Macroeconomic Policy Support for Socio-Economic Development in the Lao PDR

Sector Report Vol.1

July 2002

Committee for Planning and Cooperation
Lao People's Democratic Republic

Japan International Cooperation Agency

FOREWORD

This cooperation program entitled "Macroeconomic Policy Support for Socio-Economic Development of the Lao PDR" was conducted within the framework of the technical cooperation program of the Government of Japan, in response to the request from the Government of the Lao People's Democratic Republic.

This cooperation was carried out as joint research by professionals specializing in economic policy from both Japan and the Lao People's Democratic Republic. The Committee Members headed by Yonosuke HARA, Tokyo University for the Japanese side, and by H.E. Bouathong VONGLOKHAM initially and followed by H.E. Dr. Thongloun SISOULITH, President of the Committee for Planning and Cooperation for the Lao side were set up in each country.

The Committee members held a series of discussions, conducted field surveys and jointly prepared this report on a mutual understanding.

I hope that the useful recommendations presented in this report will contribute to the formulation of policies, and it would be my great pleasure if this report would be the backbone of socio-economic development of the Lao People's Democratic Republic.

I wish to express my sincere appreciation to Professor HARA, H.E. Bouathong VONGLOKHAM, H.E. Dr. Thongloun SISOULITH and each Committee member for their close cooperation extended to the study, and to the officials concerned for their valuable opinions.

July 2002

川上隆朗

Takao KAWAKAMI
President
Japan International Cooperation Agency

PREFACE

It is a great honor for both of us to present our policy recommendations, based on the two years of Lao-Japan joint study on macroeconomic policy and development, to the government and the people of Lao PDR.

The Lao-Japanese study-team fully understood the high growth rate target set by the Lao government in its long-tem socio-economic development plan, as it is the desire of the Lao government to catch up with the development process of neighboring countries as soon as possible.

However, the study has emphasized that in the contemporary days of globalization, careful and efficient utilization of unique characteristics, in other words comparative advantage, of the Lao economy and resources is more meaningful and efficient in the long run, than the mere catching-up of per capita income. We have also emphasized that the increase of income is not the final goal, but it is the means of development that is more important. The final goal is to improve the well being of the Lao multi-ethnic people under the conditions of 'peace, independence, democracy, unity and prosperity' as expressed in the Lao constitution.

The study has demonstrated that the government plays diverse and active roles in various aspects of macro and sectoral economic management. The first major role of the government is to promote institutional reform especially in monetary and financial aspects in order to smoothly facilitate the development of a market economy under the Lao condition and to be able to integrate into global competition. At the same time, the government can administer market-friendly macro economic policies, in order to maintain the domestic economy under sound and stable conditions. It is also urgently needed to design a long-term plan concerning public investment. Another important role of the government is to play an active role towards development of industries with potential comparative advantages, as well as towards the development of a market economy itself. Furthermore, the government has a commitment to promote policies that are credible to Lao people and the outside world.

Under the strong pressure of regional and global competition, it is exceptionally important to find and promote a Lao way of development planning. This is exemplified as the *thamasaat* way of agricultural and rural development in the report, which is the basic message underlined in the study. We hope that the findings and policy recommendations of the study will to some extent contribute to formulating the development plan by the Lao government, even though the scope of study is rather limited.

We express our sincere gratitude to JICA, for supporting our study entitled Macro Economic Policy Support for the Socio-economic Development in the Lao PDR, for the two-year period from April 2000 to June 2002.

Thongloun **SISOULITH**

President
Committee for Planning and Cooperation

Yonosuke Hara

Chairman of Japanese Committee
Professor, The University of Tokyo

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16. Economic Evaluation of Tourism Development and Tourism Resources ill Laos
— Case Study of Luang Prabang —

Seiichi Fukui

16 — 1 Preface

Laos finds itself in a very difficult situation: still in its early stage of development, it has to find out urgently where to direct its socioeconomic development to cope with the globalization. In such circumstances, tourism development utilizing its rich, natural and cultural environment will be one of its top-rated development strategies.

National Tourism Development Plan (Master Plan) lists as tasks to be performed for the tourism development: ① improvement of tourist facilities and services represented by hotels, the food industry, travel agencies and customs; ② improvement of tourismrelated infrastructure such as air transportation, roads, waterways, water supply and drainage, telecommunications and waste disposal; ③ control of seasonal fluctuations in demand for tourism; ④ conservation of natural resources and implementation of restriction on their use; ⑤ necessity of economic analysis of tourism development in terms of cost and benefit; ⑥ consideration of the impact of tourism on Laos' social culture; ⑦ development of human resources to meet demand for tourism; ⑧ establishment of tourism-related agencies and reinforcement of the existing organizations; ⑨ strengthening of tie-ups with foreign countries and areas; and ⑩ legislation and enforcement of tourism-related laws and regulations (Lao PDR, et al., 1998).

The Master Plan presents more detailed, by-area tourism development strategies over the next fifteen years divided in three periods: short-term plan (1999 to 2003), medium-term plan (2004 to 2008) and long-term plan (2009 to 2013).

In general, efficient fiscal management requires development planning based upon the cost-benefit analysis. However, Laos does not have sufficient statistical data required for this kind of analysis nor has the tourism development of the Master Plan been prepared based on its estimated cost and benefit.

In drawing up tourism development, regionalism of tourist resources should be taken into consideration: some areas, blessed with plentiful nature, are suitable for eco-tourism, while some other area may be popular among tourists for its places of scenic beauty and historic interest along with old houses and streets; then, development strategies for these two areas should be given different priority and different concrete plans. For improvement of infrastructure, tourist facilities and services, and conservation of tourist resources, more detailed work than a comparative study of cost and benefit is required as to where and how much investment should be made.

Thus, the study of concrete, area-specific tourism development plans requires estimation of tourist demand for tourist resources (economic evaluation) as well as cost of development investment, while cost efficiency of tourism development also needs to be considered. The calculation of the development cost is relatively easy; however, the tourist demand, which is not traded directly via the market, requires estimation using various methods.

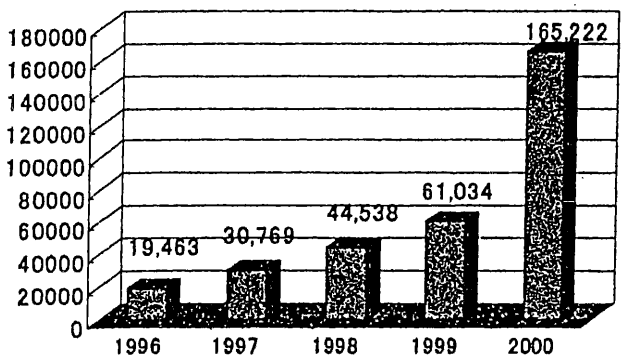
This report is an attempt to analyze the demand for tourist resources deemed indispensable in drawing up more concrete regional tourism development plans in the future.

For the analysis Luang Prabang, which is the largest tourist area in Laos after the capital city Vientiane and rich in diverse tourist spots, has been selected.

Hereinafter, in 16 — 2 an overview is made on the features of Luang Prabang as a tourist resort and the characteristics of tourist demand it is subject to; in 16 — 3 estimation is made by the travel-cost method on the overall economic value of Luang Prabang as tourist resources; and in 16 — 4 economic evaluation is further made on each specific tourist spot in Luang Prabang referencing the conjoint method; and to conclude, the author wishes to refer to the policy implications contained in the evaluation of Luang Prabang's tourist resources and the result of their analysis.

16 — 2　Tourist resources and demand characteristics in Luang Prabang

Luang Prabang is an ancient capital and a well-known tourist resort as well, rich in historic Buddhist architecture dating from the Kingdom of Lan Xang and buildings of the unique architecture created through the fusion of native and foreign cultures under the French colonialism. In 1995 UNESCO gave the city high evaluation for its beautiful and harmonious combination of historic buildings and the natural environment, and registered it as a World Cultural and Natural Heritage site. The effect of "Visit Lao" campaign added to the registration in 2000, ever since the number of tourists visiting Luang Prabang has been on the significant increase (Figure 16 — 1).

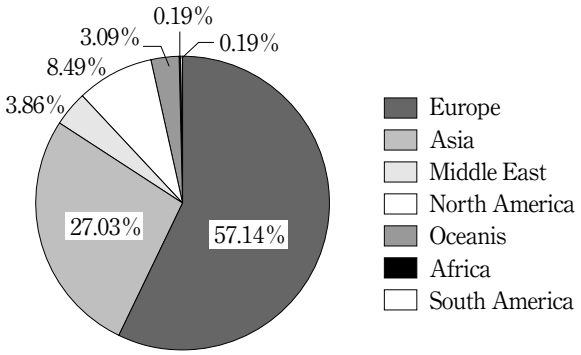


Source: 2000 Statistical Report on Tourism in Laos, National Tourism Authority of Lao PDR

Figure 16 — 1　Changes in number of visitors to Luang Prabang 1996-2000

In lines below the writer wishes to make clear the characteristics of tourist visitors to Luang Prabang and their specific needs based on the result of the questionnaire collected in August, 2001.

Figure16 — 2　shows that by area nearly 80% of tourists are from Europe, North America, Japan and other developed countries, and that tourists from neighboring countries such as Thailand and Viet Nam occupy only a small percentage. In other words, tourism to Luang Prabang is characterized by long-distance foreign tourists from Europe and other areas, who generally spend more money each day/person.



Source :JICA report by Miyahara and Morimoto, Feb. 2002: Economic value of Laos'tourist resources and direction of their development.

Figure16 — 2　Nationality

By age, 45% of the tourists are in their 20s and 26% in their 30s (Figure16 — 3), and these two generations together occupy over 70% of the total number of tourists; and by profession, students make up 30% of the total.

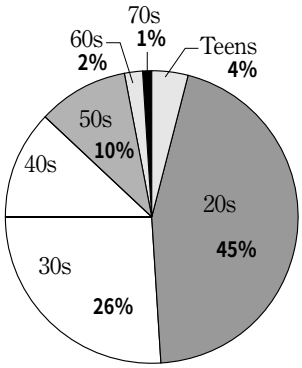
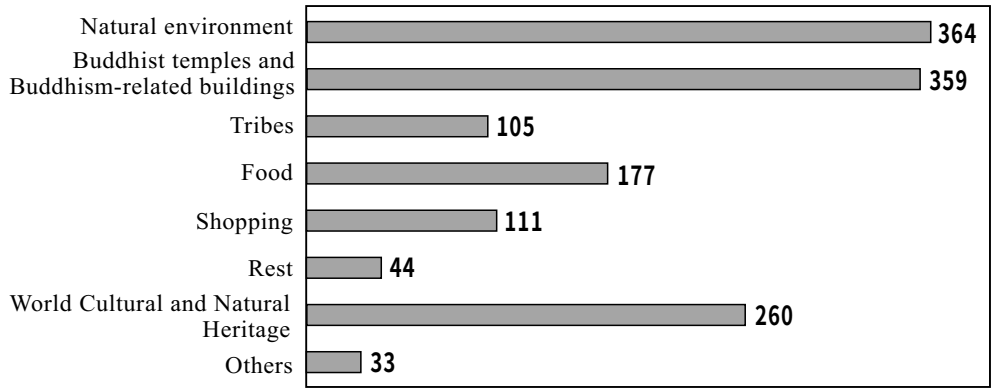


Figure16 — 3　Age

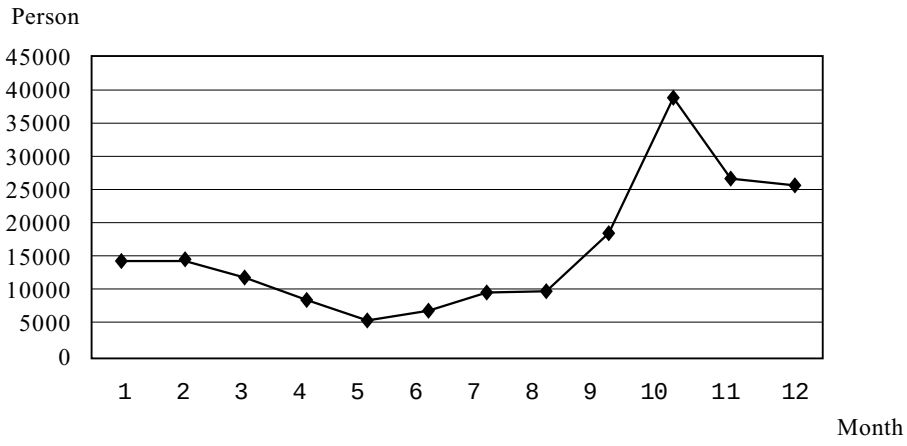
The greatest purpose of their visit to Luang Prabang is "natural environment"; then comes almost on the same level, "Buddhist temples and Buddhism-related buildings", followed by The World Cultural and Natural Heritage (Figure16 — 4). This reveals great expectations held by the tourists for the abundant natural environment that is out of their daily reach, and the fame of Luang Prabang as a Buddhist city. It should mean that morethan anything tourists place a high value on the harmony seen in Luang Prabang between its peculiar natural environment and historic architecture deeply related to Buddhism. The World Heritage registration seems to have been mentioned as a motive of visit to a comparatively lesser degree.



Source : Same as Fig. 2

Figure16 — 4　Purpose of visit to Luang Prabang

In Laos the dry season and the rainy season cause the number of tourists to vary greatly from month to month (Figure16 — 5). In the case of Luang Prabang, a large number of tourists rush to fill up all the hotels, particularly in April, which is the new-year season. In sharp contrast, hotel occupancy in the rainy season drops to a low level. Table16 — 1 shows the numbers of sleeping accommodations and restaurants as of May, 2001 in the province of Luang Prabang. These data and the average annual hotel occupancy of 57% (NTA, 2000) in 2000 lead the writer to assume that hotels and restaurants have some room available except for the peak season.



Source : 2000 Statistical Report on Tourism in Laos, National Tourism Authority of Lao PDR

Figure16 — 5　Number of tourists by month for 2000

Table 16 — 1 Tourism statistics (as of May, 2001)

[Accommodations]

	No. of hotels & guest houses	No. of rooms	No. of beds
Luang Prabang			
Hotel	12	366	630
Guest house	77	654	1,084
Province	26	153	253
Total	115	1,173	1,967

[Restaurants]

	No. of restaurants	No. of tables	Capacity (No.of guests)
Luang Prabang	42	509	3,004
Province	11	64	374
Total	53	573	3,378

Source: Compiled from Luang Prabang prov. Commerce & Tourism Dept. data

16 — 3 Economic value of Luang Prabang as tourist resources

(1) Method of environmental evaluation

The method for evaluation of the environment here is widely used in the works of environmental economics. It is a method of quantifying in monetary units people's value consciousness of the goods for which no market exists. Roughly divided, there are two environmental evaluation methods: Revealed Preference Method and Stated Preference Method. The revealed preference method is a method of evaluating" indirectly the environmental value based on people's economic activities, and includes the alternative method, travel-cost method (TCM) and hedonic method. The stated preference method, on the other hand, directly asks people about the environmental value for evaluation purpose, and includes the contingent valuation method (CVM) and the conjoint analysis.

Here the travel-cost method is adopted.

This is a method to evaluate indirectly the recreation value based on the relationship between the cost of travel to the destination and the number of visits or visit ratio. Its basic way of thinking is this: when people visit a recreation spot, it is because they find there a value superior to the cost of travel; then, the recreation value should be reflected in the cost of travel. The method has the advantage of enabling the value to be evaluated based only on the cost of travel and number of visits (or visit ratio), which are rela-

tively objective and limited data. However, this evaluation method applies only to recreation-related matters as it is based on the cost of travel.

(2) Results of Estimation

1) Value of economic resources

The author wishes to present here some of the observed facts obtained from the analysis results, while leaving detailed explanations about the method and evaluation in the Appendix 16 — 1.

In the first place, from the result of the estimation given in the Appendix16 — 1, the author estimates the value of Luang Prabang's tourist resources at ¥4,900 million/year. The data obtained through the questionnaire suggest that based on the details of the travel cost shown in Figure1 of the Appendix 16 — 1, each tourist is presumed to have paid on average ¥10,867 in Luang Prabang for accommodation, food, transportation, souvenirs,

admissions and so forth. Then, assuming that the annual number of tourists is 165,222, approximately ¥1,800 million is a direct economic effect brought annually by tourists to Luang Prabang.

Next, at the province level, Luang Prabang had revenue amounting to ¥169.54 million in 1999-2000 (Table 16 — 2). The fact that annual income from tourism is ¥1,800 million in Luang Prabang indicates that tourism creates a direct income that is more than ten times the annual revenue of the provincial government. The GDP of Luang Prabang province, which is roughly estimated by multiplying its population by the per capita GDP of Laos for 2000 at the current price, is ¥14,900 million; consequently, the direct income created by the tourism industry accounts for 12% of the overall GDP of the province (Table 16 — 2).

All the above gives quite a high value to Luang Prabang's tourism resources when compared to the scale of its economy. Such being the situation, the provincial tax revenue will greatly increase if a proper tax collection system is implemented.

2) Price elasticity of tourist demand

Here, a log linear function was adopted as a best fit functional form for TCM analysis (Appendix 16 — 1) . The partial regression coefficient in this demand function is -1.7, which indicates price elasticity. In other words, the other conditions being constant, a 1% increase in the cost of travel is assumed to lead a 1.7% decrease in the visit ratio.

For instance, suppose that the Lao government has caused the tourist visa fee to rise for the purpose of increasing revenue.

Table 16 — 2 Luang Prabang province: by-sector revenue in budget

(¥1.00)

	1998/1999	1999/2000
Public works	18,752,637	29,424,342
Accommodations/ amusement/tourism	18,770,270	52,993,312
Individual	19,158,868	45,891,134
Manufacturing	1,659,469	1,813,525
Commerce	2,007,221	548,039
Construction	8,999,255	14,685,703
Transportation	1,272,560	245,625
Service	1,289,407	4,783,517
Commissions/fees	4,988,375	8,553,697
Tolls	693,462	754,652
Fines	1,810,459	4,541,757
Visa fees	-	5,419,169
Total	79,401,982	169,654,471

Source: Compiled from Luang Prabang prov. commerce & tourism data

Should the increase be such that it brings about a 1% increase in the overall cost of travel for tourists planning to visit Luang Prabang, the nation as a whole would be likely to suffer from a negative impact of fewer tourists coming in due to the visa fee increase rather than enjoy the positive impact of additional revenue of such fee. Therefore, the utmost care should be taken in setting prices for such factors as are influential on the cost of travel. Among diverse national tourism development plans, there is a suggestion that the visa fee be reduced to promote inbound tourists. The result of this analysis can be presented in support of such suggestion.

3) Length of stay and its economic impact

The present survey showed that the average stay of tourists visiting Luang Prabang was 4.6 days. It also showed that during such a stay each, tourist spent a total of US$ 86 on average for accommodation, admissions, transportation, souvenirs and others. This comes down to US$ 18.7/day. Then, one additional day of stay on average would give to Luang Prabang a 32% direct additional economic effect. In this sense, it is very important to provide more satisfying tourist attractions that may lure them to want to

stay longer.

16 － 4　Directions for tourism development in the suburbs of LuangPrabang

(1) Necessity of analyzing tourism development plans, their costs and benefits

The Luang Phabang tourism development policy as set forth in the Master Plan plans to promote visits to tourist spots of historic and religious interest, the Mekong River boat tour, the ethnic tour to a handicraft village and trekking eco-tourism to Phu Lori. For such purposes, the policy plans to carry out the following specific strategies: short-term plans that include completion of the World Heritage programs, improvement of central roads and the installation of traffic signals, improvement of the Kuang Si Falls, improvement of roads to Vientiane and preparation for eco-tourism to Phu Lori; medium-term plans that include the launching of the eco-tourism program to Phu Lori, expansion of tourist routes, continuation and expansion of improvement works of the central parts including the repair of historic architecture, and improvement of tours along the Mekong River as the terminal and relaying point; and long-term plans that are made up of the continuation of the eco-tourism program to Phu Lori, continued improvement works of the central parts and improvement of roads leading to Viet Nam and Thailand to encourage a larger number of tourists from the neighboring countries.

However, as mentioned earlier, these plans are not arranged in order of priority considering the economic cost and benefit based upon the survey and analysis of the demand characteristics of tourists.

Therefore, the author now wishes to review the appropriateness of the tourism development strategies as proposed in the Master Plan for Luang Phabang by means of economic evaluation on each tourist spot using the conjoint method (for further details, Appendix 16 － 2).

(2) Conjoint method

As mentioned in 16 － 3, Revealed Preference Method and Stated Preference Method are employed in environmental economics for economic evaluation of environmental resources [1)] . The revealed preference method includes the Travel-Cost Method and the He-

[1)] The characteristics of economic evaluation methods have been introduced by Ohno, et al. (2000), Washida (1999) in man)' documents.

donic Price Method that measures the value of the amenity of the area based on land rents and wages, while the stated preference method includes, roughly divided, the Contingent Valuation Method and the Conjoint Analysis.

The revealed preference method, which makes the evaluation based on the result of individuals' activities, enables measurement of value deriving from the use of environmental resources (utility value), but has been unable to evaluate the tourist resources not reflected in individuals' activities. A typical case, for instance, would be where people do not use environmental resources for recreation, but are content with the existence itself of a good natural environment. The stated preference method has been used to evaluate such non-utility value. The revealed preference method, which makes evaluation based on the results of individuals' activities, has been unable to observe people's reaction to unrealized changes in the environmental resources, while the stated preference method permits us to know how people react to changes not yet realized in the circumstances.

The contingent valuation method evaluates the economic value of given environmental resources by asking people about the amount they would be willing to pay for or be paid for changes in the condition of the environmental resources. The conjoint analysis, on the other hand, evaluates environmental resources by observing respondents' preference regarding the changes represented in a variety of combinations of characteristics or functions called "properties" that compose the environmental resource.

The greatest feature of the conjoint analysis is the possibility of multi-property evaluation. The contingent valuation method, equally comprised in the stated preference method, enables one unit of environmental resources such as a wetland or a forest to be evaluated; however, it has difficulty in evaluating each one of the diverse properties comprised in the wetland (ecosystem, recreation, landscape, etc.). The conjoint analysis enables economic evaluation to be made separately on each property by presenting to respondents diverse combinations of levels of properties called "profile" and having them state their preference regarding the combinations.

(3) Results of analysis

In lines below, the author summarizes the result of the economic evaluation of suburban tourism sites by using the selective conjoint method explained in the Appendix 16 — 2.

According to the analysis result, a visit to the Pak Ou Cave and the Sae Falls generates a benefit of US$ 11, which is the highest evaluation of all the suburban tourism sites. The visit to the Kuang Si Falls, on the other hand, is evaluated lower (US$ 6); thus, the result of the analysis made from the demand-side is contradictory to the strategy that gives importance to the Kuang Si Falls in the short-term Luang Phabang tourism development strategy. In connection with the demand for eco-tourism and tours to villages that seek a direction for tourism development to follow, trekking is evaluated at US$ 5.1 and the visit to villages of minority tribes at US$ 3.99.

The author used the estimated result to forecast the probability of selection on the existing tourism sit,es and new tourism resources. Regarding the existing tourist spots,

the probability of selection is the highest at 18% on the Pak Ou Cave and the Sae Falls, but shows no significant difference from the probability on other spots. This reveals a variation in tourist preferences. Trekking as a new tourist resource is now known to drop to the lowest level in the probability of selection among all the tourist spots if the related expenses including transportation, admissions and participation fee exceed US$ 3.5. The visit to villages of minority tribes also drops to the lowest when the cost exceeds US$ 2.5. Surely, there is demand for eco-tourism and village tours; however, the selection of places and pricing within the aforementioned costs is necessary.

16 — 5 In concluding — summary of analysis result and implications

The result of the consideration made in the foregoing 16 — 2 through 4 may be summarized as follows: Section 16 — 2 shows that tourists visiting Luang Prabang are characterized by those who: ⓐ come more from developed countries such as Europe, Japan and the United States than from neighboring Thailand, Viet Nam, etc. or from inside the country, ⓑ are most interested in the natural environment and spots and places of historic interest, and are little tinted with ethnic tours, and ⓑ are mostly younger generations who travel in small parties rather than in package tours.

16 — 3 makes it clear: ⓐ that the economic value of Luang Prabang as tourism resources is high as compared with the scale of its economy, ⓑ that there is a possibility of greatly increasing tax revenue of the province if the willingness of tourists to pay is fully taken out under a taxation system properly established, ⓒ that because of the high price elasticity of tourism demand, the utmost care should be taken in setting up fees and charges, and ⓓ that any extension of stay will cause a very great economic effect.

Lastly, in 16 — 4, economic evaluation was measured in terms of dollars on principal suburban tourist spots by the conjoint analysis in order to evaluate properties on each tourist resources in Luang Prabang and consider priority in tourism development stratebgies, with the following interesting result obtained: ⓐ tourists evaluate highly the Pak Ou Cave and the Sae Falls, which result is contradictory to the Master Plan giving importance to the Kuang Si Falls, and ⓑ there is comparatively low demand for eco-tourism, trekking and ethnic tours.

The above analysis result leads to the following policy implications:

1) The potential value of Luang Prabang as touiist resources is so high that pushing forward the continuous development of the tourism industry and related industries in this region by the Lao government and Luang Prabang province will have great economic significance from the viewpoint of regional development and the establishment of taxation base. However, when compared with that of Japan, the value of tourist resources is at municipality level (table in Appendix 16 — 1); therefore, in execution of tourism development works, careful prior evaluation by the cost-benefit analysis or similar analysis is necessary to avoid over-investment in development.

