmar, with local language interpreters available as needed. The transcripts were translated into English under the supervision of a native English speaker. For the national random survey, the questionnaire was finalized by reflecting the results of the detailed household survey. The author drafted the questions in English, and the local survey professional organization translated them into Myanmar. The field work was completed on August 1, 2018. The survey was conducted on adult males and females aged 18 years and above, with 1,000 of the total sample allocated to each state in Myanmar (10 states in total) on a population-proportional basis (population-proportional probability sampling method).

4. RESULTS

4.1 Income status

Fig. 1 and **Fig.2** show the income status of households based on the results of a National Random Survey. Thirty-six (36) percent of rural households and 26% of urban households reported that their income for the past two to three months was not enough to cover their necessary expenses, indicating the instability of their lives (**Fig. 1**). More than half of all surveyed households had debts, and they borrowed money "to cover daily living, food and other expenses"

(48% in rural areas and 38% in urban areas), indicating the hardship of daily life (Fig. 2). Furthermore, in rural areas, some households borrowed money to obtain income outside of agriculture. In the Detailed Household Survey, it was stated that those who migrated from rural areas to urban areas send money to their families in rural areas on a regular basis. In addition, the government provides an "installment payment" system that can be used for the purchase of household goods, and it was confirmed that this system is frequently used for the purchase of home appliances. The results suggest that the government's policy of making it easier for people with insufficient income to purchase electrical appliances is effective.

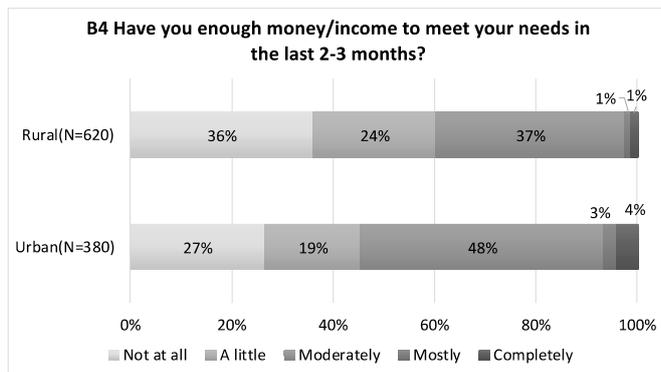


Fig.1 Sufficiency of Income

Source: Author's own survey result

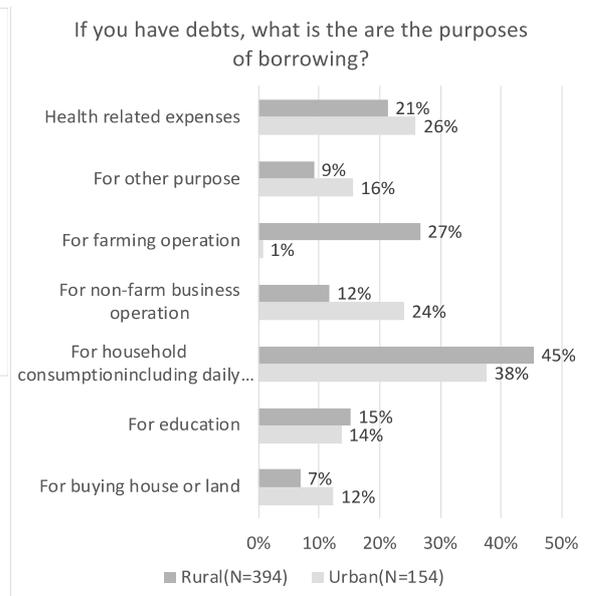


Fig.2 Household debts

Source: Author's own survey result

4.2 Electricity connection status

Fig. 3 shows the electricity connection status of each household. Nearly 90% of households in urban areas are connected to the main grid, while only about 30% of households in rural areas are connected. In rural areas, private power generation (e.g., solar panels) is the most common form of power generation, at more than 30%. The Detailed Household Survey confirmed that solar panels, which are relatively inexpensive, are widespread, especially in rural areas. One or two panels per household with a length of 50-90 cm were mostly used. They were mainly used for room lighting and cell phone charging, using motorcycle batteries for power storage. As shown in Fig. 5, nearly 70% of these batteries are held in rural areas. However, with the capacity of these batteries, it is impossible to use them for farm-related equipment or for so-called white goods (such as refrigerators). Gasoline-powered power generators have been introduced for agricultural equipment. The power company is conducting a feasibility survey for each household, and one of the respondents to the detailed household survey said that depending on the structure of the house, it may not be possible to connect due to safety issues. According to the respondent, he observed many houses with bamboo as the structural material and banana leaves as the thatching on the walls, and was told that he could not connect to power grid because of the risk of fire. If there was a house in the neighborhood that was connected to power grid, such households were often asked to connect by neighbors.

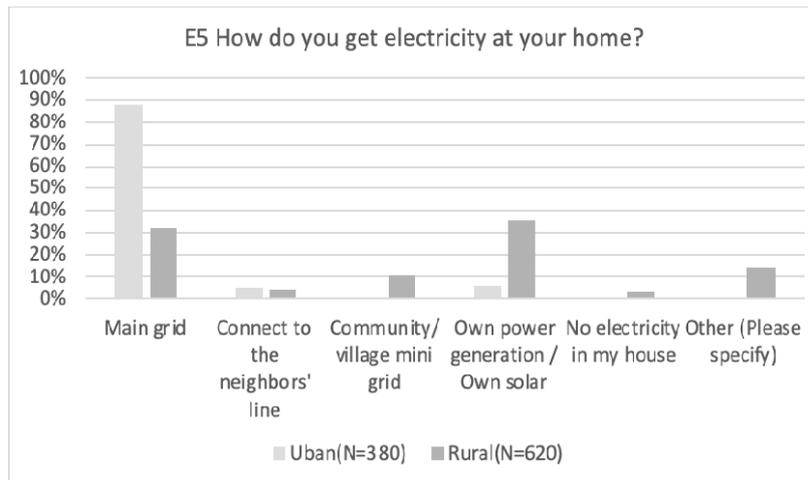


Fig.3 Electricity connection

Source: Author's own survey result

4.3 Status of heat source for cooking

Fig. 4 shows the use of heat sources for cooking in households. In urban areas, electricity was the most common source at 86%, followed by charcoal at 56%. In rural areas, on the other hand, firewood was the largest source at 82%, followed by electricity at 30% and charcoal at 23%. The Detailed Household Survey confirmed that firewood, charcoal, and rice husks are often available almost free of charge in rural areas and are often used. According to the detailed household survey, in rural areas, there are many cooking areas that are semi-outdoors beside the main house, and in many cases, shallow holes are made in the ground to cook on the fire. In fact, most of the firewood used was thin tree branches. According to Sovacol (2013b), deforestation due to the collection of firewood and charcoal has already become a problem in the 2000s. In urban areas, there were often indoor "kitchen" rooms with refrigerators and cooking utensils. Voltage stabilizers are always attached to home appliances such as refrigerators, suggesting that the voltage is unstable.

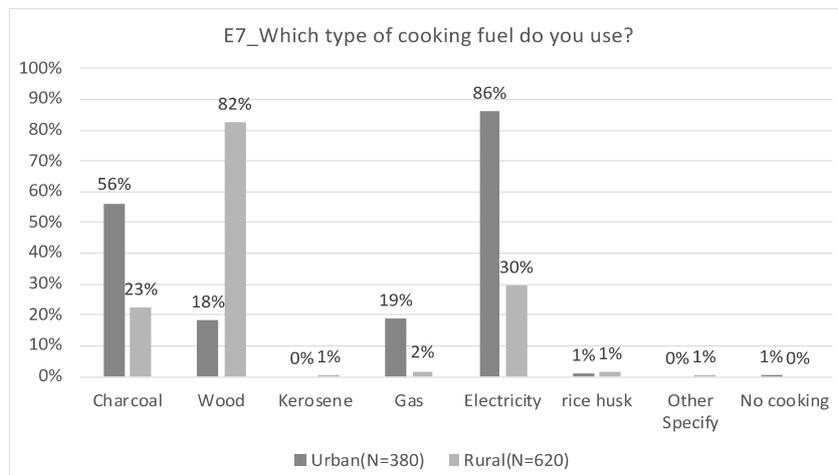


Fig.4 Varieties of cooking fuels

Source: Author's own survey result

4.4 Home appliance ownership status

Fig. 5 shows the ownership status of home appliances. These are listed in order of decreasing ownership rate in rural areas. The ownership rate of smart phones is high in both urban and rural areas. The ownership rate of cell phones other than smart phones is also 20~30%. Therefore, the penetration rate of individually owned cell phones is estimated to be close to 100%. In rural areas, solar panels and batteries for recharging are the most popular items, followed by various cooking utensils, fluorescent lamps, Internet connection devices, lighting fixtures, and TV receivers. The proportion of refrigerators and washing machines is not so high in urban and rural areas. Overall, there is a clear difference in ownership rates between urban and rural areas, and statistically significant differences in ownership rates are observed for most of the appliances. Ownership of so-called white goods, such as refrigerators and washing machines, is much lower in rural areas, and does not reach 30%, even though the connection to the main grid has reached 30%. In other words, even with improved access to electricity, it is not economically feasible to procure large appliances. In other words, even with improved access to electricity, many households will not be able to economically procure large appliances or maintain them even if they could.

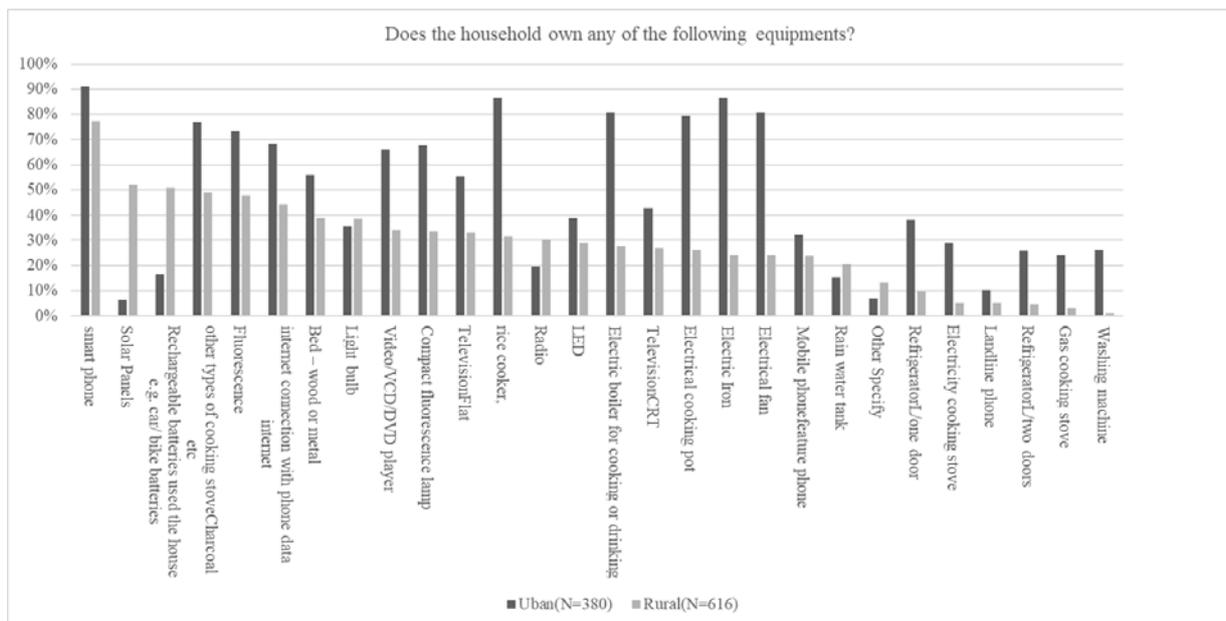


Fig.5 Home appliances

Source: Author's own survey result

5. CONCLUSION

Looking at the results of this study from the viewpoint of energy poverty, in Myanmar, in rural areas, the main grid connection and private power generation such as solar panels finally reach about 60%, but the quality of the power varies greatly. It is noteworthy that decentralized energy such as solar panels are spreading rapidly. On the other hand, there are many households whose income is not satisfactory and unstable. Even if the accessibility is met, there is a possibility that many households will not be able to use the system due to problems with payment.

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Suburban Development and Its Effects on Ecological Landscape

A case study of Jiangsu Province from 1998 to 2018, China

Yasi TIAN¹, and Lei WANG¹

¹Urban and Rural Planning, School of Architecture, Soochow University

Keywords : *Suburban Identification, Suburban Sprawl, Spatial Interaction, Ecological Effect, Ecological Landscape Pattern*

1. INTRODUCTION

During urbanization many people migrate from rural to urban areas; hence, the aggregation of people, industrial development, and urban construction create large demands for land use. Existing studies have proven that the expansion of urban land mainly sacrifices rural land, especially cropland (d'Amour et al., 2017; Gu, Guan, & Liu, 2017), which produces negative effects like ecological degradation, water and land loss, and soil pollution (Fazal, 2000; Peng et al., 2018; Salvati, 2013). As one of the basic characteristics of urbanization, urban land expansion has garnered much attention, and studies focus on land transition monitoring, effects analysis, and mechanism identification (Kukkonen et al., 2018; Yin et al., 2011; Zank et al., 2016). However, discussions on suburban development and its subsequent effects remain insufficient.

Suburbs are areas that are adjacent to the main urban area, and are characterized by mixed land use that includes urban and rural areas, with a medium construction and population density compared to urban and rural areas and accessible commuting distance to a city (Forsyth, 2012; Lang, Blakely, & Gough, 2005). The contemporary origins of suburbs are from the UK, US, and Australia and now extends world-wide in both developed and developing countries (Vaughan et al., 2009). The driving forces of suburban development in developed and developing countries are different. For example, suburban development in the UK was observed in the late 18th century due to the rich middle classes resettling in the outskirts of London. From this perspective, suburban development has usually been studied under the framework of suburbanization; low-density and car-dependence are historically the main characteristics of such suburban areas (Clapson & Hutchison, 2010; Mace, 2009). Suburban development in developing countries like China is mainly caused by urbanization and urban expansion. On the one hand, the aggregation of people in urban areas creates a large construction land demand for industrial development and residential land. On the other hand, the pressure produced by the high price of renting and purchasing flats in the city drives some people live in comparatively cheap suburbs, which also prompts the land use change of suburban areas. Despite the differences in suburban development in developed and developing countries, land transition, especially the transition from rural to urban land, is a common feature that has negative effects on ecological environment protection, historical town preservation, and cropland guarantees (Jay, 1996; Rudel, 2009). Therefore, mapping and tracking the changes in suburbs and analyzing their effects on land-use and landscape change are of great significance.

2. LITERATURE REVIEW

2.1. Measures of mapping suburbs

Even though the definition of a suburb has never been standardized, a suburb is usually thought to be a mixed area of urban and rural lands that is adjacent to a city and within commuting distance of the city. According to existing studies, measurements of mapping suburbs are mainly based on administrative, spatial, social, and functional dimensions. For example, Forman (2008) and Banzhaf et al. (2013) identified urban and suburbs based on administrative municipalities. Clapson and Hutchison (2010) defined suburbs as areas there were between the town center and the countryside but within accessible distance. Johnson, Andrews, and Warner (2017) pointed out living in suburbs is founded on mobility since suburbs are on the periphery of the city. Gordon and Janzen (2013) utilized population density based on census data to identify the urban, suburban, and rural areas of Canada. Heris (2017) identified the suburbs in the US by estimating the housing density. Gober and Behr (1982) found that race and ethnicity were the most important elements to distinguish the core city and suburbs in the US. Paccoud and Mace (2018) discussed the social upscaling of Outer London from 2001 to 2011. Most studies utilize at least two dimensions together to implement identification, and location and density features are the most commonly adopted methods to identify suburbs. However, there is criticism that these methods over-simplify the urban form and depend on arbitrary classifications (Gianotti et al., 2016). To improve the accuracy of identifying suburbs, this study uses the traditional method of population and construction land density to determine the main urban areas and refers to urban-suburban interaction to map suburbs.

2.2 An effect analysis of suburban sprawl

The modern term “sprawl” was first proposed by city planners in the early 20th century and was proven to be related with transportation development and an increase in income (Nechyba & Walsh, 2004). Later, the phenomenon of urban sprawl received much attention. “Urban sprawl” denotes an unplanned and uneven pattern of urban development that usually leads to an inefficient utilization of land resources (Oueslati, Alvanides, & Garrod, 2015). Despite the many studies on urban sprawl, little attention has been paid to suburbs and suburban sprawl. Similar to urban sprawl, suburban sprawl refers to the low-density development and inefficient utilization of space in suburban areas. The measurement of urban sprawl usually relies on measuring the land transition that occurs beyond the built-up urban area, including low density edge expansion and leapfrog growth (Yue, Liu, & Fan, 2013). However, the boundaries of suburbs are usually larger than the scope of urban areas, and the effective areas of suburbs also expand the outline of urban areas.

Several studies have proven the effects of suburban sprawl on land fragmentation and ecological conservation. For example, Novak and Wang (2004) analyzed the impacts of suburban sprawl on Rhode Island’s landscape. Specifically, they founded that the land transition in the study area contributed to the scarification of forest land and that ecological connectivity also declined. By applying U.S. census data, Radeloff, Hammer, and Stewart (2005) extracted housing density data and analyzed the environmental impacts of suburban and rural sprawl. The authors concluded that suburban sprawl is related to forest fragmentation. Liang et al. (2015) utilized time series data to analyze the spatial-

temporal patterns of farmland loss and fragmentation in urban, suburban, and exurban areas under the background of rapid urbanization. Wang et al. (2017) analyzed the correlation between suburban development and ecological deterioration. As a conclusion, the authors found that suburban growth causes changes in ecological and environmental quality. In summary, existing studies on the effect of suburban sprawl from the perspective of land transition focus on a single land use type like forest land or farm land, while ecological effect analyses of suburban sprawl mainly focus on a single aspect of the environment, such as the atmosphere or water (Holian & Sridhar, 2017; Kim et al., 2016).

3. STUDY AREA AND METHODOLOGIES

3.1 Study area

As one of the most developed provinces in China, Jiangsu Province has witnessed rapid urbanization in past years. From 1998 to 2018, the urbanization rate of Jiangsu increased from 30.50% to 69.61%, along with a large aggregation of people and land transition. Jiangsu was chosen as the study area because of the following. First, Jiangsu is representative of the Chinese regions with fast urbanization rate. The land transitions in such areas are drastic. Second, Jiangsu is characterized by its polycentric development structure. The development levels of suburban towns and villages in Jiangsu are at a high stage. For example, in the annual list of Top 100 counties in China in 2018, which is mainly based on each county's economic levels, the counties of Jiangsu obtained six spots. Therefore, the development of suburban Jiangsu also plays an important role in regional construction. Hence, this study uses Jiangsu as a case study area to map suburban sprawl and its corresponding effects on ecological landscape patterns.

3.2 Data source and processing

The land use data of Jiangsu for 1998 and 2018 were interpreted from Landsat 5 TM and Landsat 8 OLI, respectively. To estimate the population distribution at 30 m, the statistical data of the population at the county level was collected from the statistical yearbook. DEM data were applied to obtain the slope and difference of elevation. A linear regression analysis was then conducted between the population and independent variables, including the slope, difference of elevation, area proportions of cropland, forest, grassland, waterbody, construction land, and unused land, based on which the population was estimated at a 30 m grid scale. The spatial interactions based on the radiation model were calculated and classified using the Python3.7 language, and the results were visualized by ArcGIS10.3.

