

Thematic Evaluation 2021
“Evaluation Methods for Human
Well-being/Happiness”
Final Report

August 2022

Japan International Cooperation Agency

Metrics Work Consultants, Inc.

| |
|-------|
| EV |
| JR |
| 22-58 |

Table of Contents

| | | |
|-----------|--|----|
| Chapter 1 | Introduction of the study..... | 1 |
| 1.1. | Purpose and background of the study | 1 |
| 1.2. | Structure of the study..... | 1 |
| 1.3. | Study period..... | 2 |
| 1.4. | Notes concerning the study's method | 2 |
| Chapter 2 | Review of HWB indicators from other organizations /institutions | 3 |
| 2.1. | Overview of the review | 3 |
| 2.2. | Results of the review (1): Definitions and operationalization of indicators | 3 |
| 2.2.1. | Better Life Index (BLI)..... | 4 |
| 2.2.2. | World Happiness Report (WHR) | 6 |
| 2.2.3. | Gross National Happiness (GNH)..... | 9 |
| 2.2.4. | Personal Well-being..... | 11 |
| 2.2.5. | Gross Arakawa Happiness (GAH) | 13 |
| 2.2.6. | Net Personal Happiness | 16 |
| 2.3. | Review results (2): Examples of application in screening and assessment | 19 |
| 2.3.1. | Gross National Happiness (GNH)..... | 19 |
| 2.3.2. | Personal Well-being..... | 20 |
| 2.3.3. | Gross Arakawa Happiness (GAH) | 21 |
| 2.4. | Summary of the review | 23 |
| 2.4.1. | Conceptualization of HWB | 23 |
| 2.4.2. | Domains and components | 24 |
| 2.4.3. | Quantification method | 25 |
| 2.4.4. | Data source and collection method | 25 |
| 2.4.5. | Application in screening and assessment..... | 26 |
| Chapter 3 | Recommendations on the adoption and application of the Human Well-being perspective in JICA project evaluation..... | 27 |
| 3.1. | Conceptualizing HWB | 27 |
| 3.1.1. | Overall approach..... | 27 |
| 3.1.2. | Conceptualizing individual domains | 28 |
| 3.2. | Proposed application/adoption in ex-post evaluation | 30 |
| 3.2.1. | Basic concept..... | 30 |
| 3.2.2. | Value added to ex-post evaluation..... | 34 |
| 3.2.3. | Reflection on evaluation decisions..... | 34 |
| 3.2.4. | Projects to adopt and apply HWB | 35 |
| 3.3. | Proposed application/implementation in ex-ante evaluation | 36 |

| | | |
|--------|--|----|
| 3.3.1. | Basic concept..... | 36 |
| 3.3.2. | Projects subject to the application..... | 36 |
| 3.4. | Considerations when conducting surveys in ex-post evaluation study..... | 37 |
| 3.4.1. | How to ask questions about changes in subjective well-being/satisfaction..... | 37 |
| 3.4.2. | How to ask questions on factors contributing to changes in subjective well-being/satisfaction..... | 38 |
| 3.4.3. | Attention to biases..... | 38 |

Appendix Case Study Report

Chapter 1 Introduction of the study

1.1. Purpose and background of the study

In recent years, efforts have been made to measure the well-being and happiness of society and people from multiple perspectives. Internationally, the Organization for Economic Co-operation and Development (OECD) has created the “Better Life Index,” and the United Nations Sustainable Development Solutions Network has published the World Happiness Report, among others. Individual countries have also been promoting efforts to understand the well-being and happiness of their citizens, including the Bhutan government’s Gross National Happiness and other measures in the United Kingdom and Australia. In Japan, many local governments are trying to find ways to understand the level of happiness and well-being of the residents to incorporate such insights in their policies.

One of the reasons behind this trend is a growing awareness of the problems of existing indicators that have been used as indicators of society and people’s well-being, such as GDP and income. It has become clear that higher incomes do not necessarily translate into subjective well-being, and there is a growing awareness of the importance of capturing not only objective indicators, such as GDP and income but also people’s subjective life satisfaction. It has also been pointed out that such subjective well-being/life satisfaction is significantly affected by factors that are not fully considered in existing indicators, such as social ties, access to a high-quality natural environment, and safety.

Improving well-being has been recognized as part of the development agenda of the United Nations Sustainable Development Goals (SDGs). In addition, the perspective of human well-being is now included in the revised evaluation criteria of the Development Assistance Committee (DAC Evaluation Criteria), on which JICA’s project evaluation relies. In light of these trends, JICA now needs to consider how to reflect the perspective of human well-being (hereinafter referred to as "HWB") in its project evaluations.

Against the backdrop of these trends and awareness of the issues, this thematic evaluation was conducted to review HWB indicators developed and adopted by various organizations and institutions and to conduct case studies. The study makes recommendations on how JICA might be able to approach HWB and the specific ways in which JICA can adopt and apply HWB in its project evaluation.