2) The survey by means of a questionnaire revealed various problems to be addressed as tasks for tourism development: for example, deficient information on tourism and transportation, lack of tourist guides, securing safety in transportations means and seasonal fluctuations in the number of tourists (Nana Miyahara, Sanae Morimoto Economic value of tourism resources in Laos and the direction of their development, Report submitted to JICA, Feb. 2002). To make good use of Luang Prabang's potential tourism resources, it is indispensable, therefore, to intensify public relations intended to pull out potential tourism demand, reinforce functions of the National Tourism Authority and tourism department of the province, and strengthen tie-ups between these organizations and inter-

national bodies such as UNESCO and WTO, foreign governments, travel agencies and airline companies as well as improve transportation-related infrastructure and accommodation facilities.

3) Importance are tourism marketing strategies that target foreign tourists who generally spend more money each day/person. It is not merely because Luang Prabang is visited by more tourists from advanced countries. In order to continue sustainable development of tourist resources as foreign-currency earning resources in harmony with the existing rich, natural enviromnent and historic architecture, the development should not be converted into the promotion of mass-tourism that easily accepts a large number of tourists; the tourism to be developed should accept only an appropriate number of those high-1evel tourists who find high value in Luang Prabang and therefore are willing to actively understand and get to know its history, culture and nature. Consequently, emphasis should be placed on advertising campaigns directed to potential tourists to communicate to them beforehand the attractions and charms that are offered by Luang Prabang; Iikewise, there should be priority in the development of tourism resources and their maintenance and management. For this purpose, more detailed market survey and demand analysis will be required in order to know what the targeted class of tourists specifically expect from Luang Prabang.

4) Some measures need to be taken to compete with neighboring countries such as Viet Nam, Myanmar and Cambodia who have abundant tourism resources. The author wishes to emphasize in this respect that the greatest charm of Laos lies in the somehow endearing, peaceful atmosphere it evokes on tourists. Many of the tourists, particularly those from developed countries, may find in Luang Prabang and highly appreciate the mind-calming environment they used to live in years ago in their own quarters in home countries: this is what the author felt all through the questionnaire-survey and from their personal comments. And precisely this is what is uniquely attractive about Laos: an atmosphere seldom felt nowadays in neighboring, matured tourist countries like Thailand and Viet Nam, and therefore, an atmosphere that should never be lost to Laos. This is an important point to be considered also from the viewpoint of the competition strategy that consists of differentiating Laos' product in the form of tourist resources from those of the competitive neighboring countries.

It appears that currently in Laos the basis is being built to attract more tourists, first by the 1995 registration of Luang Prabang as a World Heritage site, then by the 1999- 2000 "Visit Lao Year" campaign. Further, following Luang Prabang was recently registered Wat Phu, Khmer ruins located in Champasak, as another World Heritage site; thus, we may say that the national tourism development is starting off satisfactorily. The development, however, should never bring in rapidly increasing foreign tourists in such a manner that it leads to destruction of the natural environment through overuse or loss of idiosyncrasy of local people. Hence, it will be a task imposed on international cooperation to grope for the direction of cooperation that allows the national government and municipalities of Laos to correctly steer the tourism development in the future seeking to usefully develop and protect the regional resources proper to Laos while referencing the tourism development policies that have been followed in foreign countries.

Appendix 16-1

Economic Evaluation of Tourism Resources in Luang Prabang by the Travel-Cost Method

Nana Miyahara

1. Travel Cost Method

The travel-cost method is a method of evaluation by substituting travel cost for the benefit that the consumer receives through use of environmental goods. For this reason, the method has been widely applied to the economic evaluation of recreation sites. Such recreation sites mostly charge none or very little for use. In other words, the admission fee collected from tourists underestimates so much the benefit of the site or the tourists' willingness to pay that it cannot be deemed to reflect adequately their value. In evaluating the value of such goods, TCM estimates the demand function for the goods by using, in addition to the admission, the travel cost and the opportunity cost for the travel time spent by the consumer to visit the site, and then calculating Marshall's consumer's surplus: this is how TCM evaluates the value. Generally, the farther the consumer lives from the recreation site, the higher the travel cost becomes to him, and therefore, his demand for the site is supposed to become lower. On the contrary, demand is assumed to be higher for the consumer that lives in the vicinity. Consequently, supposing a downward-sloping relatiohship between the travel cost and the number of visits (or visit ratio), the consumer's surplus for a far-living consumer is low, while the surplus for a near-living consumer is high; and the aggregate amount of the satisfaction (consumer's surplus) that can still be obtained from the visit after deducting the travel cost paid by each consumer visiting the site is regarded the recreation value of the site. This is the basic way of thinking of the travel-cost method. Further, depending upon the characteristics of the recreation site, two types of approach are available: the individual travel-cost method and the zone-cost method. Here we adopt the latter.

While the individual travel-cost method pays attention to individual visitors, the zone travel-cost method focuses on the ratio of visits from a specific zone. By the latter method,

first, zoning is made on those zones having an equal travel cost or a concentric travel distance from the recreation site. Next, the visit ratio Vi from a given zone (ratio of number of

visitors to the population (Ji) of the zone) is determined; then, the demand function of the visit ratio V(TC) is estimated by having as the explaining variable the travel cost TCi incurred in visiting the recreation site and the ratio of visits to the site as the explained variable. Then, the consumer's surplus for each zone is calculated by the estimated demand function of the visit ratio, which is followed by the evaluation of the value of the recreation site made by summing up the consumer's surplus in all zones. Thus, the zone travel-cost method, which uses as data the average value summed up for each zone, would not work well if individual properties are incorporated into its models. However, one of its features is the possibility of evaluation on such recreation sites as are visited by an individual only once a year, by substituting the visit ratio for the number of visits used in the individual travel-cost method. In a case where the number of visits of an individual has only two values, yes or no, the visit ratio as viewed regarding the whole zone can present varying values from zero to one. Consequently, we consider this zone travel-cost method appropriate for the evaluation of the value of Luang Prabang's tourism resources.

Table 1 The Studies on Economic Evaluation by TCM in Japan

Case	Zone Studied	Evaluator	Evaluation Method	Type of Function	Multi-purpose Tourist	Cost of Time	Amount Evaluated (annual \million)
① Evaluation of environmental benefit of agricultural village as space for informal recreation activities	Furusato-mura Teraya, Yokohama	Sato Masuda	ITCM	Log	Included	1/3	268
② Economic evaluation of health and rest benefit of tourist farm	Shikaoi-cho Hokkaido	Yoshida Miyamoto Idemura	ZTCM	Linear	Included	0, 1/4, 1/2	10-30
③ Evaluation of benefit & cost of agricultural land conservation policy for preservation of historic landscape	Asuka-mura Nara	Fujimoto	ZTCM	Box-Cox Type	Not incld.	1	1,160-1,260
④ Evaluation by TCM of recreation function of agricultural village	Miyama-cho Kyoto	Tanaka	ITCM			1/3	4,300-6,500
⑤ Economic value of bird-watching	Hekurajima Ishikawa	Shikita	ITCM	Log		0	14.42
⑥ Evaluation of sightseeing/recreation value of forest park	Kitami Hokkaido	Nakaya, Idemura	ITCM	Log	Not incld.	0	Day trip 48.88 Accommodation 16.97
⑦ Measurement of environmental improvement benefit by water purification project	Isewan	Ohno	ZTCM			0	
⑧ Evaluation of utility value of World Heritage site	Yakushima	Kuriyama	ZTCM	Log-log	Not incld.	0, 1/3, 1	3,680-9,920
⑨ Evaluation of Nishiki-no-hama of Osaka Bay	Nishiki-no-hama Osaka Bay	Takeuchi	ITCM		Not incld.	0, 0.57, 1	

Table 1 lists summarized extracts from preceding studies made in Japan using the travel-cost method. For the methods of evaluation, we followed Kuriyama (2000). Regarding individual items such as the adoption of explaining variables and the opportunity cost for time, reference was made also to other studies described herein.

2. Questionnaire survey

For six days from August 14 through 19, 2001, a questionnaire-survey was conducted at four points: Luang Prabang International Airport, the southbound bus terminal, the landing place for slow-boats and the landing place for speedboats. The survey was conducted by person-to-person interview that included business tourists and Lao tourists, collecting 518 samples. See the attached questionnaire for principal questions and other details. Of the above samples, 73 were deemed null and void because nationality or place of residence were

not recorded or extremely difficult travel-cost calculation because of unclear routes and means of transportation, and the remaining 445 samples were used as the available samples for TCM. However, for the subsequent qualitative evaluation of the replies, all of the 518 samples were used for summing up.

3. Calculation method of the data

(1) Travel cost

A marked tendency was observed among many of the foreign tourists: they tour around not only in Laos but also in neighboring Thailand, Viet Nam, Cambodia, China and Myanmar. Naturally, the cost incurred for such travel cannot be incorporated into the travel cost to Luang Prabang; if they were, the cost on Luang Prabanga would be extremely overestimated. On the other hand, no inclusion of such cost would lead to an underestimation: because the airfare, for instance, from their home countries to Bangkok, which occupies the greater part of their travel cost, should reflect more or less their will to visit Luang Prabang. There are very few preceding cases of TCM that dealt with tourists including this kind of multipurpose travelers, and there is no analysis either that targeted international tourists. However, this kind of conventional analysis that excludes such travelers is of no use for the present analysis; the big question, therefore, is how to deal with the travel cost of those foreign tourists that visit many places in one single trip. If the trip starts from Luang Prabang, it would be easy to cut off all the travel cost from there to other places; however, the fact is that many tourists regard Luang Prabang as one relay point, and they travel via many complicated routes that do not easily permit superfluous cost to be clearly cut off. For this reason, we decided to compute the travel cost relating to every available route starting from and going back to their home countries, and divided the total cost of such route in three categories: cost outside Laos, cost inside Laos (except for Luang Prabang) and cost inside Luang Prabang. However, if all the transportation cost from starting point to LPQ is included in the transportation cost to visit LPQ, the cost will be overestimated. Therefore, the transportation cost to visit LPQ was calculated using the formula shown below. Then, we used the aggregate amount of weighted travel cost in and out of Laos and the cost inside Luang Prabang as the total travel cost TC for a visit to Luang Prabang.

$$TC = \begin{cases} \text{① Inside Luang Prabang} \\ (\text{hotel charge} \times \text{days}) + \text{WTP(food, admissions, tour cost, souvenirs)} \\ \text{② Inside Laos} \\ \dfrac{\text{Days LPQ}}{\text{Days in Laos}} \times (\text{round trip transp. cost} + \text{visa fee}) \\ \text{③Outside Laos} \\ \dfrac{\text{Days LPQ}}{\text{Total Days}} \times (\text{other transp. cost} + \text{opportunity cost}) \end{cases}$$

1) Transportation cost from home to Bangkok

The greater majority of foreign tourists visiting Luang Prabang visited Bangkok, the hub of Southeast Asia, as the first connecting point. For this reason, regarding the tourists who used airplanes as means of transportation to Bangkok, we used the airfare from the city of departure of their home country to Bangkok as provided directly by the tourists at our request. As for the tourists who did not know the airfare, we deemed half the corresponding Thai Airways regular airfare to be appropriate for use based on a comparison between the regular fares available at Thai Airways and the self-declared fares of the tourists (Table 2).

Table 2 Comparison between Thai Airways regular fares and self-declared fares

	Regular fare	Average fare	Discount rate
AUS	90182	49850	55%
Japan	59595	48266	81%
Israel	86591	51377	59%
Italy	109562	53242	49%
France	116470	54172	47%
Germany	116470	46568	40%
Netherlands	116470	57465	49%
Spain	116470	42642	37%
USA	117081	55289	47%
UK	123556	52440	42%
Canada	133770	40082	30%

Source: Compiled from Thai Airways timetable and questionnaires replied

2) Transportation cost from Bangkok to Vientiane

Four types of transportation are available from Bangkok to Vientiane: airplanes, trains, buses and private cars. The questionnaire asked about the type of transportation

and it's cost. There were incomplete replies; regarding these replies, we made calculations referencing "Chikyuu-no-arukikata (How to travel around the world)."

3) Transportation cost inside Laos

Available transportation within Laos are airplanes, buses, slow-boats, speedboats and private cars. Calculations were made based on the Lao Aviation price list regarding airplanes, and on the price list obtained at local ticketing offices regarding slow- and speed-boats. For other deficient data, "Cikyuu-no-arukikata" was referenced. Bus fares are subject to sharp fluctuations and guidebooks are not reliable; therefore, whenever possible we asked residents in Laos for cooperation and used information obtained this way. Regarding private cars, we calculated the cost based on the 1999's average market gasoline price of 1807kip/ l and the fuel consumption of 12.5km/ l.

4) Visa fee for entry into Laos

Tourist visa that can be obtained when entering Laos at Wattay International Airport, Friendship Bridge and Luang Prabang Intemational Airport costs US$ 30 and are valid for 14 days. The visa application fee varies depending upon the country where it is made; however, here a uniformed visa fee was used with additional US$ 3/day when the stay goes beyond 14 days.

5) Travel cost within Luang Prabang

For the travel cost within Luang Prabang, we asked tourists about hotel charges and the amount they were willing to pay during their stay, the total of which was used. It was difficult to ask the tourists about petty expenditure in the local currency such as tuk-tuk charges, admissions to the royal palace and Buddhist temples; therefore, all charges except hotel charges, which are the biggest spending item, were put together and treated as a whole based on how much they paid or were willing to pay during their stay.

6) Package-tour tourists

Some of the visitors to Luang Prabang were on a packaged tour. Our impression was that many of them were from France, Italy, Spain and other European countries, among whom tours covering ruins in Southeast Asia including mainly Angkor Wat and others

seem to be popular. This kind of tourists often do not know the detailed cost of travel except for the package tour fare they paid at home and therefore, were unable to provide us with any detailed replies. As an alternative, we asked them about the package tour fare, and weighted the provided whole fare amounts by the length of stay and estimated the expenditure corresponding to Luang Prabang.

7) Weighting the travel cost

As mentioned in the foregoing, considering all the travel cost obtained through the questionnaire is likely to lead to an overestimation; therefore, in an attempt to compute out of the total travel cost the travel cost relating to Luang Prabang alone as accurately as possible, first two methods were assumed. One is a method by which each tourist is asked to give order of priority on all the cities to be visited, which will enable us to assume the importance that he gives to Luang Prabang; and the other, a method by which each tourist is asked about the total number of days of his present trip, the number of days he will stay in Laos and in Luang Prabang, respectively. His reply will permit us to assume the importance he gives to Luang Prabang based on such days. These two methods, however, when applied to the actual questionnaire-survey, proved not good enough to obtain useful replies to questions asked as very few tourists could choose priorities clearly. Consequently, we adopted the weighting by the length of stay, which we intuitively felt was simple enough and easy of reply.

8) Computing opportunity cost of time spent on travel

Preceding studies have generally been governed by the idea that the transfer time in a trip is accompanied by the opportunity cost. Regarding the foreign tourists via Bangkok who make up the majority, we multiplied their flight hours from the airport of departure in their home countries to Bangkok by the average wage rate of each country; then, we gave to the result obtained one-third weighting following Cesario. Flight hours were calculated based on the Thai Airways timetable and the average wage rate of each country, based on ILO data. Regarding other tourists not via Bangkok and Lao tourists, we based our calculations on the transfer time from departure to arrival at the first tourist spot. Behind such calculations lay the idea that for a normal tourist sightseeing generally starts from the place of arrival after the first substantial transfer; derived from such idea was the assumption that the time for subsequent transfers is not accom-

panied by any opportunity, cost. Some preceding studies incorporate such opportunity cost with the cost related to the time of stay; however, here we do not use such a method.

9) Exchange rates

Questions using a particular currency were avoided to facilitate tourists' replies; therefore, replies actually obtained on travel cost and the like are mostly expressed in currencies of tourists' home countries. All exchange rates used herein, including above cases, were based on the rates that prevailed on August 9, 2001.

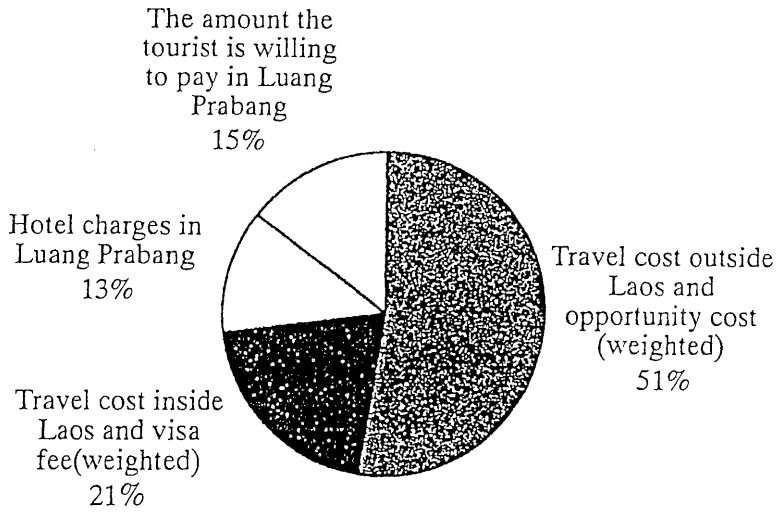


Figure. 1 Details of travel cost (¥38,812 on average)

Figure.1 shows the result of summing up the travel costs computed by the above method. The result reveals a fact that each tourist on average spent ¥38,812 during his 4.6 day stay in Luang Prabang, out of which 28% was spent in Luang Prabang.

(2) Visit ratio

$$\text{Annual visit ratio of each country (Y)} = \frac{\text{Number of annual visitors (number of samples country of residence} \times 365 \div 6)}{\text{Population of each country}}$$

The visit ratio that is treated as a dependent variable in the zone travel-cost method is determined as follows:

The number of samples by country of tourist's residence was multiplied by 365 days, and then divided by 6 days of the survey period so as to be adjusted to the number of

samples on an annual basis; and the result obtained by dividing the annual number of visitors thus determined by the overall population of the corresponding country is the visit ratio of each country. What is to be noted here is that the number of tourists, which is based only on the six days of August when the survey was conducted, corresponds to the lean season for tourism in Luang Prabang. It should be pointed out, therefore, that the estimated result will prove to be underestimated since this method makes no seasonal adjustment. The population of each country is based upon the data published by Japan's Ministry of Foreign Affairs, and that of Japan on the data published by the Management and Coordination Agency.

(3) Grouping of samples

It was necessary to put together by country the data summed up from the questionnaire and group them under countries having equal travel cost or concentric travel distance from the place of visit. As the strict conformity to the definition of the grouping was difficult, the grouping was made necessarily in a convenient manner, though conditioned to the conformity wherever possible; thus, the grouping was made on a trial-and-error basis, and the grouping deemed best was adopted after each new estimation result was compared with the others (Table 3).

Table 3. Data summed up by zone ③

Zone	Country	Sample		Visit ratio	Travel Cost	Opportunity Cost	Distance (miles)	Population	Income	Age
1	France	68	68	0.0000709	43,210	10,797	5,863	58,380,000	3,139,440	32.5
2	UK	56	56	0.0000573	23,319	13,251	5,922	59,500,000	3,114,720	22.4
3	Italy	27	27	0.0000285	39,677	13,364	5,491	57,610,000	5,438,400	38.3
4	Germany	24	24	0.0000178	36,048	12,377	6,105	82,160,000	2,005,067	29.2
5	Spain	18	18	0.0000278	70,635	8,091	6,327	39,370,000	3,831,600	39.0
6	Netherlands	12	12	0.0000460	18,826	12,583	5,708	15,860,000	1,149,480	22.9
7	Switzerland	11	11	0.0000940	32,823	21,874	5,609	7,120,000	5,141,610	25.8
8	Norway	5	9	0.0000411	36,029	13,230	5,668	13,310,000	5,191,200	26.0
	Sweden	4								
9	Belgium	3	10	0.0000180	28,353	14,282	5,626	33,801,000	4,284,800	26.1
	Denmark	3								
	Austria	2								
	Czech Rep	2								
10	Greece	1	6	0.0000017	84,146	3,713	5,828	219,990,000	1,586,200	29.3
	Ireland	1								
	Hungary	1								
	Russia	1								
	Portugal	1								
	South Africa	1								
11	Canada	11	11	0.0000218	30,076	15,120	9,164	30,750,000	4,770,960	25.0
12	USA	11	11	0.0000024	53,444	17,546	9,387	281,420,000	7,341,840	24.7
13	Australia	11	12	0.0000320	34,491	6,492	5,405	22,842,800	8,936,280	39.1
	New Zealand	1								
14	Japan	70	70	0.0000336	62,865	6,069	2,868	126,920,000	3,411,360	26.4
15	Thailand	40	40	0.0000394	32,322	532	370	61,740,000	2,051,760	39.5
16	Israel	16	16	0.0001570	24,784	8,631	7,351	6,200,000	1,205,100	20.0
17	Singapore	5	10	0.0000083	33,673		1,585			
	Korea	4								
	Taiwan	1								
18	Vientiane Mun	21	21	0.0021363	11,021	726	0	5,218,000	252,144	24.2
19	Luangnamtha	1	1	0.0004644	14,325					
20	Bokeo	4	4	0.0018718	2,021					
21	Vientiane	2	2	0.0003721	5,862					
22	Saravane	2	2	0.0004167	6,643					

4. Estinration of dernand function

Based upon the result of correlation analysis and the data dispersion by these scatter diagrams (omitted), a regression analysis was made by the least squares method considering the visit ratio Y for the non-explaining variable and the travel cost TC for the explanatory variable (Table 4). Linear form and log-log form were mentioned as candidates of function forms. As the log-log form applied better, the linear regression was made using the log-log form. Although no correlation was observed, another analysis was made incorporating income M in view of many preceding studies that add income to the explaining variable. There were

lots of French tourists despite travel cost and long distance, which fact, we presumed, was attributable to the influence of Laos' historical background; similarly, at the time of survey there seemed to be more Japanese tourists than in normal months, which fact, we also presumed, was attributable to the Obon season in Japan; to deal with these situations, we incorporated DCOLONY (dummy colony) and DOBON (dummy *Obon*) in the models, respectively; however, no significant result was obtained except for travel cost.

Table 4. Estimation result

	Model 3A	Model 3B	Model 3C	Model 4A	Model 4B
TC	-	-	-	-	-
LTC	-1.82 (-3.78)***	-1.67 (-2.82)**	-2.13 (-4.52)***	-1.7 (-6.49)***	-1.82 (-6.78)***
M	-	-	-	-	-
LM	-	-0.16 (-0.472)	-	-	-
DCOLONY	-	-	1.51 <1.61>	-	1.35 <1.24>
DOBON	-	-	1.56 <1.60>	-	1.28 <.16>
Constant terms	8.61 <1.71>	9.41 <1.73>	11.67 (2.38)**	7.46 (2.79)**	8.52 (3.14)***
R^2	0.472	0.48	0.605	0.678	0.72
Adjusted R^2	0.439	0.41	0.52	0.662	0.673
F value	14.30***	6.92***	7.14***	42.12***	15.41***

*** 1% significance ** 5% significance * 10% significance

(1) Model 3A

This is the result of using the sample 18 of the zone ② that excluded China and Indonesia. LTC showed 1% significance. Improvement was seen also on the coefficient of determination.

(2) Model 3B

This is the result of incorporating income into 3A; here either the income did not show any significance.

(3) Model 3C

DCOLONY and DOBON were incorporated into 3A by way of trial; however, neither is significant. Improvement was observed on the coefficient of determination.

(4) Model 4A

This is the result of using the sample 22 of the zone ③ where China and Indonesia were excluded and samples on Laos were subdivided into provinces. The parameter of LTC is significant at the 1% level, constant terms at the 5% level and the coefficient of determination is 0.678, all showing considerable improvement.

(5) Model 4B

Just to see if it would give any significant effect, DCOLONY and DOBON were incorporated into 4A, but neither parameter was significant. Thus, after comparing above five different models, we finally adopted Model 4A. This is a very simple model that has as an explanatory variable only travel cost; however, this same result is also seen in the environmental evaluation conducted by Kuriyama (2000) on Yakushima Island, a World Heritage site in Japan. The fact that a high coefficient of determination is obtained, although estimated by cross-section data, indicates that this model adequately fits the data.

5. Calculation of consumer's surplus

The value of Luang Prabang's tourism resources resulted in ￥800 million. It was calculated by computing first the consumer's surplus for each zone using the demand function of the visit ratio adopted based on the estimated result, and then summing up all the consumer's surpluses. As mentioned earlier, the said amount is underestimated given the fact that the survey was conducted in a period when there were relatively few tourists. 165,222 made public by the National Tourist Authority (NTA) as the number of tourists that visited Luang Prabang in 2000 is approximately 6.1 times the number of tourists calculated on the basis of the number of the samples obtained in the present survey. In view of such difference, we tried to calculate, though in a convenient manner due to the unavailability of adequate data, the consumer's surplus equally by the regression analysis based on Model 4A, first by simply multiplying the number of samples summed up by country indicated in Table 3 by 6.1times, and also using the travel cost data as summed up from the questionnaire. The resulting amount of evaluation was ￥4,900 million approximately.

Appendix 16-2

Economic Evaluation of Suburban Tourism Resources of Luang Prabang — Using Choice-Based Conjoint —

Sanae Morimoto

1. Choice-Based Conjoint

The Conjoint Analysis has two questioning patterns: Rating-Based Conjoint and Choice-Based Conjoint [1]. The lating-based conjoint is a method of rating profiles by marks or rearranging them in order of preference, and is divided in two types: the perfect-profile rating type that asks preference to be stated for one profile, and the pair-wise rating type that asks about preference for one of the two profiles presented. The choice-based conjoint is a method of asking preference to be chosen for any one of the plural profiles presented, and also called the choice-based test. In this section, evaluation of tourist resources will be made using the choice-based conjoint which is said to be close to actual consumption activities.