4. METHODOLOGIES

4.1 Mapping suburbs based on spatial interaction quantification

Before identifying suburbs, the main urban area is first decided based on the population density and construction land distribution. Due to the spatial heterogeneity of the population density in different cities, this process is conducted

in each city separately. By adopting the natural break method, the spatial population distribution is classified as high, medium, or low density in each city. The overlapping areas of high and medium high population areas and construction land are determined to be the main urban area.

Then, the suburbs are identified based on spatial interactions at a grid scale. Due to its parameter-free characteristics (Simini et al., 2012), this study uses the radiation model to quantify spatial interactions. The original formula is

$$T_{ij} = T_i \frac{p_i p_j}{(p_i + s_{ij})(p_j + s_{ij})} \tag{1}$$

$$T_i = p_i \times c_i \tag{2}$$

where p_i and p_j denote the population of location i and j with distance r_{ij} between them, and s_{ij} is the total population covered by the circle of r_{ij} centered at i (excluding the population of i and j). T_i is the proportion of all commuters among the total population of location i . T_i is the product of p_i and the proportion of the commuting population c_i . In this study, c_i is estimated based on accessibility at a 30 m grid scale.

For each grid, the average accessible time to each other grid is calculated and set as e_i . The average value of e_i for all the grids is obtained and set as \bar{e} . Then, c_i is calculated by following formula:

$$\begin{cases} \text{if } e_i \geq \bar{e}, c_i = 1 \\ \text{if } e_i < \bar{e}, c_i = e_i / \bar{e} \end{cases} \tag{3}$$

By considering the close interactions between urban and suburban areas, the node symmetry index (NSI) is applied to identify areas that share close interactions with the determined main urban areas. The formula of NSI is as follows (Tian, Kong, Liu, & Wang, 2016):

$$NSI_{ij} = \frac{T_{ij}^{in} - T_{ij}^{out}}{T_{ij}^{in} + T_{ij}^{out}} \tag{4}$$

where T_{ij}^{in} is the estimated connection from location j to location i , T_{ij}^{out} is the outflow of location i to location j , the value of NSI range from -1 to 1, and the value of 0 indicates that the connection between the two locations is equalized and that the interaction is the strongest. If the value is -1, there is only outflow from location i , and if it is 1, there is only inflow in location i . For each grid, if it has a high NSI ($-0.5 < NSI < 0.5$) with a main urban grid, it is identified as a suburban grid. The remaining grids other than the main urban and suburban areas are identified as rural.

4.2 Effect analysis of suburban sprawl on the ecological landscape

To analyze the effects of suburban sprawl on the ecological landscape, ecological landscape metrics are utilized, and analyses are conducted at the province and prefecture-city scale. At each scale, the ecological landscape pattern metrics of the suburban sprawl area and remaining rural area are calculated. Based on a comparison analysis, the effects of suburban sprawl on the ecological landscape are analyzed. The selected landscape pattern metrics are listed in **Table 1**.

Table 1 The selected ecological landscape pattern metrics and explanations

Selected metrics	landscape pattern	Full name	Explanation
CA		Total area	The sum of the total area of the ecological land
NP		Number of patches	Number of ecological land patches
PD		Patch density	Density of the ecological land patches (number/100 ha)
LPI		Largest patch index	The area of the largest patch divided by the total landscape area
AI		Aggregation index	It is built on the adjacency matrix and estimate the level of aggregation of land patches

5. RESULTS AND ANALYSES

5.1 Mapping suburbs based on spatial interaction estimations

We utilized the estimated population to quantify spatial interactions and detect the boundaries of the suburbs. First, the main urban area was identified based on the traditional method of using population and residential land. In each prefecture-city, the population distribution was classified into high, medium, and low density using the natural break method. Then, the overlapping area of high and medium population density and the construction land was identified as the main urban area.

Then, the whole study area was divided into 30 m grids, and the grids that were located in the main area were set to “1” as the main urban area grids. For the rest of the grids, their spatial interactions with the main urban grids were calculated; if the value fell between -0.5 and 0.5, the grid was set to “2” as the suburban grid. Finally, the remaining grids were set to “3” as the rural grids. Figure 1 shows the mapped main urban, suburban, and rural areas in 1998 and 2018.

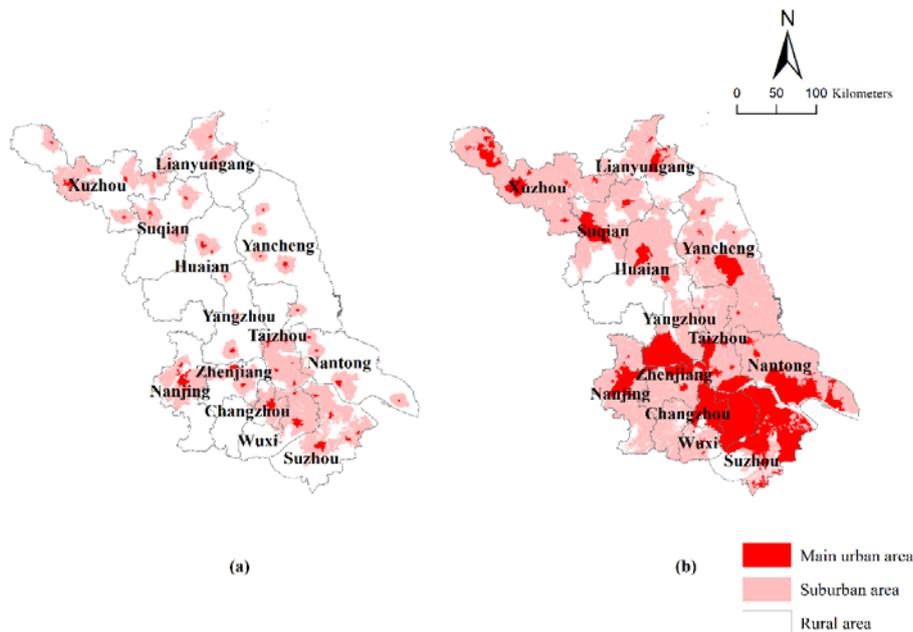


Fig.1 The mapped main urban, suburban, and rural areas in 1998 (a) and 2018 (b)

The areas of the mapped main urban, suburban, and rural areas in 1998 were 106.96 km^2 , 1882.38 km^2 , and 5829.04 km^2 , respectively, which shifted to 1518.63 km^2 , 4417.89 km^2 , and 1881.86 km^2 . This shows that during the 20 years, the scope of the main urban and suburban areas of Jiangsu expanded greatly. Conversely, the rural areas shrank by 67.7%.

5.2 Land use changes in suburban Jiangsu in 1998 – 2018

Along with the urban construction land expansion, the interactions between urban and suburban areas change simultaneously, and the scope of the suburbs also changes. A land-use transfer matrix was developed to describe the land-use structure changes in the suburban expansion area (**Table 2**).

Table 2 The land-use transfer matrix of suburban expansion area

	Cropland (2018)	Forest (2018)	Grassland (2018)	Waterbody (2018)	Construction land (2018)	Unused (2018)
Cropland (1998)	32091.35	1417.15	318.10	592.42	9941.05	2.73
Forest (1998)	353.41	649.34	8.72	15.63	293.70	0.54
Grassland (1998)	60.50	26.41	1.00	1.26	30.14	0.07
Waterbody (1998)	1536.91	103.82	83.14	1432.47	1053.28	3.65
Construction land (1998)	459.61	29.14	12.49	32.35	887.01	0.50
Unused (1998)	1.10	0.37	0.02	0.34	2.46	0.00

Within the scope of the suburban expansion area, the land transition was drastic over the 20 years. Among all the reduced areas, the area of cultivated land decreased the most, with 81% converted into construction land. For land use, construction land increased the most, with 87% from cultivated land and 2.5% from forest land. This indicates that among the sources for construction land, ecological land accounts for the majority.

5.3 The ecological landscape changes in suburban Jiangsu

To analyze the effects of suburban sprawl on ecological landscape patterns, the ecological landscape metrics of the suburban expansion area and the remaining rural area from 1998 to 2018 were calculated and compared.

At the province level, Table 3 shows the values of the CA, NP, PD, LPI, and AI of the suburban expansion area and the remaining rural area of Jiangsu.

Table 3 The ecological landscape pattern metrics at the province level from 1998 to 2018

	Suburban expansion area			The remained rural area		
	1998	2018		1998	2018	
CA (km^2)	5.00	3.93		2.39	2.32	
NP	70284	153301		85383	88385	
PD	1.36	2.97		3.51	3.62	
LPI	45.48	12.36		28.40	29.17	
AI	97.50	93.32		97.06	96.71	

At the provincial level, the total area of ecological land decreased significantly from 1998 to 2018. At the same time, the ecological land patch number and density increased obviously. However, the largest patch index decreased from 45.48 to 12.36, which indicates that the ecological land became fragmented. In addition, the aggregation index changed from 97.5 to 93.32, showing that the distribution of ecological land became unaggregated. For comparison, the ecological landscape in the remaining rural area did not show many changes.

Fig. 2 shows the ecological landscape metrics change at the prefecture-city level. This figure mainly illustrates the changes of each landscape pattern metric between the two years of 1998 and 2018, and each bar is based on the proportion of one landscape pattern metric to the sum of the two years.

In the last 20 years, the amount of ecological land in each city has decreased. Meanwhile, except for Suqian, the ecological land patch numbers and density of all other cities clearly increased, indicating that the ecological land became scattered. The decrease in the LPI corresponds with the finding that the ecological landscape underwent fragmentation over time. In addition, considering the supporting and provisioning services offered by ecological land, the decrease in LPI also reveals the threat of suburban sprawl to ecological function and biodiversity. The values of the AI of all cities experienced a loss over the time. However, the change in AI was slight in some cities, such as Huaian, Suqian, and Xuzhou because the number and density of the ecological land patches increased, which affected

the aggregation of ecological land at the collective level. Together, the decrease in the total area, largest patch area, and aggregation level and the increases in the patch numbers and density demonstrate the shrinkage and division of the ecological land in suburban sprawl areas.

For comparison, the ecological landscape metrics of the remaining rural areas in each prefecture-city were also calculated. Similar to the results at a provincial level, the ecological landscape in the rural area showed little change. **Table 4** displays the minimum, maximum, average, and standard deviation values of the suburban sprawl area and the remaining rural area after calculating the change values of the five selected landscape pattern metrics at the prefecture-city level.

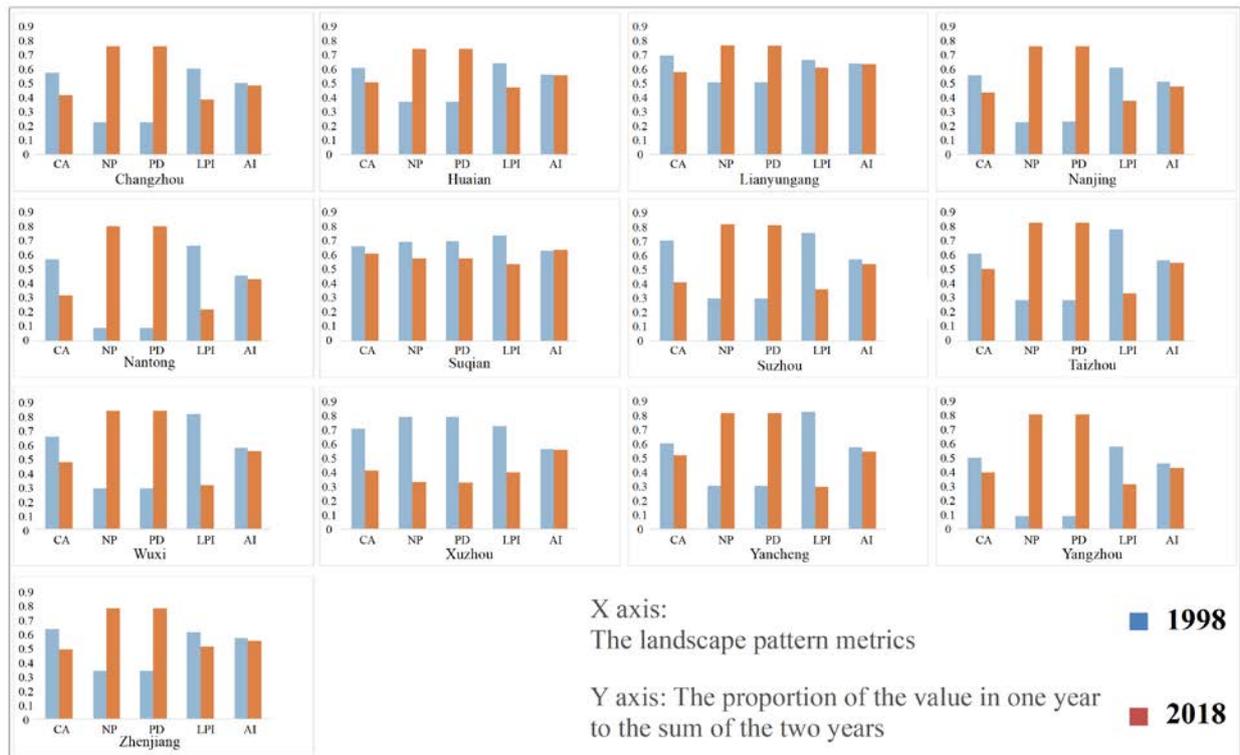


Fig.2 The ecological landscape metrics of each prefecture-city of Jiangsu in 1998 (blue bar) and 2018 (red bar)

Table 4 Statistical characteristics of ecological landscape metrics in the suburban sprawl area and remained rural area (unit: m^2)

	Minimum		Maximum		Average		Standard deviation	
	Suburb	Rural	Suburb	Rural	Suburb	Rural	Suburb	Rural
CA	-289676.79	-21155.8	-28543.23	59.85	-82441.72	-5427.46	67883.16	7013.41
NP	-2942.00	-314	17228.00	898	6402.08	222.00	5409.02	307.65
PD	-0.46	-0.63	4.44	0.49	1.91	0.12	1.39	0.28
LPI	-64.47	-25.23	-3.95	12.27	-27.12	-4.36	19.27	10.04
AI	-5.76	-1.44	0.71	0.16	-2.50	-0.53	1.93	0.55

Based on the comparison results, the ecological landscape changed drastically in the urban sprawl area, which resulted in high values of standard deviation. The results also indicate that there is obvious spatial heterogeneity in the ecological landscape changes in different prefecture-cities. Specifically, Nantong, Yancheng, Suzhou, and Yangzhou experienced the largest ecological land decrease (more than $90,000 m^2$), while Nanjing, Taizhou, Wuxi, and Yancheng experienced the most severe ecological land fragmentation, showing a sharp decrease in the largest

patch index. Nantong, Changzhou, Yancheng, Yangzhou had the largest AI decrease, indicating the unaggregated distribution trend of the ecological land in their suburban sprawl areas. Yancheng had the largest decrease in the ecological land area, as well as the largest patch index and aggregation index, showing the seriousness of ecological landscape degradation in the region.

Conversely, there was little change in the ecological landscape metrics in the remaining rural areas. Specifically, the standard deviation values of PD, LPI, and AI were small, indicating that the change was slight. Based on a comparison of the ecological landscape changes in the suburban sprawl area and the remaining rural area, we conclude that suburban sprawl contributes much to ecological landscape degradation, while the rural area produces little effect.

6. DISCUSSION

6.1 Spatial interaction and suburban change

For many years, land change analyses were affected deeply by the “urban-rural” dichotomy, wherein urban centers and suburbs were treated as one and the same (Serra et al., 2014). Therefore, there are many studies on urban land expansion and its social, economic, and ecological effects. By realizing the differences between the main urban, suburban, and rural areas, efforts have been made in identifying and analyzing the dynamic evolution of urban spatial structures. Despite the differences in population and residential land density between urban, suburban, and urban areas, spatial interaction is an important indicator that can differentiate urban spatial structures.

The spatial interactions inside the main urban area are the most active. On the one hand, the population density is the highest in the main urban area, and spatial interactions are driven by people’s daily life demands, which is the endogenous reason for spatial interactions. On the other hand, varied city services help satisfy peoples’ demands, which is the external cause of these interactions. In the suburbs, even though the density of the population and residential land is lower than that of the main urban area, and its land use function is also simpler, urban and suburban areas experience close interactions. For example, in developing countries like China, the land use of suburbs is dominated by factories and residential land due to close proximity of suburbs to the urban center and the low-price of settlement (Liu et al., 2016; Xiao et al., 2006). There are close suburban-urban relationships, such as the provision of materials and interactions of commuting. The attraction of urban services and spatial accessibility enable the occurrence of suburban-urban interaction. In rural areas, the population and residential land are distributed sparsely. Moreover, the land use function here is the simplest compared to other urban structures. Therefore, the interactions between rural and non-rural areas is weak. Due to the heterogeneity of spatial interactions, the main urban, suburban, and rural areas can be identified.

6.2 The effects of suburban sprawl on the ecological landscape

The effects of suburban sprawl on the ecological environment can be classified as direct and implicit effects. First, suburbs are composed of urban and rural areas. The spatial scope of suburbs is part urban construction land and part non-urban land. Under the background of rapid urbanization, the edge of the urban construction land expands rapidly,

and thus exerts direct pressure on the ecological environment. From the perspective of land use change, large-scale non-urban land, including cropland, forest, and grass land, transitions into urban land, and the total area of ecological land decreases. Second, implicit pressure comes from the frequent spatial interactions between urban and suburban areas. Due to the spatial proximity and low-price of land rent, many factories are aggregately distributed in the suburbs. For example, in China, newly-built industrial parks tend to be built in the suburbs (Zhu, Zhang, & Ke, 2018). Furthermore, to solve the conflict between high-living costs and occupational opportunities in the urban center, some people settle in the suburbs, which drives residential land construction in the suburbs. In addition, material transportation and people's daily commuting activities generate demands for public infrastructure development (like road network), which also increases the chance of a land transition in the suburbs. The resource consumed and pollutants released due to by production and living activities during such interactions will create potential ecological risks.

6.3 The enlightenment of suburban identification on ecological landscape planning

The identification of suburbs has practical significance for ecological landscape planning, which can offer decision support for ecological security assessments and ecosystem service function assessments.

Ecological security is defined as “mankind’s degree of assurance unaffected by ecological destruction and environmental pollution in yield, living, and health” (Xiao & Chen, 2002). An ecological security assessment can be used to evaluate ecological carrying capacity, urban development potential, and regional development sustainability, and it is an important factor of ecological protection. The “pressure-status-response” (PSR) model is one of the most commonly applied methods for conducting an ecological security assessment. The “stress” indicator refers specifically to the results of gathering natural resources and generating pollutants due to human needs for various social and economic activities, thereby exerting pressure on the ecological environment. “Status” refers to the state of the environment facing the pressure of such human activities, and “response” denotes human corresponding actions to solve such ecological problems. This study verified that the ecological landscape tends to be more fragmented in the suburbs than in rural areas. Therefore, the identification of suburbs can be utilized as an indicator of the “pressure” exerted by explicit and implicit human impacts.

7. CONCLUSION

This study identifies the boundary of suburbs by considering their spatial interactions at a 30 m grid level. Based on mapping the main urban, suburban, and rural areas of Jiangsu Province in 1998 and 2018, this study analyzes the effects of suburban sprawl on ecological landscape pattern changes. The results demonstrate that suburban sprawl is evident over the past 20 years. In addition, by comparing the ecological landscape pattern changes in the suburban sprawl area and the remaining rural area, we found that the ecological land in the suburban sprawl area decreased significantly and that its distribution showed a trend of fragmentation at both the province level and the prefecture-city level. Concerning the significant effects of suburban sprawl on the ecological landscape, this study provides two examples of integrating suburban identification into ecological planning, including ecological security assessment

and ecosystem service function evaluation.

This study contributes to understanding suburbs from the perspective of spatial interaction, thereby enriching the theoretical framework of suburban studies and verifying the effects of suburban sprawl on ecological landscape patterns.