1.2. Structure of the study

This study consisted of four major components: (1) a review of HWB indicators developed and adopted by other organizations and institutions, (2) an examination of the proposed methods of adoption and application in JICA project evaluation, (3) carrying out of case studies, and (4)

finalization of the recommendations regarding proposed methods of adoption and application in JICA project evaluation. At each milestone of the work, we have informed and obtained comments from concerned experts and reflected their feedback in the work as applicable.

Case studies were conducted in three countries: India, Tanzania, and Bhutan. In addition to India and Bhutan, which were indicated as case study countries in the work instructions, Tanzania in Africa was selected to ensure regional variation. Because the study needed to conduct case studies remotely within a short period of time, another important factor in selecting these countries was the possibility of securing local cooperation (i.e., local consultants). In selecting the projects, the final selection was made among the projects that had already been completed in each country, taking into consideration the ability of the implementing agencies to cooperate with this study and the views of JICA's overseas offices¹.

This report focuses on the study's results, rather than the entire work process. Following this chapter on the introduction of the study (Chapter 1), Chapter 2 describes a summary of the study results, and Chapter 3 describes the final proposed recommendations based on case study results.

1.3. Study period

This study was conducted from June 2021 through August 2022. The work period was extended beyond the original schedule because of the need to postpone the case studies due to the COVID-19 outbreak.

1.4. Notes concerning the study's method

- In an ex-post evaluation, it is generally expected for the evaluator to visit the site themselves to conduct the study. However, in this study, it was not expected for the international consultant to travel to the site; the study had to be conducted remotely using local interviewers. Therefore, the study was conducted in an environment different from how an ex-post evaluation would normally be conducted.
- Although the recommendations made in this report are informed through the discussions we had with JICA's Evaluation Department and other relevant departments, they are exclusively those of the study team and do not necessarily represent JICA's views. This report is intended as a reference material for JICA to determine how it might actually implement HWB based on the results of this study.

¹ The selected projects are the Project for Reinforcement of Power Distribution in Dar es Salaam (Tanzania), the Himachal Pradesh Crop Diversification Promotion Project (India), and the Project for Improvement of Machinery and Equipment for Construction of Rural Agricultural Road Phase 3 (Bhutan). In each country, one local consultant conducted interviews with approximately 20 individuals. See Appendix for the details of the case studies.

Chapter 2 Review of HWB indicators from other organizations /institutions

2.1. Overview of the review

As mentioned in Section 1.1, various organizations and institutions have developed indicators to understand HWB. This study has reviewed these indicators to gain insights that can be used when JICA considers how the idea of HWB may be adopted in and applied to the evaluation of JICA projects. This chapter presents the results of the review.

The review was conducted by focusing particularly on (1) how HWB is conceptualized, measured, and quantified by each organization/institution, and (2) how HWB indicators are used for screening, targeting (ex-ante evaluation), and assessing (ex-post evaluation) projects.

The HWB-related indicators and initiatives selected for our review are shown in Table 2-1 below. In selecting indicators, we took into account the distribution among different types of the organizations that created such indicators (international organizations, government, and local governments in Japan) and the availability of detailed information in literature-based data collection. We selected those indicators that were likely to provide useful information for the purpose of the review. Of these indicators, Indicators C, D, and E were also reviewed in terms of the specific ways in which they are used.

Table 2-1 HWB indicators and initiatives reviewed in the study

| | Indicators/Initiatives | Created by |
|---|--------------------------|---|
| A | Better Life Index | OECD |
| B | World Happiness Report | Sustainable Development Solutions Network |
| C | Gross National Happiness | Bhutan |
| D | Personal Well-being | United Kingdom |
| E | Gross Arakawa Happiness | Arakawa Ward, Tokyo, Japan |
| F | Net Personal Happiness | Niigata City, Niigata, Japan |

2.2. Results of the review (1): Definitions and operationalization of indicators

This section presents the summary results on each of the indicators reviewed in terms of the following four aspects: 1) overview, 2) conceptualization of HWB, 3) measurement and quantification methods, and 4) data sources and data collection methods.

2.2.1. Better Life Index (BLI)

1) Overview

The OECD, which has been aware of the problem that GDP alone cannot measure a “good life” for people, has been working to develop indicators to measure people’s happiness and quality of life and has been publishing them annually as “Better Life Indicators” since 2011. This index covers 40 countries, including 37 OECD member countries plus Brazil, Russia, and South Africa. The development and publication of the indicators have the following objectives:

- Creating opportunities for citizens to discuss what perspectives of society need to be developed;
- Identifying indicators that reveal which aspects of people are getting better/worse;
- Considering how better measures of well-being should be reflected in public policy; and
- Understanding the factors that enhance well-being to identify a set of policies needed to improve people’s well-being.

2) Conceptualization of HWB

In BLI, both “present well-being” and “future well-being” are considered important, and the former is captured in 11 domains: housing, income, employment, community, education, environment, civic engagement, health, life satisfaction, safety, and work-life balance. In addition, it is considered important secure natural, human, economic, and social capitals to ensure “future well-being.”