2. Outline of survey

2－1 Survey design

Table 1 lists the properties to be evaluated in the present survey. Based upon the hearing survey and the guidebooks used by international tourists, the following six were determined to be the properties of the existing tourism sites

① Pak Ou Caves is a general term for Tam Ting Cave and Tham Poum Cave. The cave is located some 25 km distant from downtown Luang Phabang and can be reached by boat in one hour and a half. In the Tham Ting Cave over 4,000 Buddhist images are seated. Admission is 8,000 kip [2]. ② Kuang Si Falls are located about 32 km distant from downtown Luang Phabang and can be reached by tuk-tuk [3] in about an hour. Near the falls are some pools where swimming is possible. The vicinity is a park where picnics are allowed. Admission is 8,000 kip. ③ Sae Falls are located some 20 km from downtown and can be reached in 20 minutes by tuk-tuk. The falls are smaller than Kuang Si Falls, but have a

[1] For questioning patterns, see Chapter 6 Ohno et al (2000)

[2] Exchange rate as of August, 2001 was US$ 1=8,500 kip

[3] Tuk-tuk rs a three-wheeled motorbrke taxi, also called jumbo Can hold 6 to 8 passengers

large number of pools around that offer great pleasure to visitors. Admission is 8,000 kip. ④ The textile village (Bang Phanom) is located about 20 minutes from downtown by tuk-tuk. It is a village famous for textiles, which can be bought in a textile market set up in the village. Admission is free. ⑤ The village of alcohol (Bang Sang Hai) lies on the way to the Pak Ou Caves, about an hour drive by tuk- tuk from downtown. In the village Japanese shochu-like spirits lao are distilled. The distilling process can be visited for observation. Admission is free. ⑥ The village of pottery (Bang Chang) is located across the Mekong River opposite to downtown and is reached by boat in about 15 minutes. The village is famous for pottery. Admission is free.

We included trekking and local village tours, which presently do not yet exist but have tourism potential, as attributes. They serve as attributes for evaluation of the direction of Luang Phabang's tourism development. Trekking is an attribute, which embodies natural environmental resources, while a local minority village tour is an attribute, which embodies cultural resources. As mentioned in the previous section, Luang Phabang tourism development strategies proposed expansion of eco-tourism at Phu Lori and tourism based on natural scenic areas. Based on the attribute "trekking," evaluation will be conducted to determine how much the tourists visiting Luang Phabang demand this kind of tourism that uses natural resources. On the other hand, there is a multi-ethnic population living in northern Laos that comprises Luang Phabang, and in the tourism development strategies of Luang Phabang, the development of handicraft villages is mentioned. Since such minorities are important cultural resources of Luang Phabang, their villages may be developed into tourist resorts and integrated into rural development for the creation of employment and income. Based on the attribute "local minority village," evaluation will be conducted on the tourist demand for tourism that uses this kind of cultural resource.

In this section, means of transportation were also considered as an attribute. In the course of the hearing survey, when asked about problems, tourists replied: ① that when not on a package tour, they found it troublesome and time-consuming to arrange for transportation to the suburban tourism sites by themselves, and ② that the cost of transportation varied greatly according to the number of tourists who shared the means and the negotiation. As improvement of the transportation means was among the varied tasks of the tourism development strategies, the evaluation of tourist preferences will be conducted to determine the kind of means that tourists prefer from among four kinds of trasportation including tuk-tuk, minibus, bus and private car. Currently, three means of transportation

are available, namely, tuk-tuk, minibuses and cars, but evaluation will be conducted on the means of transportation including buses that enable more passengers than tuk-tuk or minibuses to move at lower cost.

Table 1 List of attributes

Attribute	Level
Tour fare	US$3
	US$5
	US$10
	US$30
Means of transportation	Tuk-tuk
	Minibus
	Bus
	Car
<Suburban tourist spots>	
Pak Ou Caves	Visiting
	Not visiting
Kwangsi Falls	Visiting
	Not visiting
Sae Falls	Visiting
	Not visiting
Textile village	Visiting
	Not visiting
Alcohol village	Visiting
	Not visiting
Pottery village	Visiting
	Not visiting
<Other recreations>	
Trekking	Visiting
	Not visiting
Minority villages	Visiting
	Not visiting

In a conjoint analysis, the important issue is how to combine these attributes and ask respondents about them, which is a matter for profile design. In this section evaluation will be made on a total of ten attributes: two different attributes, tour price and means of transportation, have four different levels each, and eight attributes of suburban tourism sites and other forms of recreation have two different levels each. They give a possible 4,096 ($28 \times 42 = 4,096$) profiles; however, it is costly to use all the possible profiles. Therefore, to create more efficient profiles, an orthogonal main effect developed design, in which attribute levels across alternatives are uncorrelated, was applied. This has the advantage of avoiding multicollinearity, but at the same time, it creates unrealistic profiles.

Such unrealistic profiles can be deleted, but it is at the expense of losing the orthogonality of the attributes. This results in decreased statistical efficiency in estimating the preference for each attribute independently. In this paper, therefore, priority was given to statistical efficiency and 64 profiles were created.

2－2　Details of survey

The survey was conducted during August 14 through 19, 2001. The survey was conducted in four places, namely, the southbound bus tenninal, two landing places for slowboats and speedboats and the airport. These places serve as an entry into and an exit from Luang Phabang, and therefore, are used by most of the tourists. The survey was conducted by person-to-person interview with domestic and international tourists visiting Luang Phabang. A total of 158 tourists were surveyed, and there were 153 possible valid answers. The questionnaire comprised four parts (Appendix): first, personal data was obtained from the respondents, e.g., sex, age, nationality, profession and annual income; secondly, the main tourism resources around Luang Phabang were described using color photo panels; thirdly, the problems with access to these tourism sites were explained; and lastly, the choice experiment was conducted six times for each respondent. Respondents were shown three profiles, two of which were hypothetical one-day package tours, and the other was the option of staying in town without joining a tour. Respondents were asked to choose their most preferred option. An example of the choice experiment is provided in the Appendix.

The characteristics of personal properties are listed in Table 2. Of the 153 valid samples, 82% (126 persons) had already visited Luang Phabang. By sex, 54% were men and 46% were women, split almost fifty-fifty. By age, the overwhelming majority of 61% were in

their 20s; and by profession, students occupied the largest at 39%, presumably because lots of student tourists were on summer vacation in August when the survey was conducted. Regarding profession, many replied "teacher" in "Others"; therefore, this profession was separated into an independent item, resulting in 11.76%, the largest ratio next to students and employees. As for the nationality by area, Europe was the largest being approximately half, followed by Asia and North America [4]. Classified by country; France occupied 16.99%, England 14.37% and Japan 12.41%. As for companions, the majority was

[4] Europe: 14 countries.North America: Canada and USA.Asia: Japan, Thailand, Malaysia and Laos. Middle East: onJy Israel.

occupied by tourists who replied "friends," followed by "alone" (24.18%) "spouses" or "family members" (16.33% together).

Table 2. Personal data

		No. of person	Ratio(%)
No. of valid respondents		153	100.00
Luang Phabang	Visited	126	82.35
	Visiting	18	11.76
	Not replied	9 &	5.8
Sex	Male	83	54.24
	Female	69	45.09
	Not replied	1	0.65
Age	10s	3	1.96
	20s	92	60.13
	30s	18	11.76
	40s	11	7.18
	50s	22	14.37
	60s	5	3.26
	Not replied	2	1.30
Profession	Students	61	39.86
	Agriculture/forestry/fishery	2	1.30
	Employee	34	22.22
	Civil service	11	7.18
	Business executive	1	0.65
	Teacher	18	11.7
	Housewife	1	0.65
	None	3	1.96
	Others	21	13.72
Nationality	Europe	77	50.32
	Asia	9	5.88
	Oceania	29	18.95
	North America	28	18.3
Companion	Spouse	22	14.37
	Family member	3	1.95
	Friends	85	55.55
	Family & friend	1	0.65
	Alone	37	24.18
	Not replied	5	3.26

3. Model

In the choice-based conjoint, estimation is made using a Conditional Logit Model. The utility being *Uij* when the individual *i* chooses the alternative *j*, the following random utility

model is assumed:

$$U_{ij} = V_{ij} + \varepsilon_{ij} \tag{1}$$

where Vlj is an observable utility (systematic component) and εij is unobserved idiosyncrasies of tastes (random component).

Assuming that the individual i chooses the alternative j only when such choice gives him greater utility than other choices, the probability of the individual i choosing the alternative j is expressed as follows:

$$\begin{aligned} P_{ij} &= \Pr\{U_{ij} \geq U_{ik}\} \\ &= \{V_{ij} + e_j \geq V_{ik} + e_{ik}\} \\ &= \{Vi_j - V_{ik} \geq e_{ik} - e_{ij};\ j \neq k,\ j,k \in J_i\} \end{aligned} \tag{2}$$

where J is a set of alternatives that the individual i can choose, being $J=\{1,2,3\}$ in this paper.

Here assuming that the distribution of probability terms εij, εik are subject to the Gumbell distribution (first class extreme-value distribution), Pij is expressed in the following conditional logit model:

$$P_{ij} = \frac{e^{\lambda V_{ij}}}{\sum_{j=1}^{3} e^{\lambda V_{ij}}} \tag{3}$$

where λ is a scale parameter conventionally normalized to 1. For the estimation of a parameter, the maximum likelihood method is used to maximize the following logarithmic likelihood function:

$$\ln L = \sum_{i=1}^{n} \{d_{i1} \ln P_{i1} + d_{i2} \ln P_{i2} + d_{i3} \ln P_{i3}\} \tag{4}$$

where $\delta i1$, $\delta i2$, $\delta i3$ are dummy variables such that $\delta ij=1$ if alternative j is chosen and δij = O otherwise.

The observable utility function Vij is assumed to be expressed by the attribute vector (X) and tour price (p):

$$\begin{aligned} V_{ij}(x,p) &= \sum_{m=1}^{M} \beta_m x_m + \beta_p p \\ &= \beta_p p + \beta_1 TukD + \beta_2 MiniBD + \beta_3 CarD \\ &\quad \beta_4 Pak\ Ou + \beta_5 Kwangsi + \beta_6 Sae + \beta_7 Phanom \end{aligned} \tag{5}$$

where *TukD*, *MiniBD* and *CarD* are dummies of means of transportation, *PakO*u a dummy of Pak Ou Caves, *Kwangsi* a dummy of Kuang Si Falls, Sae a dummy of Sae Falls, *Phanom* a dummy of the cotton and silk weaving village, *Sanghai* a dummy of the local rice whisky village, *Chang* a dummy of the pottery village, *Trek* a dummy of trekking and *Minority* a dummy of the minority villages, the last two being among "other recreations."

The Marginal Willingness to Pay (MWTP) when each attribute increases by one unit is de-

$$\sum_{m=1}^{7} \frac{\partial V_{ij}}{\partial x_m} d x_m + \frac{\partial V_{ij}}{\partial p} d P = d V_{ij} \qquad (6)$$

termined by differentiating (5) by the following method :

Utility level being constant ($d V = 0$) and the level of the other attributes also being constant, MWTP for the attribute Xm is then calculated as follows :

$$MWTP_m = \frac{d p}{d x_m} = - \frac{\partial V_{ij}}{\partial x_m} \Big/ \frac{\partial V_{ij}}{\partial p} = - \frac{\beta_m}{\beta_p} \qquad (7)$$

4. Result of estimation

Since there were 153 valid answers for each respondent, and each respondent was subject to the choice experiment six times, the total sample size was 918. The estimation results are presented in Table 3. Model I was estimated using all attributes.

The estimated parameters indicate how utility changes when an attribute changes by one unit. The tour price parameter was negative, and the parameters of existing tourism sites were positive except for the pottery village and "other recreations," indicating that an increase in tour price was not preferred by tourists, while tourists preferred to visit any site. This corresponds to our prediction. However, judging from the t-values, none of the transportation parameters were statistically significant. This suggests that transportation is not the most important concern for tourists; instead, they gave importance to the tourism sites. It is also possible that the respondents did not recognize all the means of transportation, because suburban tourist spots were explained using color photo panels, while only verbal explanations were given on the means of transportation.

Table 3. Result of estimation

	Model 1		Model 2	
	Coefficient	t value	Coefficient	t value
Tour price	-0.051***	-10.239	-0.050***	-10.155
Tuk-tuk	0.188	1.121		
Minibus	-0.047	-0.335		
Car	0.180	1.046		
Pak Ou Caves	0.541***	4.934	0.587***	5.633
Kuang Si Falls	0.313***	2.947	0.301***	2.851
Sae Falls	0.533***	5.031	0.558***	5.635
Weaving village	0.289***	3.388	0.280***	3.387
Rice whisky village	0.342***	3.413	0.342***	3.529
Pottery village	-0.020	-0.177		
Trekking	0.217**	2.000	0.259**	2.518
Minority village	0.170*	1.673	0.199**	2.074
No. of samples	918		918	
Log likelihood	-842.232		-868.239	
Likelihood ratio index ρ^2	0.141		0.139	
Prediction	0.556		0.561	
AIC	-842.232		-852.239	

Notes: *** significance level 1%; ** significance level 5%; * significance level 10%;
( ) t value

Comparing parameter sizes of the existing tourism sites, it was found that Pak Ou Caves and Sae Falls had the largest positive effects on the utility to respondents, while Kuang Si Falls had a smaller effect than the other two resources, although the short-term Luang Phabang tourism development plans proposed to improve this. Parameters were also low on tourism sites such as the silk and cotton weaving village and the local rice whisky village as compared with those on Pak Ou Caves and Sae Falls. On the other hand, judging from the t value, the pottery village was not significantly different. The actual number of visits to the village was the lowest in our pre-survey [5]. Thus, the pottery village appears to be the least popular site and did not affect the utility.

The parameters of the trekking and the minority villages, classified as "other recreations," are lower than the existing tourism sites; nevertheless, they were positively evaluated by the respondents.

Model 1 contained statistically insignificant explanatory variables, so it was re-estimated

[5] Other visit ratios were 49.6% for Pak Ou Caves, 45% for Kuang Si Fa]ls, 16% for Sae Falls, 11% for the weaving village and 21% for the rice whisky village.

using the conditional logit model with only significant varia'bles (Model 2). As a criterion of model selection, Akaike Information Criterion (AIC) was applied. AIC of Model 2 was smaller than Model 1; therefore, the Marginal Willingness to Pay was calculated for each significant attribute using Model 2. The results are shown in Table 4.

Table 4. Marginal willingness to pay

Pak Ou Caves	US$11.736	[8.12037 - 15.893]
Kuang Si Falls	US$6.015	[2.535 - 9.496]
Sae Falls	US$11.153	[7.781 - 14.677]
Weaving village	US$5.610	[2.862 - 8.429]
Rice whisky village	US$6.844	[3.436 - 10.453]
Trekking	US$5.186	[1.912 - 8.601]
Minority villages	US$3.991	[0.881 - 7.056]

Note: [ ] means "95% confidence interval" as estimated based on the 999-times0 Monte Carlo simulations made by Krinsky and Robb (1986).

Among the existing tourism sites, Pak Ou Caves evaluated at US$ 11.73 and Sae Falls at US$ 11.15 were the highest, followed by the local rice whisky village (US$ 6.8), Kuang Si Falls (US$ 6.0) and the silk and cotton weaving village (US$ 5.6). The survey made by the said travel-cost method revealed that Kuang Si Falls had been visited by 233 tourists giving the second highest visit ratio of 45% after Pak Ou Caves; nevertheless, the amount of the Marginal Willingness to Pay was lower than on Sae Falls, which had a lower visit ratio (16%). One interpretation is that actually many tourists had already visited Kuang Si Falls; then, if they were to visit another water fall to enjoy similar services of a fall, then they would be more interested in Sae Falls, which was not visited that time [6]. Another possible interpretation is that Kuang Si Falls are located 32 km from downtown Luang Phabang and it takes tourists one hour to get there because of the poor road conditions, while Sae Falls, Iocated 20 km from downtown, can be reached in 20 minutes causing the evaluation on Kuang Si Falls to be low. The short-term Luang Phabang tourism development plans propose improvement of Kuang Si Falls; however, the estimation herein made on Kuang Si Falls is not as high compared with those relating to Pak Ou Caves and Sae Falls, which indicates that reconsideration'is required on the tourism sites to be developed.

On "other recreations," MWTP was US$ 5.1 for trekking and US$ 3.99 for minority vil-

[6] Relating to this result, an indication was made by the parties concerned on the part of Laos that the result was due to Kuang Falls being too modernized for tourists that visited the falls for the purpose of enjoying the natural environment.

lages. Although not as high compared with that of the existing tourism sites, the estimated value on the minority villages was an amount significantly different from zero, as indicated in the result of the confidence interval; nevertheless, the value was low in comparison with the values for the existing villages such as the textile village and the local rice whisky village.

5. Simulation of choice probability

Based on the estimation result by the choice-based conjoint, the probability of tourist visits to any one of the tourist spots (choice probability) can be found regarding the case where any of the suburban tourist spots of Luang Phabang have been newly opened or closed [7]. Choice probability was computed on each tourist spot on the assumption that the tourists' utility relating to each tourism site is determined by the transportation cost to get there, admissions and the benefit obtainable from the visit to the spot [8]. In this section, forecast was made on the choice probability, (1) in the condition where only the existing tourist spots are available, (2) when trekking is newly set up, and (3) when visits to minority villages are set up.

(1) Choice probability on the existing tourism sites First, choice probability was determined for the case where only the existing tourists spots are available (Figure 1) [9]. In reflection of the estimation results, choice probability was highest on Pak Ou Cave and Sae Falls (0.189% and 0.184%, respectively), followed by the local rice whisky village (0.172%), Kuang Si Falls (0.157%), the silk and cotton weaving village (0.154%) and "no participation, downtown sightseeing only" ("No participation", 0.142%). When the MWTP (evaluated value) on each tourist spot and relevant transportation costs are considered, the evaluation on Pak Ou Caves and Sae Falls is still confirmed to be high. However, as no big variation exists in choice probability, presumably there is variation in tourists' preference for the existing tourist spots.

---

[7] Simulation of choice probability was made using the same method that Kuriyama and Ishii used (1999) on home water purifiers.

[8] As transportation cost, the average of amounts actually paid by tourists as declared in the survey by the travel-cost method was used. For admissions, those in effect in August 2001 were converted into US dollars and used. The benefit obtainable from tourist spots is the coefficients relating to the spots as estimated by the conditional logit in the foregoing paragraph.

[9] In the foregoing paragraph, the pottery village was not statistically significant and no influence on tourists' utility was observed. In this paragraph, choice probability was computed based on the tourism sites excluding the pottery village.

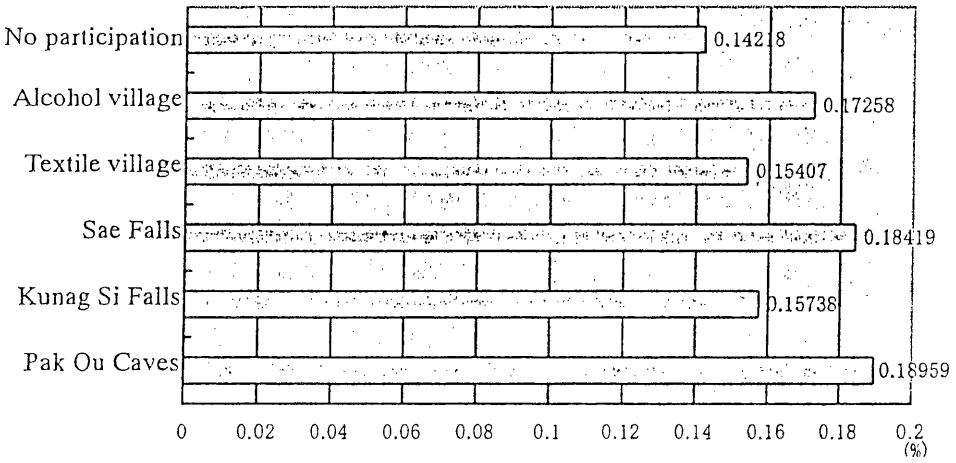


Figure 1. Choice probability on existing tourist spots

(2) Choice probability when the trekking route is established

Next, choice probability was determined for the case where trekking is set up (Figure 2). In this case, simulation was performed to determine how choice probability would vary when the cost of participating in trekking changed from US$ 1 to 10. The cheaper the trekking cost, the higher the choice probability becomes on trekking; however, when its cost exceeds US$ 3.5, the choice probability on trekking becomes lowest among all probabilities relating to suburban tourist spots. To maintain visits on a level similar to those of the existing 'tourist spots, trekking should be set up for a cost not exceeding US$ 3.5, including transportation and participation.

(3) Choice probability when minority village route is established Lastly, choice probability is shown in Figure 3 for the case where minority villages are set up as tourist spots. Also, in this case, in the same manner as trekking, simulation was performed to determine how choice probability would vary when the cost of visiting such villages changed from US$ 1 to 10. The cheaper the cost of participation, the higher the choice probability becomes on the minority villages. However, if the cost exceeds US$ 2.5, the choice probability on the villages becomes lowest in comparison with the probabilities on the existing tourist spots. To maintain visits on a level similar to those of the existing tourist spots, visits to the minority villages should be set up for a cost not exceeding US$ 2.5 including transportation and participation.

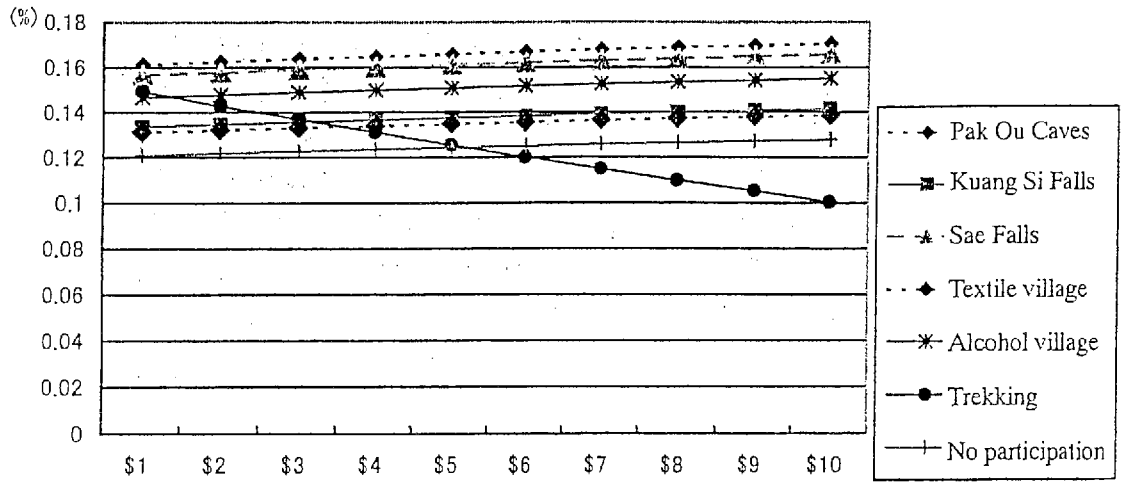


Figure 2. Choice probability when trekking is established

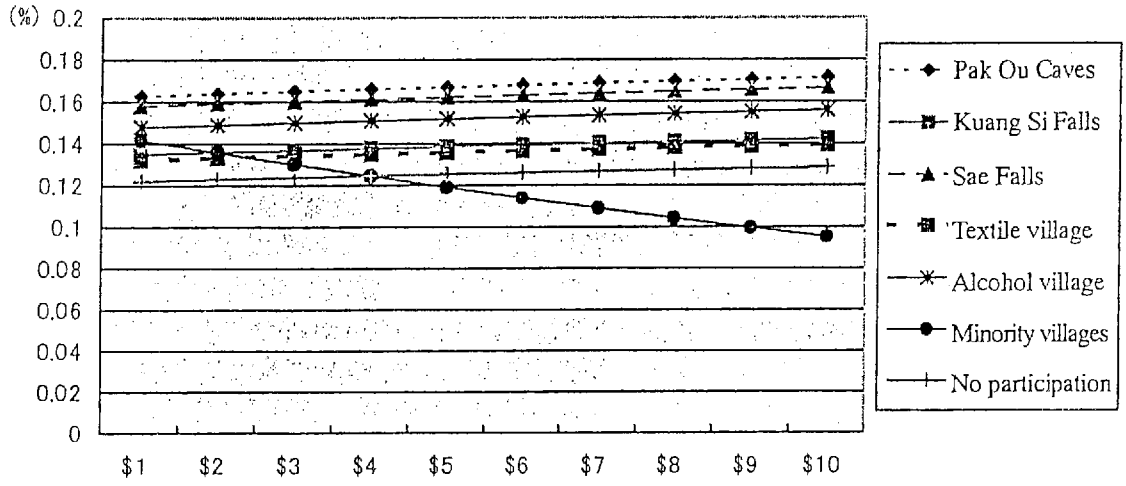


Figure 3. Choice probability when minority villages are set up as tourist spots

6. Further research

The task to be addressed in the future is the problem of seasonality. The present survey was conducted in August. In the case of Laos, tourism is subject to seasonality. Natural resources such as waterfalls have different amounts of water between the dry and the rainy season, and the tourists' evaluation on those resources may vary depending upon the time of the survey; therefore, good care should be taken when computing the evaluation amount for the whole year relating to the tourist spots based upon the evaluation amount obtained from the present survey.

Appendix (Travel Cost Method)

Name of Interviewer ( )

No.