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The Impact of Plantation Forestry Development on the Local Environment and Livelihood

Current state and perspectives of rural areas in Central Vietnam

Minori TOKITO¹

¹ Graduate School of Global Environmental Studies, Kyoto University

Keywords : *Plantation forestry, rural resilience, indigenous knowledge, multiple subsistence, mixed-species plantation*

1. INTRODUCTION

Abundant ecosystem services provided by tropical rainforests and diverse land-use mosaics defined as "satoyama" have constituted the basis of livelihood in rural areas of Southeast Asian countries. However, such "satoyama" landscapes are being converted to homogenous landscapes of commodity agriculture, which reflects the underlying politics, institutions, and power structures around forests and land-use tenures (Dressler et al., 2017). Ecological and social disruptions have become a serious problem in the frontiers of transformations from traditional resource use to modern agriculture (Wong et al., 2020).

In this article, I would like to examine large-scale plantation forestry (industrial plantation forestry) as part of the commodity agriculture that has spread mainly in rural areas of developing countries. First, I outline the background of the expansion of large-scale plantation forestry in Southeast Asia and its impact on rural areas. Second, taking the rural areas of central Vietnam as a case study, I discuss the current situation of rural areas after the introduction of large-scale plantation forestry and new developments

2. THE RISE OF THE TIMBER INDUSTRY AND THE EXPANSION OF LARGE-SCALE PLANTATIONS IN SOUTHEAST ASIA

Since the 19th century, large-scale land-use changes have occurred worldwide owing to the increased consumption of fossil and biological resources powering the industrial development of developed countries.

Establishing an international division of labor system, which has resulted in conflict between industrialized countries and developing countries providing the primary product, has caused significant resource deprivation in developing countries (Kumasaki, 1993; Teranishi, 2006). Southeast Asia, which has rich tropical forests, has become a major source of timber resources. A vast number of natural forests have been logged, and a large amount of agricultural land has been cleared to increase food production (Iwasaki et al., 2012).

With the increased regulations on the logging of natural forests due to increasing environmental awareness, industrial plantation forestry has become more active in supporting the global demand for wood resources. It has grown into a large international business in the last half-century. To produce a large number of wood resources from limited land, alien fast-growing tree species such as eucalyptus and acacia have been actively introduced worldwide. Especially in Southeast Asia, this type of plantation has expanded rapidly over the last 30 years.

The reason for the rapid expansion of industrial forestry in Southeast Asia is that the climate is not suitable for tree growth. Since the 1990s, Southeast Asian countries have had to balance environmental conservation with economic development. Industrial plantation forestry has become a breakthrough method because it can temporarily increase the forest area, regenerate forests in devastated regions, enable a stable supply of timber, and break timber procurement dependency on natural forests (Ubukata, 2007; Kawai, 2012; Nambiar et al., 2014). In addition, it could also alleviate poverty by creating new jobs in rural areas (Boland & Turnbull, 1981). Against the backdrop of the conflicting needs between economic growth and environmental conservation, the local governments of Southeast Asian countries started aggressively promoting industrial plantation forestry (Hyakumura, Seki, & Lopez-Casero, 2010).

3. IMPACT OF THE EXPANSION OF INDUSTRIAL FORESTRY

Industrial plantation forestry has been introduced in various parts of Southeast Asia as an innovative way to achieve both economic development and environmental conservation. However, the impact of environmental changes on local ecosystems and communities has begun to surface in recent years.

3.1 Impact on the ecosystem

Industrial plantation forestry generally requires planting of a single tree species and large-scale plantation forestry for efficiency (Evans et al., 2002). Therefore, when the forestation of a single tree species is created after cutting down natural forests, the habitats of animals and plants are lost and biodiversity is reduced (Nagaike, 2002). The short-cycle artificial disturbance caused by clear-cut trees imposes various environmental burdens, such as deteriorating soil and increasing vulnerability to diseases and insect pests (Inagaki et al., 2010; Fourie et al., 2016).

In addition, its impact on nutrient cycling, such as water pollution in mountain streams or eutrophication, is a serious concern. Industrial plantation forestry affects forest as well as downstream areas (Fukushima, 2012). Thus, there is much debate regarding the impact of industrial plantation forestry on the environment (Thulstrup, 2014; Fujima et al., 2009). Some studies have suggested that planting trees by industrial plantation forestry may contribute to the restoration of biodiversity or create new ecosystems where natural vegetation has already been destroyed or seriously damaged by over-cultivation or over-grazing. However, even in such cases, it is difficult to dispel concerns about the heavy burden on the environment because a large amount of fertilizer and dosing is required (Iwasaki et al., 2012).

3.2 Impact on the local community

Industrial plantation forestry also has a significant impact on local communities. Although industrial plantation forestry has become a major industry in mountainous areas and has created employment opportunities in the local community, it has also created social conflicts because the local government promoted them in parallel with various forest policies that restrict forest use.

For example, Malaysia's forest policy stipulates production forests for timber logging in addition to nature reserves.

In both forest areas, individuals are prohibited from using resources without permission. This forest policy regulates individual free use of forest resources while encouraging forest exploitation by companies (Ichikawa, Ubukata, & Naito, 2010). In Laos and Vietnam, the use and conservation of forest resources under Forest Law is obligatory. Strict land-use regulations have been implemented, including the prohibition of swidden agriculture (Asano, 2015).

Policymakers perceive swidden agriculture and those who practice it as primitive and environmentally destructive. Mountainous people are believed to be leading destitute, subsistence-based lives, and are blamed for most of the world's tropical deforestation, land degradation, and climate change. Therefore, many current forest laws and policies are aimed at hostile swidden agriculture and replacing swidden agriculture with what is considered a more modern style. In many areas of Southeast Asia, the result was a claim of state control over the land used by swidden agricultural growers and the displacement of locals.

Under centralized management and land regulation, most traditional resource uses were considered illegal, while active planting for timber logging was recommended for secondary forests that were previously used for swidden agriculture and fallow land. Forests that have become land for industrial plantation forestry are truly places that provide abundant ecosystem services essential for traditional resource use. It is clear that the local lifestyle has changed with the introduction of industrial plantation forestry.

We cannot consider these changes to the local lifestyle a positive thing. As Scott (1977) discussed, the moral-economy approach presupposes that peasant behavior is aimed entirely at ensuring survival. He explained that local people tend to minimize the chances of a disaster rather than maximize profits in Southeast Asian societies (Scott, 1977). In other words, local people who have lived with forest resources for a long time inherently prefer technologies that provide the most stable rewards, rather than high-risk technologies. Many researchers have also encountered this principle of risk avoidance (Reardon et al., 2000). Case studies regarding the characteristics that seek to maintain multiple sources of income and food to guarantee survivability have been reported in various regions of Southeast Asia (Ellis, 2000; Reardon et al., 2000). Multiple subsistence activities, such as crop cultivation in the home garden, livestock raising, hunting, fishing, and gathering are sources of survival and security. Diverse survival resources help local people survive emergencies such as food shortages, also known as rural resilience (Scott, 1977). Ellis (2000) also evaluated the local system as a wise way to gradually and safely raise their standard of living. It can be said that multiple subsistence works as a fail-safe system for local people under unstable living conditions.

Most areas where industrial plantation forestry has been introduced are rural societies where multiple subsistence activities have been maintained. It is the diverse land-use mosaic called "satoyama" which has supported these various livelihood survival resources. Without secondary forests that produce diverse forest resources, multiple subsistence activities would not be possible. The expansion of industrial plantation forestry has unified not only rural landscapes, but also local livelihoods. Monocultures are vulnerable to pests, natural disasters, and market change. The collapse of regional resilience, which has been maintained for a long time, is a serious issue in the rural society of Southeast Asian countries.

4. CASE REPORT: CURRENT STATE OF RURAL AREA OF CENTRAL VIETNAM

4.1 Household-based plantation forestry in Central Vietnam

Central Vietnam is a prominent and typical area facing the expansion of industrial plantation forestry. As a case study site, I would like to examine a rural area in the south-east part of Nam Dong district, Thua-Thien Hue province. The *Co Tu* people are an ethnic minority who live primarily in the mountainous inland areas of Central Vietnam, including the Thua-Thien-Hue Province. They used to be farmers who engaged mainly in swidden agriculture. However, such a traditional agricultural style has shifted to continuous cultivation since the early 1990s because swidden agriculture has been prohibited, and all forest areas are now strictly managed under forest policy. This area experienced drastic land-use changes through forest land allocation (FLA) and reforestation programs. Plantation forestry by farm households (smallholders) using the space allocated through FLA has become especially popular in continuous cultivation. Acacia, a fast-growing exotic tree, was introduced and has become the dominant species in this area with encouragement from reforestation programs.

Forestry development in Vietnam since the early 1990s has achieved rapid growth because of government encouragement. The value of Vietnamese exports of wood products increased from 61 million USD in 1996 to 1,500 million USD in 2005 (MARD, 2006). Large-scale plantations with the assembly of household-based forestry are spread throughout the mountainous regions of Vietnam, including the Nam Dong district.

4.2 Actual situation of study site after introducing plantation forestry

Since the 1990s, the main source of household income in the area has been derived from plantation forestry. When I first visited Co Tu village in Nam Dong district in Thua Thien Hue province in 2014, there were Acacia forests as far as the eye could see. I also saw a few plots of croplands and paddy fields on the limited flat ground in the mountain ravines.

The acacia plantation forestry in Nam Dong district is mostly for short-term logging to produce woodchips and pulp. Under optimal growth conditions, the height of the Acacia tree can reach as high as 25-35m, with a diameter at breast height of about 30-50 cm. Trees with thick trunks are used for high-grade materials such as flooring and exteriors. Thus, the longer the logging cycle, the higher the income per harvest. However, local people tend to prioritize immediate payments from short-cycle timber logging because it is not easy to earn a living by long-cycle timber logging alone (Iwasaki et al., 2012). Local people repeatedly clear-cut timber every three years. As previously mentioned, there are threats to the deterioration of land productivity.

The forestry of *Hevea brasiliensis* is also popular in Southeast Asia. However, few households currently prefer *Hevea brasiliensis* because it is more vulnerable to typhoons and rainstorms than acacia. The few *Hevea brasiliensis* forests left in the study site have been replaced with Acacia forests one after another. Agricultural landscape mosaics have rapidly been converted into more uniform landscapes.

Local people have conducted crop cultivation in home gardens, hunter-gatherer activities in forests, livestock raising, and inland fisheries for a long time. However, this situation has started to change as acacia forestry has expanded. They do not go inside the natural forest that produces the many diverse resources they are used to because

acacia forestry has spread around their residential area. They also need further permission to hunt and gather forest resources. Some households gave up livestock raising due to the shortage of livestock feed they used to collect from natural forests. People are increasingly distancing themselves from forest resources and multiple subsistence based on indigenous knowledge.

Currently, labor work involving forestry has replaced traditional livelihood activities. Part-time work engaging in timber logging and transportation has grown as a source of cash income that can be obtained promptly. While multiple subsistence based on indigenous knowledge is declining, the number of labor workers involved in forestry is rising. In addition to the declining diversity in land use, dependence on forestry has increased in the livelihood structure.



Fig.1 Part-time work engaging in timber logging and transportation

4.3 Risks for livelihood collapse in the study site

Central Vietnam is one of the most disaster-prone areas in the country and is frequently damaged by typhoons and heavy rains. Every year, great damage occurs, such as loss of houses, crops, livestock, and fallen trees of acacia and landslides on slopes. At the study site, it has been reported that 72.6 ha of acacia forestry was damaged by fallen trees and landslides during Typhoon WUTIP in 2013. At that time, 18 of the 155 houses collapsed and 50 were partially damaged. It can thus be seen that storms and floods greatly impact the lives of local people in the study site.

In recent years, outbreaks of *Ceratocystis* disease have been remarkable in acacia forests in Indonesia and Malaysia (Tarigan et al., 2011). Wilt disease in Acacia plantations has also been recognized in Vietnam since 2012 (Thu, Qynh, & Dell, 2012). As such, there is a growing concern about the phenomenon of tree withering spreading throughout Southeast Asia (Fourie et al., 2016). Most households that rely on the income earned by acacia forestry might suffer

a hard financial blow when serious wilt disease damage occurs.

In addition, many studies have pointed out the instability in the market price of acacia timber as an issue. While the export value of wood chips from Vietnam is the highest among Southeast Asian countries (as of 2018, FAOSTAT), it is highly dependent on Chinese and Japanese markets. As such, the Vietnamese government has explored a shift from exporting wood chips to more profitable processed wood products. Some studies have pointed out that future policy changes may significantly impact the domestic market price of acacia timber (Maraseni et al., 2017).

Nam Dong district, where acacia forestry was actively introduced, is one of the areas where many ethnic minorities live. As such, the poverty rate is relatively higher in Thua Thien Hue Province. At the study site, 40% of the population was in the poorest and semi-poor households. Even for middle-class households, which account for 60% of the population, income stability remains uncertain. The monoculture of acacia forestry can be evaluated in terms of its benefits and contribution to the development of the local economy. However, the risk of livelihood collapse cannot be ignored in poor communities that are susceptible to external factors such as natural disasters, pests, and market price fluctuations. At first glance, local people seemed to have escaped poverty because industrial forestry creates new jobs. However, the community is highly vulnerable, and villagers have quietly become socially disadvantaged people.

5. THE POSSIBILITY OF MIXED-SPECIES PLANTATION AND DIFFICULTIES CAUSED BY LACK OF MUTUAL UNDERSTANDING

To address these issues, mixed-species plantations are attracting attention as potential solutions in Southeast Asia. This is an effort to improve biodiversity by planting multiple tree species, including native species. It is expected to enhance the resilience of local livelihoods because it also leads to the use of forest resources, including non-timber forest products, which have long functioned as fail-safes for daily life in rural Southeast Asia. In addition, mixed-species plantations can prevent short-cycle clear-cutting by planting several tree species with different growth rates and ensure constant and stable income for households engaging in forestry.

The global increase in environmental consciousness, especially of responsible sourcing, has led to the introduction of mixed-species plantations in Southeast Asia (Crowther et al., 2020). In Vietnam in the 1990s, it contributed to environmental conservation by increasing the forest cover with the planting of a single fast-growing exotic tree species. This apparent method of environmental conservation no longer makes sense because there is now a greater public recognition of the need for integrated and sustainable social, economic, and environmental development. The growing global concern about responsible timber sourcing necessitates a comprehensive solution to the deterioration of biodiversity and community resilience caused by the expansion of forest plantations.

While expectations for mixed-species plantations are rising, there is a conflict between the government promoting the introduction of mixed-species plantations and the local people engaging in forestry. It is unacceptable to change existing economic activities because cash income from forest plantations is now a lifeline for the local people. It is difficult for local people to understand the long-term merits of mixed-species plantations as they prioritize short-term benefits. Recent ecological research has focused on appropriate tree species selection, while economic research has focused on payment for ecosystem services (PES). However, the extent to which the introduction of mixed-species plantations can improve biodiversity and benefit people's lives has not been quantified. Therefore, the benefits that

local people can obtain are unclear. This is considered a major obstacle to consensus-building between the government and the local people.

This article discussed the expansion of large-scale industrial forestry in Southeast Asia and its impact on rural areas. In addition, I highlighted the current situation under plantation development and the new trend of mixed-species plantations through a case study of central Vietnam. Mixed-species plantations have the potential to counter major environmental and social issues in mountainous areas of Southeast Asia. The next challenge for this study is to clarify how much mixed-species plantations can actually change the region's biodiversity and how much they can contribute to strengthening the region's resilience. We stress the urgent need for further investigation into integrated rural planning and sustainable development in terms of social, economic, and environmental aspects.

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Community Design for Ensuring Sustainable and Endogenous Community Development

A case of ethnic minority communities in a remote mountainous area in Vietnam

Thi Thu Oanh TRAN¹, Thi My Hoa DO¹, Nobuko OTSUKI¹, and Kako INOUE²

¹Foundation for International Development/Relief (FIDR)

²University of Miyazaki

Keywords : *Community Design, Sustainable and Endogenous Community Development, Treasure Hunting, PRRIE, VUCA*

1. INTRODUCTION

1.1 Background

International rural development projects have been long dominated by efforts to bring prosperity to “underdeveloped” regions/countries by transferring “advanced” technology or by providing required assistance to developing regions/countries from “developed” countries so that people in the underdeveloped regions can adopt and/or be equipped with more modern technology. In such situations, a hierarchical relation has typically existed between outsiders who have provided “input” and recipients, who are the ones targeted by the support. Such a top-down approach, however, has not functioned effectively to bring prosperity, as the world has continued to witness never-ending rural poverty in the Third World. Together with increased awareness of the concept of “participation”, as Chambers’ (1983) *Putting the Last First* was read widely by those who work in development context, the concept of “participatory development” became mainstream from the mid-1980s. Yet, participatory approaches had been criticized from the latter half of the 1990s, as formalities of participation procedures, rather than their original purpose, had been increasingly emphasized in practice (Cooke & Kothari, 2001; Sato, 2003). Then, the “sustainable livelihood approach” to understand people’s livelihoods came to receive more attention from the late 1990s to the 2000s in the United Kingdom, the center of “development studies” (Chambers & Conway, 1991; Scoones, 2015). Sustainable livelihood approaches were proposed to improve the understanding of rural people’s livelihoods by examining factors that constrain or enhance livelihood opportunities. “Livelihood” here comprises “the capabilities, assets (stores, resources, claims, and access) and activities required for a means of living” (Chambers & Conway, 1991, p. 6). At the same time, it was also found that things start to work when local people’s agency is exercised; the endogenous development approaches with the principle of participation and a focus on local strength/value and local resources have been recognized as a more effective approach than exogenous inputs in specific sectors (Ray, 1999).

Regardless of such struggles in seeking better approaches to rural prosperity, the accumulated efforts have been interrupted on account of complex socio-political contexts. The rise of neoliberalism has caused efforts to further elaborate endogenous development, participatory research, and livelihood approaches to stagnate (Nishikawa, 2018, p. 142), while neither the Millennium Development Goals (MDGs) from 2000 to 2015 nor the Sustainable Development Goals (SDGs) of Agenda 2030 from 2015 to 2030 included sustainable livelihood or endogenous development approaches. However, it is worth noting that there are movements within the international community

that should not be overlooked. There is an ongoing effort to defend the right of small farmers in rural areas to have better livelihoods, as seen in the UN Decade of Family Farming from 2019 and the International Year of Family Farming of 2014. Moreover, it should also be acknowledged that there are people working patiently at the grassroots level in remote rural areas even though it is often the case that such activities never come into the spotlight.

This article aims to show the rural development model, which has been achieved as a result of accumulated efforts at the grassroots level by an international NGO working with the local people, experiencing and learning from the local situation in a reflexive way, understanding the context of people's livelihood, and bringing about sustainable and endogenous development approaches rather than just providing input from exogenous counterparts. The work of this case is also characterized by a refinement of its own practice by learning from academic debates on livelihood approaches and endogenous development, as well as incorporating some lessons from other international cooperation projects into its practice.

1.2 Context and objective

The Foundation for International Development/Relief (FIDR) is a Japan-based International NGO established in 1990, aiming to build a society where children in developing countries grow healthy and to promote international cooperation. At the time of its establishment, Vietnam was still isolated from international societies, while many international aid programs rushed into Vietnam after the Doi Moi reform to solve crucial issues such as poverty. FIDR also set up a representative office in Da Nang city in 1998 to work on the different sectors related to children's well-being.