3) Methods of measurement and quantification

As described above, “present well-being” consists of 11 domains, which are categorized into “material living conditions” (income, housing, and employment) and “quality of life” (community, education, environment, civic engagement, health, life satisfaction, safety, and work-life balance). In addition, a set of indicators is established for each domain to ascertain its level. Table 2-2 below shows each domain and respective indicators. Except in the subjective well-being domain, objective indicators are used.

Each indicator is represented by an aggregate score (0-10) for each domain on a country-by-country basis (Figure 2-1(a)). However, the OECD itself does not calculate a single score (and rank) after weighting the scores of each domain. Instead, the scores from different domains are presented in a dashboard format. On the other hand, each country is ranked within individual indicators for each domain (Figure 2-1(b)).

Table 2-2 BLI domains and indicators

| Domain | Indicator |
|-------------------|---|
| Housing | - Housing expenditure |
| | - Dwellings without basic facilities |
| | - Rooms per person |
| Income | - Household net wealth |
| | - Household net adjusted disposable income |
| Jobs | - Labour market insecurity |
| | - Personal earnings |
| | - Long-term unemployment rate |
| | - Employment rate |
| Community | - Social network support |
| Education | - Expected years in education |
| | - Student's cognitive skills |
| | - Educational attainment |
| Environment | - Satisfaction with water quality |
| | - Air pollution |
| Civic engagement | - Stakeholder engagement for developing regulations |
| | - Voter turnout |
| Health | - Self-reported health status |
| | - Life expectancy at birth |
| Life satisfaction | - Life satisfaction |
| Safety | - Homicide rate |
| | - Feeling safe walking alone at night |
| Work-Life Balance | - Time devoted to leisure and personal care |
| | - Employees working very long hours |

Source: OECD. (2022). Better Life Index: Definitions And Metadata February 2022

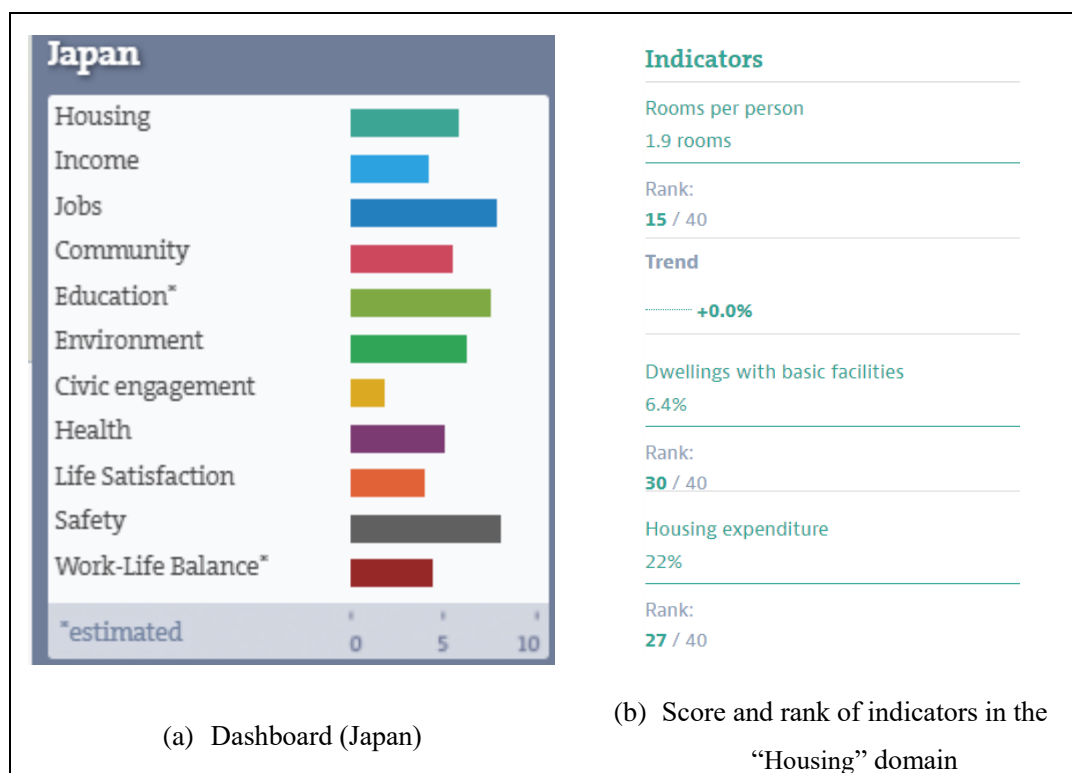
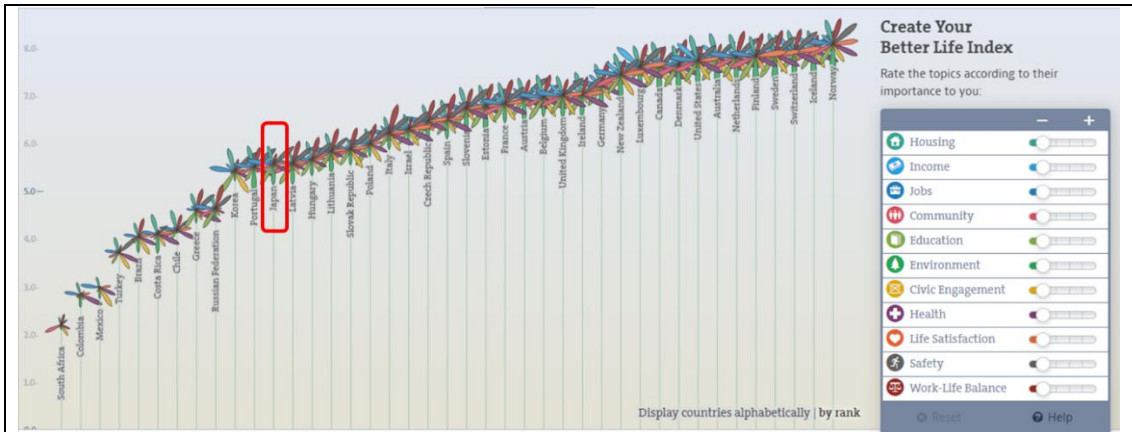