Questionnaire

For Economic Evaluation of Luang Prabang as a Sightseeing Site

□ will visit □ already visited

1. SEX □ Male □ Female

2. AGE □ 10-19 □ 20-29 □ 30-39 □ 40-49 □ 50-59 □ 60-69 □ 70 and over

3.
NATIONALITY( )

4. OCCUPATION □ Agriculture □ Forestry □ Fishery □ Private Enterprise
□ Public Servant □ Proprietor □ Housewife □ Student □ Retired Personnel
□ Other( )

5. COUNTRY of RESIDENCE
( )

6. Do you live in urban area? □ Urban □ Rural □ Sub-urban

7. How many persons are you accompanying?

□ Spouse □ Parents ( ) □ Children ( )
□ Friends ( ) □ No accompanied persons

8. How often do you go to sightseeing?

□ One or Two times a year □ Three or Four times a year

□ Every two months □ Every month □ Once a half year □ Every week

9. How do you usually spend your leisure hours?

□ Visiting Resort, Amusement and Sightseeing area □ Reading Book

□ Sports □ Working □ Taking a rest at home

□ Others ( )

About the current tour in Luang Prabang

10. What are your purposes to tour Luang Prabang?

□ To enjoy the natural environment □ To visit temples and ruins

□ Ethnic tour □ To enjoy local food □ To enjoy shopping

□ Recuperation □ To visit World Heritage

□ Others ( )

11a. Which sightseeing sites are you going to or have you already visited in Luang Prabang City?

□ Wat Xiengthon □ Royal Palace Museum □ Phusi

□ Wat Mai Suwannaphumaham □ Wat Wisunnalat

□ Wat Thatluang □ Dala&Na Viengkham market

□ World Heritage House

11b. Which sightseeing sites are you going to or have you already visited in the outskirts of Luang Prabang?

Sightseeing site	Transportation	Cost
□ Pak Ou	One way | Return	$
□ Ban Sang Hai	One way | Return	$
□ Tat Kuangsi	One way | Return	$

□Tat Se	One way | Return	$
□Ban Phanom	One way | Return	$
□Ban Chan	One way | Return	$
□Others	One way | Return	$

12. Please tell us about frequency of visit at Luang Prabang.

□First □Second □Third □Fourth and over

13. Please tell us about all the route of your trip in order. (Show it in the attached map)

1)Please tell us the place where you started.

Name of Country; Name of City;

Name of Airport;

2)Where did you visit before you entered Laos?

□No

□Visited (Country Name;)

3)Where did you enter into Laos?

□ Vientiane □ Luang Prabang □ Savannakhet □ Huai Xay

□Boten □Kaew Neua □Thakhek □Dengsavan □Pakse

4)Which province in Laos have you visited before you came to Luang Prabang?

□ none □ Municipality of Vientiane □ Vientiane (Vang Vieng)

□Xiang Khouang □Khammouane □Savannakhet

□Champasak □Luang Namtha □Sainyabouri

□Bolikhamxay □Houaphan □Bokeo (Huay Xay)

□Oudomxay □Attapeu □Saravane □Sekong

□P hongsaly □Others ( )

5) Where is your next destination?

In Laos;

□ none □ Municipality of Vientiane □ Vientiane(Vang Vieng)

□Xiang Khouang □Khammouane □Savannakhet

□ Champasak □ Luang Namtha □ Sainyabouri

□ Bolikhamxay □ Sekong □ Houaphan □ Bokeo (Huay Xay)

□ Oudomxay □ Attapeu □ Saravane □ Phongsaly

□ Others( )

Other Countries:

□ Thailand □ Vietnam □ Cambodia □ China

□ Others ( )

6) Please put the priorities on the above-mentioned countries.

Laos( ) Thailand( ) Vietnam( ) Cambodia( )

China( ) Others( )

7) Please put the priorities on the above-mentioned provinces in Laos

Luang Prabang ( ) Municipality of Vientiane( ) Vientiane( )

Xiang Khouang( ) Khammouane( ) Savannakhet( )

Champasak( ) Luang Namtha( ) Sainyabouri( )

Bolikhamxay ( ) Houaphan ( ) Bokeo( )

Oudomxay( ) Attapeu( ) Saravane ( ) Sekong( )

Phongsaly( ) Others ( )

8) Suppose there are international flights directly to Luang Prabang more frequently at lower fares, do you think you would have visited Luang Prabang only?

□ Yes □ No (still interested in other places in Laos)

□ I don't know

14. May I ask about transportation and its cost per person before you entered Laos?

{ If this trip is a package tour, please tell us the whole price you paid to your local travel agent. }

($)

Transportation	Cost
□ Airplane (oneway|return)	$
□ Train (oneway|return)	$

□ Ship (oneway|return)	$
□ Rent-A-Car (oneway|return)	$
□ Motor bicycle (oneway|return)	$
□ Bus (oneway|return)	$
□ Others( ) (oneway|return)	$

15. May I ask about transportation and its cost per person until when you arrived at Luang Prabang after you entered Laos?

Transportation	Cost
□ Airplane (oneway|return)	$
□ Slow boat (oneway|return)	$
□ Speed boat (oneway|return)	$
□ Rent-A-Car (oneway|return)	$
□ Motor bicycle (oneway|return)	$
□ Bus (oneway|return)	$
□ Others( ) (oneway|return)	$

16. Please tell us how many days will you spend for current tour and how many days will you or did you stay at Luang Prabang?

Total days spent for your tour ( )days

Luang Prabang ( )days

Laos ( )days

17.May I ask how much you will spend for accommodation (per person / per day)?

Hotel ($)

Guest house ($)

18. May I ask how much you are willing to pay for the following items at the maximum?

Total ($)

□Food & Beverage □Admission fee □Charge for guide & tour

□Souvenir □Others( )

19.How did you get information about Luang Prabang?

□Guide book □Magazine □T.V. □Travel agent

□Friend □Breau of tourism, Laos

□Breau of tourism, Thailand □Internet

□Others ( )

20.Please tell us about your opinion and impression on Luang Prabang as a sightseeing place.

Road

□Good □Medium □Bad

Transportation

□Good □Medium □Bad

Accommodation

□Good □Medium □Bad

Sightseeing Sites

□ Good □ Medium □ Bad

Food

□ Good □ Medium □ Bad

Security

□ Good □ Medium □ Bad

Services

□ Good □ Medium □ Bad

Cleanliness

□ Good □ Medium □ Bad

Environment

□ Good □ Medium □ Bad

Documents & Procedures for tour

□ Good □ Medium □ Bad

21.May I ask about your latest school career?

□ Primary school □ Junior high school □ High school

□ Junior college □ Vocational school □ University or higher

22.May I ask your annual income?

□ ~$1000 □ $1000~5000 □ $5000~10000 □ $10000~30000

□ $30000~50000 □ $50000~70000 □ $70000~100000

□ $100000~130000 □ $150000~

Thank you for cooperation.

Appendix 2 (Conjoint Method)

Questionnaire

For Economic Evaluation of Luang Prabang as a Sightseeing Site

□ will visit □ already visited

1. SEX □ Male □ Female

2. AGE □ 10-19 □ 20-29 □ 30-39 □ 40-49 □ 50-59
□ 60-69 □ 70 and over

3. NATIONALITY ( )

4.OCCUPATION □ Agriculture □ Forestry □ Fishery
□ Private Enterprise □ Public Servant □ Proprietor
□ Housewife □ Student □ Retired Personnel
□ Other ( )

5.COUNTRY of RESIDENCE

6. Do you live in urban area? □ Urban □ Rural
□ Sub-urban

7. How many persons are you accompanying?
□ Spouse □ Parents ( ) □ Children ( )
□ Friends ( ) □ No accompanied persons

8. May I ask about your latest school career?

□ Primary school □Junior high school □ High school □ Junior college □ Vocational school □ University or higher

9. May I ask your annual income?

□ ~$1000 □ $1000~5000 □ $5000~10000 □ $10000~30000

□ $30000~50000 □ $50000~70000 □ $70000~100000

□ $100000~130000 □ $150000~

<Next, I would like you to explain the main sightseeing sites around Luang Prabang.> (Show the attached Panel, and Explain all of the sits.)

1) Pak Ou Caves:
2) Tat Kuangsi Falls:
3) Tat Sae
4) Ban Sang Hai (Jar-Maker Village) :
5) Ban Phanom:
6) Ban Chan:

If you do not join a package tour, you have to find any transportation such as boat, *Tuk Tuk*, or mini-bus by yourself. It takes time and the price will change a lot, because it depends on how many people you shared.

To improve these problems, Suppose local travel agencies provide some "One Day Tours around Luang Prabang". They will take us to some of the main sightseeing places and some of tours will provide other recreation. They start from 9am to 4pm and include transportation fee and entrance fee.

Which of tours would you like to join as follows?

Please Choose.

Example)

	Tour A	Tour B	No Participation:
Tour Price	$30	$5	Do not join any tour and only do sightseeing the town.
Transportation	Tuk Tuk	Mini-bus	
The main sites	Kuangsi Falls Pak Ou Caves	Pak Ou Caves Ban Sang Hai Ban Phanom Ban Chan	
Other Recreation	Short Trekking minority village		

The tour you will join is ☐ ☑ ☐

Attention!! : Now I would like you to this type of question 6 times. If you do not answer all of these questions, we cannot use our research. Please answer all of them.

<Question 1>

	Tour A	Tour B	No Participation:
Tour Price	$5	$3	Do not join any tour and only do sightseeing the town.
Transportation	Bus	Tuk Tuk	
The main sites	Kuangsi Falls Tat Sae Ban Sang Hai Ban Phanom	Pak Ou Caves Kuangsi Falls Tat Sae	
Other Recreation			

The tour you will join is ☐ ☐ ☐

<Question 2>

	Tour A	Tour B	No Participation:
Tour Price	$5	$10	Do not join any
Transportation	Mni-bus	Bus	

The main sites	Pak Ou Caves Sae Falls Ban Sang Hai Ban Chang	Sae Falls Ban Sang Hai	tour and only do sightseeing the town.
Other Recreation		Short Trekking minority village	

The tour you will join is ☐ ☐ ☐

<Question 3>

	Tour A	Tour B	No Participation:
Tour Price	$10	$30	Do not join any tour and only do sightseeing the town.
Transportation	Car	Mini-bus	
The main sites	Pak Ou Caves Ban Sang Hai Ban Phanom	Pak Ou Caves Kuangsi Falls Ban Sang Hai	
Other Recreation	minority village	Short Trekking	

The tour you will join is ☐ ☐ ☐

<Question 4>

	Tour A	Tour B	No Participation:
Tour Price	$5	$30	Do not join any tour and only do sightseeing the town.
Transportation	Mini-bus	Tuk Tuk	
The main sites	Pak Ou Caves Sae Falls Ban Sang Hai Ban Chang	Sae Falls Ban Phanom Ban Chang	
Other Recreation			

The tour you will join is ☐ ☐ ☐

<Question 5>

	Tour A	Tour B	No Participation:
Tour Price	$3	$10	Do not join any tour and only do sightseeing the town.
Transportation	Car	Bus	
The main sites	Pak Ou Caves Kwangsi Falls Sae Falls	Kwangsi Falls Sae Falls Ban Sang Hai Ban Phanom	
Other Recreation		Short Trekking minority village	
The tour you will join is	☐	☐	☐

<Question 6>

	Tour A	Tour B	No Participation:
Tour Price	$30	$10	Do not join any tour and only do sightseeing the town.
Transportation	Tuk Tuk	Mini-bus	
The main sites	Pak Ou Caves Kwangsi Falls Ban Sang Hai	Kwangsi Falls Sae Falls Ban Sang Hai Ban Phanom	
Other Recreation	Short Trekking		
The tour you will join is	☐	☐	☐

17. Poverty Alleviation Policy: Efficiency and Capability

Yukio Ikemoto

Introduction

What makes poverty alleviation difficult is the diversity existing in natural conditions, social conditions, the ability to improve living condition, ethnicity, culture, and other aspects of life. The policy that is succeeded in a village may deteriorate poverty in other villages when the diversity matters. In order to avoid this problem we need to make as many plans as the diversity, which will be almost impossible due to the limited budget. To begin with, due to the diversity it is very difficult to define the poverty and identify poor people and poor villages. Income and basic infrastructure are not adequate indicators of poverty as will be discussed in this paper. A wrong informational base leads us to wrong identification of poverty and wrong policies. The main purpose of this paper is to argue the possibility and merits to apply Sen's capability approach to Lao PDR. By focusing on the basic functionings of the people, the inefficiency and confusions of the poverty line approach can be avoided.

The organization of this paper is as follows: In the next section (17 — 1) a general theoretical model is presented in order to make clear the objectives and the constraints as well as their relationship for poverty alleviation. 17 — 2 discusses how the definition of poverty affects the policy for poverty alleviation. In 17 — 3 the problems of the definition of poverty in Lao PDR are discussed. In 17 — 4 the results of the Participatory Poverty Assessment (PPA) in Lao PDR will be analyzed to distinguish the objectives and the means for poverty alleviation. The long list of the voices of the poor contains not only the factors directly related to poverty but also the factors that are related to the means for poverty alleviation. The relationship between them must be clarified to formulate efficient policies. In this section the inequality caused by targeting the poor villages is discussed. 17 — 5 examines how the capability approach can avoid the problem of inefficiency. The point is that the objective function should be directly related to the well-being of the poor. In 17 — 6 a successful case in Thailand will be taken up. In Thailand malnutrition was decreased in the early 1980s when the Thai economy was depressed. The approach for poverty was similar to the capability approach rather than the poverty line approach. The merits of the approach will be discussed. And the last section is a conclusion.

17 — 1 Theoretical Framework of Poverty Alleviation

(1) General Model

Poverty is still widespread and persistent in spite of the efforts to alleviate it for many years, due to the complexity of the phenomena. And the complexity brings confusions into the policies for poverty alleviation. This paper starts with a very simple theoretical model to clarify the problems and to avoid the confusions. Our problem is formulated in a general framework as follows:

$$\text{Min. } P(\ldots) \qquad (1)$$

s.t. the constraints relevant to this problem.

$P(\ldots)$ indicates any kind of poverty index which is a function of some variables. It is often assumed that $P(\ldots)$ is a function of income, which is called income poverty. An example is the head count ratio, which is defined as the percentage of the poor people (or households) whose income is less than a certain minimum called poverty line. Even though we all know that poverty is not only a phenomenon of low income but also a deprivation of basic functionings, we tend to focus on income poverty whenever we talk about poverty. This causes the confusions and inefficiency in policy implementation. This paper will argue what is the appropriate objective function for the sake of efficient resource allocation and propose the capability approach. Therefore, for the time being we will use $P(\ldots)$ without identifying its functional form.

Once $P(\ldots)$ is given, our problem is to minimize $P(\ldots)$ subject to the constraints relevant to the problem. In reality there are many constraints but only some of them are relevant for the problem. In economics, the list includes:

1) Production function

2) Resource endowment

3) Government budget constraint, etc.

When the form of $P(\ldots)$ is specified and the constraints are selected, this problem may be solved. Now the solution is denoted by $P(\ldots)^*$ and the target of poverty alleviation is denoted by $\underline{P(\ldots)}$. If the target is set to eradicate poverty completely, $\underline{P(\ldots)}$ is zero. When $P(\ldots)^* \leq \underline{P(\ldots)}$, the target is achieved and poverty is no longer the problem in this sense.

[Example 1]

If poverty is a monotonously decreasing function of output (Y) and the constraints are the well-behaved production function and the resource endowment of capital (K*) and La-

bor (L*), our problem is expressed as follows:

$$\text{Min. } P(Y), \quad P'(Y) < 0$$
$$\text{s.t.} \quad Y = f(K, L)$$
$$K \leq K^*$$
$$L \leq L^*$$

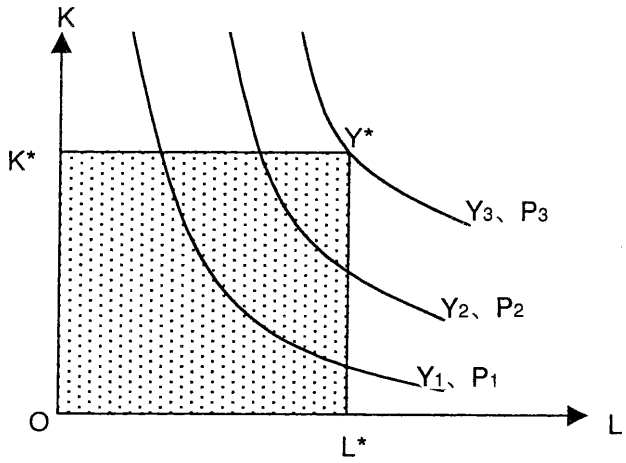


Figure 17 — 1 An Example

In Figure 17 — 1, the maximum output is Y_3 and the minimum level of poverty, which is achievable under the resource endowment, is P_3. In this case the policies for poverty alleviation is just to maximize the output, which is the idea of growth-oriented policies.

(2) From Economic Growth to Poverty Alleviation

In the growth-oriented policies the maximization of economic growth rate is the only target and the poverty alleviation is derived from economic growth. This is a case that two targets coincide. The Example 1 is this case where poverty is assumed to decrease as the output increases. We need not worry about poverty but just concentrate on economic growth because economic growth will eradicate the poverty at the same time.

When there is only one target, we need not worry about weighting the various targets. The general Model 1 assumes poverty alleviation to be the only exclusive target of the model. However, in reality, poverty alleviation is only one target out of many. If economic growth is given higher priority than poverty alleviation and they do not coincide, P(...) may not be minimized. In this case trade-off occurs between economic growth and poverty alleviation. The fact that we are shifting our focus from economic growth to poverty alleviation assumes the trade-off.

Even though some East Asian countries succeeded in poverty alleviation by promoting economic growth, it is assumed that the trade-off exists. It is assumed that the poverty index (P) is no longer a decreasing function of output (Y). This means that, in Figure17 — 1, P_2 may be lower than P_3. In this case P_2 should be chosen to minimize poverty, which means that poverty alleviation is achieved at the cost of economic growth. At point P_2 resources are allocated inefficiently in the sense of output maximization. This occurs when resources are allocated to poor villages even if their potential to grow is very low.

A question arises immediately: Why cannot larger output indicated by point P_3 alleviate poverty more? Redistribution of the larger output will achieve poverty alleviation more. This is the idea of the traditional economics that allows us to concentrate on efficiency and economic growth. The shift to poverty-oriented policies may assume that redistribution policies have not worked well. It may be true but it does not mean to preclude the possibility of poverty alleviation by redistribution. The solution may lie between the growth-with-redistribution policy and the poverty-oriented policy.

The relationship between economic growth and poverty is not a simple one. It depends on the ways to achieve these targets (Figure 17 — 2).

The long-term approach and the short-term approach should be distinguished. If the benefits of economic growth trickle down to the poor people efficiently in the long run, growth policy is also a poverty alleviation policy. Some East Asian countries succeeded in poverty alleviation in this way. In these countries, a key factor to promoted economic growth was the human development, which overlaps poverty alleviation policies in a wide range. Human development was a precondition of economic growth as well as improving the living conditions of the majority of the people. Poverty alleviation policies were thus well-integrated into the economic growth policies.

However, we know many cases that economic growth could not alleviate poverty but just increased income inequality by benefiting only the rich people.

To the contrary, in some countries even if their resources and efforts were devoted exclusively to poverty alleviation at the cost of economic growth, poverty was not alleviated at all or even worsened.

Poverty alleviation policies should be designed so as to not only reduce poverty but also promote economic growth.

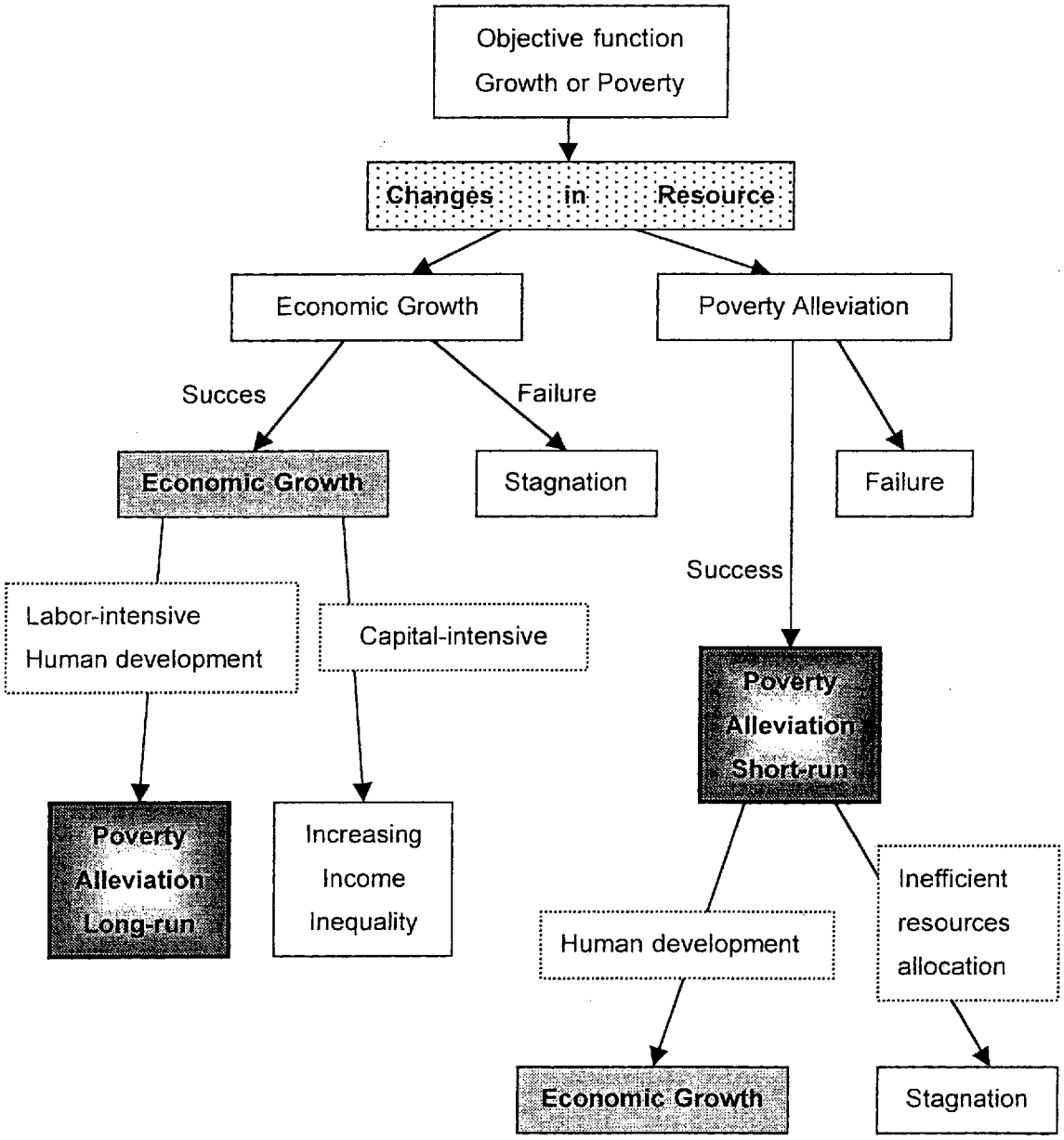


Figure 17 − 2 Poverty and Economic Growth Policy

(3) Removing the Constraints as a Poverty Alleviation Policy

When we solve the general Model 1 and the solution $P(...)^*$ cannot achieve the target $\underline{P(...)}$ or $P(...)^* > \underline{P(...)}$, we have to relax some constraints to achieve the target. In this sense, poverty alleviation policy is to identify the constraints to be relaxed. For example, if the maximum amount of products determined by resource endowments is not enough to achieve the target, more capital or more efficient labor may be needed to increase production. This is the case that we tend to link poverty alleviation to economic

growth at a micro level. Economic growth at a micro level is anyway inefficient than economic growth at a macro level.

(4) Efficiency and Targeting

In the 1980s, the World Bank adopted poverty map approach such as geographical targeting and group targeting. The target may be regions or villages, but not individuals. When the target was the individual, the really poor people were not targeted due to social stigma. If the really poor people do not want to be identified as poor in public, they will over-report their income to disguise themselves as non-poor. On the other hand, clever people who know that the officially identified poor people will receive public assistance are willing to be identified as poor and underreport their income, even though they are not really poor.

There are some screening mechanisms. For example, Workfare is a measure to screen those who really need assistance. Self-targeting is another measure to improve the efficiency. The Government provides those goods and services that only the poor need. However, self-targeting may not work well if poor people are afraid to be looked down as poor. It is reported in Africa that free medical care for the poor was not made use of by the poor people because they are afraid to be ashamed to appear at the free medical center. Poverty is not just the shortage of goods and services but also the lack of important functionings such as participating in the social activities without shame. The measures that neglect this aspects worsen the poverty in a broad sense.

(5) Poverty Alleviation or Industrial Policies

Here industrial policies are meant policies whatever aims to promote an industry. Industrial policies are often mentioned as a measure to alleviate poverty. Industrial policies should have its own objective, i.e. to promote the industry. Efficiency of the industry is a key factor for the promotion. However, if a industrial policy is used as a poverty alleviation policy, it has to serve the two purposes. As a result, the resource allocation will be distorted and the competitiveness of the industry will be lost.

For example, agricultural policies to promote rice production are often mentioned as a policy for poverty alleviation. The logic is as follows: Poverty is a shortage of food. The staple food is rice. Poverty alleviation policy should be designed to increase the supply of rice. In order to increase the supply of rice, the poor people have to produce rice more.

In order to increase rice production, more resources and investment should be allocated for rice production, especially in the poor region. This logic is depicted in Figure 17 — 3, which indicates how the scope narrows.

Along the logic from food shortage to agricultural investment, diversity is eliminated. Some people may depend on other kinds of foods such as wheat, potato, corn, etc. according to their environment and culture. Focusing on rice as poverty alleviation is to neglect such diversity. The efforts to promote rice production neglecting the environmental diversity will lead to inefficient allocation of resources. For example, irrigation is often referred to as a measure to alleviate poverty. However, in some poor areas, natural conditions may not be suitable for the irrigation project and its rate of return may not be high enough for compensating the cost of the investment.