Through the practical experiences of the last 20 years in Vietnam, FIDR has formulated the key concept of community design for sustainable and endogenous community development. This concept has been used in a variety of projects, such as rural community development in agriculture, health, nutrition, tourism, etc., with effective results. The key concept of community design is shared in this paper based on the practice of the Project for Rural Development by Local Initiatives of the Ethnic Minority Communities in Nam Giang district, Quang Nam province, Vietnam (PRD). The project was implemented from 2016 to 2020 in Quang Nam province, Vietnam, to establish a model to promote comprehensive rural development for resources development, regional revitalization, and marketing by ethnic minority communities in the target area. This article aimed to share and illustrate how to create the model for community design to function effectively.

2. PROJECT DESIGN FRAMEWORK

2.1 Background of the project

FIDR implemented an integrated community development project as the first step in establishing an infrastructure for living from 2001 to 2007 in Nam Giang district, Quang Nam province, which is in a mountainous area in Central Vietnam. The Cotu Traditional Handicraft Assistance Project stemming from that integrated project was implemented over four years from 2008 and promoted income generation for the Cotu ethnic group by utilizing their traditional woven cloths. The project brought not only local economic growth but also changed the people by enhancing their feelings of self-worth and self-confidence. Furthermore, the project triggered government officers and local people

who had been hoping for the industrialization to begin exploring the possibility of self-reliant tourism development (community-based tourism) utilizing abundant local resources, such as the unique Cotu traditions, culture, society, and rich nature. In addition, it is likely to have sufficient potential for local community development, including not only tourism but also craft skills, agricultural products, and food processing as well. The PRD was launched to build a model for comprehensive approach to activate community development (FIDR, 2020).

2.2 FIDR Project Design Concept

2.2.1 FIDR Project design framework

The FIDR has a basic framework for project formulation that is utilized for the formulation the community development sector projects, which is also able to utilize various approaches and sectors. The framework can be described according to four stages. The bases of the frame are as follows: (1) recognizing the community as being composed of three components—child, family, and community—and ensuring all three to share the same visions and to link and care each other in their own community; and (2) considering how to operate the project within the framework. In particular, due to the effects of COVID-19, which broke out in 2020, and due to unforeseen disasters that may hit the area due to climate change in the future, there is a tendency towards increased social uncertainty worldwide, and therefore an operation that is more in line with volatility-uncertainty-complexity-ambiguity (VUCA) rather than a plan-do-check-action (PDCA)-based operation is required (Raghrapatruni & Kosuri, 2017, p16-22.); (3) In the approach stage, a system that encourages endogenous development rather than exogenous development is needed to ensure sustainable development; (4) Finally, in the tools stage, a technical model that integrates the above and locally appropriate skills and technologies, such as treasure hunting and participatory rural development and resource management by integrated training for equal opportunity (PRRIE) (Kessler et al., 2013; Noda, 2012), is set up. This is the basic way to design and formulate regional development projects in FIDR.

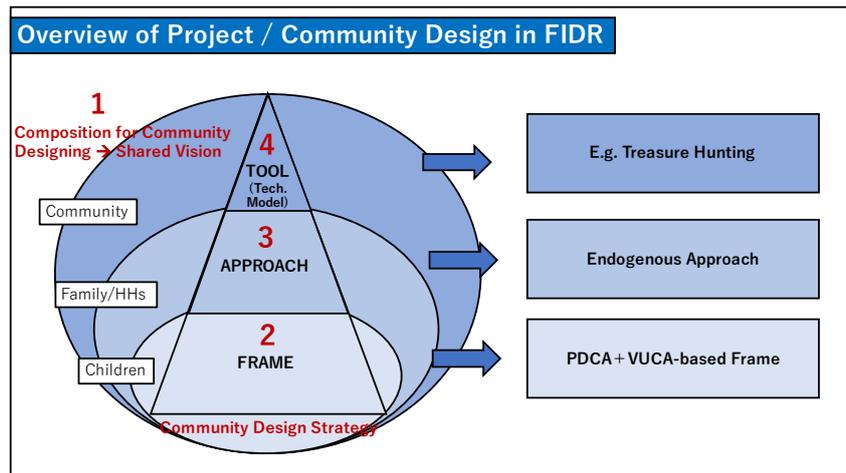


Fig.1 Overview of Project/Community Design in FIDR

2.2.2 Community development concept

The critical issue to utilize the FIDR project design framework above is to establish a clear indicator at each level

of child, family, and community, and then to work with community members in order to share and advance these approaches. Specifically, at the child-component level, it is important to share information about the child and the context in which children are placed with community members based on the child-centered approach and to analyze the data together. Also, at the family level, based on the “sustainable livelihood approach” (Serrat, 2008), it is necessary to analyze and share information about the home and family situation as well as their environment. Similarly, at the community level, based on the community-based approach, it is important to analyze the ownership, decision-making factors, and community members, and finally, to share the results of the analysis with community members at all stages of the process.

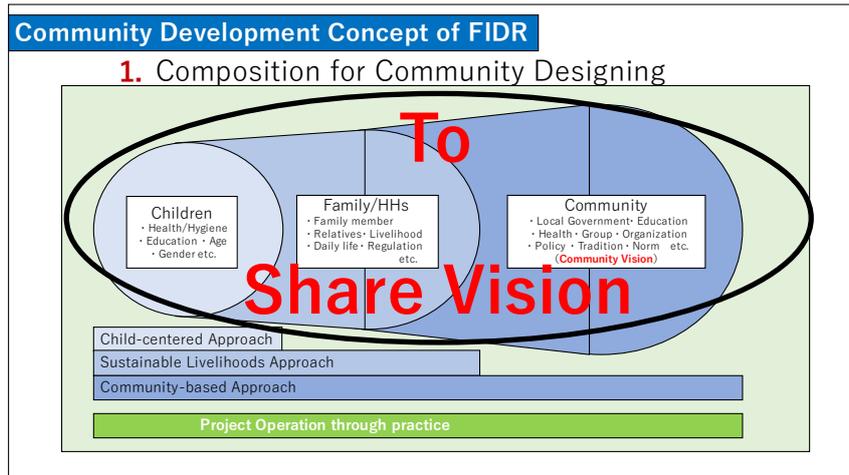


Fig.2 Community Development Concept of FIDR

2.2.3 Setting a project approach

When formulating community development projects in remote rural areas, it is necessary to consider the development process in the face of various constraints such as geographic, geopolitical, cultural, and environmental aspects. In remote rural areas, issues relating to human resource development become important to promote sustainable development. In particular, promoting development based on external input, which is an external factor, does not lead to self-sustaining development of the region because it is difficult to promote sustainable development within the region due to the limitation of the inputs and that they cannot promote community dynamics. Therefore, when setting up an approach, it is necessary to incorporate mechanisms and devices in the planning and regional design that will lead to the promotion of self-reliant development of the region. Rather than focusing on the input type, we need to promote designs with an awareness of the “pickup” type. In other words, the idea is to recognize the treasure and value of the area and to extract (or simply to pickup) its potential rather than to view the area as a place that is lacking and therefore to input what is lacking.

How to Set an Approach

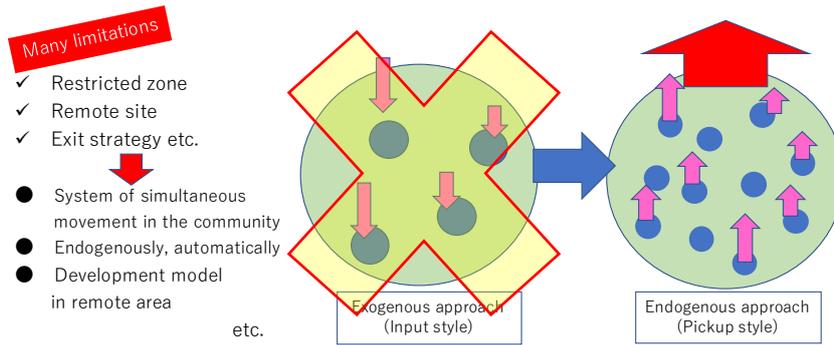


Fig.3 How to Set an Approach

2.1.4 Setting tools (Technical model)

In this project, the “treasure hunting” method and the PRRIE model are applied as community development tools. These methods can be used flexibly to respond to changes in operational and internal and external environment conditions, and because they are based on the premise that the local people act on their own, the community takes the initiative without the need for outside assistance. As a result, the independence of the local community is enhanced, and the speed of dissemination and influence within the community elicit different responses from those of conventional development assistance. Moreover, the activities brought by the project continued even after the project was completed in many cases. This outcome can be understood from the fact that the local people were not only participants during the project period but also the agents who conducted their own lives in the area even after the project, and that the process of information sharing on regional design from the planning stage, including regional analysis, made them incorporate their experience gained through the project into their own living activities.

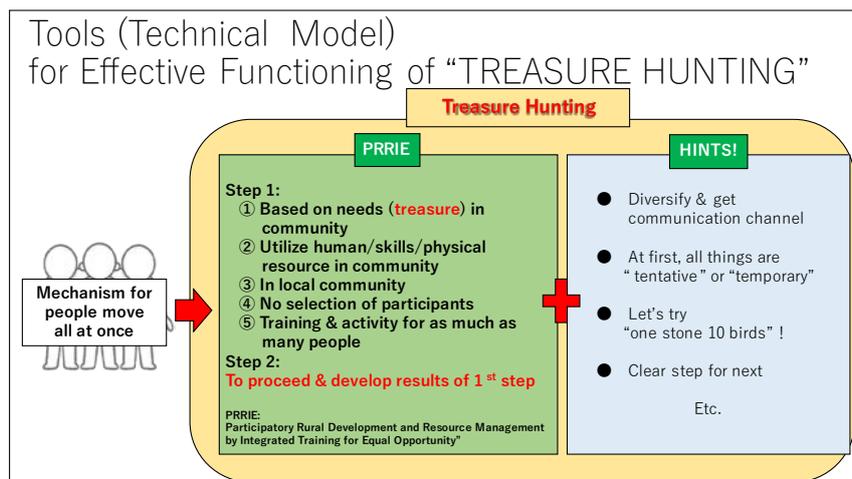


Fig.4 Tools for Effective Functioning

3. RESULTS

As described above, a series of community designs, including planning, analysis of the composition of the community, and analysis of the living context (or livelihood) were shared with the local people. As a result, significant and positive results were revealed in comparison with conventional methods. More than 90% of the local residents and related people around the region answered that they were satisfied with the results of the project, and the profit of the local cooperative in the region increased by an average of 23.4% every year from 2016 to 2020. In addition, the number of guests who visited the area to learn about the project’s operation reached 2,206 people (excluding general tourists) in four years. There was also a significant difference in the number of people affected by and involved in the community between cases that “have” clear community design and those that “have not”.

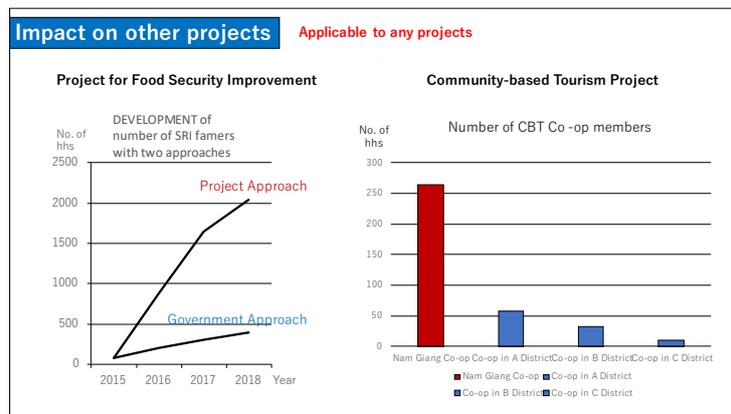


Fig.5 Impact with Other Projects

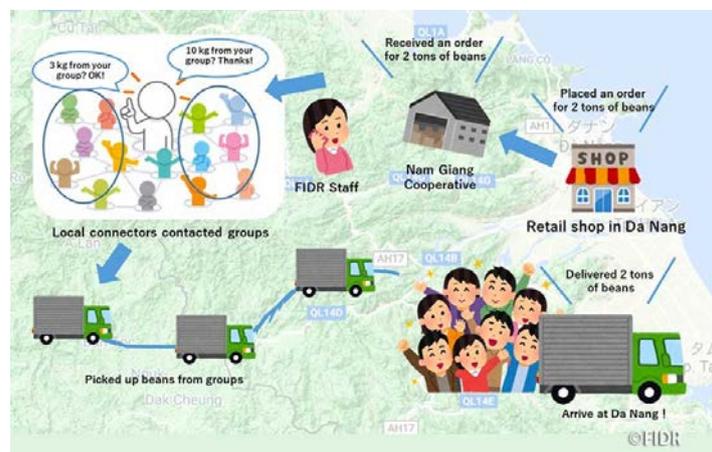


Fig.6 Practice of Community Development

4. CONCLUSION

Over the past 20 years, FIDR Vietnam's regional development projects have undergone various trials and errors, but dynamic changes have spread like a chain reaction. There were three main factors that contributed to this outcome. The first aspect is “community initiatives”, one of the original concepts of FIDR’s regional development policy, which has prioritized regional/community design in a way that encourages endogenous development rather than

exogenous development. The second is that FIDR has changed its own approach from the traditional/conventional development methods, which were mainly externally driven and input oriented, to a development method that considers local resources as treasures and the process of improving them as the main method of development. In addition, FIDR has made it clear that it is the local people who can make the best use of these local resources. Thirdly, it is essential to share the regional design with the local people, and in addition to flexible project formulation, it is also critical to have a mechanism for the local community to work spontaneously even when external support stops. In the context of globalization with difficult constraints, classical trickle-down growth cannot be expected; it is thus very necessary to use new development frameworks to lift people out of poverty.

What is Functional Community Designing?

Level	Key Factors
1. Shared vision in community	<ul style="list-style-type: none"> ● Understand more community, shared vision & issue ● Priority is always community
2. Frame	<ul style="list-style-type: none"> ● Be flexible & utilize remote management ● Sharing, partnership & collaboration
3. Approach	<ul style="list-style-type: none"> ● From input style to MORE pickup style ● Utilize local human resources and more capacity building
4. Tool (technical model)	<ul style="list-style-type: none"> ● MORE focus on mechanisms rather than technique ● Don't choose participants

NOT only problem-solving ⇒ MORE value discovery, expedition, and creativity (appreciate inquiry)

Fig.7 What is Functional Community Design

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A Study of Travel Motivations and Preferences of Urban Residents for “Countryside Stay” in Japan

Saki SATOH¹, Kohei YAGI²

¹Norinchukin Research Institute Co., Ltd

²Kobe University

Keywords : *The Green tourism, Countryside stay, Travel motivations, Travel preferences, Urban residents*

1. INTRODUCTION

1.1 Background

“Green tourism” first emerged as a policy term in Japan in 1992 and is still in use nearly 30 years later. It was originally inspired by rural vacations in Europe; however, Japan’s version is characterized by its focus on day trips and short stays to experience agricultural work, local food culture, and folk art.

There are two major problems: low profitability, which has hindered an increase in farmers’ income, and a decrease in the number of farmers who can accommodate travelers due to the aging of the population. To ensure the business potential and sustainability of green tourism, it is necessary to shift to in-market trends that cater to the needs of travelers (Satoh & Yagi, 2021).

1.2 Research question and definition of “Countryside Stay”

This study aims to organize and categorize the travel motivations of “countryside stays” for urban residents, a major market for travelers, and understand the travel preferences of each type of traveler. In this study, we treat countryside stays as green tourism with a greater emphasis on “staycation.” The definition of countryside stay in this study considers experiences involving interaction with local people and learning in rural areas as the main elements for trips that involve lodging in rural areas for tourism purposes. Therefore, a countryside stay is a trip that includes at least one of the experiences listed in **Table 1**, such as community learning, agricultural experiences, and stays at farm-inns (Yagi, Satoh, & Hirakata, 2021).

I am convinced that countryside stays contribute to the maintenance of rich and beautiful rural areas by improving the attractiveness of these areas through the refinement of local resources, the transmission of culture, and the preservation of the landscape.

Table 1 Example of Countryside Stay

Community learning with a guide (history, culture, etc.)
Winery and <i>sake</i> brewery
Tourist farms and ranches (fruit picking, milking, etc.)
Agricultural experience (rice planting, potato digging, etc.)
Cooking (buckwheat noodle making, local cuisine, cheese making, etc.)
Craft making (straw work, dyeing, craft experience, etc.)
Dining at a farmhouse restaurant
Outdoor activities (mountain climbing, river rafting, river sports, cycling, camping, etc.)
Interaction with local people
Eating local food
Staying at farm-inns
Relaxing and just spending time in the countryside

2. FRAMEWORK OF ANALYSIS

2.1 Methods

The analysis consists of two main parts. The first part involves the identification of types of travelers by factor analysis and non-hierarchical cluster analysis using travel motivation as a variable, and the second part discusses the organization of characteristics of travel preferences by types of travelers using tests of differences.

2.2 Data

This study used data gathered via a web questionnaire that was conducted in January 2020 by Neomarketing Inc. in Japan. We sent the screening survey to 20,000 people who live in government-ordinance-designated cities and special wards in three metropolitan areas: the Kanto, Chukyo, and Kinki areas. We extracted the respondents along with the population composition of each city, sex, and age group. As it is important to promote urban–rural exchange to revitalize the rural economy, we examined the travel behaviors of urban residents living in these three metropolitan areas. Because of the scarcity of monitors, we ultimately obtained data from 19,995 respondents. Among these respondents, we considered rural tourists to be people who lived in urban areas, had stayed nights in rural areas for sightseeing purposes in the last two years, and had participated in at least one of the attributes in **Table 1**. To conduct the main survey, we randomly selected 800 of these rural tourists. We excluded the responses of 49 of these selected respondents who provided identical answers to each question, except for (in some cases) one question regarding tourist motivation. Subsequently, we analyzed the data of the remaining 751 respondents.

3. ANALYSIS AND RESULTS1: FACTOR ANALYSIS OF TRAVEL MOTIVATIONS FOR COUNTRYSIDE STAY

3.1 Analysis1: Factor analysis

In the first part, we first conducted a factor analysis of travel motivations for countryside stays. The question of travel motivation in the questionnaire was classified into push and pull factors, and a factor analysis was conducted.

The push factors here are the travel motivations that make tourists want to go on a trip, and the pull factors are the travel motivations based on the various resources that the tourist destination has. For the push factors of travel motivation, we referenced the travel motivation scale of Park and Yoon (2009) and Meng, Tepanon, & Uysal (2008), which analyzes rural tourism and nature-based resort. Varimax rotation and unweighted least squares were used as analysis methods, and the Bayesian information criterion (BIC) was used to determine the number of factors. Please see **Tables 2** and **3**, respectively. The results show that four push and two pull factors were analyzed.