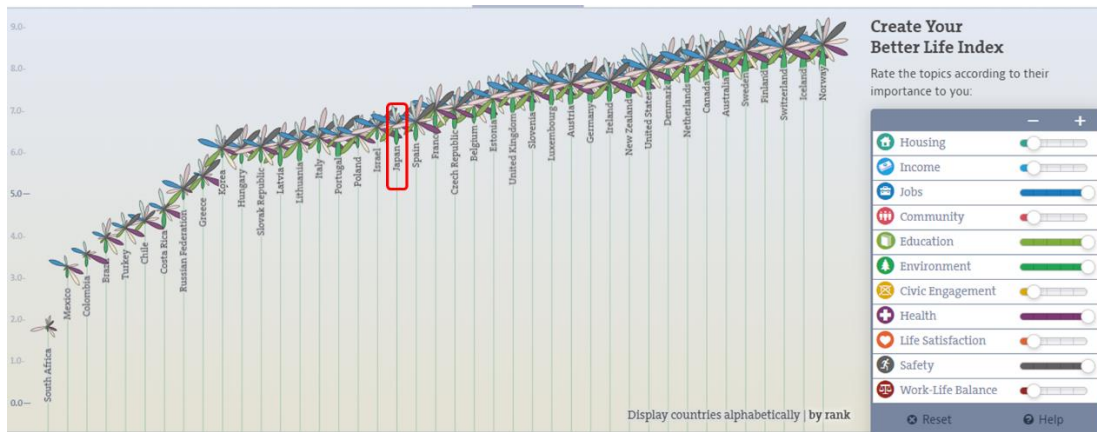
Figure 2-1 How BLI results are presented

In addition, users of the information can weight each domain based on the areas they want to focus and rank scores at the country level using any weight they choose to apply. The ranks can vary depending on the assigned weights (Figure 2-2).



(a) Ranking when all domains are weighted equally

*Japan (circled in red) is ranked 30th out of a total of 40 countries.



(b) Ranking when giving greater weight to employment, education, environment, health, and safety.

*Japan (circled in red) is ranked 23rd out of a total of 40 countries.

Figure 2-2 Ranking of countries based on BLI

4) Data Source / Data Collection Method

The data sources are mainly official statistics from the OECD, the United Nations Statistics Division, and national statistical offices. Some indicators are based on data from Gallup World Poll, which regularly conducts public opinion polls in more than 140 countries worldwide.

2.2.2. World Happiness Report (WHR)

1) Overview

WHR is a report on subjective well-being covering more than 140 countries and regions. It has been

published annually since April 2012 by the United Nations Sustainable Development Solutions Network and presents data and analysis for the largest number of countries.

2) Conceptualization of HWB

WHR posits that subjective well-being, or how people evaluate the quality of their lives, is the best indicator of happiness and focuses on subjective evaluations of life satisfaction. It then lists six key determinants of happiness (GDP per capita, healthy life expectancy, social support, freedom of life, tolerance for others, and level of trust in the country).

3) Methods of measurement and quantification

Well-being, which is represented as subjective life satisfaction, is captured by a 0-10 scale called the “Cantril Ladder.” The specific questions are:

- Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?

In addition, the six factors that are considered to define subjective life satisfaction are measured as shown in Table 2-3.