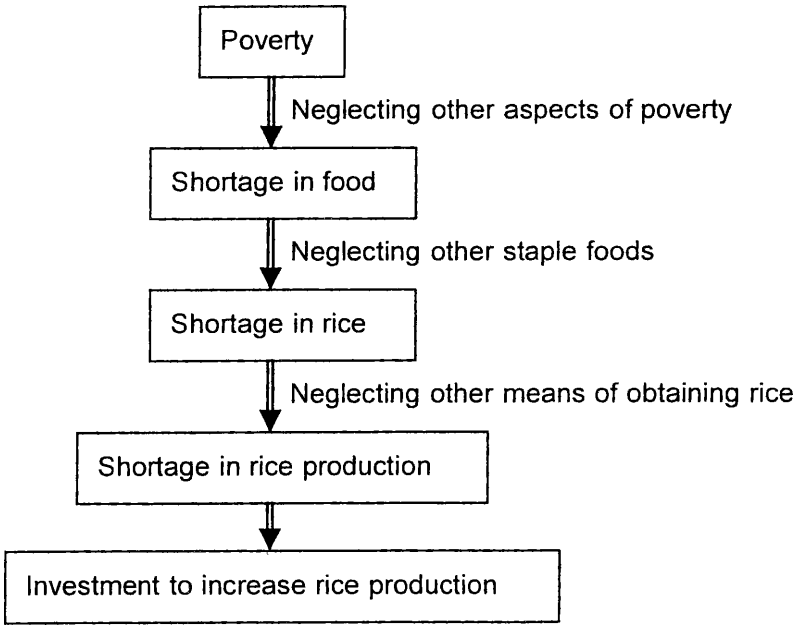


Figure 17 — 3　Limiting Scope

In this way, when industrial policies are used for poverty alleviation, inefficient allocation of scarce resource will likely occur. This problem will be more serious when the resources including the Government budget are very limited.

The problem arises from the confusions between the objectives and policies. And a way to dissolve the confusions is to streamline the relationship between them. Later this paper will show that the confusion arises from the inappropriate definition of poverty. When poverty is defined on a wrong information base, the policies are also based on a wrong informational base. In this respect the capability approach is more appropriate

(Figure 17 − 4).

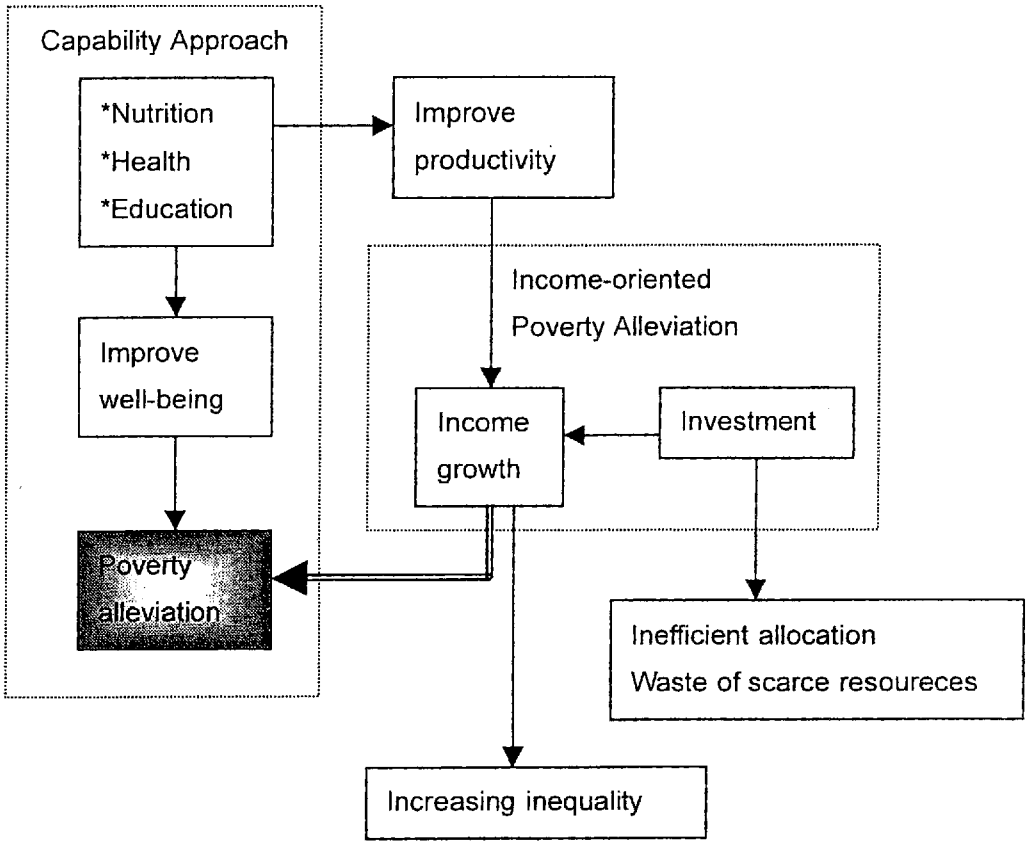


Figure 17 − 4 Economic Growth with Poverty Alleviation

(6) Growth Potential and Poverty Alleviation

The policies for poverty alleviation may be varied according to the growth potential of the area. As already mentioned, the relationship between economic growth and poverty alleviation does not necessarily be a type of trade-off. Both targets may be achievable at a time if both of them are integrated into a general framework.

Or the short-run trade-off may disappear in the long run. Since the resource endowment is limited in the short run, the more resource is allocated to alleviate poverty, the less is allocated for economic growth. However, in the long run, if the benefit of economic growth is distributed to the poor equally, the growth-oriented policy may be more effective in reducing poverty. The trade-off will disappear in this case.

On the other hand, when the poverty is so serious and urgent that no other objectives given higher priority or when the prospect of economic growth is very limited due to the lack of growth potential, the policy to achieve both economic growth and poverty alleviation will not be adopted.

These two cases are shown in Figure 17 — 5. It is needless to say that there are many other scenarios but it should be emphasized here that the diversity in the growth potential affects the policy for poverty alleviation. There is no uniform policy that is applicable to any poor people or any poor villages universally.

So far we have implicitly assumed that the objective function is indifferent to people's preference. For example, some people who may be identified as poor according to some definition of poverty may prefer their own traditional life style than a new life style. The voices to complain relocation indicate this phenomenon. This does not imply we need not do anything for them. If we force them to accept a choice, the choice and therefore their well-being is narrowed.

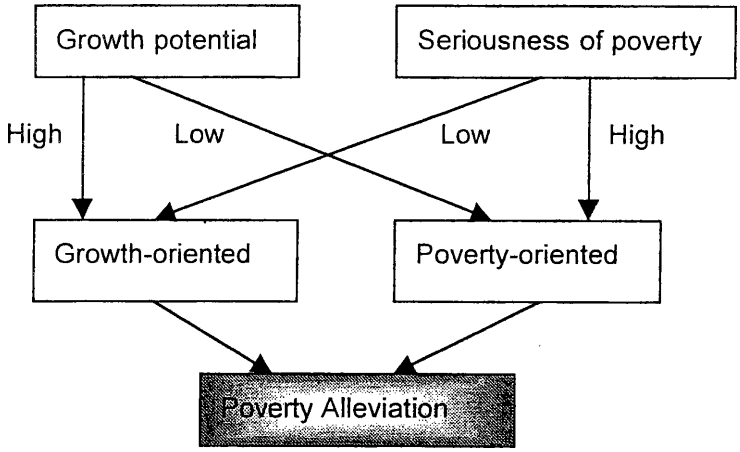


Figure 17 — 5　Economic Conditions and Objectives

(7) Fallacy of Composition

In the field of poverty alleviation, there exists the so-called "fallacy of composition," which insists that what is correct at a micro level may not be correct at a macro level. An example is coffee in Viet Nam. If coffee production is recommended as a poverty alleviation policy, it will increase income at the beginning. However, if many farmers began to grow coffee, the increase in coffee production will lead to an oversupply, which decrease the coffee price and therefore the income of the coffee growers.

When other countries adopt the same policy and promote coffee production, the oversupply in the world market will be more serious and the world coffee price will decrease much more rapidly. A micro approach which neglects a macro analysis will not succeed when the fallacy of composition occurs.

17－2　Definition of Poverty

(1) The Importance of the Definition

The definition of poverty affects the aspect of poverty on which we focus. If we focus on an inappropriate aspect of poverty, the analysis of poverty as well as policies to alleviate poverty will be inappropriate. In the general model mentioned in the previous section, the form of the objective function (or poverty index) $P(...)$ will affect the solution. Once $P(...)$ is specified, the relevant constraints to the problem can be identified. And when the constraints are identified, we can formulate effective and efficient policies to alleviate poverty by focusing the constraints. Therefore, the definition of poverty should be the starting point of our discussion. Inappropriate definition of poverty will take us to a wrong direction and results in a waste of scarce resources.

It may seem very roundabout and wasteful to spend time for the definition in the face of poverty. However, proverbs warn us not to haste: "Make haste slowly". "The more haste, the less speed". "Slow but sure wins the race". If we haste and jump to the policies without discussing what is poverty, the policies may be neither effective nor efficient and scarce resource will be wasted. This is the reason why we discuss how the definition of poverty affects the policies.

(2) Poverty Line Income

Poverty line income is the most frequently used criteria to divide the poor from the non-poor. This leads us to focus on income, neglecting other aspects of poverty. When we are talking about education and health, it is only because they enhance the ability to earn income and not because of their indigenous importance to the well-being of the poor people. This means that well-being is determined only by income and that the objective function is just a function of income $P(Y)$. And since $P(Y)$ is implicitly assumed to be a decreasing function of Y, the objective of policies is confined to increase income.

The poverty line income is estimated by components such as nutritional level, clothing, and the like. A standard procedure is as follows:

1) Food items: The food basket to maintain the minimum level of nutrient intake is estimated culturally. An international standard of calorie intake is 2,100 kcal/person/day. The content of the basket varies with the culture, religion, environment, etc. Strictly speaking, it also varies with age, sex, physical condition and activity of an individual, etc. Though the minimum food basket should be estimated by taking the

diversity into consideration, it is often impossible to obtain such detailed data due to the budget constraints and the diversity is neglected. The food basket is valued at the local price. If the prices are different among regions and between rural and urban areas, the value of the basket is also different among regions and between areas. However, such differences are neglected due to limited data.

2) Non-food items: The minimum non-food expenditure is related to clothing, household management, transport and communication, and so on. It also varies with culture, religion, environment, etc. The non-food items include:

① Clothing and footwear
② Rent, fuel, and power
③ Household equipment and operation
④ Transport and communication
⑤ Others

3) Actually it is very difficult and sometimes arbitrary to identify the minimum non-food items. A way to avoid this difficulty is to apply the Engel coefficient, i.e., the proportion of food expenditure in total household expenditure. When the coefficient is obtained, the income level can be estimated by dividing the minimum food expenditure by the coefficient. The Engel coefficient of the poor people is assumed to be equal to the level of the poor whose calorie intake is at the minimum level.

The poverty line income approach often neglects the diversity of people. The diversity may be summarized as follows:

① Physiological factors such as age, sex, body weight and size, and metabolism differ interpersonally.
② Climate will affect the amount of clothes, type of housing, etc.
③ Cultural factors affect the contents of food, type of housing, mode of transportation, etc.
④ Intra-household distribution
⑤ Others

When people are sick, they have to pay more for medicine and their minimum expenditure must be higher than healthy people. People living in a cold region may have to pay more for clothes and fuel than those living in a hot region. Culture and religion will affect the food contents. If intra-household distribution is very unequal against women,

women may be classified poor while men are non-poor in the same household. This aspect is difficult to be captured by the poverty line income approach.

These factors will make the procedure of estimating poverty line very complicated but it is not impossible at all to incorporate all of such factors in the estimation if enough data are collected. However, the more data are collected, the more cost is needed. The cost will increase exponentially as the number of data increases but the accuracy will not improve at the same pace. The marginal gain is diminishing. Since the budget is limited, we have to put up with the inaccuracy at some level.

At any rate, poverty line is inaccurate and costly as an index of poverty. It is not deniable that this approach is very useful and indispensable for the analysis of household sample survey. However, this approach is not suitable to identify the poor households as the target of poverty alleviation policy due to its cost, inaccuracy, and arbitrariness. For this purpose, other indicators such as malnutrition, health condition, school enrollment, etc. are much easier and less costly to collect, more useful for policy formulation, and easier to monitor the effects of the policies.

(3) Relative Poverty

Relative poverty "interprets poverty in relation to the prevailing living standards of the society, recognizing explicitly the interdependence between the poverty line and the entire income distribution". (Anand [1983] p.113)

1) Lowest p percent is defined as poor. p was sometimes set at 40% in the 1970s (McNamara [1972]). This definition implies that poverty will never be eradicated, however every people become rich. In other words, the poverty line is always adjusted upwards so that the head count ratio remains p percent (Figure 17 — 6-a).

2) Half of the Average Income: In this case, poverty line is defined as half of the average income. This definition directs toward equal distribution of income rather than increasing the income level of the poor. For instance, if the income level of every poor people is increased above the half of the mean income and income level of other people remains unchanged, the mean income will be increased. The increase in the mean income implies that the poverty line is shifted upward and that some people may be classified poor due to this revision of poverty line. Once again the income of the new poor should be raised above the revised poverty line. This process will be continued until all people receive income above the half of the mean income. We can

do in the opposite direction. By reducing the income level of the rich people, the mean income and therefore the poverty line can be reduced. This means that some people can move out of poverty although their income is unchanged. By repeating this process, all the poor people receive income above the poverty line. In an extreme case, the poverty line will be zero. Though in the relative term all people may not be poor, all people are poor in the absolute term (Atkinson [1975] p.189).

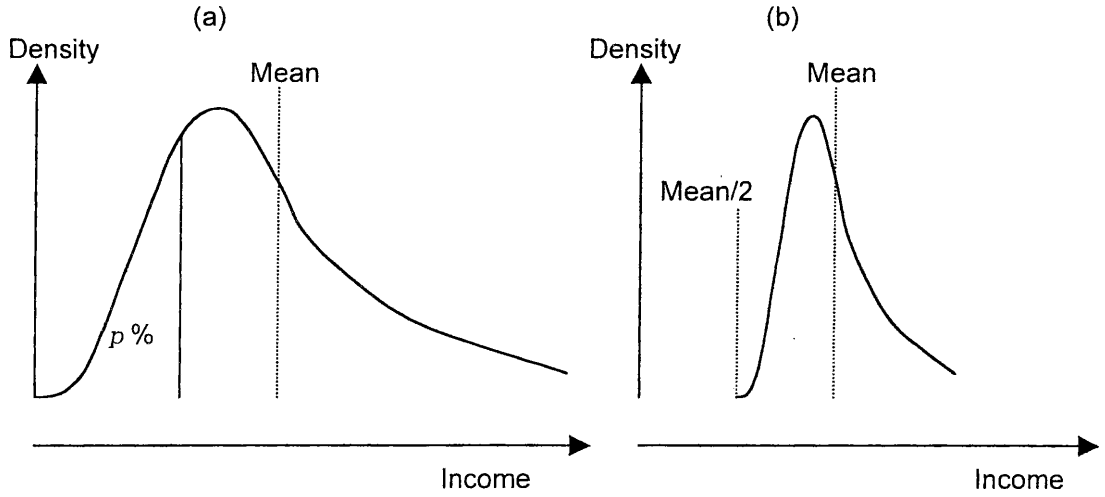


Figure 17 — 6 Relative Poverty

(4) Head Count Ratio (*H*)

The head count ration (*H*) is defined as the proportion of the poor defined in terms of poverty line income in the total population.

$$H = q / N \qquad (2)$$

where q is the number of the poor

and N is the total population.

This definition is widely used because it is simple to estimate and easy to understand. However, such simplicity is at the cost of accuracy. The inaccuracy causes inefficiency in policy implementation. If the head count ratio (H) is adopted as the objective function, the policy is to raise the income of the poor above the poverty line, irrespectively of the seriousness of the poverty. An easy way to achieve the objective is to raise the income of those whose income is only a bit lower than the poverty line, neglecting the extremely poor people.

(5) Poverty Gap Ratio(I)

Poverty gap (PG) is the total amount of income needed to raise the poor people above the poverty line. And poverty gap ratio (I) is the ratio of PG per capita to the poverty line.

$$I = PG / qz$$

where

z is poverty line

q is the number of the poor people

A problem of this index is that it is insensitive to the income distribution among the poor. For example, even if the income of the poorest group in the poverty is transferred to the less poor in the poverty, the index remains unchanged.

If poverty gap ratio (I) is adopted to evaluate the poverty alleviation policies, the policies will be biased to increase the income of the extremely poor people. This is because, if only the less poor people receive more income and succeed to move out of poverty, the poverty gap ratio (I) will increase. In this case, the poverty gap ratio will increase, even though the number of the poor people may be decreased. The poverty gap ratio indicates the severity of poverty among the poor not indicate the severity of poverty in the society. Two indices mentioned below avoid these problems, though it is not easy to understand the meanings intuitively.

(6) Sen's Poverty Index(P)

Sen's poverty index is as follows:

$$P = H [I + (1 - I) G]$$

where G is the Gini coefficient among the poor.

(7) FGT Index

Foster, Greer and Thorbecke [1984] proposed the following index:

$$P_\alpha(y;z)=\frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^\alpha$$

FGT index is equal to H when $\alpha=0$.

FGT index is equal to I when $\alpha=1$.

17 — 3 Poverty Alleviation Policy in Lao PDR

(1) Definition of Poverty in Lao PDR

The poverty line approach is adopted in Lao PDR. Poverty line is estimated at two levels: One is food poverty line and the other is total poverty line. The former covers only the minimum food expenditure and the latter includes the necessary non-food expenditure as well. The estimates are shown in Table 17 — 1 in which poverty line is estimated by region. Poverty line for Vientiane is higher than other regions, reflecting higher living cost. This result is consistent with those in other countries that the more urbanized and more developed region has the higher poverty line. The ratio of food poverty line to total poverty line is the so-called Engel coefficient at the income level as shown in the last two columns. The ratio ranges from 70.9 % to 78.1 %. The ratio usually decreases as the income level increases but the result is a bit different. The ratio is the lowest for the North whose income is also the lowest among the regions.

Table 17 — 1 Poverty Line

	Food Poverty Line		Total Poverty Line		Ratio (%)	
	(a)	(b)	(c)	(d)	(a)/(c)	(b)/(d)
	1992-93	1997-98	1992-93	1997-98	1992-93	1997-98
Vientiane	8505	16084	11723	21606	72.5	74.4
North	5278	11968	7449	16336	70.9	73.3
Center	5920	13607	8059	17440	73.5	78.0
South	6266	14043	8205	17989	76.4	78.1
Lao PDR	---	---	---	---	---	---

Source) Datt & Wang [2001]. Tables 1 and 2.

The incidence of poverty decreased from 45.0 % in 1992-1993 to 38.6 % in 1997-1998 [1)]. These figures are close to those of the rural areas reflecting the large share. Poverty incidence by rural and urban areas and by region is shown in Table 17 — 2.

[1)] Lao PDR[2001], p.3

Table 17 — 2 Poverty Line

	Urban Areas		Rural Areas	
	1992-93	1997-98	1992-93	1997-98
Vientiane	22.5	16.7	30.1	4.5
North	48.9	43.3	60.4	53.5
Center	37.4	27.7	39.9	35.9
South	27.6	35.8	49.6	38.7
Lao PDR	33.1	26.9	48.7	41.0

Source) Lao PDR [2001]. Tables 4.

Prime Minister's Office [2001] indicates the procedures to identify the poverty at household level, village level, and district level, which are summarized in Table 17 — 3. At the individual level and household level, the criteria are the same as the poverty line approach. In order to identify the poor households accurately, detailed household expenditure survey should be conducted for every household. However, actually it is very difficult and exhausting due to the limited budget and limited number of personnel. All households can be surveyed only at the cost of accuracy. The inaccuracy leads to arbitrariness in identifying the poor.

At the village and district levels, the criteria seem to be more dubious. For example, the second criterion requires a school within an accessible distance. If a village does not satisfy this criterion, a school should be built in the village or its neighboring village. However, as we often see a school without pupils in a poor village, the existence of a school building does not necessarily mean that children of poor households can go to school. In the same way, the existence of dispensaries does not guarantee that the poor people can buy medicine there. If there is no access road, it should be constructed to satisfy the criterion. However, whether the road can alleviate poverty depends on the poor people's ability to make use of it. If they do not have the ability, the poor people may be exploited by outside merchants, lose their land, and become poorer than before. Outsiders may use the road to exploit the natural resources in the poor village and the environment may be deteriorated. In a sense, the lack of road is protecting the poor people. This is not to deny the importance of road for poverty alleviation but we have to take into consideration the ability of the poor people to make use of it. The same can be said relating to the other criteria.

Such problem occur because the criteria are defined in the space of means rather than

the capability of the poor people as shown below. The existence of means does not imply that they are made use of to improve the well-being of the poor. For example, a bicycle is of no use if nobody can ride it.

The criteria adopted in Lao PDR focus on the means and do not measure the well-being of the people directly. We are looking at wrong aspects of poverty. Wrong criteria lead us to wrong policies. When we focus on the means, any kind of means, however little impact they may have on poverty, can be included in the criteria. However, this approach

Table 17 − 3 Definition of Poverty, Lao PDR

(1) Individual/household level		
Poverty is the lack of basic requirements in daily livelihood		
1	Lack of food (Less than 2,100 kilocalories per day per person)	Food
2	Lack of clothing	Clothing
3	Lack of permanent shelter	Housing
4	Inability to afford necessary medical treatments	Health
5	Inability to afford education	Education
Poverty line = Kips 85,000 per person per month at 2001 prices =16 kilograms consumption of milled rice =Rice poverty line.		
(2) Village level		
1	At least 51% of the total households are poor.	
2	No school within an accessible distance	Education
3	No dispensaries or no traditional medical practitioner in the village, or more than 6 hours travel to a hospital	Health
4	No safe water supply	Safe water
5	No access road (At least trails accessible by cart during the dry season)	Road
(3) District level		
1	Over 51% of the villages are poor.	
2	Over 40% of the villages do not have local or nearby schools.	Education
3	Over 40% of the villages do not have a dispensary or pharmacy.	Health
4	Over 60% of the villages do not have road accessible by car.	Road
5	Over 40% of the villages do not have safe water.	Safe water
(4) Provincial level		
(5) National Level		

Source) Tabulated by the author based on Prime Minister's Office (2001).

lacks the evaluation of efficiency. We need to evaluate the efficiency of achieving a criterion in alleviating poverty. And to evaluate the efficiency we need an appropriate objective function.

17－4 Participatory Poverty Assessment (PPA)

In Lao PDR, the participatory poverty assessment (PPA) was conducted. It analyzes the determinants of poverty as follows [2]:

Primary Determinants of Poverty

(1) Rice insufficiency → Agriculture[3]

Secondary Conditions of Poverty

(2) Lack of arable land (both paddy and swidden) → Agriculture
(3) Livestock disease → Agriculture
(4) Poor health (not being able to afford medical treatment) → Health
(5) Women work harder than men
(6) Having to hire out labor
(7) Lack of technical knowledge and skills → Education
(8) Insufficient clothing → Other
(9) Poor housing → Other

Causes of Poverty

(10) There is no cash investment to pay for rice while improvements are being made. → Other
(11) Livestock disease → Agriculture
(12) Land problems (such as --- the production area is too small which leads to soil depletion, and the labor input is not commensurate with yields; land not suitable for cultivation there have been no suitable agricultural intensification programs to replace the loss of production.) → Agriculture
(13) Natural disasters; Weather, Pests (rats, wild pigs, insects)
(14) Environmental degradation (overuse, logging) → Environment

[2] Cited from PPA [2000] pp.11-17.
[3] Arrow indicates the sector to be classified later in this sention

(15) Lack of water for potential paddies → Agriculture

Other Causes:

(16) Lack of village leadership/initiative → Education
(17) Relocation → Other
(18) Insufficient health services → Health
(19) Too many children → Health
(20) Lack of commercial skills → Commerce
(21) Insufficient education → Education
(22) Lack of government assistance
(23) Low prices → Agriculture
(24) " We have always been poor, it is inherited from our parents. "
(25) Lack of roads --- no access to markets → Commerce
(26) Ill-health affects labor capacity
(27) Village relocation → Other
(28) Opium addiction → Health
(29) Income cannot keep pace with rising costs
(30) Population → Health
(31) UXOs (render land too dangerous to cultivate)
(32) Theft
(33) Plantation forest promotion has led to the selling off of land by rural villagers to with trees to urban investors because they cannot afford to wait for the trees to attain harvestable age.