Table 2 Factor analysis of travel motivations for countryside stay (push factors)

Push factors		Mean	Standard deviation	Factor1 adoration	Factor2 challenge	Factor3 interaction	Factor4 rest
Adoration	Eventually, I want to live in the countryside.	3.14	1.185	0.673	0.143	0.173	0.041
	I want to find myself.	2.94	1.107	0.587	0.302	0.234	0.023
	I'm tired of conventional sightseeing trips (hot springs, visits to famous places, resort sightseeing, etc.)	2.78	1.102	0.468	0.223	0.137	-0.010
	I want to get away from the city life.	2.32	0.945	0.446	0.183	0.045	0.391
Challenge	I want to try various activities.	2.60	0.992	0.368	0.735	0.187	0.135
	I want to gain an experience I have never had before.	2.30	0.889	0.229	0.591	0.194	0.283
	I want to move and exercise as much as I can.	2.71	0.993	0.397	0.573	0.230	0.098
Interaction	I want to cherish my connections with people.	2.47	0.925	0.374	0.284	0.773	0.163
	I want to experience the warmth of the people.	2.47	0.901	0.396	0.320	0.506	0.276
Rest	I want to relax and rest.	1.84	0.784	0.058	0.028	0.039	0.639
	I want to have fun with my family and friends.	1.98	0.867	-0.065	0.244	0.195	0.437
Cumulative contribution rate				16.9%	32.0%	42.2%	51.0%

Table 3 Factor analysis of travel motivations for countryside stay (pull factors)

Pull factors		Mean	Standard deviation	Factor1 adoration	Factor2 challenge
Experience learning	I want to farm.	3.16	1.157	0.844	-0.051
	I want to experience rural life.	2.86	1.098	0.829	0.043
	I want to learn about dietary education.	2.82	1.011	0.756	0.137
	I want to experience cooking and making crafts.	2.76	1.018	0.744	0.140
	I want to interact with the local people.	2.75	1.022	0.706	0.165
Pleasure trip	I want to enjoy the scenery.	1.78	0.738	0.000	0.769
	I want to enjoy nature.	1.77	0.708	0.116	0.683
	I want to eat fresh produce.	1.83	0.805	0.132	0.670
	I want to enjoy good food.	1.73	0.763	-0.011	0.625
	I want to experience culture and history.	2.17	0.831	0.351	0.453
Cumulative contribution rate				31.8%	53.5%

Note: Places where the factor loadings are greater than 0.4 are in bold.

3.2 Results 1

Focusing on the questions with the highest factor loadings, the first push factor was “adoration” in reference to “Eventually, I want to live in the countryside.” The second factor was “challenge” in reference to “I want to try various activities.” The third factor was “interaction” in reference to “I want to cherish my connections with people,” and the fourth factor was “rest” in reference to “I want to relax and rest.”

As for pull factors, the first factor was “experience learning” in reference to “I want to farm,” “I want to experience rural life,” and “I want to learn about dietary education.” The second factor was “pleasure trip” in reference to “I want to enjoy the scenery,” “I want to enjoy nature,” and “I want to eat fresh produce.”

3.3 Analysis 2: Non-hierarchical cluster analysis

Subsequently, to identify the types of travelers, we conducted a non-hierarchical cluster analysis based on the factor scores of the above six factors. We conducted two versions of the non-hierarchical cluster analysis, which divided them into 3 and 4 groups, respectively, and cross-tabulated the two versions of the groups. In the cluster analysis, there were respondents whose responses were far from the average in every group, and these respondents had to be removed to conduct an accurate analysis. Thus, we cross-tabulated the 3 and 4 groups of the results of the cluster analysis, and extracted only those respondents who belonged to the common groups to proceed to the second part of the analysis (612 people).

3.4 Results 2

Let us look at the radar chart of the factor scores for each type (Fig.1). The first group had higher factor scores than the other groups and was characterized by the fact that all factors worked strongly. In contrast, the second group was characterized by slightly higher factor scores for “pleasure trip” and “rest,” and the third group was characterized by slightly higher factor scores for “experience learning,” “adoration,” and “interaction,” although they were lower than those for the first group. Therefore, the first group was defined as “highly motivated type,” the second group as “relaxed type,” and the third group as “emergent interest type.”

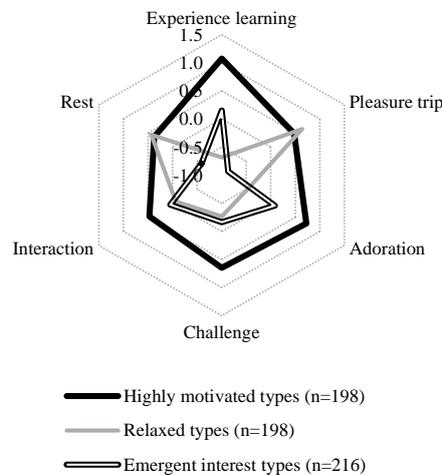


Fig.1 Radar chart of types of travelers

4. ANALYSIS AND RESULTS2: TRAVEL PREFERENCE BY TYPES OF TRAVELERS

4.1 Analysis

In the second part of the analysis, to clarify the differences in travel intentions by type of traveler in the first part, the presence or absence of statistically significant differences in travel-related questions was verified by the chi-squared and residual analysis tests, Fisher’s exact test, independent sample t-test, and one-way analysis of variance.

4.2 Results

4.2.1 Basic properties by types of travelers

The basic attributes of each type are listed in **Table 4**. Due to the nature of the sample, although there were many male respondents in their 60s for both types, there were relatively more respondents from younger generations, such as women in their 20s and men in their 30s and 40s in the “highly motivated type” group, and relatively more men in their 60s in the “emergent interest type” group.

Table 4 Basic properties by type of travelers

		Highly motivated type	Relaxed type	Emergent interest type	Total
Male	20s	4.5%	0.5%	3.2%	2.8%
	30s	10.6%	3.5%	7.4%	7.2%
	40s	20.7%	7.1%	14.8%	14.2%
	50s	17.2%	23.2%	22.7%	21.1%
	60s	14.1%	27.3%	29.6%	23.9%
Female	20s	4.0%	1.5%	0.9%	2.1%
	30s	7.6%	7.6%	5.6%	6.9%
	40s	7.1%	12.1%	8.3%	9.2%
	50s	8.1%	10.6%	5.1%	7.8%
	60s	6.1%	6.6%	2.3%	4.9%
Income per capita	Less than 200 million yen	3.0%	4.5%	5.1%	4.2%
	200 million–400 million yen	38.4%	34.8%	41.2%	38.2%
	400 million–600 million yen	30.3%	35.9%	28.7%	31.5%
	600 million–800 million yen	21.2%	11.1%	14.4%	15.5%
	800 million yen or more	7.1%	13.6%	10.6%	10.5%
Household composition of the family	Living alone	18.2%	17.7%	16.2%	17.3%
	Husband and wife	21.7%	29.3%	24.5%	25.2%
	Husband and wife and children	47.0%	41.4%	45.8%	44.8%
	Single parents and children	4.5%	4.5%	4.6%	4.6%
	Three-generation family	6.6%	2.5%	4.2%	4.4%
Other than those above	2.0%	4.5%	4.6%	3.8%	
The number of samples		198	198	216	612

Note: The results of Fisher's exact test for gender and age group were significant at the 5% level. The results of the chi-squared test for per capita income and family household composition were not significant at the 5% level. For each item, as a result of the adjusted residue analysis, significantly higher values are shown in shaded bold, and lower values are shown in bold.

4.2.2 Main purpose of trips by types of travelers

To understand the first characteristic of travel intentions by type of travel, let us look at the travel purposes for countryside trips (**Table 5**). The percentage of the “highly motivated type,” whose main purpose for taking the trip was living in the countryside, was significantly higher for both individual and group trips. However, the percentage of the “relaxed type” was significantly higher for trips that focused on visiting sightseeing spots, tourist attractions, and hot springs.

Table 5 Main purpose of trips by types of travelers

	Highly motivated type	Relaxed type	Emergent interest type	Chi-square test
Countryside stays (individual trip)	62.6%	51.5%	49.5%	*
Countryside stays (group trip)	18.2%	3.5%	13.9%	*
Hot spring trip	48.5%	60.1%	52.8%	
Sightseeing spots and tourist attractions	38.9%	49.0%	31.9%	*
Trip for pleasure (marathon, photography, cartoon, etc.)	1.0%	4.5%	1.9%	

Note : Items that were significant at the 5% level as a result of the chi-squared test are indicated with an asterisk (*). In addition, the results of the adjusted residue analysis indicate that the values that are significantly higher are shaded in bold, and the values that are significantly lower are shown in bold. The results of the Fisher's exact test for "trip for pleasure" were not significant at the 5% level.

4.2.3 Traveler's experiences by types of travelers

Second, **Table 6** shows the percentage of respondents who selected the things they experienced during their stay in the countryside in the past two years for each type. First, the “highly motivated type” selected many items that were rated significantly higher, including community learning, appreciation, wineries and sake brewery tours, agriculture experience, cooking, craft making, interaction with local people, and staying at farm-inns. The percentage of respondents who selected items related to agricultural experience, learning, and interaction with local people tended to be high. In contrast, for the “relaxed type,” the percentage of choices associated with a typical spa trip was high, such as hot springs, natural scenery, shopping at farmers’ markets and roadside stations, local food, and just spending time resting and relaxing. In the case of the “emergent interest type,” there were no items that were rated as significantly high, and a few items were rated as significantly low compared to the other two types.

Table 6 Travelers’ experiences based on travelers’ types

	Highly motivated type	Relaxed type	Emergent interest type	Chi-square test
Visiting a hot spring	78.8%	89.9%	73.6%	*
Community learning with a guide (history, culture, etc.)	32.8%	15.2%	20.4%	*
Appreciation (art, music, sports)	25.8%	8.6%	18.1%	*
Winery and <i>sake</i> brewery tours	40.4%	31.3%	28.2%	*
Tourist farms and ranches (fruit picking, milking, etc.)	49.0%	40.9%	33.3%	*
Visiting tourist facilities (aquariums, theme parks, etc.)	46.5%	44.4%	33.3%	*
Agricultural experience (rice planting, potato digging, etc.)	22.7%	3.0%	16.2%	*
Cooking (buckwheat noodle making, local cuisine, cheese making, etc.)	31.8%	12.6%	18.1%	*
Craft making (straw work, dyeing, craft experience, etc.)	19.7%	6.6%	9.7%	*
Dining at a farmhouse restaurant	34.3%	23.7%	27.3%	*
Outdoor activities (mountain climbing, river rafting, river sports, cycling, camping, etc.)	42.9%	39.9%	37.0%	*
Interaction with local people	26.3%	9.6%	11.6%	*
Enjoying the natural scenery (terraced rice paddies, autumn leaves, waterfalls, etc.)	53.5%	72.2%	44.0%	*
Shopping in farmer’s markets and roadside stations	52.0%	68.2%	35.6%	*
Eating local food	52.0%	76.3%	46.8%	*
Staying at farm-inns	20.7%	6.6%	14.8%	*
Relaxing and just spending time in the countryside	14.1%	24.7%	8.8%	*

Note: The percentage of multiple responses is shown. As a result of the chi-square test, items that were significant at the 5% level are indicated with “*”. In addition, the results of the adjusted residue analysis indicate that the values that are significantly higher are shaded in bold, and the values that are significantly lower are shown in bold.

4.2.4 Accommodations which travelers have used

Third, **Table 7** shows the types of accommodation used by respondents who stayed in the countryside. The percentage of the “highly motivated type” who chose various types of accommodation such as guesthouses, B&Bs, farm-inns, “old folk houses,” “glamping,” and auberge and pensions was significantly high. In contrast, the response rate of the “relaxed type” was significantly lower for all items for which the response rate of the “highly motivated type” was significantly higher. In addition, the percentage of those who chose hotels and Japanese inns was significantly higher in the adjusted residue analysis. In the “emergent interest type” category, the percentage of those who chose “old folk houses” was significantly higher.

Table 7 Accommodations which travelers have used

	Highly motivated type	Relaxed type	Emergent interest type	Chi-square test
Hotel	42.9%	54.0%	44.9%	
Japanese inn	51.5%	60.1%	50.5%	
Guesthouse, B&B	11.1%	2.0%	6.5%	*
Farm-inn	20.7%	4.0%	13.9%	*
Old folk house	11.1%	0.0%	10.6%	*
Camp	13.6%	8.1%	11.1%	
Glamping	4.5%	0.5%	3.2%	*
Lodging facility using a closed school	2.0%	0.0%	2.3%	
Auberges and pensions	9.1%	2.5%	3.7%	*
Home of a relative or acquaintance	9.1%	5.1%	4.2%	

Note: Items that were significant at the 5% level as a result of the chi-squared test are indicated by "**". In addition, the results of the adjusted residue analysis indicate that the values that are significantly higher are shaded in bold, and the values that are significantly lower are shown in bold. The results of Fisher's exact test were not significant at the 5% level for the accommodation facilities using closed schools.

5. CONCLUSION AND IMPLICATION

When the characteristics of travel preferences were organized by type, the “highly motivated type” intended to experience countryside stays, and the percentage of respondents in this group who selected items such as agricultural experience, staying at farm-inns, interaction with local people, and community learning, which characterize this type of trip, was high in terms of the content of the experience and their intention to experience. This type of traveler has a wide range of interests and is a group that is particularly interested in agriculture and rural life, and experiences joy in learning, working with their hands, and interacting with local people. This type was more common among men in their 40s. In addition, the probability of being a “highly motivated type” tended to be higher among men in their 30s, women in their 20s, and high-income groups with per capita income of 6–8 million yen. To attract “highly motivated type” tourists who are eager to stay in the countryside, it would be effective to appeal to these people.

Among the “relaxed type,” the purpose of their trip was to visit sightseeing spots and tourist attractions, and a high percentage of them responded that they wanted to visit hot springs and natural sceneries, shop at farmers’ markets and roadside stations, experience local food, and just spend time resting and relaxing, and they tended to use Japanese inns. In other words, this type of person prefers to be refreshed at a hot spring and seeks a comfortable lodging environment and hospitality as a “guest.” These types were more common among the relatively older age groups, such as men in their 50s and 60s and women in their 40s and 50s. When appealing to the older age groups who stay at Japanese inns and hotels, it is often more effective to focus on tourist resources such as hot springs, natural scenery, farmers’ markets, and roadside stations, rather than focusing on the core experiences of countryside stays.

Although the “emergent interest type” did not clearly show the characteristics of travel orientation, they were considered to have at least some interest in these experiences because the percentage of respondents who selected agricultural experience and farmhouse was about 10% higher than that of the “relaxed type.” “Emergent interest type” is more common among men in their 40s or older, and we believe that promoting this type of accommodation will appeal to the older generation as well as the “relaxed type.” In particular, the interest in lodging in guesthouses, B&Bs, private farmhouses, old private houses, and glamping facilities is high among this group, which differs from the “relaxed type.” It can also be made appealing to the older generation who stay at these accommodations by offering agricultural experiences. Considering the above, to realize the shift to the in-market trend of “countryside stays,” services and contents must be provided with this perspective in mind.

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Why Culture Matters

Analysis and social meaning of a famed festival in Aso, Japan

Johannes WILHELM¹

¹Kumamoto University

Keywords : *Aso (Kyūshū, Japan), Rural Ceremonies and Society, Local Identity, Territoriality, Onda matsuri*

1. INTRODUCTION

When we speak of culture, we are inclined to use it to mean the art of building in magnificent gardens, the pyramids in Giza or even imperial court music, i.e. what we understand as the high culture, a notably pronounced and widely known manifestation of culture. However, we cannot say that activities such as cleaning one's own house or the care of ceremonies, such as the cleaning of graves and devotions for the deceased, even the care of one's clothes, i.e. everyday laundry, aren't also a form of culture. In fact, numerous cultural forms exist, ranging from a minimalist Japanese tea ceremony to the chaotic hustle and bustle of the Cologne carnival. A common denominator, however, is that they are activities that are meaningful in living together, whether it is music at the imperial court or daily laundry. Two things are crucial here, the activity (or practice) and its context, respectively. Since practice and context are important points of reference in the text, culture is defined as the totality including all manifestations of human actions and individual activities that make sense in living together within a specified space.

This text discusses the festivities surrounding the so-called *onda-matsuri* (henceforth abbreviated as Onda) in Aso, with a particular focus on the festival in Nishiteno (6th district of the former administrative village of Kojō between 1889 and 1954) at the Kukuzō shrine which is held end of July. More well-known, however, is the Onda at the Aso shrine in Miyaji, which is only about four km south of Nishiteno in the middle of the more urban Miyaji and holds the festival two days after Nishiteno. I begin with a general outline of the Onda and then try to characterize the differences between the two festivals of the same name in the more rural context, on the one hand, and in the more urban context, on the other, by drawing on Ernst Klusen's (1975) proposed analysis of the field of reference of festive practices in their function and interaction. Based on this, the study focuses on the example of Nishiteno, where the Onda is still celebrated today as a living part of the annual cycle of festivals. The latter, in turn, structures and defines quasi-normatively, on the one hand, the annual calendar, especially of importance for agrarian activities, but also, on the other hand, the local territoriality through the interaction of the actors actually involved. This description of the Onda by no means claims to be complete, as such an undertaking would deserve its own essay, but focuses on aspects of interest in the context of the present paper.

2. THE ONDA-MATSURI

The Onda (or more formally the *otaue shinkō-shiki*) is part of the Agricultural Ceremonial Heritage of Aso held at Kokuzō and Aso shrines with the status of an Intangible Cultural Property assigned by the Japanese government.

Hence, it is one of the most known festivals of the Aso region and attracts numerous visitors every year, especially the one at the Aso shrine. Both shrines are located in the north-eastern part of today's municipality of Aso-shi which roughly corresponds to the northern caldera valley of the Aso volcano.



Fig.1 Photographers and the Onda procession in Miyaji, 2017

The visible main part of the ceremony is a procession through the settlement in which the shrine deities are led inside four portable *mikoshi* shrines to a specific ceremonial hut called *okariya* for a glimpse of rice growing in the rice fields and a ceremonial lunch with key members of the local cult group (*ujiko sōdai*). This meal is carried to the *okariya* by a group of white-clad maidens (*unari*) in special containers, led by a group of children symbolizing auxiliary deities, and accompanied by a mounted priesthood of the shrine and the *mikoshis*, which are carried by the ceremonial brotherhoods of four subdistricts of the local cult group. These younger men also perform the accompanying paddy songs (*ta-uta*) at specific locations and, some members of the children's group are assigned drummers for the pace while the procession is moving. Altogether, at Aso shrine the Onda-procession counts almost 200 persons and the *unaris* represent a very popular motive for photographers. (**Fig. 1**) Indeed, today the festival organization committee at the Aso shrine holds a well-known photo contest for these photographers for why specific locations are being designated for them to try their best shot, most often with the Aso volcano in the background.

Table 2 Annual cycle of ceremonies related to the Onda (according to Kashiwagi (2005: 32))

Aso shrine		Kokuzō shrine	
Name	Ceremonial Day	Name	Ceremonial Day
<i>tōka no sechi-e</i>	13th day of the lunar New Year	<i>utaizome</i>	16th day of the lunar New Year
<i>onda-matsuri</i>	July 28	<i>onda-matsuri</i>	July 26
<i>emorinagashi</i>	August 6	<i>nemurinagashi</i>	August 6
<i>tanomi-matsuri</i>	September 25 & 26	<i>tanomi-matsuri</i>	September 23 & 24

The Onda at Kokuzō shrine in Nishiteno basically consists of the same elements and events. However, one should note that the Onda is only part of a ceremonial cycle that begins early in the year with a singing-in (*utaizome* or formal *tōka no sechi-e*). All festivities within the annual cycle are held at the shrine. (**Table 1**) For instance, the Onda-cycle in Teno ends with the *nemurinagashi* (**Fig. 2**) lullaby procession a couple of weeks after the Onda, which marks the end of the *ta-uta* singing cycle. Also, the local cult group (*ujiko sōdai*) includes three spatially distinguishable hamlets

on which Kashiwagi (2008) gives a detailed account. These three hamlets consist of the 5th to 7th districts of the former administrative village of Kojō, which are Higashiteno (5th), Nishiteno (6th) and Ogomori (7th), respectively. The individual hamlets are further subdivided into neighborhood groups (*rindo-han*, *tonari-gumi* or *chiën-gumi*; see Embree 1946 for details), most of which consist of about 10 households and whose boundaries to each other are usually defined by the local irrigation system, i.e., access to water. However, because Higashiteno consists of far more households in relative terms, it is represented by two representatives within the cult group at the shrine, while in Nishiteno and Ogomori one person each is represented as district head within the cult organization. It is not unusual that this representative is also the local village headman (*kuchō* of the smallest administrative unit *gyōsei-ku*), for which reason it is interesting and important to note that in these cases the cult and everyday administration and local politics are congruent by means of organization and agency.