Table 2-3 Determinants of happiness

| Indicator | Unit/Question | Sources |
|------------------------------|---|---|
| GDP per capita | GDP capita in purchasing power parity (PPP) adjusted to constant 2011 international dollar prices | World Development Indicators, OECD Economic Outlook |
| Healthy life expectancy | Healthy life expectancies at birth | WHO Global Health Observatory data repository |
| Social support | The national average of the binary responses (0=no, 1=yes) to the Gallup World Poll question, “If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?” | Gallup World Poll |
| Freedom to make life choices | The national average of binary responses to the Gallup World Poll question “Are you satisfied or dissatisfied with your freedom to choose what you do with your life?” | Gallup World Poll |

| | | |
|---------------------------|---|-------------------|
| Generosity | The residual of regressing the national average of Gallup World Poll responses to the question, “Have you donated money to a charity in the past month?” on GDP per capita. | Gallup World Poll |
| Perceptions of corruption | The average of binary answers to two Gallup World Poll questions: “Is corruption widespread throughout the government or not?” and “Is corruption widespread within businesses or not?” | Gallup World Poll |

In presenting the results, the responses (mean values) regarding subjective life satisfaction are organized by country and ranked as shown in Figure 2-3(a). The contribution of each of the six factors to happiness is also calculated, as shown in Figure 2-3(b). However, the purpose of analysis is merely to identify the degree to which each factor contributes to the level of happiness. It was not designed to calculate the level of happiness from the six indicators as an integrated index.

In addition, the importance of maintaining a balance and harmony among various elements and aspects of life has been pointed out in recent years. Therefore, it becomes important to capture “balance/harmony” in addition to the above-mentioned life satisfaction level, which has been used as a central concept in the past.² Since the body of research in this area is still small, this thematic evaluation report does not explicitly address this issue. However, this concept may become more important in the future.

| Country name | Rank by 2020 score | Score, 2020 (95pct conf. interval) | Rank by 2017-19 score | Score, 2017-19 (95pct conf. interval) |
|--------------|--------------------|------------------------------------|-----------------------|---------------------------------------|
| Finland | 1 | 7.889 (7.784-7.995) | 1 | 7.809 (7.748-7.870) |
| Iceland | 2 | 7.575 (7.405-7.746) | 4 | 7.504 (7.388-7.621) |
| Denmark | 3 | 7.515 (7.388-7.642) | 2 | 7.646 (7.580-7.711) |
| Switzerland | 4 | 7.508 (7.379-7.638) | 3 | 7.560 (7.491-7.629) |
| Netherlands | 5 | 7.504 (7.412-7.597) | 6 | 7.449 (7.394-7.503) |
| Sweden | 6 | 7.314 (7.182-7.447) | 7 | 7.354 (7.283-7.425) |
| Germany | 7 | 7.312 (7.163-7.460) | 15 | 7.076 (7.006-7.146) |
| Norway | 8 | 7.290 (7.160-7.421) | 5 | 7.488 (7.420-7.556) |
| New Zealand | 9 | 7.257 (7.124-7.391) | 8 | 7.300 (7.222-7.377) |
| Austria | 10 | 7.213 (7.080-7.347) | 9 | 7.294 (7.229-7.360) |

(a) Ranking by country (showing only top 10 countries)

² “Balance/Harmony” is discussed in the latest World Happiness Report. Helliwell, J. F., Layard, R., Sachs, J. D., De Neve, J.-E., Aknin, L. B., & Wang, S. (Eds.). (2022). *World Happiness Report 2022*. New York: Sustainable Development Solutions Network.

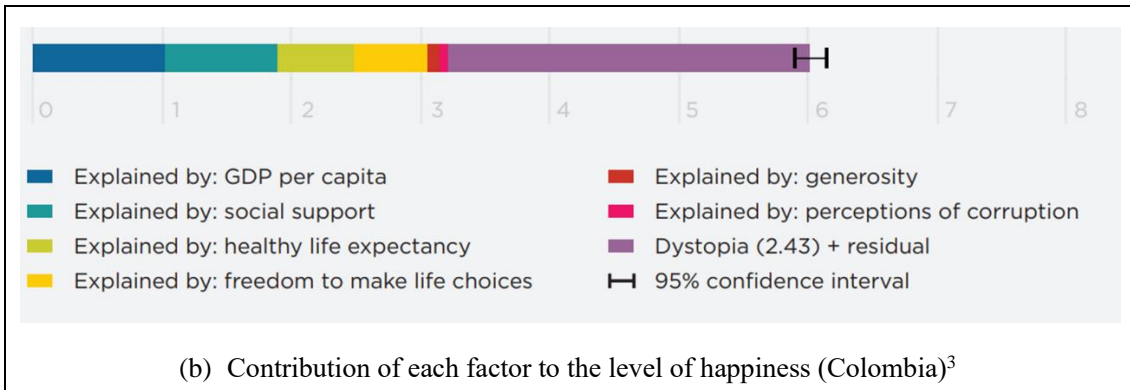


Figure 2-3 How WHR results are presented

Source: World Happiness Report 2021

4) Data Source / Data Collection Method

For subjective life satisfaction, data from the annual Gallup World Poll are used, and the information on the six determinants are also obtained from the Gallup World Poll data and international statistical data, as shown in Table 2-3.

2.2.3. Gross National Happiness (GNH)

1) Overview

The government of Bhutan has introduced the concept of “Gross National Happiness (GNH)” based on the principle that the purpose of governance is to realize the happiness and welfare of the people and that emphasis should be placed on maximizing the “amount of happiness” of the people, not just economic growth. The government regards increasing the people’s happiness level a central part of its policy management. To quantify this concept, the government of Bhutan developed a GNH index, and three surveys have been conducted to calculate the index.