Main Solutions to Poverty

(34) Resolve rice cultivation-related issues, in particular, increase the amount of production land → Agriculture
(35) Increase livestock holdings → Agriculture
(36) Solve livestock disease problems → Agriculture
(37) Provide funding mechanisms for increasing livestock holdings → Agriculture
(38) Develop paddies that function
(39) Re-do land allocation → Other
(40) Reliable cash cropping --- that is, price guarantee before investing in crops that are cur-

rently being promoted. (Some crops named specifically were cardamom, coffee, galinga, and sesame.) → Agriculture

(41) Roads / Access to markets → Commerce

(42) Better schools (both the building and the teachers) → Education

(43) Medical assistance to treat disease --- training of village medic, medical kit, etc. → Health

(44) Clean water supply → Health

(45) Electricity

Other Solutions Mentioned Less Frequently

(46) Return to old village and former way of life (if solutions to production problems cannot be found, e.g. where irrigation is not successful.) → Other

(47) Need better location for village → Other

(48) Artesian wells → Health

(49) " We have no idea, whatever the authorities want. "

(50) Opium detoxification program → Health

(51) UXO removal

(52) Dry season rice cropping → Agriculture

(53) Water pumps for irrigation → Agriculture

Solutions Mentioned by Women

(54) Women in many areas, especially lowland ethnic minorities in the North, would like technical assistance in silk raising and in improving the quality of weaving. They also need advice on marketing their products. → Commerce

(55) Family planning or birth spacing → Health

(56) Rice mills to reduce women's labor in pounding rice

(57) Water supply to reduce water hauling by women and girls

Lessons

(58) Land allocation implementation process needs to be evaluated. → Other

(59) Land problems related directly to rice production

(60) Community-based irrigation → Agriculture

(61) Upland agriculture, agroforestry, non-timber forest production → Agriculture

(62) Nation-wide livestock program based on vaccinations and an increase of holdings → Agriculture

(63) Access to market by all-weather roads → Commerce

(64) Education by alternative methods with immediate application, perhaps in the area of adult functional literacy where technical information could be included. → Education

(65) Both the health and agricultural sectors would benefit from enhanced outreach

These are a collection of the voices of the poor. Though some are overlapped and some are irrelevant, these voices and the participatory poverty assessment are very important where the voices of the poor cannot be heard in the absence of democracy[4] . Figure 17 — 7 classifies these voices. The number in the parenthesis in Figure 17 — 7 corresponds to the number mentioned above in the list. Figure 17 — 7 is not intended to be a complete list of the voices appeared in the PPA but to show how they can be classified into the traditional categories. The voices in the PPA can be classified into six main categories, i.e., agriculture, commerce, environment, health, education and other. Many of the voices are related to the agricultural sector maybe because most of the poor engage in the agricultural sector. Thus the poverty alleviation policy overlaps the agricultural policy. Then what is the difference between them? The former aims to maximize the agricultural outputs while the latter aims to alleviate poverty by means of agricultural policies, which may be achieved at the cost of efficiency and growth in the agricultural sector. Then to what extent can the efficiency and growth be sacrificed for the sake of poverty alleviation? Here we have two objectives and we have to know the weights attached to each of them in order to evaluate the sacrifice.

In reality the poor people live in the diversity of environment and therefore their voices will vary according to the diversity. This implies the list of the voice will be longer, the more is covered by the PPA. Any kind of agricultural policies can be put into the list easily if only it is barely related to the poor people. Any kind of agricultural investment may be justified under the name of poverty alleviation, however inefficient it may be. If the inefficiency is to be avoided, the agricultural policies should be incorporated into a national plan.

The same argument is applicable to the commercial policy. Whenever policy is related to industry, efficiency is an important factor because an inefficient industry is not sustainable and will become a burden for the Government in the future. Industrial policies for poverty

[4] The importance of democracy in avoiding famine was demonstrated by Sen. This result can be applied to poverty alleviation.

alleviation should be formulated in the framework of long-term development policy. Even if poverty may be completely eradicated depending on outside resources in unsustainable ways, poverty may worsen in the long run. A factor of poverty is to have no choice other than depending on others.

Health and education are more directly related to well-being of the poor and what a government should do irrespectively of efficiency. However, most of the voices in health and education are also what a government should do irrespectively of poverty. It will be indisputable that all people should have minimum requirement of nutrition, medical treatment, clean water, etc. Such minimum requirements should be achieved, whether people are poor or not. If these policies are separated as poverty alleviation policies and targeted exclusively to the poor people, this may cause unequal treatment to the less poor. This case is illustrated by the example of Table 17 — 4. In Table 17 — 4, village D will be identified as poor because it does not pass all four criteria[5]. If this village is allocated a budget large enough to pass the four criteria, its living condition will become much better than village C. If this happens, people in village C will feel inequality. This is the inequality felt by those who could not be benefited from the poverty alleviation policy.

A way to avoid this inequality is to lower the target. When the target is lowered to only the criterion 1, the policy is to make village D passed the criterion. When all villages pass this criterion, the next target will be set to pass the criterion two.

This step-by-step approach requires identifying the villages that do not pass a criterion. In this case poor villages can be identifies by a few criteria, which will be easier than the poverty line approach. On the other hand, if a target is set high, poor people have to struggle to achieve it, which may hurt their self-confidence and as a result their self-respect. The target should be set, taking into consideration their ability.

Figure 17 — 7 is just a classification of the voices. Figure17 — 8 shows some causal relationship among them. When we step forward to the analysis of the voices, we can identify the essential factors of poverty and determine the order of priority to them.

[5] Inequality can occur when the really poor village is not identified due to erroneous response or other reasons.

Table 17 − 4 Poverty Approach vs. Sector Approach

Criteria	Village A	Village B	Village C	Village D
1	○	○	○	×
2	○	○	×	×
3	○	×	×	×
4	×	×	×	×

Note) ○: Pass the criterion. ×: Do not pass the criterion

Figure 17 − 7 Classification of policies derived from PPA

Industrial Policy

Agriculture

1) Rice production (1)
2) Land problems (2, 34)
3) Soil depletion (12)
4) Low productivity (12)
5) Irrigation (15, 52, 53, 60)
6) Low prices (23, 40)
7) Agroforestry (61)
8) Livestock disease (3, 11, 35, 62)
9) Holdings of livestock (35)

Commerce

1) Lack of commercial skills (20)
2) Access to markets (25, 41, 63)
3) Marketing (54)

Environment

1) Logging (14)

Health

1) Nutrition
2) Medical treatment (4, 18, 43)
3) Family planning (19, 30, 55)
4) Clean water supply (44, 48)
5) Opium addiction (28, 50)

Education

1) Insufficient education (21)
2) Technical knowledge and skills (7, 64)
3) School (42)
4) No leadership (16)

Other

1) Insufficient clothing (8)
2) Poor housing (9)
3) Relocation (17, 27, 46, 47, 58)

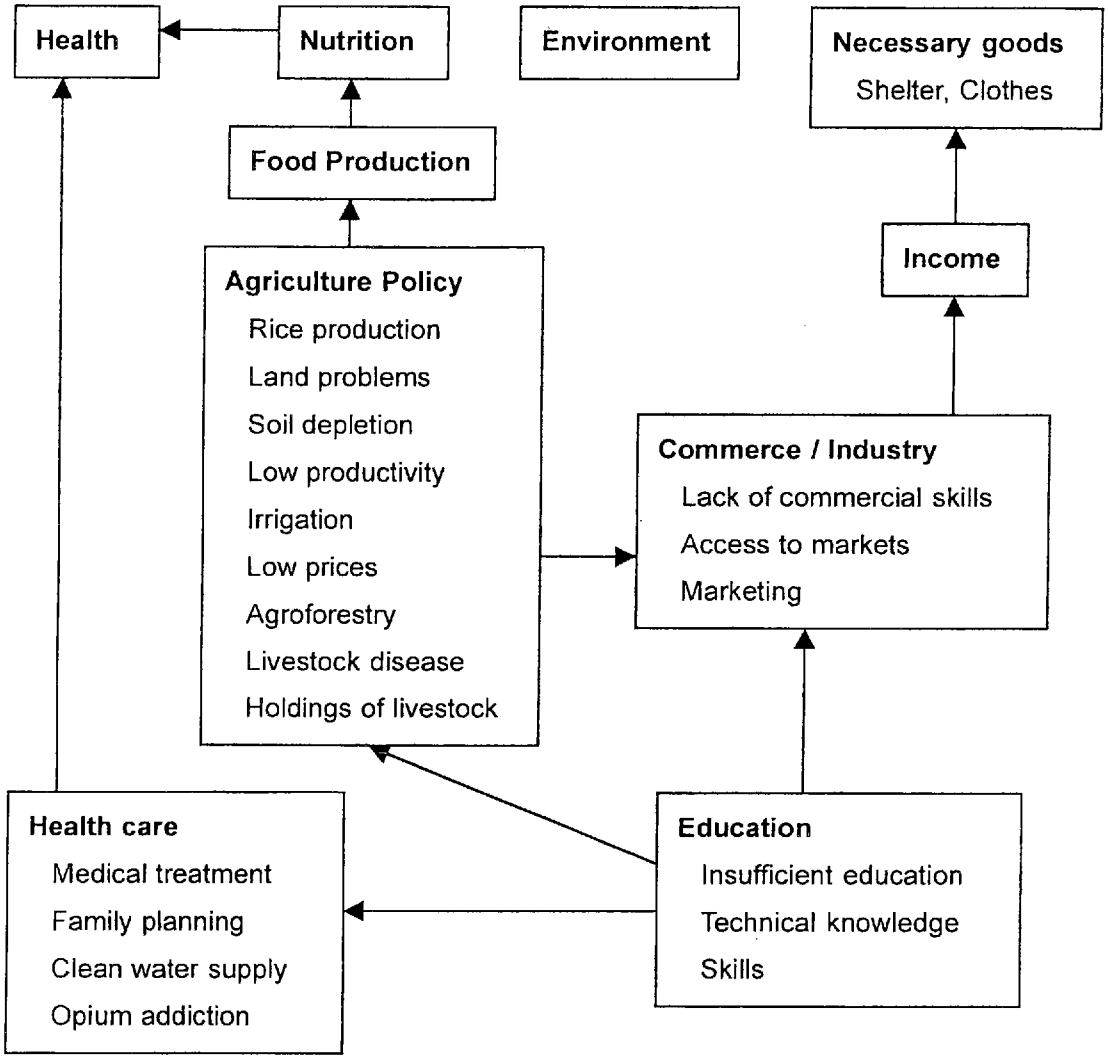


Figure 17 — 8 Relationship of the policies in the PPA

17 — 5 A Capability Approach to Poverty

(1) Definition of Capability

As shown above, inappropriate informational base causes confusions in formulating poverty alleviation policies. Inappropriate informational base leads to inappropriate analysis of poverty and inappropriate policies. Income is used as the informational base but it is only one of the means to achieve well-being. It is not straightforward how income is effective in achieving the objective. It depends on how income is spent and on the ability of the person to make use of it. The diversity in the ability of people makes income inappropriate as the informational base.

A more suitable informational base is to capture the well-being directly and the capability approach is proposed for this purpose by Amartya Sen.

The functionings are defined as "the various things a person may value doing or being." And the capability is defined as a set of vectors of the functionings. Functionings can be classified into three: ① Elementary functionings, ② Complex functionings, and ③ Trivial functionings. Examples are as follows:

1) Elementary functionings
   a) Adequately nourished
   b) Free from avoidable disease
   c) Avoiding premature mortality
   d) Adequately educated
   e) Having essential non-food consumption goods
   f) Being well-sheltered
2) Complex functionings
   g) Taking part in the community's activity
   h) Having self-respect
   i) Live a cultural life
3) Trivial functionings
   j) Playing basketball

Elementary functionings may seem to be similar to the Basic Human Needs (BHN) approach. The difference is that the former is the factors of well-being while the latter is a means to achieve well-being, expressed in terms of goods and services.

Well-being consists of so many doing and being that it may seem impossible to collect the data. However, when we focus on poverty, functionings are limited to the minimum level that the society will guarantee for its people. As Sen [1992, pp.44-45] states:

"In the context of some types of welfare analysis, e.g. in dealing with extreme poverty in developing economies, we may be able to go a fairly long distance in terms of a relatively small number of centrally important functionings and the corresponding basic capabilities, e.g. the ability to be well-nourished and in other contexts, the list may have to be much longer and much more diverse"

The fundamental functionings may include not only the elementary functionings ① but also the complex functionings ②. It is disputable whether the complex functionings is included in the fundamental functionings. However, the importance of complex functionings such as participation is emphasized recently, as the World Development Report 2000/2001 does. Poverty alleviation without participation lack something important.

Anyway, the minimum functionings are determined by the people themselves, which is their own definition of poverty, that is, the minimum level of living that all people are expected to achieve and the Government is expected to support.

(2) Diversity

A difficulty in poverty analysis is the diversity in life, natural environment, ethnicity, culture, etc. Such diversity makes it meaningless to formulate a single policy to alleviate poverty because it is not applicable to other cases.

The capability approach allows for the diversity. For example, education is formulated as "adequately educated" for the capability approach while it is formulated to construct a school building in an approach. A school building is a means for education. A school building is neither a necessary nor a sufficient condition for education. Education can be done in various forms; formal education, non-formal education, informal education, training course, seminar, and so on. A suitable form of education should be chosen according to the life style of the people and the Government budget.

Another example is the nutrition. A minimum level of nutrition may be fixed as a criterion of poverty. There are many kinds of combination of foods that provide with the minimum level of nutrition. However, if the insufficiency of rice is set as a criterion of poverty, people are forced to increase rice production, however it is difficult. It precludes the diversity in food consumption[6].

If we focus on the functioning "adequately nourished," we need not collect detailed data on consumption. Just a simple medical checkup will be enough. The result will be more reliable and useful than the information on consumption. This is another merit of this approach.

17－6　An Experience in Thailand

In the early 1980s, Thailand succeeded in reducing malnutrition among children less than five years old. It should be emphasized that it occurred when the Thai economy was suffered from recession. It was only in the late 1980s that Thailand achieved the two-digit economic growth. This implies that economic growth is not a necessary condition for improving living condition. Another interesting point is that improving living condition, health and education

[6] The linear programming may solve the problem to achieve the maximum nutrition under the resource constraints but the solution does not ensure the taste of the people. If people are not willing to accept the solution due to cultural and religious reasons, the solution is meaningless.

may be a precondition for economic growth.

Table 17 — 5 shows that the malnutrition began to decrease in the early 1980s. The third degree (or severe) malnutrition decreased to a negligible level in the mid-1980s. And the second degree (or moderate) and total malnutrition also decreased significantly from 13.1 to 3.2 % and from 56.0 % to 26.0 %, respectively during the period between 1979 and 1986, just before the Thai economy entered the period of high economic growth. An important point is that the poverty incidence increased in the same period, from 17.5 % in 1981 to 22.4 %, due to stagnant economy. Poverty incidence in the table is measured by the head count ratio and the poverty line income. The increasing poverty incidence means that the income of the poor did not increased. These two facts, i.e. the improvement of malnutrition and the increasing poverty incidence seem contradict and raise a question: Why Thailand succeeded in improving malnutrition without an increase in income?

Table 17 — 5 Inequality, Poverty and Malnutrition in Thailand

Year	Gini coefficient	Poverty Incidence	Malnutrition		
			Total	2nd degree	3rd degree
1979			56.0%	13.1%	2.0%
1981	0.431	17.5%			
1982			58.0%	13.0%	2.1%
1983			48.0%	11.8%	1.9%
1984			35.2%	5.9%	0.8%
1985			28.5%	3.9%	0.21%
1986	0.466	22.4%	26.0%	3.2%	0.13%
1987			23.5%	2.4%	0.06%
1988	0.474	16.1%	22.0%	2.0%	0.04%
1989			20.6%	1.3%	0.01%
1990	0.488	15.0%	18.6%	0.8%	0.004%
1992	0.515	10.9%			

Source) Ikemoto[1993]

Note) "Malnutrition" indicates percentage of malnourished pre-school children. "2nd degree" and "3rd degree" indicate moderate and severe malnutrition, respectively. The degree of malnutrition is based on Gomez's classification.

In the early 1980s, Thailand adopted a poverty alleviation policy targeting on "poor villages." In order to identify the "poor villages," a survey was conducted every year. The survey did not attach so much importance to income as the poverty line approach. Instead it emphasized the behavior, attitude, and activities of the people. The idea is closer to the capability approach. The questionnaire of the survey is related to health, family planning, sanita-

tion, living condition, education, environment, participation, etc. The questions are expressed in a very simple and concrete manner so that every people can understand the meanings and learn what to do from the question. The questionnaire contains useful information to improve living condition.

The questionnaire is filled by the household head, which can avoid the rudeness of the interviewer to the poor people. The questionnaire is used for five years and kept by the household during the period. By keeping for five years, people can compare this year's result with those in the past and know the progress.

Only one question out of many is related to income level, asking whether the income is more than a certain level, which roughly corresponds the poverty line. This fact clearly how little importance is attached to income level. Income data is difficult to obtain and often dubious. It provides little useful information on what to do for the poor people. To the contrary the capability approach is normative in the sense that it shows the minimum standard that a society requires of the people.

Conclusion

Poverty is what a society should not overlook. And what a society should not overlook will differ from country to country. This means that the definition of poverty should differ with countries and with the level of development. The definition in Lao PDR indicates what Lao PDR wishes to eradicate. Thus the definition becomes the target. When low income is the definition, the policy will concentrate on increasing the income of the poor. However, there are so many ways to increase income that we are at a loss to choose the most efficient and effective way. Now there are two levels of diversity, which make the matter much more complicated.

When we talk about the policy for poverty alleviation, it overlaps with other fields of policy such as industrial policy. Industrial policy has its own purpose and if it is used for poverty alleviation, it has to serve for the two purposes, which are likely to contradict. When poverty alleviation is emphasized too much, the other purpose may not be achieved.

These problems occur from the fact that income is not the adequate informational base. The capability approach suggests us what is a more adequate one. The question is what is the basic functionings that Lao PDR wishes its people to achieve.

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18. Consumption and Poverty Analysis

Bounthavy Sisouphanthong

Introduction

In the Lao PDR analysis of poverty is at an early stage. Quantitative and qualitative approaches have been experimented. For the quantitative approaches two expenditure and consumption surveys (LECS of 1992/93 and 1997/98) provided a base for analysis. However the analyzing of the poverty situation is still facing problems such as: the level of calories for setting the poverty line, habit of food consumption and the prices data, etc. For the qualitative approach, in the first semester of 2000 the Participatory Poverty Assessment (PPA) survey had undertaken. The purpose of PPA analysis is to record the experiences and concern of the poor in order to initiate and identify more effective forms of public and private actions to reduce the poverty.

This paper draws the main finding from the following studies:

- Poverty analysis and Consumption study based on LECS 1992/1993 and 1997/1998 databases, supported by Swedish International Development Agency (SIDA).
- Report on food habit survey, 1999 that supported by International Development Research Center (IDRC), Canada
- Poverty in Lao PDR during the 1990's, Nanak Kakwani, Gaurav Datt, Bounthavy Sisouphanthong, Phonsaly Souksavath and Limin Wang 2002
- Report on PPA 2000, supported by Asian Development Bank (ADB)

The content of this paper is as follows: in the first section presents food consumption and actual rice consumption of Lao people. Section 18 — 2 presents food habit Lao's household and food component of Lao households' meals. Section 18 — 3 presents poverty analysis.

18 — 1 Food consumption and expenditure

(1) Food consumption

The composition of the household consumption has since 1992/1993 changed such, as percentage of own produced food consumption is down from 38 % to 34%. This indicates that in 1992/1993 the food is markedly lower than in 1997/98. The non-food consumption has been increased the share of total consumption. The share of rice consumption (both from buying and own produced rice) was fairly stable (around 28%) but in 1997/1998 household have purchased more rice at around 7% of total consumption while in 1992/1993 was 4.7% due to price changing in 1997/1998. Other food items have gone down the percentage share (Appendix 1).

In 1997/1998 food takes 61 % of the overall consumption of household compared to 64 % in 1992/1993. The main proportion in food is rice, 27% of the total consumption. In urban areas rice consumption share (16%) is much less than in rural areas (32%). In contrast the total monthly consumption per person in urban areas is high around 59,000 kip compared to monthly consumption per person in rural areas (around 34,000 kip) because of the prices differences. In the Center people consumed less rice than people in the North did and South did.

Another observation to make is a shift from own production to expenditure (purchases). The share of own production of food items was 59 % in 1992/1993 against 56 % in 1997/1998 and the share of food to total consumption has similarly changing in the same trend as the share of own production in food consumption. The proportion of own consumption to total consumption in overall country was 34% in 1997/1998, rural areas is much higher than in rural areas, 46% and 10% respectively (Table18 — 1).

Table 18 — 1 Household consumption, by regions in 1997/98.

	Total monthly consumption Kip/cu		Food share to total consumption (%)		% of which : Rice		% of own products to total consumption		% of own products in food	
	1997/98	1992/93	1997/98	1992/93	1997/98	1992/93	1997/98	1992/93	1997/98	1992/93
Lao PDR	38090	20090	61	66	27	27	34	39	56	59
Urban	59260		51		16		10		18	
Rural	33670		65		32		46		70	
Access to road			61		30				60	
No access to road			68		35				72	
North	30730		62		31		45		70	
Center	45210		59		26		30		48	
South	32310		67		33		42		58	

If we looked at the rice consumption of household in Centre of Lao PDR in Table 18 — 2 we found that they consumed less than household in the North did and South did. The share of food in total consumption by region varies from 59 % in the Center to 67 % in the South. The share of own production varies between just under 50 % (Center) and 70 % (North).

Table 18 — 2 indicates that the more consumption based on own products in food the more they are poor. Along with information on the composition of food consumption and the access to infrastructure, this data suggest that the Center region is the richest of the three, followed by the South and trailed by the North. However, the pattern is not uniform. The North has low access rate to the road, to market and more occupied in agriculture work than in other regions, while the Center has more chance to access to road and market. Northern households eat more meat than other two regions. Further, although households in the South spend relatively more on food (on rice and fish) than other regions, its has far share of own produced food compared to the north.

Table 18 — 2 Share of food consumption and main food item to total consumption by region in 1997/98

Item	North	Center	South
Food consumption	62	59	67
Rice	31	26	33
Meat	5	2	2
Fish	4	5	7
Vegetables	6,3	5,0	6,5
% of own products in food	70	48	58
Access to infrastructure	**North**	**Center**	**South**
Access to road in dry season	56	96	78
Access to road in rainy season	40	66	46
% of village far from main road 6 km and above	45	29	32
% of village with permanent market	6	12	6
% of hours work in agriculture	69	42	61
% of hours work in household business	19	31	21

Access to road and markets seem to have a significant importance for the consumption pattern. The share of food becomes higher with less access to markets and the dependence on own products. Within the urban areas there are more or less very similar baskets for rice, meat and vegetables consumption. The largest differences occur in rural areas without access to road.

In rural area access to road, there is less regional variation (North, South and Center). In the all three regions, food occupies roughly 60 % of total consumption, though Northerners seem to consume slightly more meat and the other region more fish. The variation in own consumption as a percent of total is relatively small (within 5 to 8 %) and of cause the Rural Center is the most marketing of products, follow by the South and North (Table 18 — 3).

The households live in rural area without access to road have the similar consumption pattern as rural household with access to road. But not surprisingly, households who live in rural areas without any access to road consume the highest of food as a percentage of total consumption (between about 70 and 74 %) and also produce a very high share of their food (in the North, as much as 78 %). An interesting regional difference is that the Northerners again consume more meat while their counterparts in the Center and South consume more fish because there is more fish available (there are many big rivers) in the Center and the South than in the North. Households in the Center consume least rice as a share of total, however Northern households consume more vegetables

(Table18 — 3).

Access to road seems to be an important determinant of consumption patterns. Without access to a road, the share of food in total consumption increase as well as dependence on own production increases. The largest differences in rural areas are not by region but by whether the households can access a road (Table 18 — 3).

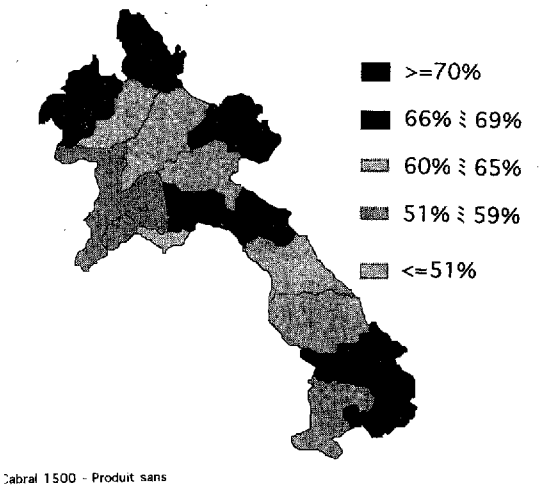
Table 18 — 3 Share of food consumption and main food item to total consumption by region in 1997/1998

	Rural North		Rural Center		Rural South	
	with access to road	Without access to road	with access to road	without access to road	with access to road	Without access to road
% to total consumption						
Food consumption	57	70	63	63	63	74
Rice	29	36	30	33	30	40
Meat	11	12	10	9	9	7
Fish	5	6	10	10	9	13
Vegetables	5	8	5	5	6	6
% of own products in food	69	78	57	71	61	65
% of food purchased to total consumption						
Rice	3.1	4.7	7.9	4.8	6.5	11.7
Meat	7	4.9	7.1	5.2	6.8	4.4
Fish	1.5	1	2.8	1.5	3.5	2.6
Vegetables	1.2	0.8	2.2	1.6	1.8	1.9
% of food from own production to total consumption						
Rice	25.8	30.8	22.2	27.8	23.3	28.7
Meat	4.2	7.1	2.5	3.5	2.6	2.6
Fish	3.5	4.9	6.7	8.5	5.9	10.1
Vegetables	3.8	6.9	3.2	3.6	4.6	4.3

Table 18 — 4 shows that there is a large variation between provinces. Provinces and regions with the highest food share also have the highest percentage of consumption emanating from own production such as Huaphan, Xayabury, Phongsaly, Luangnamtha, Oudomxay, Xieng khuang, Sekong and Attapeu province.