Fig.2 The *nemurinagashi* procession in Nishiteno, 2019

2.1 Differences

In fact, there are quite a few differences between the two festivals at Aso and Kokuzō shrines. The procession at Kokuzō shrine, for example, includes a single transportable *mikoshi* shrine compared to the four mentioned at the Onda in Miyaji, and consequently the task of the carrier group at Kokuzō shrine rotates annually among the brotherhoods of the three former Kojō districts. Although this practice continues to this day, the demographic downward spiral (Lützel, 2016) is also evident in this case, as local consideration is being given to merging the three groups due to lack of participants. It should also be briefly pointed out that at the *nemurinagashi*, which follows the Onda by a couple of weeks, all three groups of young men sing and every year there is a visible and audible difference in the level of practice of each group.

At the Aso shrine, the books containing the *ta-uta* texts were transcribed in katakana letters, making it extremely difficult to grasp the meaning of the text that is actually written in *bungo*, i.e. classical Japanese. A singing group there consists of members of the shopping district, many of whom are newcomers who, in the worst case, have to painstakingly learn completely meaningless sequences of vocal sounds. Complicating matters is the fact that the vocal sounds are sung extremely slowly and with multiple iterations. A simple sentence like "The deity came to the bridge." can last over five minutes.

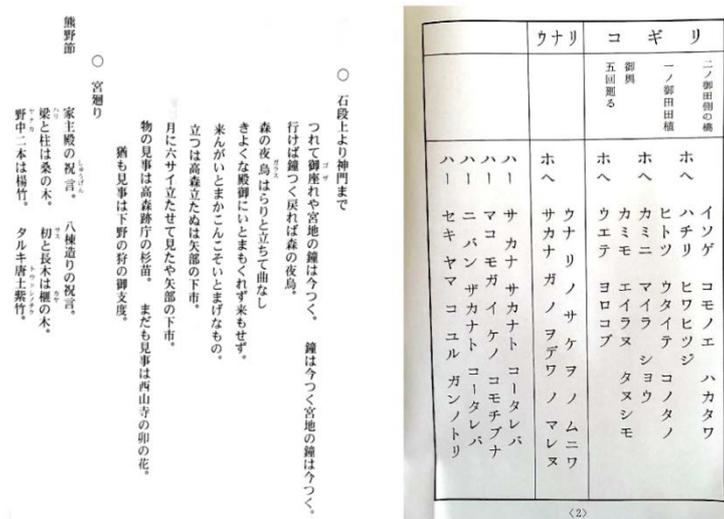


Fig.3 Excerpts from textbooks with ta-uta transcriptions from Aso (right) and Kokuzō (left) shrines

Coming back to the photographers, another difference stands out, namely the way they are treated. As has been mentioned above, at Aso shrine the photographers as tourists should be attracted and encouraged to take their own best shots of the festival which has much to do with the fact that Aso represents a major tourist site in Kyūshū. However, at the Kokuzō shrine these photographers are welcome, but, only part of the visitors and hence kindly asked in a distributed leaflet not to disturb and properly respect the local festivity and customs. (Fig. 3) Yet, in fact, some among the photographers still tend to ignore the local rules, and hence there are some specific locations within the hamlet, where crops on the fields are being destroyed by them.

写真撮影の苦懐へ重要なお願い

本日参拝の「御田植神幸式」は由緒ある当神社・地域の重儀です。祭事が事故なく厳肅に肅行されますよう、左記の事項につき、ご協力をお願いいたします。

一、神幸式は年に一回肅行の大切な神事です。神事肅行中は静肅に願います。

一、神幸式の妨げとなる事の無きよう願います。

一、神幸式順路の周辺は私有地です。ご配慮願います。

一、神社より依頼した報道取材の撮影を優先します。

一、周辺交通には十分御注意ください。

国造神社社務所

Important notice to photographers

Thank you for your visit. Today's festival is very important for our old shrine. We'd like you to keep in mind the following points for a smooth procedure during the festivities.

- This is a once in a year festivity so please pay attention to keep silent.
- Please do not disturb the ceremonies.
- Keep in mind that the area around the procession's path is private property.
- We follow a priority policy for accredited media photographers.
- Please pay attention to follow the common rules on the public streets.

Office of the Kokuzō shrine

Fig.3 Leaflet for photographers at the Kokuzō shrine's Onda (with a translation by the author)

These explanations should suffice for the overview section for now, and an attempt will now be made to analyze the circumstances a little. This is followed by another subchapter with a closer look at the locality in the case of the Onda at Kokuzō shrine.

2.2 Analysis 1: Performance-interaction-framework

There exists a useful framework to analyze the performance of an artisan action in its surrounding context by the famed musicologist, educator and Volkslied (German folk-songs) composer Ernst Klusen (1975) which is quite useful and enlightening a tool to point out the differing characteristics of the two Onda festival types. With regard to a performance and its setting Klusen suggested a reference field of function and interaction with a dipolar structure between what he denoted immanence by – meaning performers and audience are congruent – and emanence – meaning a segregation performers and audience like in a performance of a professional philharmonic orchestra in a concert hall. (Table 2) This dipolarity is further subdivided in an attenuated form of a representation of each denoted with the term and degree of representativeness.

Table 3 Klusen’s reference field of function and interaction (according to Klusen 1975; adapted for the Onda)

immanence	representative immanence	representative emanence	emanence
unity of performing subjects and audience	performance for working others (work songs)	semi-participative performance (event with mediating entertainer)	division between performing subjects and audience
Onda in Teno	Visitors at Onda in Teno	Onda in Miyaji	

Following the field division, we now aim to adapt this model to the Onda of the two shrines. According to this framework the comparison of the two Onda festivals illustrates that the one in Teno can be characterized as being immanent because the activities are centered on the residents of the hamlets, whose individually appointed groups and members are both performers as much as spectators of the event. Visitors from outside are somehow an exception from this setting and – although welcome and a source of increased local pride – hence, they are separated from the residents in their role as simply being spectators only (see leaflet for photographers). On the other side, the Onda in Miyaji represents an event in which a much smaller number of locally resident performers are involved directly and exclusively, yet, the spectators are much larger in number and even though there are similarities to the immanence observed in Teno – like specific neighborhoods organized around one of the *mikoshi*’s carriage or some members of the female *unari* group – the whole can rather be characterized as a local festival and tourist attraction. The latter also becomes evident when looking at the amateur photographer’s contest or even in the fourth *mikoshi* group formed by members of the local shopping district who seem less 'rooted' in Miyaji than members of other groups. This group lacked most in knowledge and understanding of the song-texts and performed most poorly among all the groups the author observed so far. Therefore, this specific group might somewhat be characterized as being representatively immanent in the sense of Klusen.

At this point, the paper's focus will shift to another analytical aspect, i.e. the meanings and interpretation of the Onda festivity.

2.3 Analysis 2: Meanings

As anyone knows from everyday life, interpretations may vary among different actors in different settings. Accordingly, the following remarks are intended merely as a starting point for further reflection. To make the matter easier, the comparative approach will now be abandoned and the focus will be turned to the Onda festival in Teno at

the Kokuzō shrine exclusively.

As already stated above, the religious cult group (*ujiko sōdai*) in Teno is composed of residents of the 5th to 7th districts of the former administrative village of Kojō, which are Higashiteno (5th), Nishiteno (6th) and Ogomori (7th), respectively. The individual hamlets are further subdivided into neighborhood groups (*rinpo-han, tonari-gumi* or *chiën-gumi*; see Embree 1946 for details), most of which consist of about 10 households and whose boundaries to each other are usually defined by the local irrigation system, i.e., access to water. However, because Higashiteno consists of far more households in relative terms, it is represented by four representatives within the cult group at the shrine just like Nishiteno has four representatives, while Ogomori only one person each represents the cult community. The term of these representatives are varying among the neighborhood groups of the hamlets. (**Table 4**)

Table 4 Annual cycle of ceremonies related to the Onda (in 2003 according to Kashiwagi 2008: 31)

Hamlet		Administrative district	Neighborhood group	Households	No. of <i>ujiko</i> representatives (term in years)	
Teno	Higashiteno	5-1	Yamashita	6	2 (2)	
			Kita	8		
			Ue	9		
			Naka	8		
			Shōwa	11		
		5-2	Hira	7	1 (2)	
			Enokizon	4		
			Nakazono	8		
			Yashiki	Ue	6	1 (2)
				Shita	9	
	Nishiteno	6	Hirai	Ue	8	1 (2)
				Shita	7	
			Tachiyama		13	1 (3)
			Hashizume	Ue	5	1 (3)
				Shita	7	
Jingūji			13	1 (3)		
Shōwa			13			
Miya no mae			7			
Ogomori	7	Han-nagi		9	2 (2)	
		Shita		10		
		Tera		7		

In recent years, the effects of the social downward spiral didn't spare out the Aso region. Consequently, aging and shrinking of the local society have become obvious in Teno, too, also in terms of looking for suited members for the local cult group. Accordingly, the cult organization has needed to adapt to these conditions in ways like extending the terms of representatives or appointing a suitable (knowledge about customs and traditions as much as a certain degree of reliance) person in his 50-ies and usually still busy (under full-term working conditions) who sometimes cannot take part in regular meetings of the cult group. In the latter case, someone else like the hamlet's headman (*kuchō*) or another member of the group would step in to represent the person.

Another important aspect in the adaptation process is the emergence and presence of new organizational types of

village groups. In Nishiteno, for instance, a local revitalization group denoted *meisui-kai* was established in recent past, in which members aim to preserve and revive local customs and village life on one the hand and act as local guides for interested visitors of the Kokuzō shrine as much as the hamlet itself. The *meisui-kai* is actually a quite exclusive 'club' of seniors with statutes as a formal set of rules. For instance, according to the statutes, a person can only become a member if he or she is retired from work, is reasonably well-off, and has a certain amount of free time for community activities. Apart from the *meisui-kai*, there exists the *kiyora-kai*, which is a rather informal 'drinking group' of local men between about 20 and 60 of age. They have no explicit set of rules, but, rather share similar goals like the *meisui-kai*, yet, more in a supportive sense. A former guesthouse (*minshuku*) serves as a venue for the group's gatherings, and quite a few of the former participants of these gatherings are now active members of the *meisui-kai*. The *kiyora-kai* provides many shrine bearers at the Onda festival, among others, but other young residents are not excluded at all. In this sense, the *kiyora-kai* also sees itself as a kind of open door for everyone to participate actively and with a lot of pleasure in village life, especially since in today's Japan there are unfortunately almost no village pubs left for informal gatherings.



Fig.4 Schematic territoriality of the Onda festival at Kokuzō shrine (routes of *mikoshi* and *nemurinagashi* groups)

Now, when looking at the territorial distribution of the Onda festival at the Kokuzō shrine another interesting aspect becomes evident. (Figure 4) In fact, the route of the *mikoshi* (full red line in **Fig. 4**) during the Onda in Teno roughly follows the flow of the local Miyagawa downriver to the place of the *okariya*. The *okariya*, in turn, is exactly located in a neutral space between the three hamlets of Ogomori, Nishiteno and Higashiteno. Additionally, the routes of each hamlet's singing groups at the *nemurinagashi* after the Onda (dotted lines in **Fig. 4**) are directing vice versa and upriver towards the central shrine in upper Nishiteno merging on their ways with each other (and actually compete by singing at merging points).

In a certain sense, the Onda festival and the *nemurinagashi* ceremony can be conceived as communion and symbolic incorporation of local territories, since in both cases the routes have distinctive features that indicate the spatial convergence, its dissolution and segregation of a locality. This territoriality is actually corresponding to the common-lands, the meadows in the grasslands above on the outer caldera ring of Aso that is surrounding the Teno area. Although the character of these common-use-rights areas became more or less obsolete during the socio-economic change during the postwar era (Wilhelm, 2020), their underlying institutionality still remains in many aspects of social life, such as the organization of local common work (cleaning the streets and waterways, for instance).

3. CONCLUSION

This text discussed two locations of the Onda festivity in Aso, with a particular focus on the festival at the Kukuzō shrine which is held end of July and at the Aso shrine in Miyaji, which is only about four km south of Nishiteno in the middle of the more urban Miyaji and holds the festival two days after Nishiteno. After a general outline of the Onda the differences between the two festivals were characterized by drawing on Ernst Klusen's (1975) proposed analysis of the field of reference of festive practices in their function and interaction. Based on this, the study looked closer at the example of Teno, where the Onda is still celebrated today as a living part of the annual cycle of festivals. This served then as a foundation on which an interpretation of the Onda and related ceremonies structure and define quasi-normatively, on the one hand, the annual agrarian calendar, but also, on the other hand, the local territoriality integrity and symbolic segregation through the interaction of the actors actually involved. Together with a brief discussion on adaptive strategies of local residents to cope with external stressors, we can also state, that culture not only strengthens local identity, but, by involvement also serves as a very effective and useful tool to enhance local resilience against threats. Culture needs proper financial support, yet, doesn't pay-off economically. However, money can't buy any cultural contents and contexts on the other hand. Since culture is an elementary component of society, atrophy leads to social disintegration. Without a society, however, there is no economy. Therefore, as a condition for a harmonious, prosperous and resilient society, culture also requires a necessary degree of financial foundation.

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Rethinking Asian Rural Paths

Exploring Risk-Responsive Rural Living in the Context of Compressed Development

Kako INOUE¹

¹University of Miyazaki

Keywords: *Asian rural futures, Compressed development, Risk-responsive rural living, East and Southeast Asia*

1. INTRODUCTION

This article takes a broad view of rural issues of East and Southeast Asia, where the international division of labor and economic integration has been well observed, especially with special focus on Japan and Vietnam. One of the distinct features to characterize the region is its diversity, reflecting different stages of socioeconomic development in the context of globalization and the revolution in ICT (information and communication technology), as well as interdependent relations within the region that have been formed and deepened along with the dynamics of Asian socio-economies (Kuroiwa, 2012; Watanabe, 2004). Under the frame of Asian miraculous economic growth labeled as a success story, as in “the East Asian miracle” (World Bank, 1993) and “catch-up industrialization” of Southeast Asian countries (Suehiro, 2008), rural areas, often assessed to have not yet fully achieved modernization, may be viewed as areas with potential for further growth. Rural areas in Asia, indeed, have been discussed in relation to the fast-changing global and Asian environment over the past few decades (Rosegrant & Hazell, 2000), and small farms in Asia have even been argued to enhance production efficiency to improve competitiveness (Otsuka, Liu, & Yamauchi, 2016). However, the view that assumes and promotes a monosystemic model of economic development overlooks the multidimensional features of rural Asia and the reality of rural people striving to make a better living in a weak and vulnerable position under an uncertain and risky environment. Modernization may partly explain an economic transition as the result of human interactions, but rural people have a complex framework of relationships with both the natural environment and humans. This is especially true in monsoon Asia, where the land is blessed with rich water during the wet season, and the development of paddy fields is characterized by its ability to feed a large population from relatively small land areas with the development of social cohesion to mutually manage water resources. In addition, small farmers are embedded typically in their sociopolitical community (village, ethnic group, etc.), which historically has protected them from being caught in the quagmire of predations by the state (Scott, 2008; Scott, 2009). Small farmers have been coping with environmental risks by confronting the two aspects of nature–human relations: fears and threats brought from nature-related disaster on the one hand, and a sense of security and subsistence from food and nutrition on the other hand. In other words, rural people have had to confront and respond to threats and risks posed by nature, as well as to risks from conflicting power relations.

Today, as Beck (1992) discussed in regard to the “risk society,” it is not only smallholders who have been placed in a weak sociopolitical position but also anyone who is forced to confront the uncertain and risky future brought from the excesses of modernization (i.e., in the stage of “reflexive modernization”). Those who have disconnected from nature may lack knowledge and skills to adequately deal with such risks, but rural people already have a long history of dealing with the risks brought by nature and human society. This article, then, tackles the challenge to

understand rural Asia not from the perspective of the modern Asian economy but from the perspective of rural realities that people (typically farmers or peasants) face under their rural living environment in connection with nature, local socio-economies, and culture, which exist in parallel with the well-known story of Asian economic growth. To do so, two dimensions are examined: 1) The overall picture of the current rural situation is captured along with observed “compressed development” (Whittaker et al., 2010) from the aspects of rural population behind the “urbanizing Asia,” which is often used to explain the dynamics of Asian economies, as well as the “aging Asia” (Park, Lee & Mason, 2012), recognized as a critical factor when thinking about Asian future economies. 2) To get a better understanding of the mindset of people living in rural areas of “compressed development,” the case of Vietnam, especially the rural community of the Red River Delta, is closely looked at to illustrate how pluri-active smallholders are strategically formulating their livelihood and income-generating economic activities. Then, to reexamine rural Asia, the discussion will be concluded from the viewpoint of peasants, looking at Asia as a whole to understand how people will confront the uncertain future in light of possible diverse paths toward Asian rural futures.