2) Conceptualization of HWB

GNH captures “happiness” by setting out four pillars consisting of 1) preservation of the environment, 2) protection and promotion of culture, 3) sustainable and equitable socio-economic development, and 4) good governance, and nine domains under these pillars:

1. Psychological well-being: life satisfaction, enjoyment of life, subjective well-being
2. Time use: Activities in a limited amount of time
3. Community vitality: Strengths and weaknesses of relationships and interactions within communities
4. Culture: use of native language, participation in traditional and cultural events, values, and

³ “Dystopia” is a hypothetical country with the lowest values of the six factors (least happy). It is used as a benchmark for comparing the contribution of each factor to the level of happiness in different countries since all factors in each country would show a positive contribution to the level of happiness compared to Dystopia.

norms

5. Health: health status of residents
6. Education: knowledge, values, creativity, skills, and civic sensitivity
7. Diversity of the natural environment: state of natural resources and degradation of ecosystems
8. Living standards: people's basic economic situation
9. Governance: people's understanding of various government functions

3) Methods of measurement and quantification

As shown in Table 2-4, each of the nine domains above is further defined by three or four specific items (33 items in total), and multiple indicators are constructed to capture each item; in the 2015 survey, a total of 135 indicators (including both subjective and objective indicators) were used.

Table 2-4 GNH domains and indicators

| Domain | Indicator | Weight |
|------------------------------------|--------------------------------------|--------|
| Living standard | Assets | 1/3 |
| | Housing | 1/3 |
| | Income | 1/3 |
| Education | Reading and writing | 3/10 |
| | School | 3/10 |
| | Knowledge | 1/5 |
| | Value | 1/5- |
| Health | Health self-assessment | 1/10 |
| | Healthy day | 3/10 |
| | Inhibition | 3/10 |
| | Mental health | 3/10 |
| Cultural diversity and flexibility | Technical and artistic skills | 3/10 |
| | Participation in cultural activities | 3/10 |
| | Native language | 1/5 |
| | Etiquette and courtesy | 1/5 |
| Community vitality | Donation | 3/10 |
| | Community relations | 1/5 |
| | Family | 1/5 |
| | Safety | 3/10 |
| Time use | Work | 1/2 |
| | Sleep | 1/2 |

| | | |
|--------------------------|------------------------------|------|
| Psychological well-being | Level of life satisfaction | 1/3 |
| | Spirituality | 1/6 |
| | Good feelings | 1/6 |
| | Bad feelings | 1/3 |
| Ecological diversity | Damage by wildlife | 2/5 |
| | Ecosystem issues | 1/10 |
| | Environmental responsibility | 1/10 |
| | Urbanization | 2/5 |
| Good governance | Government results | 1/10 |
| | Fundamental human rights | 1/10 |
| | Service | 2/5 |
| | Participation in politics | 2/5 |

We do not discuss the method for calculating GNH as an integrated indicator from these individual indicators in detail here because it is very technical,⁴ but the basic idea is as follows. First, an individual-level profile is created to indicate the degree of fulfillment for each of the 33 items. Then, the GNH score for each person is calculated by aggregating the degree of fulfillment of the 33 items after applying their respective weights shown in Table 2-4. The resulting GNH scores are then classified into two groups: “happy people (deeply happy, extensively happy)” and “not yet happy people (narrowly happy, unhappy).” The overall index (GNH index) is then calculated based on the percentage of “happy people” and the degree of sufficiency among “not yet happy people.”⁵

4) Data Source / Data Collection Method

Data is collected through a dedicated survey to understand GNH. Excluding preliminary surveys, GNH surveys were conducted in 2008, 2010, and 2015. The 2015 survey had approximately 8,800 respondents.⁶

2.2.4. Personal Well-being

1) Overview

Personal Well-being is an indicator measured by the United Kingdom’s Office for National Statistics (ONS) as part of its Measuring National Well-being (MNW) program. The program aims to go beyond the traditional economic growth rate to understand the status of activities of individuals, communities,

⁴ For more information, see, for example

Alkire, S. & James F. (2007). “Counting and multidimensional poverty”. *OPHI Research in Progress*, 1a.

Alkire, S., & Foster, J. (2011). “Understandings and misunderstandings of multidimensional poverty measurement”. *Journal of Economic Inequality*, 9(2), 289-314.

⁵ Even for “those who are not yet happy,” the degree of fulfillment in each item is not necessarily zero, so the degree of fulfillment is also considered in the calculation.

⁶ The latest survey is underway as of June 2022.

and the nation and how sustainable these activities will be in the future. It also aims to monitor the well-being of individuals across the country over time to understand how people feel about their quality of life with changing circumstances, policies, and broader societal events.