The data also shows the percentage of rice consumption since rice is the most important item in the food categories for Lao people. Generally, it indicates that the more share on food the more share on rice consumption. This is significant for those provinces with good rice production (mainly for own consumption) such as Xayaboury, Vientiane province, Luangphrabang and Savannakhet. However, that is not always the same for all provinces which having high share spent on food with high on rice, particularly in

Phongsaly, Luangnamtha, Xaysomboon, Borikhamxay, Sekong and Attapeu. These provinces have food share of total consumption more than 70% but rice share is almost less than one third of the food consumption. This indicates that these areas have low rice production or (low rice productivity) compared to other provinces. Other explanation is these area are the food insecurity area (in term of rice production) (Table 18 − 4).



Food share to total consumption

The total monthly consumption per consumption unit in Vientiane Municipality was approximately 68,000 kip that was the highest consumption in 1997/1998 among provinces and 50% out of their consumption expenditure was paid for food. In contrast Huaphan province has only around 22,000 kip/month but they have to save for their food consumption at about 69% of total consumption.

Table 18 − 4 Household consumption and rice production, by province 1997/98.

Province	Total monthly consumption Kip/consumption unit	% Of food to total cons.	% of which : Rice	% Of own Products to total cons.	Rice Production (Th. Tons)	Rice production per land area
Vientiane M.	68430	50.9	14.9	13.2	187200	47.8
Xayaboury	47320	52.3	25.1	38.2	89060	5.4
Vientiane P.	45730	57.0	24.9	33.6	123050	7.7
Savannakhet	35010	61.4	30.3	40.9	318750	14.7
Luangprabang	30290	62.0	28.3	38.7	86440	5.1
Champasack	33480	64.7	28.1	36.1	204550	13.3
Oudomxay	23500	65.5	31.7	50.5	60650	3.9
Xiengkhuang	35530	65.6	16.3	48.7	58100	3.7
Khammuane	37470	65.6	29.4	35.7	110700	6.8
Bokeo	32360	66.3	26.3	49.5	45300	7.3
Huaphanh	22370	68.6	31.3	56.4	51010	3.1
Saravane	31760	68.6	36.0	46.5	127800	12.0
Xaysomboon	28090	70.0	25.0	51.0	16200	2.3
Luangnamtha	26890	71.6	20.9	56.2	41600	4.5
Borikhamxay	40780	72.0	33.2	48.1	48620	3.3
Phongsaly	24020	72.9	21.4	56.6	41920	2.6
Attapeu	29130	73.2	26.9	55.3	35730	3.5
Sekong	29820	76.0	23.1	58.1	13320	1.7

The LECS 2 was conducted in 1997/1998 and by the time of financial crisis of Asian start to hit the Lao economy. The changing of prices of goods and services in combination with the income have affected the consumption patterns, particularly food consumption. Household would be expected to spend relatively more food while cutting down expenditure on other items, which are not necessity. Although the price have gone up all over the country, the absolute cost of living has become higher in urban than in rural areas and also low cost on total consumption as well as food consumption.

Figure 18 − 1 and Table 18 − 5 present the composition of food item between the food consumption itself (share of total food consumption). Out of total food consumption rice take 46%, meat covered 16%, fish 13%, vegetables take 9%, others food item covered 8% and meals[1] was 4% of total food consumption in average of the country.

Within food consumption, rice, meat, fish and vegetables are stayed the main food item group as they were in the total consumption. Rice, fish and other food are relatively

[1] Meals included ready food bought from the shop; food centre or market and expenditure on food take by household member outside the house such as restaurants

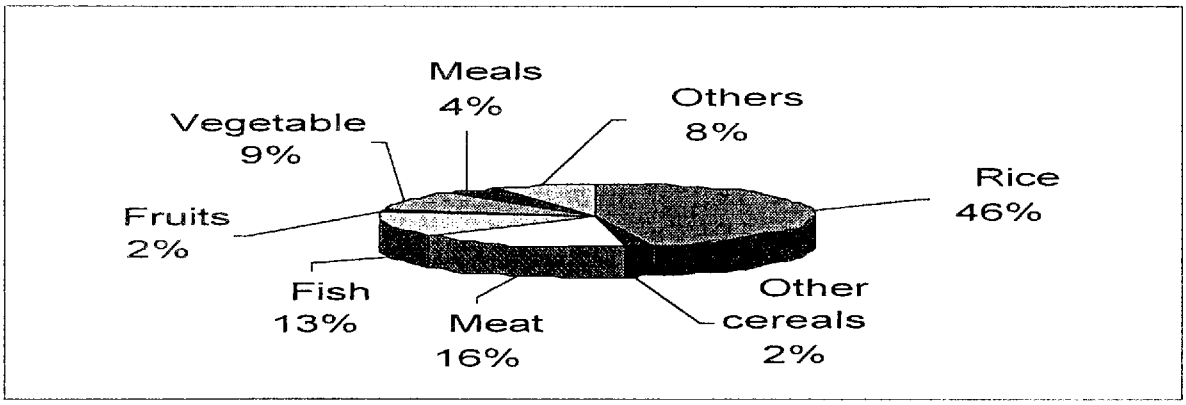


Figure 18 − 1 Food shares in 1997/98

more important in rural areas without access to road. Meat, fruits, non-alcoholic beverages and meals are more favorite for people in urban areas. Vegetables are relatively important to both the urban and rural diet. As the number in the Table 18 − 5 reveals that the people live in urban have spent less on rice (31%) and more on meat (20%) and meals (12%), while people living in rural have consumed more rice (48% to 52%) and less other food item.

Another observation is about the consumption patterns within food consumption itself in rural areas access to the road is relatively similar to the food consumption of overall the country of Lao PDR in 1997/1998. The different was just 1-2% for rice and meat consumption share.

The Table 18 − 6 shows variety of food consumption of people living in different parts

Table 18 − 5 Percent of food item group to total consumption by region and by item group in 1997/98

Food item group	Urban	Rural access to road	Rural without access to road	Total
Rice	31	48	52	46
Other cereals and bread	4	2	2	2
Meat	20	16	14	16
Fish	10	14	14	13
Milk, cheese and eggs	2	1	0	1
Oils and fats	0	0	0	0
Vegetables and potatoes	9	9	10	9
Fruits	3	1	1	2
Sugar and sweets	1	1	1	1
Non-alcoholic beverages, coffee and tea	3	1	1	1
Other food	3	4	5	4
Meals	12	3	1	4
Total	100	100	100	100

Remark: ' 0' indicates that consumption share is below 1% of total food consumption

of the country. In 1997/1998 people in the South spent more on fish and rice than the North and Centre. While meat and other food are the most important for northern household, fish is fairly important for Centre and Southern households. In parallel with meat and fish consumption people in the Centre also spent on food by eating outside the house and eat ready/ prepared food.

Table 18 — 6 Percent of food item group to total food consumption by North, Centre and South in 1997/1998

Item	North	Centre	South
Rice	48	44	50
Other cereals and bread	2	3	2
Meat	19	16	12
Fish	8	14	16
Milk, cheese and eggs	0	1	1
Oils and fats	0	0	0
Fruits	1	2	1
Vegetables	10	8	10
Sugar and sweets	1	1	1
Non-alcoholic beverages, coffee & tea	0	1	1
Meals	2	6	3
Others	7	3	4
All food items	100	100	100

Remark: ' 0' indicates that consumption share is below 1% of total food consumption

(2) Actual Rice Consumption

There is no standard size of rice to be eaten or what people eat in the Lao PDR before. The Lao household expenditure and consumption survey in 1997/1998(LECS2) was the first source which providing the actual rice consumption on an individual basis (what Lao people have been eaten). The measurement in this survey is based on consumption of glutinous rice and was estimated by using photographs on portions (Appendix). It results in the Table 18 — 7 that the average of daily consumption of Lao people was 582g of prepared rice per person and day, which corresponds to 350g/day of dry rice (1 kg of dry rice equal 1.66 kg of prepared rice). The total consumption for eating can be estimated to 1,080,000t/year (= 0,582kg × 365 days × 5,087,000 persons). Using expenditure consumption and price data, the corresponding figure was 429g/day (= Total rice consumption (expenditure and own produced rice) / average price / population / 365 days, this total rice consumption included rice intake, given away, other rice products and waste rice).

Table 18 – 7 Daily rice intake in grams per person by provinces and regions in 1997/1998

	0-4	5 – 9	10 – 14	15-19	20-24	25-49	50+	All	Urban areas	Rural areas access road	Rural areas no access road
Lao PDR	272	461	601	697	715	722	583	582	493	590	608
Urban	237	392	503	577	568	572	481	493			
Rural	277	473	621	725	750	755	602	600			
North	286	512	659	771	821	823	645	644	589	651	650
2 Phongsaly	299	549	682	797	844	821	634	660	497	556	679
3 Luangnamtha	292	513	652	768	829	825	666	658	583	647	686
4 Oudomxay	333	530	674	807	878	843	663	666	662	639	675
5 Bokeo	244	451	606	751	846	824	636	621	709	669	599
6 Luangprabang	257	487	608	716	731	759	622	601	504	603	615
7 Huaphanh	245	484	674	767	811	821	636	616	629	577	639
8 Xayaboury	344	558	715	823	897	878	674	704	610	716	704
Center	280	448	588	676	672	681	568	565	474	575	617
1 Vientiane M.	223	361	496	573	548	550	506	489	445	504	644
9 Xiengkhuang	256	512	722	876	898	854	695	659	505	600	723
10 Vientiane P.	281	484	647	721	744	745	556	612	554	608	650
11 Borikhamxay	241	443	626	802	848	804	695	629	452	637	642
12 Khammuane	262	462	605	711	732	727	609	589	531	578	620
13 Savannakhet	327	449	564	639	641	661	536	546	497	558	546
18 Xaysomboon SR	271	487	645	787	781	773	643	588	582	635	648
South	234	406	540	644	668	663	519	526	458	544	528
14 Saravane	269	453	602	733	748	775	625	594	506	591	606
15 Sekong	256	371	434	515	519	626	435	433	465	407	445
16 Champasack	221	400	533	625	653	635	490	513	442	550	512
17 Attapeu	172	320	481	627	634	600	431	465	483	485	452

18－2　Food habit of households [2)]

(1) Food habit of households

Usually the Lao people used to have their meals in different time and different way. As it is show in our finding that more than 75% households have three meals and 25% used to have two meals per day. This habit has been practice as usual but meal for some poor households depend on their earning. Around 20% of rich and non-poor households and 34% of the poor households have two meals during the day.

1) Vegetable consumption

When we compared the rich households to the poor household we see that the poor eat more vegetables than the rich do. There are 64% of the poor consumed more and cooked vegetables while there are 57% of non-poor household had consumed more and cooked vegetables. The poor households also have eaten more raw vegetables (11.4% of the poor household) while only 3.8% of the rich eat more raw vegetables. The rich household consumed less and cooked vegetables (approximately 19 % of total rich household) and they also consumed more raw and cooked vegetables reported by 11.5% of the rich households.

Table 18－8　Vegetable consumption by household status (% of households)

Vegetable consumption	Rich	Non-poor	Poor	total
More, raw (uncooked)	3.8	8.6	11.4	8.3
More, very cooked	57.7	57.1	68.6	61.5
Less, raw (uncooked)	3.8	11.4	8.6	8.3
Less, very cooked	19.2	17.1	8.6	14.6
More, raw & cooked	11.5	2.9	2.9	5.2
Less, raw & cooked	3.8	2.9	0.0	2.1
Total	100.0	100.0	100.0	100.0

2) Meat consumption

Fish is the most common meat that most households consumed. Beef and buffalo is second important meat for the Lao households and never the less pork is also relatively important. In the Lao PDR there are very few households that consumed single type of

[2)] Finding from food habit survey which was carried out by NSC in October 1999. In October 1999 the Lao Micro Impact from Macro Policies, of researches sponsored by IDRC of Canada (MIMAP) team has carried out a qualitative survey. The main objectives are basically to provide some supplemental information for Lao consumption and nutrition of Lao PDR, particularly the food consumption such as rice consumption, meat consumption,vegetables consumption, fruit consumption, salt consumption and other consumption of the household and what kind of food are mainly included in the daily meal. The survey was made up 96 households from 16 villages and six provinces. There are two provinces in each region such as Luangnamtha and Luangprabang in the North, Vientiane municilaity and Savannakhet in the Center and Sekong and Champasack in the South.

meat. Most households consumed almost all kinds of meat but is vary between the poor and the rich household. The poor consumed more fish and frogs (49% of the poor) than other meat while the rich eats more beef & buffalo, fish and poultry (19% of rich households). For the non-poor household they consumed more fish, beef and buffalo and mixed with other meat. This group of people has consumed all kind of meat relatively same scale. If we compare the households among North, Center and the South we found that households in the Center eat more pork, in the South and Center consumed more fish, especially the poor, 75% and 50% of poor household respectively (Appendix 2).

Table 18 — 9 Percentage of households consumed meat by household status

Meat consumption	Rich	Non-poor	Poor	Total
Beef & buffalo	0.0	2.9	8.6	4.2
Pork	3.8	2.9	0.0	2.1
Fish & frog	7.7	17.1	48.6	26.0
Poultry	3.8	0.0	0.0	1.0
Beef, buffalo & pork	3.8	2.9	2.9	4.2
Beef, buffalo & fish	19.2	5.7	17.1	13.5
Pork & fish	3.8	11.4	8.6	8.3
Pork & poultry	11.4	0.0	0.0	3.1
Fish & poultry	19.2	5.7	2.9	8.3
Beef & buffalo & pork &	7.7	17.1	5.7	10.4
Beef & buffalo & pork &	7.7	2.9	0.0	3.1
Beef & fish & poultry	3.8	11.4	0.0	5.2
Pork & fish & poultry	3.8	5.7	0.0	3.1
Other	4.3	14.3	5.6	7.5
Total	100.0	100.0	100.0	100.0

3) Salt consumption

Lao households consumed quite more salt and fermented fish. 26% of household consumed salt contained iodine and around 22% of household consumed iodine salt and fermented fish, and 21% of household consumed iodine salt mixed with fermented fish and fish sauce. About 15% of household consumed normal salt and fermented fish. The poor and non-poor households are prefer to consume iodine salt and fermented fish but consumed less fish and Soya sauce. The rich households consumed more variety of salts. Around 35% of rich households consume more iodine salt mixed with fermented fish, fish and Soya sauce. There are 2.9% of poor household have used normal salt and 20% consumed normal salt with fermented fish (Table 18 — 10).

Table 18 – 10 Percentage of household consumed salt by household status

Salt consumption	Rich	Non poor	Poor	Total
Normal salt	0.0	0.0	2.9	1.0
Iodine salt	15.4	22.9	37.1	26.0
Fish & Soya sauce	3.8	0.0	0.0	1.0
Normal salt &Fermented fish	11.5	11.4	20.0	14.6
Normal salt & fish & Soya sauce	3.8	0.0	0.0	1.0
Iodine salt &Fermented fish	15.4	22.9	25.7	21.9
Iodine salt & fish & Soya sauce	11.5	2.9	5.7	6.3
Iodine salt &Fermented fish & fish sauce	34.6	28.6	2.9	20.8
Other	3.8	11.4	5.7	7.3
Total	100.0	100.0	100.0	100.0

4) Fruit consumption

Fruit are very uncommon for the Lao household. Mostly people consumed fruit by seasonally. More than 57% of household have fruit consumption for sometime. 46% of rich and 26% of non-poor households consumed fruit as usual and mainly bought from the market.

Table 18 – 11 Percentage of household consumed fruit by household status

Fruit consumption	Rich	Non poor	Poor	Total
Not consumed	0.0	2.9	11.4	5.2
Usually consumed, bought	46.2	25.7	8.6	25.0
Usually consumed, owned produced	3.8	8.6	5.7	6.3
Consumed, sometime, bought	38.5	45.7	40.0	41.7
Consumed, owned produced	11.5	14.3	20.0	15.6
Other	0.0	2.9	14.3	6.3
Total	100.0	100.0	100.0	100.0

Beside the above mentioned food consumption Lao household also have consumed other insects which contain/provided protein such as shell, glass hopper and other crickets (insects that we call in Lao like chinai, chilo and ect). Surprising that the rich and non-poor household consumed this kind of food more than the poor households did.

Table 18 – 12 Percentage of households consumed other type of protein

Other meat	Rich	Non-poor	Poor	Total
Not consumed	11.5	29.4	21.1	21.5
Chinai (lao word)	46.2	35.3	27.3	35.4
Chilo(lao word)	15.4	17.6	27.3	20.4
Chinai (lao word) Glass hopper	11.5	11.8	9.1	10.7
Shell, other meat	3.8	2.9	9.1	5.4
Chilo, Chinai (lao word)	0.0	2.9	0.0	1.1
Chilo (lao word), shell & other	11.5	0.0	3.0	4.3
Other	0.0	0.0	3.0	1.1
Total	100.0	100.0	100.0	100.0
% of houshold consumed Chilo, Chinai				
North	50.0	71.4	72.7	66.7
Center	56.3	68.8	56.3	60.5
South	100.0	36.4	50.0	52.4

5) Rice consumption

This survey will provide information on how the household consumed rice but not the actual intake of rice since the survey is based on household not individual in the household. Therefore the rich per capita consumption is expressed in average rice consumption per person. People in rural area eat more rice than in urban area, 540g and 390g/person/day in average respectively. The poor in rural consumed around 640g/day while the rich consumed only approximately 530g/day.

Female consumed 10% less than male and households in the Center consumed rice less than the other part. Northern people have quite high rice consumption, especially the poor compared to the Center and South (more information see table below).

Table 18 – 13 Rice consumption per person per day by region (grams/ day /person)

Region	Rich	Non-poor	Poor	Total
Urban	370	373	441	392
Rural	528	456	639	539
Total	423	408	531	452

Table 18 – 14 Rice consumption per person per day by Sex (grams/ day /person)

Sex	Rich	Non-poor	Poor	Total
Male	455	426	559	476
Female	396	390	505	429
Total	423	408	531	452

Table 18 – 15 Rice consumption per person per day by region (grams/day/person)

Region	Rich	Non-poor	Poor	Total
North	403	439	720	433.7
Centre	426	397	466	424.1
South	437	429	490	447.0

Table 18 – 16 Rice consumption per person per day by age group (grams/ day /person)

Age group	Rich	Non-poor	Poor	Total
0 – 4	374	381	470	407
5 – 9	404	403	536	455
10 -14	503	425	518	475
15 -19	478	426	507	468
20 - 24	392	426	422	413
25 - 29	384	323	468	397
30 - 34	337	363	591	401
35 - 39	470	455	1,308	647
40 - 44	370	420	510	429
45 - 49	508	454	543	496
50 - 54	353	375	486	410
55 - 59	475	384	455	428
60 - 64	386	336	530	428
Total	424	408	531	452

(2) Food composition of Lao households

The first priority food in Lao PDR is rice. Dinner usually includes major food by priority as follows:

① Soup (vegetable mixed with meat), chilli sauce and vegetables, around 15 % of household.

② Soup and chilli sauce, 12% of household

③ Vegetable and chilli sauce, 9.6% of household

④ Soup, chilli sauce and fried food (meat or vegetable), 9.6% of household

⑤ Soup, chilli sauce, fried food and vegetable, 7.4% of households

⑥ Soup, grilled, fried food and chilli sauce 6.4% of household.

From the observation through the survey we find out diner that of Lao household dinner must have soup (meat mixed with vegetable or vegetable soup), chili sauce and vegetables (fried or boil or raw).

Chilli sauce is very important for every household. For some poor households they need only rice with chilli sauce and vegetables, particularly in the south.

Table 18 — 17 Percentage of household by region and by status

Region	Food component	Rich	Non-poor	Poor	Total
North	Soup, chilli sauce			30.0	13.0
	Soup, chili sauce, fried food	16.7	28.6	20.0	21.7
	Soup, chilli sauce, grilled and fried food	33.3		10.0	13.0
	Soup , chilli sauce and other food		14.3	20.0	13.0
	Soup, chilli sauce & vegetable		14.3	10.0	8.7
Centre	Soup , chilli sauce	12.5	12.5	25.0	16.7
	Soup , chilli sauce, vegetable		12.5	18.8	10.4
	Chilli sauce, grilled ,fried & vegetable	18.8	6.3		8.3
	Soup , chilli sauce, grilled & fried food	6.3		18.8	8.3
South	Chilli sauce, vegetable		18.2	62.5	30.4
	Soup chilli sauce & vegetable	50.0	36.4	12.5	30.4
	Soup chilli sauce & fried food	50.0		12.5	13.0
	Soup, chilli sauce, grilled & vegetable		18.2		8.7
	Soup, chilli sauce, fried & vegetable		18.2		8.7

18 — 3 Poverty analysis

(1) Perspective from a quantitative analysis

1) Change in real per capita consumption

The analysis shows that households have benefited from economic growth in the 1990s in that the per capita real total consumption has been increasing at the annual rate of 2.5 %; a lower growth rate than the per capita GDP during the same period (4.6%).

Vientiane Municipality is the richest area in terms of its monthly total real consumption per capita; the Northern Region is the poorest. The annual growth rate in total real consumption per capita per month in Vientiane Municipality has been 7.9% over time, which is far exceeding from three other regions. Although the North has remained as

Table 18 − 18 Per Capita Real Consumption in Kip by Region (March 97 to Feb 98=100 (Lao urban areas))

Regions	1992-93	1997-98	Growth Rate
Vientiane municipality	29765	44175	7.9
North	22509	25710	2.7
Central	26547	27782	0.9
South	25933	27366	1.1
Lao P.D.R	25494	28886	2.5

the poorest region in the country, it has been growing faster than the Centre and the South. The real total consumption per capita per month in the North has increased at the annual rate of 2.7 % over this period relative to about 1 % in Central and South. The Southern Region is better off than the Northern Region but worse off than the Central Region and Vientiane Municipality.

Per capita real consumption in rural areas has been growing at annual rate of 2.3 %, whereas the growth rate in urban areas has been 5.1 %. Thus the rural-urban disparity has increased between 1992/1993 and 1997/1998(Table 18 − 19)

Table 18 − 19 Per capita real consumption by regions and rural and urban areas March 97 to Feb 98=100 (Lao urban areas)

	Urban areas			Rural areas		
Regions	1992-93	1997-98	Growth rate	1992-93	1997-98	Growth rate
Vientiane Municipality	31809	48219	8.3	23878	37318	9.0
Northern region	27589	32275	3.1	21462	24997	3.0
Central region	33272	38399	2.9	25276	26291	0.8
Southern region	40094	39407	-0.3	23263	26067	2.3
Laos	32268	41540	5.1	23472	26351	2.3

2) Poverty incidence

The empirical result (Headcount index[3]) shows that 46 % of the Lao PDR population lived in poverty in 1992/1993, whereas in 1997/1998, the percentage of poor felt to 39 [4] (Box 1 methodology for setting up poverty line). Therefore, there was a mark of reduction in poverty in the Lao PDR between the two periods. Although, the rich have benefited much more than the poor, the reduction of poverty at an annual rate of 3.3%, does indeed indicate that the benefits of economic growth have been wide-spread between 1992/1993 and 1997/1998.

The incidence of poverty, however, varies quite substantially across the regions and provinces. Among four areas, the Northern Region has the highest percentage of poor, which decreased from 51.6 % in 1992/1993 to 47.3 % in 1997/1998. In contrast, the incidence of poverty in Vientiane Municipality has been the lowest: the poverty incidence was 33.6 % in 1992-1993 and only 13.5 % in 1997/1998. The Southern region has been the second highest proportion of population living in poverty.

In addition to large differences in the poverty incidence across regions, there are also differences between provinces. Huaphanh in the Northern region is identified as the poorest province, where 71.3 % of the population lived in poverty in 1992/1993. The percentage of poor in Huaphanh remained at 71.3 % in 1997/1998, thus showing no reduction in the percentage of poor during the period of five years between 1992/1993 and 1997/1998. Among the 18 provinces, five had the poverty incidence exceeding 50 % in 1997/1998. Of these five provinces, four are located in the Northern region, namely, Phongsaly, Luanpamtha, Oudomxay and Huaphanh.

It is important to note that the reduction in poverty has not been uniform across regions or provinces as it is shown in Table 18 ― 20. In Vientiane Municipality, the percentage of poor declined at an annual rate of 18.2 %, whereas in the Northern region, the percentage of poor decreased at an annual rate of 1.7 %. In the Central and South-

[3] The head count ratio or incidence of poverty indicate the percentage of individuals in the population whose income or consumption-expenditure falls below the poverty line. There are two poverty lines that have been constructed: the first is the food poverty line and the second is the non-food poverty line. The average food poverty line in Lao P.D.R are 14,228.2 kip/person/month in 1997/1998 of which urban and rural poverty lines is 14,949 and 14,070 kip/person/month respectively.

[4] Three alternative sets of poverty lines have been developed by the World Bank (1992/1993 and 1997/1998), Statistics Sweden (1992/1993 and 1997/1998) and ADB (1992/1993 and 1997/1998). Since they are using different methodologies to assess poverty, the finding of these studies overlap but have nevertheless generated a multiplicity of estimates.
It is very important to have benchmark figure on poverty. In this context the National Statistical Centre agreed to a proposal to compile a paper written jointly by NSC and Nanak Kakwani and Graurav Datt, May 2002 where the improvement that relating to the construction of household consumption aggregation, energy requirement, price differences across region, etc had been widely addressed.

ern regions, the percentage of poor fell at annual rates of 2.7 and 2.8 % respectively. Thus, not only is the North the poorest region in the country, but it also witnessed the slowest rate of poverty reduction. This appears counter-intuitive given that the growth rate of per capita real consumption in the North was higher than that in the Central and Southern regions, but is explained by the sharper increase inequality in the North, which dwarfed the impact of faster growth on poverty reduction.

For three provinces, Oudomxay, Luanpamtha and Bolikhamxay, the incidence of poverty in fact increased over this period. These observations show that rapid economic growth does not necessarily translate into a uniform reduction in poverty across space.