2. “COMPRESSED DEVELOPMENT” OF ASIAN COUNTRIES AND ITS IMPLICATION TO RURAL AREAS

In regard to the concept of “compressed development,” it has been argued that late developers have a different path of economic development than first industrializers, especially focusing on a development path that has fundamentally changed in East Asia since the 1980s (Whittaker, et al., 2010). In addition, Korea’s complexity of condensed change in social, economic, political, and/or cultural situations in a short period of time is explained as “compressed modernity” (Chang, 2010), recognizing common or at least similar phenomena observed in many Asian countries. Japan is the only exception in Asia, being described by Ochiai (2011) as having “semi-compressed modernity,” in which the consequences of modernization were experienced earlier than in other Asian countries, but later than in Western Europe. Under semi-compressed modernity in Japan, socioeconomic deterioration has been witnessed in the last 30 years—called the “lost 30 years”—characterized by increasing economic inequality with a larger population living at a low-income level, while phenomena such as the super-aging society, the nuclear family, and even individualization are now found (**Fig.1**). Under the transition process, industrialization had been accompanied by a mass outflow of the rural population to urban areas from the early 1960s to the mid-1970s, driven by continuous increases in the real wage rate in nonagricultural sectors during the process of economic development. While Japan’s rapid economic growth put it in the global spotlight in the 1980s and 1990s, serious problems have emerged in rural areas (particularly in the hilly and mountainous areas): depopulation and degradation of land utilization for farming and forestry since the mid-1980s, and weakened rural community function in the 1990s, all of which gradually led rural residents to lose their pride in continuing to live there. This has been called the “degradation of pride” (Odagiri, 2011). These degradations were gradually deepened in the other side of Japan’s “economic miracles,” while the characteristics of super-aged rural communities became more prominent. The percentage of the population aged 65 or older in urban areas and in flat farming, hilly farming, and mountainous farming areas are 25.2%, 29.4%, 33.2%, and 38.5 %, respectively, while the average age of “core persons mainly engaged in farming” was 67.0 in 2015 (2015 Census of Agriculture and Forestry). Note, however, that it may be inappropriate to evaluate the large number of the elderly in rural areas as a problem in itself. Even though the retirement age for most companies and organizations

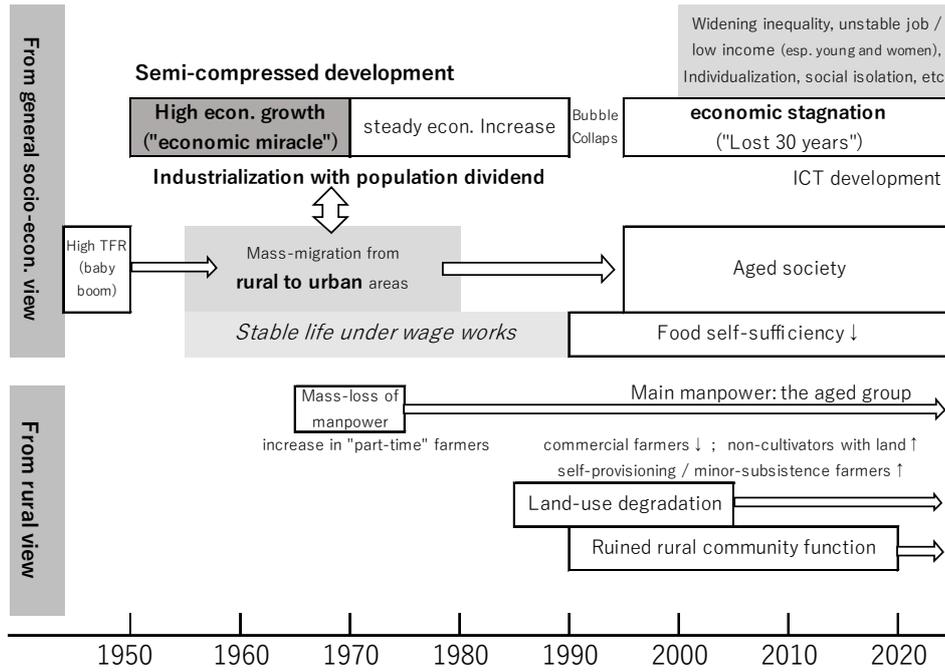


Fig.1 Japan’s socioeconomic transition and rural situation

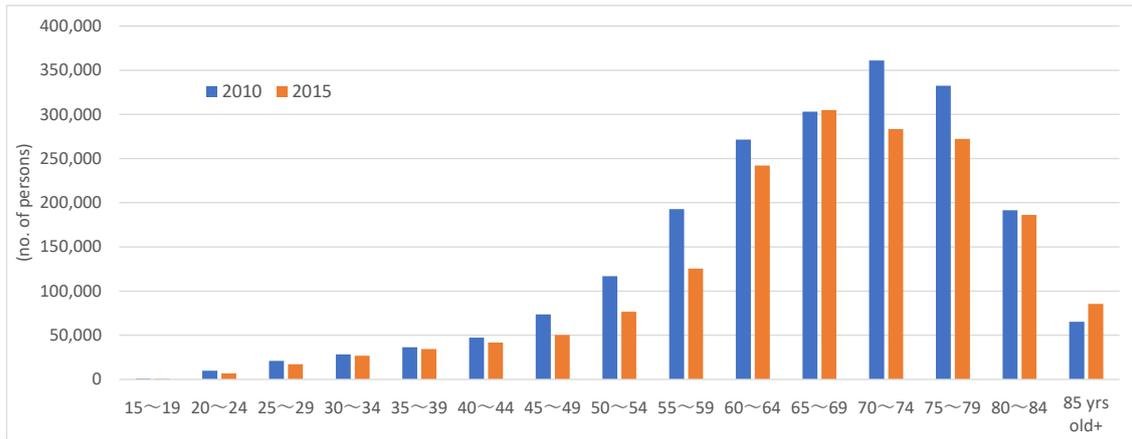


Fig.2 Number of core persons mainly engaged in farming by age group (Japan)

Source: 94th Statistical Yearbook of the Ministry of Agriculture, Forestry and Fisheries (2020)

is 60–65 years in the modern employment-based work system, many rural elderly over the age of 60 continue to work as active farmers throughout their lives (Fig.2).

Even though transformations of various kinds emerged gradually in Japan, the rest of the Asian countries are experiencing such changes in a shorter period (i.e., in a compressed manner). The focus on modernization and economic development may bring a view of problematic structural change; in this view, an imminent aged society cannot be tolerated because the time is too short to accumulate wealth to develop the “welfare state” (Oizumi, 2013; Suehiro, 2014). The United Nations defines an “aging society” as having more than 7% of the population 65 years or older, and an “aged society” as having more than 14% of the population 65 years or older. Except for the Philippines, which has a relatively high fertility rate, it seems that aging is occurring compressively in Asian countries at different stages of economic development, as shown in Table 1. The current super-aged society in Japan can be understood as stemming from a high fertility rate of 4.54 in 1947 (the “baby boom” right after World War II) and a sharp drop to

2.17 in the latter half of the 1950s, while Korea experienced a decrease in the fertility rate from 6.33 in 1955–1960 to below 3.0 only in the mid-1970s (Fig.3). Decreased fertility rates in the rest of Asia soon followed, starting with China and Thailand in the late 1960s and Indonesia, Vietnam, and Myanmar around the early 1970s. Korea, China, and Thailand became super-aging countries around 2020.

To grasp the situation of the rural population, Fig.4 shows the trends in the rural population ratio and the elderly population ratio by countries. The differences in rural population ratios among countries are largely attributable to statistical definitions, as the definitions of “rural” or “urban” areas vary among countries. The figure provides some insights on the relationship between the timing of stabilization in the rural population and the advancement of the aging society. We can observe different features of the rural population in relation with countries’ aging trends of 1) super-aged Japan and Korea, with a low rural population ratio (“A” in Fig. 3); 2) China, Thailand, and Indonesia, where the aging society will soon be reached while retaining a certain level of the rural population (“B” in Fig. 3); and 3) the Philippines, Vietnam, and Myanmar, where there is still time to reach the aging society, with a large portion of the population still remaining in rural areas (“C” in Fig. 3).

Table 1 GDP per capita and demographic change

	GDP per capita (current USD) 2015-2020	Total Fertility Rate 2015-2020	Life expectancy 2015-2020	% of ages 65+ (2020)	Year of ages 65+ exceed 7%	Year of ages 65+ exceed 14%	Doubling time (no. of years)
Japan	38,896	1.37	84.4	28.4	1971	1995	24
Rep. of Korea	31,066	1.11	82.8	15.8	2000	2018	18
China	9,298	1.69	76.6	12	2001	2025	24
Thailand	6,788	1.53	76.8	13	2002	2022	20
Indonesia	3,772	2.32	71.4	6.3	2023	2045	22
Philippines	3,206	2.58	71	5.5	2027	2058	31
Vietnam	2,452	2.06	75.3	7.9	2017	2035	18
Myanmar	1,286	2.17	66.8	6.2	2024	2054	30

Source: GDP per capita calculated from World Bank, World Development Indicators; TFR, Life expectancy and population by age group data are from UN, World Population Prospects 2019.

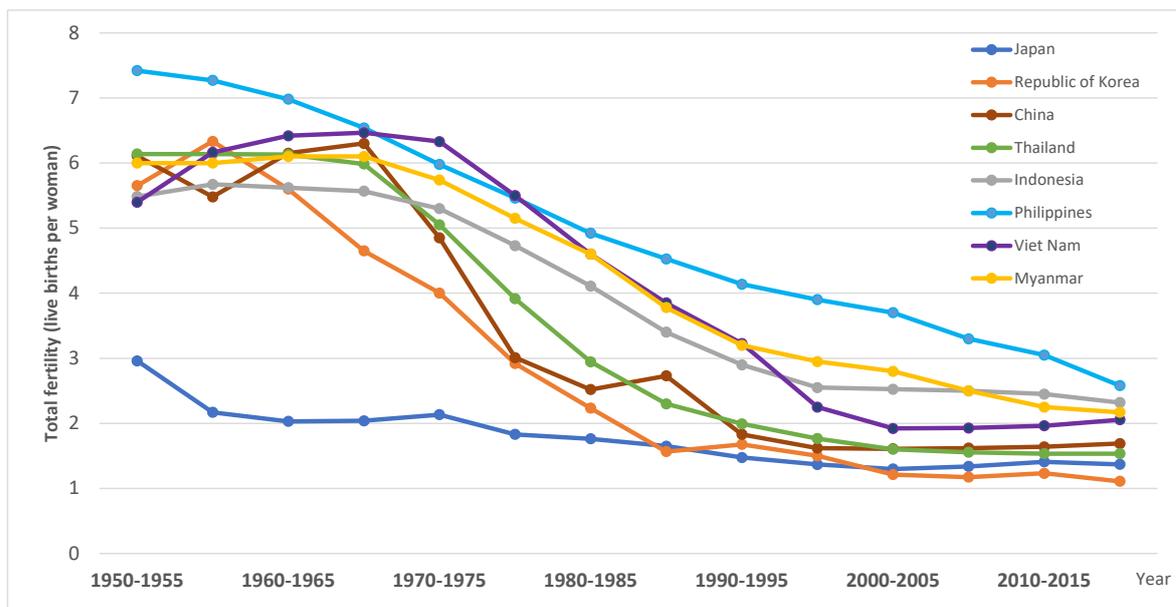


Fig.3 Total fertility rate

Source: UN, World Population Prospects 2019.

In the case of Japan, where robust economic development lasted for a certain period of time, those who moved from rural areas to urban areas when they were young got jobs and then settled in the cities, making a stable life through wage labor and then remaining. Or, many of those who remained in rural areas worked in nonagriculture sectors to earn wages and became part-time farmers; Moreover, industrial development in Japan and Korea created enough volume of wage work to absorb a large young population with the appropriate timing to utilize a population dividend, receiving migration from rural areas.

One of the common characteristics of Asian rural areas is the small size of agricultural land, making it difficult for agriculture as an industry to provide the same level of income as other industries. In spite of such a disadvantage in farm scale, East and Southeast Asian countries persist in their small-scale farming even in the midst of dramatic socioeconomic change (Rigg, Salamanca, & Thompson, 2016). How then can we understand the phenomenon of many people left in the rapidly developing rural areas of Asia with a continuation of farming activities in compressed modernity? The next section considers rural Vietnam to understand rural reality in this rapidly changing environment.

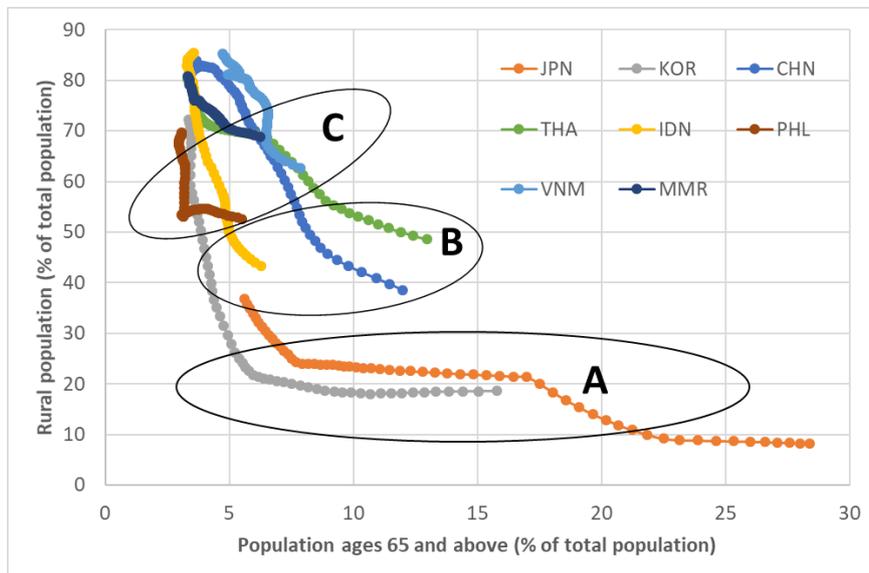


Fig.4 Rural population ratio and aged population ratio (1960–2020)

Source: Calculated from World Bank, World Development Indicators.

Note: Rural population refers to people living in rural areas as defined by national statistical offices.

3. THE CASE OF VIETNAM: TRAJECTORY OF RURAL AREAS

Vietnam has been experiencing rapid economic development in the last couple of decades, while the ratio of employed population in the agriculture, forestry, and fishery sector has reduced from 62.2% in 2000 to 34.5% in 2019 (Fig.5). Such figures, however, may produce a misleading understanding that Vietnam is following a trajectory similar to other Asian developed countries like Japan and Korea, but at least two contradictory phenomena are found specific to Vietnam. First, even though the average rate of laborers employed in the primary sector is gradually declining, the situation is quite different depending on the region. According to the 2019 Labor Force Survey of Vietnam, the remote regions, such as the northern midlands and mountain areas and the central highlands, have more individuals employed in the agriculture, forestry, and fishery sector as the main industry, as it accounted for 56.6%

and 70.2% of the population, while the Red River Delta and southeast regions had lower proportions employed in this sector: 20.5% and 9.9%, respectively. Second, the rural labor force accounted for 67.6% of total labor in 2019. The young generation is struggling to get jobs, as indicated by the high rate of unemployed youth (age 15–24), accounting for 42.1% of the unemployed population (GSO, 2021), and Vietnam is experiencing rapid economic growth without having enough time to develop a solid foundation for creating enough attractive job positions for the young.

These findings may indicate that modernization does not necessarily proceed uniformly across countries in Asia, or even across regions of the country, and that there is a process of evolution unique to each region and/or country. In addition, even though a large portion of laborers still reside in rural areas, the process of modernization may not necessarily lead to the development of nonagricultural industries in urban or peri-urban areas, nor motivate the rural population to rush into urban areas as a result of economic development. What then is behind the persistence of so many people remaining and working in rural areas? To tackle this question, the next section discusses the Red River Delta (RRD) region, a rural area adjacent to the capital city of Hanoi, which has a long history of a large population cultivating small farmlands, to search for the contemporary reality in Vietnamese rural areas.

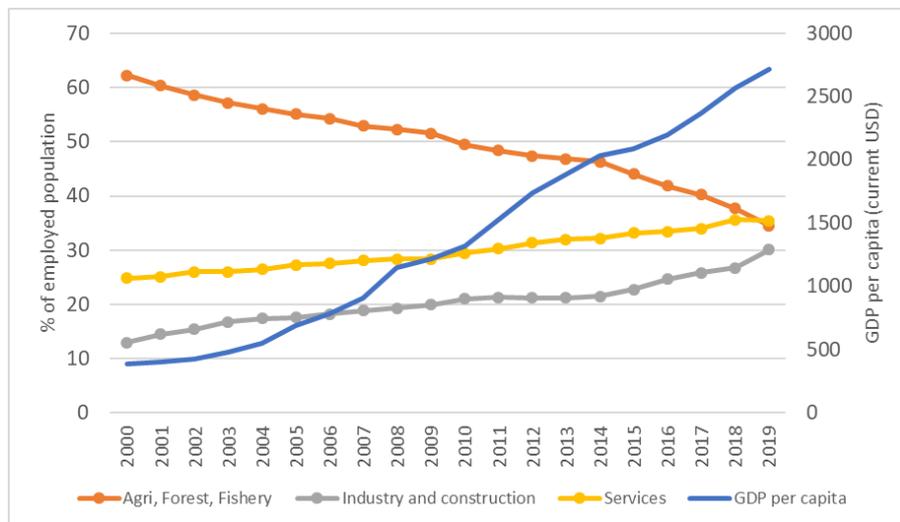


Fig.5 GDP per capita and structure of employed population by sector in Vietnam (2000–2019)

Source: GDP per capita calculated from World Bank, World Development Indicators; and employed population by the Labor Force Survey 2019 (GSO, 2021)

3.1 Regime Transformation of Vietnam and the Red River Delta

A unique historical and geographical feature of the delta is its settlement pattern with “overpopulation” managed with the “village” autonomy. Gourou (1936) surveyed about 8,000 villages and visited over 2,000 villages of the delta in the 1920s and 1930s (Bowd & Clayton, 2003), and recorded the homogeneous nature of local characteristics within villages throughout the delta. Since that time, such characteristics have been repeatedly noted by a number of scholars of Vietnamⁱ. There is an old Vietnamese proverb, *Phep vua thua le lang* (“The law of the king yields to village custom”), and villages have self-managed their communal paddies traditionally, allowing a highly dense population to survive, and such villages had been formed by the 15th century in the RRD (Sakurai, 1987). Gourou reported that the large population was not scattered but concentrated, and the community territory was surrounded by bushes or bamboo, marking a clear boundary of the community territory. He referred to the “village rule” as governing the

community, and underlying the relationship among villagers was solidarity with friendship, which had been developed early and had lasted for many generations in the community.

In study areas, geographical and physical features of villages reported by Gourou still exist today. Each village still keeps its “Village House (*Dinh*, in Vietnamese)” and temples established by ancestors, typically located in the center of the village (**Picture 1**). These historical assets are found in each village, indicating that people unite around customs based on the village in olden days. In addition, the kinship of each area does not extend beyond the village. Each village has several agnate groups (“*dong ho*” in Vietnamese), and all villagers belong to such an agnate group, enshrining ancestors with “*nha tho*”—a kinship building, maintained by each “*dong ho*.”



Picture 1 Village House

The solidarity networks or their mechanisms have received significant attention from social scientists. James C. Scott (1977) explained the solidarity mechanism in peasants’ subsistence, and stressed the principle of reciprocity, ensuring mutual insurance in peasants’ communities. His argument was soon criticized by Popkin (1979), who viewed the peasant society of Vietnam as the precapitalist village, and pointed out peasants’ opportunistic behaviors. The theoretical discussions continued with attempts to view the peasants’ communities within the context of precapitalism, and/or to explain solidarity as a necessity of social insurance under the extreme precariousness of life in primitive preindustrial societies (Fafchamps, 1992; Platteau 1991; Posner, 1980). However, such theoretical discussion without reflecting the actual rural reality has failed to capture the complex nature of rural society in the RRD, where their culture, natural environment, and sociopolitical conditions were uniquely formed historically. Peasants’ manner of living cannot be simply categorized as “preindustrial” or “precapitalism.” Community development had gone through enormous historical events, deepening the family-like relationships inside the community and even strengthening the neighborhood *dong ho* regardless of development stages.

From the view of Gourou, who had directly observed the community in the 1930s, and Yumio Sakurai, who had intensively reviewed the historical transformation of the area, at least two factors need to be examined to understand the solidarity of the RRD. The first factor is the internal forces arising from the farmers’ side. Such internal pressure becomes strong with increased exposure of RRD’s small-scale farmers to hardships, affecting their vulnerability to issues of subsistence. This view is consistent with theoretical discussions carried out by scholars mentioned above. The solidarity among villagers in exposed situations is their important tool to protect themselves collectively. According to Gourou (1936), their village was the only form of resistance power for small-scale farmers against repeated hardships and threats such as famine, invasion by external forces, or political pressure from the nation. In addition, Sakurai (1987) pointed out a critical asset for farmers, “communal paddy fields,” which were managed by the village, and such a system enabled village members to survive under a situation of food shortages; such arrangements gave farmers an increasing sense of belongingness to their village. The second factor, external forces, could have made small-scale farmers embedded in their own village. This factor is related to accessibility to the out-

of-community world. Historically, it was not individuals but the traditional village that had access to state power or other worlds. The state, for instance, levied a tax through the village. The village was the framework for individuals' everyday life, and the village itself had become a whole world for each peasant. In other words, individual farmers were embedded in their village, and the nation could access individuals through the community. In order to review how such factors could have influenced the level of solidarity, modern historical events and transitions are summarized in Fig.6, in respect to farmer's status, food availability (as an indicator for internal forces, relating to food security as a critical threat for peasants), and the farming basis (as an indicator for external forces).