2) Conceptualization of HWB

The index is designed to capture well-being in terms of 1) life evaluation (people's self-evaluation of their lives), 2) life significance (people's sense of meaning and purpose in life), and 3) experiences and feelings (people's positive and negative experiences and feelings).

3) Methods of measurement and quantification

The first and third items above are to be ascertained based on the answers to the following four questions (referred to as "ONS4"), which correspond to each of the above.

I would like to ask you four questions about your feelings on aspects of your life. There are no right or wrong answers. For each of these questions, I'd like you to give an answer on a scale of 0 to 10, where 0 is "not at all," and 10 is "completely."

| | |
|--|---|
| Life Satisfaction (life evaluation) | Overall, how satisfied are you with your life nowadays? |
| Worthwhile (life significance) | Overall, to what extent do you feel that the things you do in your life are worthwhile? |
| Happiness (experiences/ feelings 1) | Overall, how happy did you feel yesterday? |
| Anxiety (experiences/ feelings 2) | On a scale where 0 is "not at all anxious" and 10 is "completely anxious," overall, how anxious did you feel yesterday? |

The answers to the above questions on Life Satisfaction, Worthwhile, and Happiness are scaled as 0-4 (low), 5-6 (moderate), 7-8 (high), and 9-10 (very high). Regarding Anxiety, it is classified as 0-1 (very low), 2-3 (low), 4-5 (moderate), and 6-10 (high). The results are reported in the form of a mean calculated from responses to each question or as a percentage of each scale (low/moderate/high/very high); there is no attempt to aggregate the responses to the four questions into a single indicator.

4) Data Source / Data Collection Method

No dedicated survey is conducted to collect data on Personal Well-being, and data are collected by

incorporating the subjective questions above into various existing surveys, including the Annual Population Survey.

2.2.5. Gross Arakawa Happiness (GAH)

1) Overview

Based on the idea that the role of the Arakawa Ward is to create a city where every Arakawa Ward resident can truly perceive happiness, the Gross Arakawa Happiness (GAH) survey has been conducted annually since 2013 to index the level of happiness of its citizens and to guide policy formation.

2) Conceptualization of HWB

The GAH system is shown in Figure 2-4 below, with the “perception of happiness” set as the overall indicator. Under the overall indicator, six domains are defined, corresponding to the six images of the city outlined in the core vision of Arakawa Ward: 1) “perception of health,” 2) “perception of growth of children,” 3) “comfort in life,” 4) “enrichment of living environment,” 5) “perception of fulfilling leisure and cultural activities and interaction with local people,” and 6) “perception of safety and security.” For each domain, a single primary indicator and multiple secondary indicators are set. See Figure 2-5 for primary and secondary indicators for each domain. Each indicator is measured through a question that asks the respondent to provide their subjective evaluation.

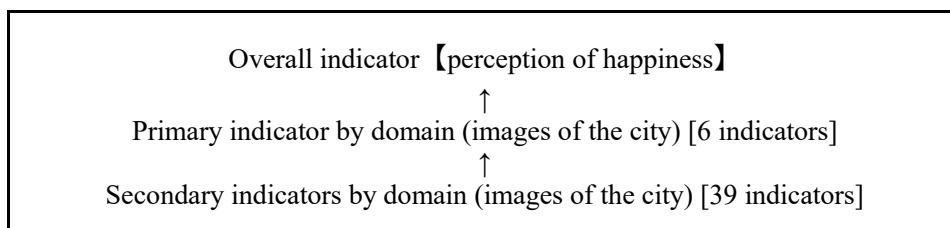


Figure 2-4 GAH system

| | | Area | Primary Indicator | Secondary Indicator | |
|---------------|-------------------|-------------------|--|--|--|
| GAH Indicator | Happiness feeling | Health/Welfare | Sense of health | Physical health | Exercise Healthy diet Physical rest |
| | | | | Mental health | Connection One's role Peace of mind |
| | | | | Healthy Environment | Enhancement of medical care Welfare enhancement |
| | | Child Care/Health | Sense of growth of children | "Vitality" | Regular lifestyle Acquiring the "Vitality" |
| | | | | Family relations | Parent-child communication Family understanding and cooperation |
| | | | | Child Rearing Educational Environment | Enhancement of child-rearing and educational environment Understanding and cooperation for childcare in the community Enhancement of the environment for raising children as desired |
| | | Industry | Comfort in life | Work | Livelihood stability Work-life balance Job satisfaction |
| | | | | Local economy | City industries Convenience of shopping City attraction |
| | | Environment | Enrichment of living environment | Convenience /Universal design | Barrier-free facilities Barrier-free mind Convenience of transportation |
| | | | | Comfortability | City quality Comfort of the surrounding environment |
| | | | | Sustainability | Sustainability |
| | | Culture | Fulfilling leisure and cultural activities and interaction with local people | Leisure activity | Initiatives for interests and concerns Enhancement of lifelong learning environment |
| | | | | Local culture | Attachment to the community Enhancement of interaction with local people A sense of having someone in the community you can rely on Cultural generosity |
| | | Safety/security | Sense of safety and security | Crime | Security |
| | | | | Accidents | Traffic safety Life safety |
| | | | | Disaster | Personal preparation Bonding and helping each other in times of disaster Disaster prevention |

Figure 2-5 Primary and secondary indicators in GAH

Note: Translated by the author.