In the Central and Southern Regions, the percentage of poor diminished at annual rates of 2.7 and 2.8%, respectively. Thus, it is not only the North is the poorest region in the country, but the rate of its poverty reduction is also the lowest.

Table 18 – 20 Percentage of poor by Regions and Provinces

Regions/provinces	1992-93	1997-98	Annual rate in decrease of poverty
Vientiane municipality	33.6	13.5	-18.2
Northern region	51.6	47.3	-1.7
Phongsaly	72.0	57.9	-4.4
Louang Namtha	40.5	51.1	4.6
Oudomxay	45.8	66.1	7.3
Bokeo	42.4	38.9	-1.7
Louang Prabang	58.5	40.8	-7.2
Houa Phanh	71.3	71.3	-0.0
Xaygnaboury	22.4	17.7	-4.6
Central region	45.0	39.4	-2.7
Xieng Khoang	63.0	42.9	-7.7
Vientiane prov	30.7	27.8	-2.0
Borikhamxay	16.6	27.9	10.4
Khammuane	47.1	44.5	-1.1
Savannakhet	53.1	41.9	-4.7
Xaysomboon-SR		62.8	
Southern region	45.7	39.8	-2.8
Saravanh	43.6	39.2	-2.1
Xékong	67.0	49.7	-6.0
Champasak	41.4	37.4	-2.0
Attapeu	60.5	48.0	-4.6
Laos	46.0	39.1	-3.3

The urban-rural disparity in the incidence of poverty is large (Table 18 — 21): for urban areas the incidence was 26.5% in 1992/1993, and for rural areas it was 51.8%. Large differences in the percentage of poor between urban and rural areas are prevalent across regions. The disparities have, however, lessened slightly in 1997/1998 where the incidence of poverty was 22.1% for urban areas and 42.5% for rural areas. On average, economic growth benefited the urban areas more than the rural areas.

The empirical results (Table 18 — 22) show that the bottom 20 % of the population had

Table 18 — 21 Incidence of Poverty by Regions and Rural and Urban Areas
(Percentage of poor)

Regions	Urban Areas			Rural Areas		
	1992-93	1997-98	Growth rate	1992-93	1997-98	Growth rate
Vientiane Municipality	26.9	14.9	-11.8	52.9	11.1	-31.2
Northern Region	32.7	34.8	1.2	55.5	48.6	-2.6
Central Region	26.8	24.3	-1.9	48.5	41.5	-3.1
Southern Region	13.3	22.9	10.8	51.9	41.6	-4.4
Lao P.D.R	26.5	22.1	-3.6	51.8	42.5	-4.0

a shared in total per capita real consumption of 9.2 % in 1992/1993 while the richest 20 % had a share of 40.1 %. Unfortunately, the consumption share of the bottom 20 % of the population declined to around 8.0 % in 1997/1998 while that of the richest increased to 44 %. The Gini index increased from 30.5 % in 1992/1993 to 34.9 % in 1997/1998. This implies that the inequality in Lao PDR has increased over times but still at a lower level if compared to the region. Thus an increase in the inequality implies that the benefit of economic growth have not been flowing uniformly across the population.

The proportional benefit received by the poor is less than that received by the rich. Despite of an increase of 2.5 % in per capita real consumption in the Lao PDR between 1992/93 and 1997/98, but the annual growth rate of the bottom 20% of the population was -0.3% while that of the top 20 % of the population was 4.2% (Table 18 — 23).

Table 18 – 22 Inequality of per capita real consumption

Regions/provinces.	1992-93	1997-98	Growth rate
Gini index	30.5	34.9	2.7
Quintile shares			
First	9.2	8.1	-2.8
Second	12.9	12.0	-1.5
Third	16.2	15.5	-0.8
Fourth	21.5	20.7	-0.8
Fifth	40.1	43.7	1.7

Table 18 – 23 Growth rate of per capita real consumption by quintiles

Regions/provinces.	1992-93	1997-98	Growth rate
All quintiles	25494	28886	-0.3
First	2356	2325	1.0
Second	3296	3466	1.7
Third	4125	4486	1.7
Fourth	5489	5982	4.2
Fifth	10228	1262	2.5

From the Lao Expenditure Consumption Survey (LECS) - poverty estimates are primarily based on consumption as indicator of household welfare. But non-consumption or non- -income dimensions of welfare are also taken into account. This is explored by the construction of the district vulnerability indices that combine income and non-income indicators. These indices are similar in nature to Human Development Indices (of the UNDP). The weights assigned to different dimensions are on ad hoc basis and imply value judgements on the relative importance of different dimensions of welfare. But such indices can be quite useful in highlighting non-income aspects of deprivation.

In this respect, the World Food Program (WFP) conducted a vulnerability analysis and mapping exercise based on some relevant analytical inputs and a statistical database provided by the National Statistical Centre (NSC). The vulnerability analysis is identified poor districts using the district vulnerability index.

The district vulnerability index also constitutes an informative way to assess poverty at district levels[5] . It is calculated through access indicators (rice production per capita, large animals per capita, forest area index per household, access to roads within 6 km) and social indicators (percent of people with no education; crude death rate),

The result of the analysis shows that out of the 134 assessed districts, 52 reach to the minimal requirements for the six indicators, while 25 respond positively to 3-4 of the six criteria. Poor districts are those, which satisfy only 2-3 of the six indicators (22 districts), while the very poor districts, are those satisfying less than two indicators (35 districts). In other words, approximately two fifths of all districts in the Lao PDR are poor or very poor. Very poor districts constitute one quarter of all the districts in the Lao PDR.

The comparison of how the LECS- based district level poverty estimates compares with the district vulnerability indices shows that these two measures are complementary pieces of information[6].

Box 1: The methodology for setting up the Poverty Line

A. The methodology in setting up the poverty lines

The food poverty line is constructed on the basis of energy needs or calorie requirements of individuals or families. The calorie norm of 2100 kcal/person/day was used as proxy for the true calories requirement in Lao PDR.

The food poverty line for a household is the amount of money required in order to satisfy the nutrition requirement of all its members. To calculate food poverty line, we need to find the cost of calories converted in kip. The calories cost will obviously depend on basket we choose[7]. First, iteration, a reference group of poor is defined as the bottom 50 % of the national distribution ranked by nominal per capita consumption, adjusted only for intra-year price change to express all consumption value at the average of March 1997 - February 1998 price.

[5] In co-operation between the NSC and the WFP; the district vulnerability analysis is based on data from the LECS 1997/1998 and agricultural census 1989/1999, Population Census 1995

[6] Referred to World Food Program, Draft " Vulnerability analysis", August 2000

[7] It is obvious that the food baskets should reflect the consumption pattern of the poor. But how should we then determine basket for the poor when we have not yet identified who the poor are? Thus, this involves a circularity since the identification of poor households itself requires the knowledge of poverty line. So to get around this circularity an interactive approach has used.

Following the steps described below, this generates a set of region-specific poverty lines. Then the second interaction exercised, where the reference group of poor are now defined as bottom 40 % of the national distribution ranked by "real per capita consumption" adjusted to 1997/1998 Vientiane Municipality prices using the first interaction poverty lines.

Having defined a reference group of poor households the following describes the steps involved in constructing the region-specific calorie unit cost.

(1) Monthly per capital expenditure on the food bundle among the reference group of poor households in each four regions: Vientiane Municipality, North, Centre and South. The food bundle consists of 32 food items. (Appendix 1)
(2) The physical quantities of 32 food items consumed by the reference poor households are then calculated by dividing the total expenditure on each item by the corresponding average monthly prices (during March 1997- February 1998) (Appendix 2)
(3) Using the calorie conversion factors, the physical quantities consumed are converted in to calories consumed. Then total of calorie content of food bundle by region was calculated.
(4) The cost of calorie was calculated by region (Appendix 3)

To obtain consistent food poverty lines, a fixed food basket was used for all regions. Using the data on Table 18 — 3 to obtain the average calories cost for urban and rural areas as a whole (Appendix 4).

Having determined the calories the cost for urban areas of Lao PDR, the next step involves the determination of food poverty line in region separately for urban and rural areas. To get these poverty line spatial food price indices was used by fixing the poverty line for urban areas. The food poverty lines for different regions is presented in (Appendix 5)

The non-food poverty line - Using the idea given by Ravallion[8] that if a person's total income is just enough to reach the food threshold, anything that a person spends on non food items will be considered as basic non -food need. Thus, we computed a non-food to total consumption ratio for those households whose per capita total consumption was equal to their poverty line. Since the food poverty line varied by household, we modified the Ravallion approach in the following manner:

(1) First, we calculated the food welfare of a household, defined as the per capita household consumption multiplied by 100, divided by the household specific per

[8] This applies a well -known and widely used approach to estimating basic non food needs first suggested by Ravallion and Bidani (1998)

(2) Second, we arranged households in ascending order of food welfare using the LECS 1997/1998 data
(3) Third we selected the households whose food welfare lied between 90 and 110[9] and
(4) Fourth, we calculated the ratio of food to total expenditure for individuals belonging to these households

To calculate the non-food poverty line for households in different location and interviewed in different months, we used the spatial non-food consumer price index so that the value of the non-food poverty line was the same for every household.

The total-poverty line for each region is the sum of food and non-food poverty lines for that region

Updating the poverty lines:

Since the objective of the study is to compare poverty estimated in 1997/1998 with that estimated in 1992/1993, the regional specific poverty lines for 1992/1993 are derived from the corresponding poverty lines for 1997/1998. This is done by deflating the food poverty lines for 1997/1998 in each month and each region by the change in consumer prices indices between 1992/1993 and 1997/1998. Similarly, the non-food poverty line is deflated by the change in non-food consumer prices over the same period.

(2) Perspective from a qualitative analysis:

1) Perceived determinants and causes of Poverty

From the results of the PPA[10], it appears that the primary determinant of poverty is still the degree of rice sufficiency but other elements to be seen increasingly important, such as livestock diseases, lack of arable land, poor health, lack of access to cash. Regular natural disasters (e.g. flooding as well as draught) and widespread unexplored ordnance (UXO) contamination must also be added to the difficulty of alleviating the poverty.

The PPA showed that most problems cited by villagers, as preventing economic growth is the lack of all-weather roads. Accessibility to markets in the wet season is essential since that is when most agricultural goods are mature and ready for sale.

[9] According to Ravallion, we should select households whose income is equal the food poverty line, which means we should select the households at point, where the household food welfare is equal to 100. Since it is impossible to calculate the ratio of food expenditure to total expenditure at a point, it is reasonable to select a range in between 10%interval (the range of food welfare lying between 90 to 110)

[10] PPA - Particiaptory Poverty Assesment

The findings regarding determinants and causes of poverty can be summarised as follows:

① The primary determinant of poverty is the degree of rice self-sufficiency. The primary indicator of wealth is livestock.

② The secondary conditions of poverty include lack of arable land, livestock disease, and poor health, hiring out of labour, lack of technical knowledge and skills, lack of accessibility, insufficient clothing and poor housing.

③ The most commonly cited causes of poverty include (in order of priority): (i) land problems, (ii) no cash investment to pay for rice while improvements are being made, (iii) livestock disease, (iv) natural disasters, and pests, (v) environmental degradation and (vi) lack of water for potential agricultural production.

④ Other causes include: lack of village leadership, relocation, insufficient health services, too many children, lack of commercial skills, lack of government assistance, low prices for agricultural products, opium addiction, UXO contamination and theft.

Box2: Monitoring poverty at the district and village level

The Lao Government is in the process of developing a reporting system on poverty level within the country following the Prime Minister's Directive No. 10, dated 25 June 2001 on the "Development of Poverty Eradication programs". The directive introduced specific criteria for defining poverty at household, village, district and provincial level.

Following the directive, The National Statistical Centre developed a poverty assessment questionnaire that operationalizes these criteria. With reference to the Government decision following the instruction No.101/PM, the definition and indicator are as follows:

◆ Definition of poverty:

Poverty is lack of basic requirements in daily livelihood, such as lack of food (less than 2,100 kcal/person/day), clothing, permanent shelter, inability to afford necessary medical treatments, inability to afford one's own education and the education of other members of family and the lack of easy access... primarily

◆ The poverty indicators:

At the household level: Household considered as poor are household with an income of less than 85,000 kip (100,000 kip for urban and 82,000 kip for rural) equivalent in cash per person/month. This sum allows purchasing about 16 kg of milled rice per person/month, but the balance is insufficient to cover other necessary expenses, such as clothing, shelter, children's schooling cost and medical treatment. Household living in such conditions is considered as household who still living in poverty.

At village level: Villages considered as poor villages are:

- Villages where at least 51% of the total households are poor households
- Villages without schools within the village or schools in nearby and accessible villages
- Villages without dispensaries, traditional medical practitioner or requiring over six hours of travel to reach a hospital
- Villages without safe water supply
- Villages without access to road (at least trails accessible by cart during the dry season)

At district level: Poor districts are:

- District where over 51% of the villages are poor
- District where over 40% of the villages do not have local or nearby schools

■ District where over 40% of the villages do not have a dispensary or pharmacy
■ District where over 60% of the villages without access road
■ District where over 40% of the villages do not have safe water

At provincial and national level:

The measurement of poverty at provincial and national levels in compilation of poverty at district level and combined with poverty analysis based on the household consumption and expenditure survey performed by the National Statistical Center.

◆ Poverty monitoring
An important element relates to the monitoring as follows:
- At village levels district officials in collaboration with villages officials have to visit the households in order to assess the situation regularly.
- At district levels provincial authorities in collaboration with district officials have to visit the villages in order to monitor the poverty situation.
- At the national and provincial levels, in addition to the result of the assessments at the villages and districts levels, assessments will also based on quantitative as well as qualitative indicators in order to make it comparable to international standards.

In order to improve its database and to have an up-to-date information on these indicators, the Government envisages organising the household's survey on a regular basis. The LECS 3 survey was undertaken in the beginning of March 2002 and will ended up of February 2003. LECS 3 is basically be a replicate of the LECS II but enlarged in a number of ways. The number of sample village is increased from 450 (LECS2) to 540 villages. The components are also expanded like labour, education (with module from World Bank staff), health, household business etc. The expecting results of LECS 3 will be by the end of 2003.

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Appendix 1
Household consumption by item groups.
Total and monthly household average. Percentages.

Item group / Item sub-group	LECS 1997/98 Monthly hhld average in KIP	LECS 1997/98 Percent of grand total	LECS 1997/98 Percent of group total	LECS 1992/93 Percent of grand total	LECS 1992/93 Percent of group total
Food expenditure	50999	26.9	100	26.3	100
Rice	13753	7.3	27.0	4.6	17.4
Other cereals and bread	2479	1.3	4.9	1.2	4.6
Meat	12942	6.8	25.4	7.6	28.8
Fish	4900	2.6	9.6	2.9	10.9
Milk, cheese and eggs	1049	0.6	2.1	0.7	2.7
Oils and fats	241	0.1	0.5	0.1	0.6
Fruits	1503	0.8	2.9	0.7	2.6
Vegetables	4178	2.2	8.2	2.7	10.1
Sugar and sweets	1147	0.6	2.2	1.0	3.9
Non-alcoholic bev.coffee &	1656	0.9	3.2	1.0	3.9
Other foods	2413	1.3	4.7	1.4	5.5
Meals	4739	2.5	9.3	2.4	9.0
Own produce of food	64221	33.9	100	38.0	100
Rice own produce	39442	20.8	61.4	22.9	60.4
Other own grain produces	181	0.1	0.3	.	.
Vegetables own produce	6340	3.3	9.9	3.1	8.0
Fruits own produce	415	0.2	0.6	0.4	1.2
Meat own produce	5559	2.9	8.7	4.2	11.0
Fish own produce	9937	5.2	15.5	4.0	10.5
Other own produces	2348	1.2	3.7	3.4	8.9
Clothing, footwear, tailoring	5265	2.8	100	4.1	100
Housing	13402	7.1	100	7.1	100
Rent of houses	60	0.0	0.4	0	0.3
Imputed rent	8939	4.7	66.7	4.7	66.1
Fetched firewood	1941	1.0	14.5	1.3	18.2
Water, el, etc	2461	1.3	18.4	1.1	15.4
Household utensils and operat	9674	5.1	100	4	100
Medical care	4246	2.2	100	2.4	100
Transport and communication	20007	10.6	100	6.7	100
Recreation	11562	6.1	100	3.8	100
Education	934	0.5	100	0.8	100
Personal care	1464	0.8	100	3.1	100
Alcohol and tobacco	5449	2.9	100	3	100
Others	2098	1.1	100	0.7	100
Total consumption	189319	100.0	100	100	100

Appendix 2: Percentage of household consumed meat by type of meat

Part	Meat consumption	Household Status			Total
		Rich	Non poor	Poor	
North	Beef, Buffalo			9.1	4.2
	Fish, frog		14.3	27.3	16.7
	Poutry	16.7			4.2
	Beef, buffalo, pork	16.7		18.2	12.5
	Beef, buffalo, fish	33.3		18.2	16.7
	Beef and poutry		14.3		4.2
	Pork and fish		28.6	9.1	12.5
	Pork and poutry	16.7			4.2
	Fish and poutry	16.7			4.2
	Beef, Buffalo, pork and fish		42.9	9.1	16.7
	Other			9.1	4.2
	Total	**100**	**100**	**100**	**100**
Center	Beef		6.3	12.5	6.3
	Pork	6.3			2.1
	Fish, frog	6.3	6.3	50	20.8
	Beef,buffalo, pork		6.3		2.1
	Beef, buffalo, fish	12.5	12.5	25	16.7
	Pork and fish		6.3	6.3	4.2
	Pork and poutry	12.5			4.2
	Fish and poutry	25	12.5		12.5
	Beef, Buffalo, pork and fish	12.5	6.3		8.3
	Beff, fish and poutry	6.3	18.8	6.3	8.3
	Pork, fish and poutry	6.3	12.5		6.3
	Other	12.6	12.6		8.3
	Total	**100**	**100**	**100**	**100**
South					
	Pork		8.3		4.2
	Fish, prog	25	33.3	75	45.8
	Beef, buffalo, fish	25			4.2
	Pork and fish	25	8.3	12.5	12.5
	Fish and poutry			12.5	4.2
	Beef, Buffalo, pork and fish		16.7		8.3
	Beef, fish and poutry		8.3		4.2
	Fish and other		8.3		4.2
	Beef , pork and poutry	25	8.3		8.3
	Other		8.3		4.2
	Total	**100**	**100**	**100**	**100**

19. Comments on Poverty Analysis in Lao PDR

Nobuhiko Fuwa

19－1 A general remark on the importance of designing data collection for specific uses of the data on poverty

A survey design for data collection (e. g., sampling frame and size, questionnaire design, etc.) should be tailored to the specific uses/purposes of the data. Very broadly speaking, there are two types of uses/purposes of poverty data by policy makers. One type of the data usage is the identification of the poor. No matter how "poverty" is defined and measured (i. e., income/consumption based, or "capability" approach, as suggested by Prof. Ikemoto), the main purpose here is to identify where the "poor people" are located (i. e., the geographical distribution of the poor). For this purpose, we would need to have a fairly large sample size in order to have reliable estimates of geographically disaggregated poverty measures (say, by province, districts, or below). In an extreme case, in order to identify every poor household, all households would need to be surveyed.[1] At the same time, however, the questionnaire can be relatively simple since it would be sufficient for this purpose to obtain information only on poverty outcomes (such as consumption, school enrolment, some health status, or literacy)

The second type of the uses of poverty data for policymaking is "policy analysis" that is, the purpose here is to identify which policy measures are more effective in reducing poverty (again, no matter how "poverty" is defined and measured).[2] For this purpose, a relatively small sample could suffice (say, a few thousand households, as typically found among the World Bank's Living Standard Measurement Study (LSMS) surveys). At the same time, however, we would need a rather complex questionnaire including not only poverty outcomes (such as, consumption, education or health) but also all types of economic activities by the household (such as agricultural activities, labor market participation, household enterprises, etc.). For example, when lack of education is regarded a major component of poverty, con-

[1] In order to circumvent the problem of small sample sizes when household surveys are used for the estimation of geographical distribution of the poor, the World Bank has made some attempts to combine multi-purpose household surveys having small sample sizes with census data.

[2] Furthermore, such "policy analyses" can be either ex ante or ex post, and appropriate data sets could differ between these two different uses. For example, ex post policy analysis (or impact evaluation) typically requires either panel data or data on some "control groups".

structing schools may or may not lead to increased school enrollent; the household decision on schooling depends not only on the availability of the school but also on how the household allocates different tasks among its members-even when a school is available in a short distance if a girl is assigned to look after younger children or to fetch water or firewood and no one else in the family could take over such tasks she may still not be able to attend a school. In addition, without demonstrated returns to schooling in the labor market, the household may not have an incentive to educate their children. Therefore, policy analyses often require an integrated household survey that covers all aspects of economic activities of the household. As another example, an important question regarding the proposed "Thammasat way" of agricultural development is: how would the "Thammasat way" of agricultural production help reduce poverty? Addressing this question would require a data set integrating agricultural production, other economic activities and poverty outcomes at the individual and the household levels.

It is important, therefore, to recognize what the main uses of the data would be when data collection schemes (i. e., sampling size, questionnaire design, etc.) are designed In the case of Lao PDR, some headways have been made in terms of the geographical identification of the poor people (i. e., the first type of the poverty data uses, as discussed earlier). While the sample size of LECS1 and LECS2 is relatively small for a detailed poverty mapping exercise, some crude estimation of poverty trends at some levels of disaggregation (e. g., regional and provincial levels, rural vs. urban, etc.) have been obtained. In addition, the recently conducted Participatory Poverty Assessment (PPA) exercise indicates some possible causes of poverty for those surveyed. What is critically lacking in Lao PDR at the moment, however, appears to be an appropriate dataset for the second type of data uses (i. e., policy analyses) so that appropriate policy interventions for reducing poverty (or preventing an increase in poverty) could be designed. In this light, it is very timely and encouraging that LECS3, which is a multi-purpose household survey, is currently underway. Such database would be very useful for policy analyses in conjunction with the JICA project.

19 — 2 A few alarming findings from the analysis of consumption-based poverty trends that require policy attention

As reported by Mr. Bounthavy in the report, the general nationwide trends, based on LECS1 and LECS2, show that the mean consumption expenditure increased and incidence of poverty declined between 1992 and 1997. However, the data also show some disturbing ten-

dencies as well, which deserve the attention of policy makers. First, while the mean consumption expenditure increased and absolute poverty (measured by headcount poverty ratio) declined, inequality in consumption expenditures increased. As a result, the pace of poverty reduction in Lao PDR (which can be measured by the rate of poverty reduction for 1% growth in mean consumption/income- called the "growth elasticity of poverty reduction") seems to be rather slow by international standards.

Secondly, a more disaggregated analysis using alternative poverty measures (such as the poverty gap and the poverty gap squared [3]) points to some specific "pockets of poverty" where absolute poverty increased amid aggregate growth: [4]

(1) Using the poverty gap (also known as the "depth" of poverty) and the poverty gap squared (also known as the "severity" of poverty) measures, the absolute poverty increased in three out of seven provinces in the North (while the headcount poverty ratio increased only in one out of seven provinces in the North, as reported by Mr. Bounthavy).

(2) Using the same poverty measures (poverty gap and poverty gap squared), urban poverty increased in the North and in the South. Although the mean income gap between rural and urban areas increased and the urban poverty declined faster than rural poverty at the national aggregate level, there apparently emerged groups of urban poor whose living standard actually fell amid aggregate income growth.

These findings suggest that the growth pattern in Lao PDR during the period between 1992 and 1997 was not a "pro-poor" growth, and that there have been some specific groups who were not only left-out by the growth process but possibly were hurt by the process. Policy makers better be alarmed by such trends when designing policies for poverty reduction or other policies for economic development in general. As an initial step, it would be necessary to investigate more closely who they are and why they became poorer.

19 — 3 Need for systematic integration of both the qualitative and the quantitative surveys

It appears that, at the moment, the findings from quantitative poverty analysis (based on LECS) and from qualitative data (based on Participatory Poverty Assessment) are presented independently. It would be desirable, however, to integrate the findings from both types of

[3] The definition and the interpretation of these alternative poverty measures can be found in Prof. Ikemoto's paper.

[4] These observations are based on Kakwani, et. al. (2001).

data in order to come up with coherent interpretations (or "stories").

In addition, the feedback mechanisms between qualitative and quantitative surveys should be further strengthened. For example, the PPA-a qualitative poverty assessment- was conducted in the areas that were identified as "poor" areas by quantitative poverty data (LECS). In a similar manner, the results of the qualitative poverty data should inform the design of the next round of quantitative poverty data collection. For instance, the findings of PPA can be utilized to include data collection regarding the causes of poverty so that some hypotheses emerging from the qualitative survey (e. g., land allocation policy as one cause of impoverishment, low returns to education as a cause of low school enrolment, etc.) can be tested quantitatively using a more nationally representative sample of households.

19－4 Need for Linkages between poverty analysis and sectoral policy making

Poverty outcomes (no matter how they are defined and measured) are the result of all the economic activities. Thus all sectoral policies (agricultural, industrial, etc.) as well as macroeconomic policies have major effects on poverty outcomes. While poverty data collection and its analysis are conducted by the National Statistics Center, policies are designed and implemented by sectoral ministries. Thus there should be institutional mechanisms to ensure that the results of poverty analysis be fully taken into account when policies are designed by other ministries.

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Poverty

Yukio IKEMOTO (University of Tokyo) Nobuhiko FUWA (University of Chiba)	Bounthavy SYSOUPHANTHONG (NSC) Singkham KHONGSAVANH (CPC) Phetsamone SONE (NSC) Fongsamout KHAMVANGVONGSA (NERI)