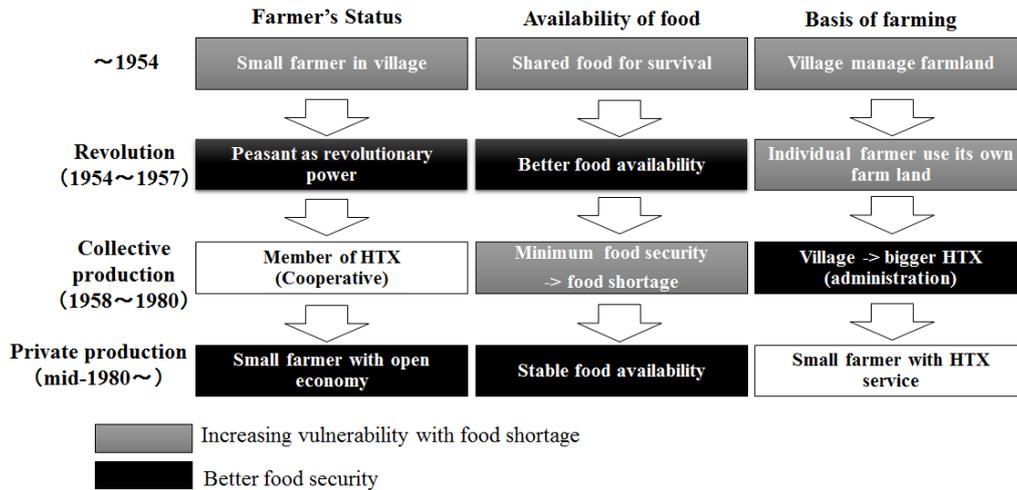


Fig.6 Historical events, farmers' status, food availability, and farming basis

In relation to the food security threat, peasants experienced serious food shortages until the late 1980s, except for one short moment in the 1950s. For instance, according to the statistical data, the rice production level remained well below 300kg/person (a reference point for the subsistence-level per capita rice in Vietnam), and this continued until 1989 (General Statistics Office, 2001; Nguyen 1995). Since the 1950s, the RRD experienced the Revolution of 1954 with land reform, which abolished communal fields and then allocated land equally to farmers, followed by the collective production regime, utilizing small-scale agricultural organizations (primary-level HTX, geographically the same area as the village), which also served as the cultural and social base for people's life at the end of the 1950s (Chō & Yagi, 2001). At the time of collective production under the primary-level HTX, the HTX functioned as a shelter for farmers to protect their interests from state power (Takeuchi, 1999). However, as the Vietnam War intensified, the state started to manage conscription through HTX, and it enlarged the HTX coverage by merging several neighboring villages together, making a "high-level" HTX. Even after the Vietnam War, the high-level HTX continued to operate in the same form under the collective production system. However, farmers under the "high-level" HTX were beyond their traditional village solidarity networks, and they no longer had an incentive to cultivate under the collective production and rationing system; farmers did not have a sense of belongingness to the enlarged HTX, which was not able to manage collective farmingⁱⁱ: farmers just visited fields to gain "labor points" but did not really cultivate, leading to extreme food shortages. After all, the collective production system had collapsed, and then the *Doi Moi* (renovation) policy was introduced in 1986, followed by a series of renovation initiatives in the 1980s, allowing individual farmers to contract farmlands under the No. 100 Direction in 1981, to use agricultural land for longer terms with the Resolution No. 10 in 1988, and then allocating land equally to farmers under the revised Land

Law of 1993. Since then, farmers have been able to access improved technologies such as high-yield crop varieties, chemical fertilizer, and pesticide, which are widely available at stores within the new open economy. In addition, farmers recovered their incentive for cultivation with allocated land-use rights and then finally achieved stable food production in recent years.

3.2 Pluri-activity and Smallholder Agriculture in the RRD

In order to understand local reality and its contexts, the author has been conducting fieldwork including qualitative surveys with semistructured and structured interview surveys since 2009 with periodical field observation. In addition, a questionnaire survey on farmers' perceptions, conducted in February 2012, involved 266 peasants (one person per farmer household, 100 individuals in village "A" in Commune A of the *Chuong My* District, 100 individuals in village "B" in Commune B, and 66 individuals in village "C" of Commune C in the *My Duc* District (both districts are located in the former Tay province, the southeastern part of current Hanoi). Another questionnaire survey on income-generating activities was conducted in November 2014–January 2015, collecting answers from 800 households out of 2,425 households of five villages in the same districts, followed by a series of interview surveys and data collection on farming and pluri-activities until August 2018.

After the *Doi Moi* revolution, small-scale farmers in the RRD now have access to an open economy with improved food security. How then do they manage their everyday life in the rural setting? **Table 2**, **Fig. 7**, and **Table 3** show the migration to other areas from their villages, the number of individual income-generating activities, and the type of pluri-activity conducted together with small farming, respectively. The data at the individual level indicate that the types of income-generating activities are not skewed to a particular type or sector but diversified among various industries and services available in the village, including traditional handicraft, construction, factory work, service sectors, and others. If the village level is observed in depth, complex and locally embedded networks that enable members of the village to secure income-generation sources are found. The network in the village is intertwined in layers like a web and is organized flexibly according to the requirements of opportunities brought by the outside world and the characteristics of the internal human resources. Typically, each village has its own traditional local industries, handed down from generation to generation, and with the foundation of such an infrastructure, villagers manage and update their working arrangement with other villagers to produce modern products, or they newly develop local small industries and provide services to meet the demands and needs of others (i.e., foreign countries, cities, or other villages, depending on the specific external environment). **Table 4** summarizes how villagers are mobilized to be a part of embedded networks of the village.

One of the important characteristics of off-farm income generation activities is the unstable nature of businesses, influenced by the market situation. In the case of the bamboo handicraft industry in village a, villagers remember that they received few orders in the periods of 1999–2002 and 2008–2009, which coincided with the Asian economic crisis and the global financial crisis. When recessions hit the global market (and villages), villagers have no choice but to stop production and look for other opportunities. By being a member of both the village and a big family (their kinships, *dong ho*), villagers try to find alternative ways to survive by connecting with someone who has access to other opportunities. With a diversified portfolio of income-generating activities available in the village, villagers may be able to find another income source. The difficult time may last as long as the Vietnam War and the collective

production regime, or as short as the global financial crisis, but villagers know that no one, except their own families and their connected big families (i.e., village and kinships), can be trusted to guarantee their livelihood, whether they be the state or the market. However, their anxiety is lessened as long as they have the right to secure rice from allocated land to cultivate. Even if the paddy field is too small to be an independent income source, villagers do continue to cultivate land. Villagers know from their previous experience and the history of the region that difficult years will come sooner or later. If they stop cultivation, they need more money to survive (i.e., to purchase rice for their family) in difficult years. As the size of farmland is small for each family (average of 2,450m²/household in the target areas), and a relatively large number of individuals still remain in the village, they retain the tradition of rice cultivation with pluri-active off-farm income generation activities in order to prepare for future hardships.

Table 2 Population movement as of 2014 (individuals)

Village	A1	A2	B1	B2	C	Total	%	
Reside in village	670	546	558	397	561	2,732	89.1%	
Migration out from village	Hanoi City center	45	34	63	29	74	245	8.0%
	North Vietnam (not Hanoi)	11	8	14	5	11	49	1.6%
	Central Vietnam	3	0	0	0	1	4	0.1%
	South Vietnam	8	3	6	3	8	28	0.9%
	Overseas	1	0	1	0	0	2	0.1%
	Others	0	0	2	0	3	5	0.2%

Note: n= 3065. Questionnaire survey conducted in 2014–2015.
Source: Inoue (2018).

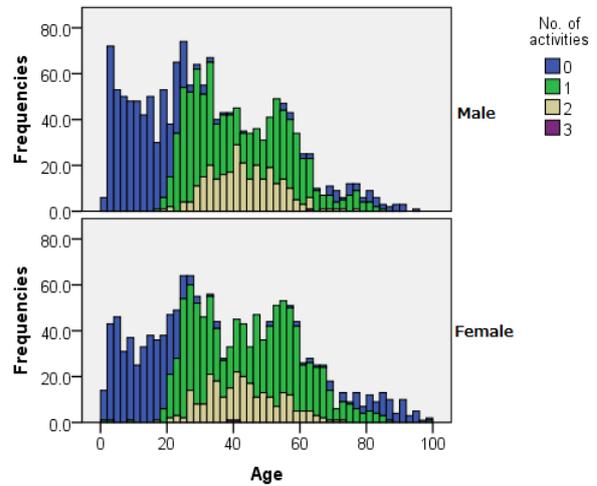


Fig.7 Number of individual income-generation activities
Note: n= 3054. Questionnaire survey conducted in 2014–2015.
Source: Inoue (2018).

Table 3 Type of pluri-activity matched with small farming as of 2014 (individuals)

	Handicraft	Construction	Factory work	Public service	Sales	Others	Gov. support	Total
Male	11	112	14	11	30	86	38	302
Female	73	24	22	19	68	42	31	279
Total	84	136	36	30	98	128	69	581
%	14%	23%	6%	5%	17%	22%	12%	100%

Source: K. Inoue (2018)



Picture 2 Off-farm income-generating activities
Source: Taken by author in 2012.

Table 4 Off-farm income-generation activities

Types of product/service	Background	Participating villagers	Village leaders	Origin of work/order origin
Bamboo handicraft	Traditional skills available in village A	Family-based, mainly elderly men and women	1–3 leaders/villages (inherited households)	Japanese company
Wood work (car sheet)	Newly introduced in village B and C	Family-based, anyone	A teacher who has connection with traditional village X	Chinese companies (via traditional village X)
Embroidery craft	Traditional skills available in some houses of village B	Individual, mainly women	Inherited household	European companies
Embroidery craft (newly developed)	Newly introduced by neighboring villager in village A and B	Individual, mainly experienced women	A senior woman who has experience working in Japan	EU multinational company
Bead product	Newly introduced by a villager in village A	Individual, mainly young women (with good eyesight)	A young woman who used to work in the bead product factory	Japanese company
Factory work (wage work)	Newly introduced in village B	Individual, mainly young women	(Direct employment by the factory)	Foreign direct investment from Korea
Construction work	Available in all villages	Team of individuals, mainly young men and some women	Some leaders and branch leaders depending on the demand	Work in Hanoi city center

3.3 Compressed Development of Vietnam and the Distinct Features of Rural Areas

Vietnam is experiencing rapid economic growth in a compressed manner, having access to new technology, especially ICT and integration of international business activities under the global value chain system, while witnessing increasing inequality among regions, ethnicity, and classes. However, we note that the rural economies cannot be analyzed independently from the global market; they connect with it and are influenced by it. Yet they retain their solidarity system and adapt it to modern opportunities; they mobilize local human resources to match market needs, while utilizing their own labor to maintain agricultural land to produce and secure food so that they can be assured about their livelihood and prepare for future risks. People of rural areas, who have accumulated past experience to confront difficult situations brought from the outside community, do not separate the economy and society. They know that they may lose their work (and therefore, their income-generating source) when outside conditions decline (e.g., war, recession, pandemic, damage from extreme weather), as they are too small to exercise control over these issues. Peasants have their way of rural living, gained from past experience, with the assumption that the unexpected will happen in the future (**Fig.8**).

In terms of the rural economy, the system and its structure (i.e., historically developed pluri-activity and farming embedded within local communities) have not been changed much, but the surrounding environment has changed drastically in a short period of time, and this has resulted in compressed development for the latecomer, Vietnam, bringing some opportunities to participate in the global market and even to have access to new technologies as well as threats from the outside community, such as direct influence caused by global risks and threats. The rural areas typically keep the foundation of solidarity network system without rural economy to be independently separated from their communities. Economic growth in itself has not been considered as a reliable source to bring them stable livelihoods. The rural people continue to maintain their solidarity network system that connects everyone to a “rural web” (Ploeg, 2018) to live, managing difficulties in the form of local-scale socio-economies.

Another aspect worth noting about rural areas is that the “individualization of society” has not progressed much in the process of compressed development in Vietnam. The questionnaire survey results of 2012 indicated that a majority valued their family as the most important aspect of their life, as shown in **Fig.9**. This figure shows that people place more importance on family happiness than on success at the individual level. In Vietnam, the high rate of

unemployment among young people, especially in urban areas, is considered to be a problem. This problem, however, can be partly explained by a solidarity economy that does not necessarily allow people to secure jobs based on economic rationality alone. It may be easy to copy and utilize new technologies researched and developed outside, but the foundation of the local solidarity system that people have developed over the years to protect the weak and small rural population cannot be easily dismissed. In the patrilineal group or the local community, some emerge as leaders and form local industry groups, distributing the work to other group/community members. It is still difficult to obtain a favorable position in the domestic workforce without “relationships” in Vietnam.

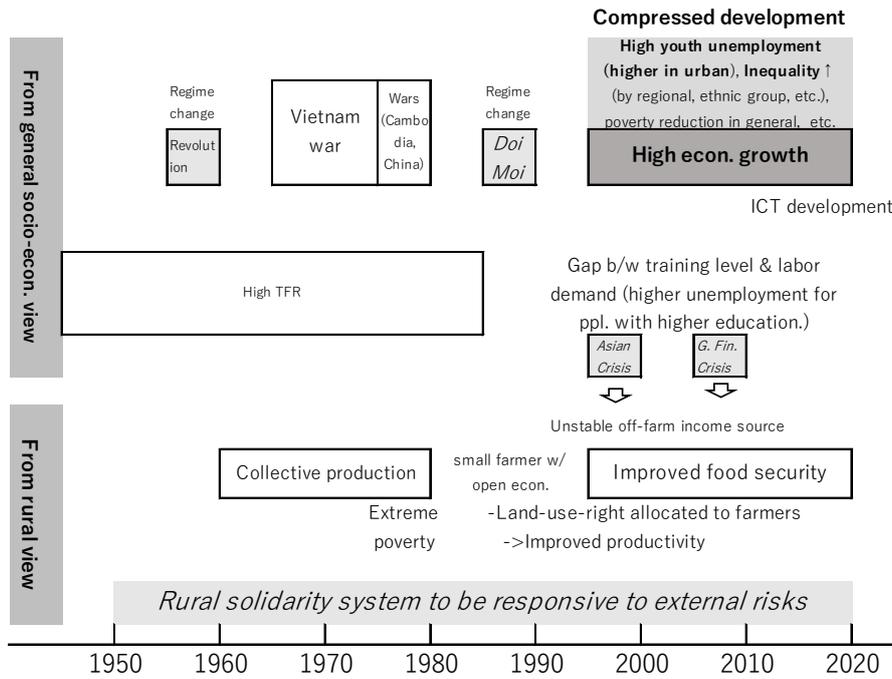


Fig.8 Vietnam’s socioeconomic transition and rural situation

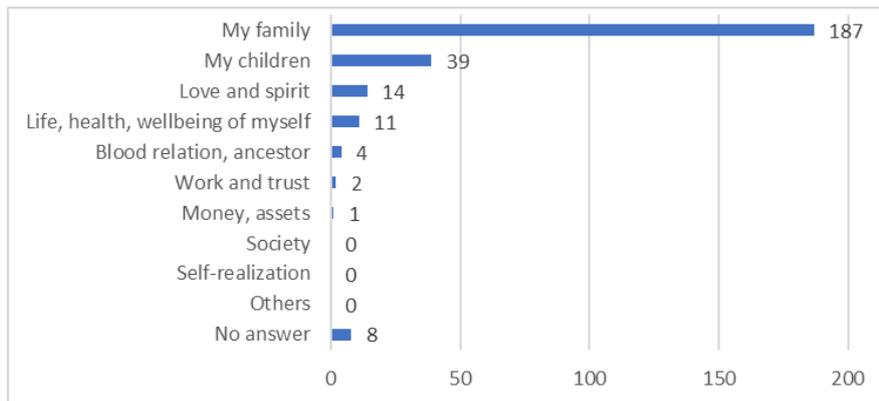


Fig.9 Most important aspect of life (single answer)

Note: n=266. Questionnaire survey conducted in 2012.

4. DISCUSSION AND CONCLUSION: RETHINKING ASIAN RURAL PATHS

Looking at the current situation of Japan, which is facing an aged society and economic stagnation ahead of

modernization, there is actually a growing tendency of dependence on labor from Asian countries. The foreign labor force from Asia used to be dominated by China beginning at its origin, but Vietnam has become the main source of foreign labor since 2016. In addition, not only Japan but also Korea, with its aging population, has begun to receive foreign labor. The wage level of Japan is almost at the same level as (or even lower than) Korea, and the young labor force from Vietnam is now in very high demand (Fig.10).

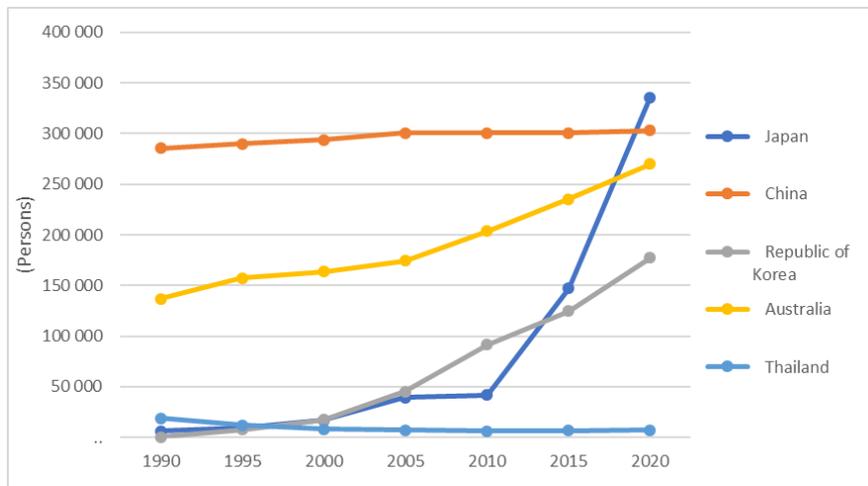


Fig.10 International stock of migrants at mid-year by area of destination from Vietnam, 1990–2020

Source: Calculated from International Migrant Stock 2020 (UNDESA, 2020).

However, looking ahead to the future when the aging of the population progresses in a stepwise manner in Asian countries, and the possibility of structural changes in Vietnam and other Asian countries with compressed and complex development in the future, the low-wage labor force will be depleted in most countries of Asia, including both those countries that transitioned early and latecomers. At the regional and national level, it seems that the cards that future generations can play are becoming more and more limited, and it is unclear whether there can be a stable source to satisfy human needs to ensure continued prosperity or even survival. It is difficult to envision a sustainable system that would reassure us, and it seems that an uncertain and difficult future is looming ahead.

However, let’s look at the situation not from the national or Asian level but from the perspective of rural communities. There are farmlands that have been maintained by peasants for generations, and the networks of people and the accumulated knowledge and skills to ensure the survival of small farmers. In the rural areas of Vietnam, people continue to encompass a large population, maintain small farms for self-provisioning, and manage their livelihood with a variety of activities. On the other hand, in Japan, many people left rural areas during the period of rapid economic growth, but the emergence of “post-productivist” rural livelihoods with the migration of the younger generation to rural areas, called “*denen-kaiki*,” has been witnessed in recent years (Fujiyama, 2015). The social fatigue brought about by excessive modernization is making some people realize the importance of reconnecting with people and nature rather than being disposable as a component consumed in a huge global market; people who feel a sense of belonging and connection in rural living are returning to the countryside.

Because many Asian countries have escaped from the era of poverty or post-war turmoil, people are more materially satisfied, and more and more convenient products have appeared on the market one after another. Yet, the compressed development not only satisfies material wealth, but also brings difficulties beyond modernization, such

as inequality, frequent natural disasters, and the spread of infectious diseases. In Asia, where small-scale farming is the dominant form of agriculture, it will be worth keeping an eye on how rural people will choose strategies to prepare for the future “risk society.”

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ⁱ For instance, Hickey (1987) described the village in Vietnam as “a self-contained homogeneous community.”

ⁱⁱ Villagers’ reactions to the larger HTX was reported by Kerkvliet (1995) as “Cooperatives larger than these modest levels were generally disliked” and “The ‘golden stage’ of cooperatives was in the north during the early 1960s when they were small, mainly among extended families and close neighbors” (p. 402).