3) Methods of measurement and quantification

The overall indicator is calculated as the mean value of the five-level responses (ranging from “5: very happy” to “0: not at all happy”) to the question “Do you feel happy?” (Figure 2-6(a)) (the chart shows changes over a five-year period). Primary indicator is also calculated as the mean value of the five-level responses to the question in each domain (Figure 2-6(b)). However, a single composite indicator integrating all the domains is not calculated. Secondary indicators are also computed as the mean value of the five levels for each indicator or as a percentage of the number of respondents (Figure 2-6(c) and (d)). Since primary and secondary indicators are independent from each other, primary indicator is not designed to be calculated by integrating secondary indicators.

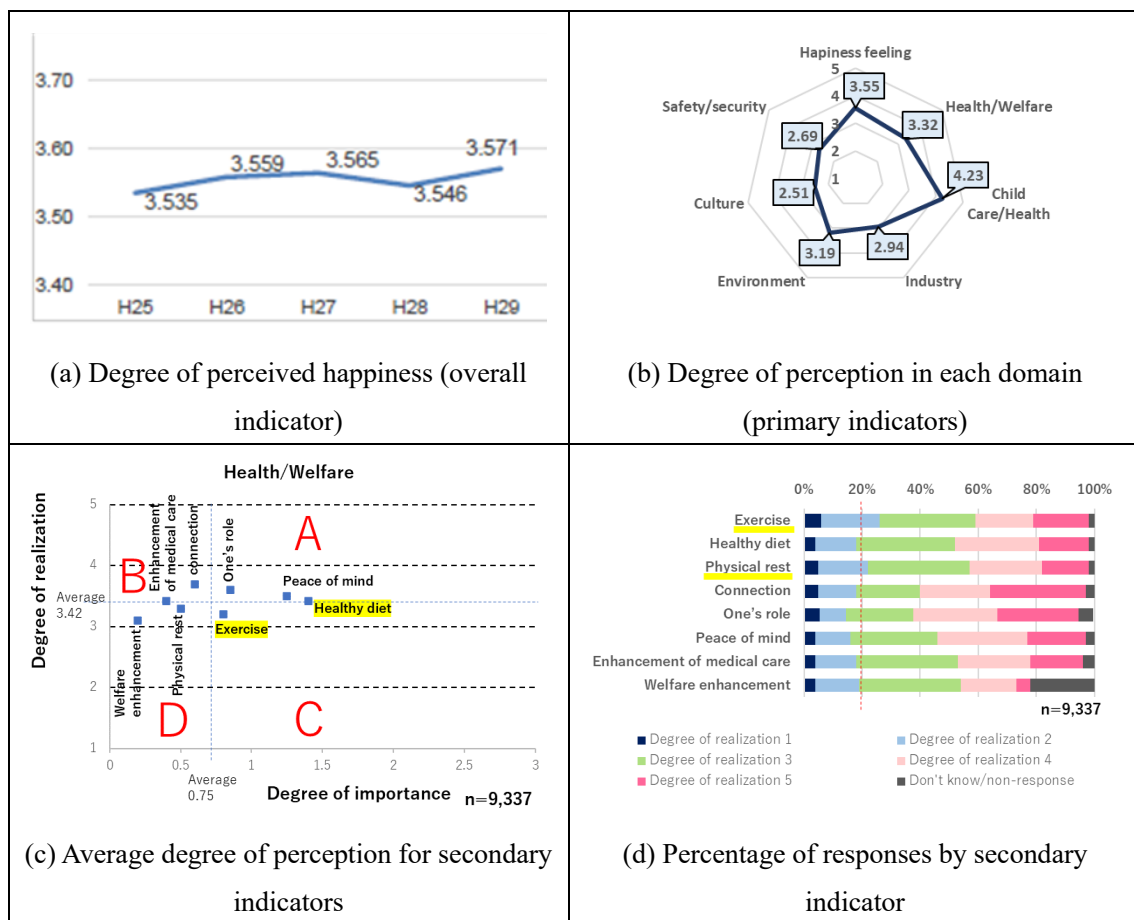


Figure 2-6 How GAH results are presented

4) Data Source / Data Collection Method

A survey is conducted each year to calculate GAH. The most recent survey, in FY2021, was administered to 4,000 respondents (with a response rate of 46.5%).

2.2.6. Net Personal Happiness

1) Overview

Net Personal Happiness is a pilot initiative by Niigata City. Motivated by the understanding that existing indicators for happiness have not been fully used as an effective policy tool due to their discrepancy with the real-life experience of the Japanese people and Niigata City residents, the city decided to measure happiness, on a trial basis, to identify what happiness really meant to its citizens. The goal was to measure and evaluate the level of happiness and use the findings to inform policymaking. The results were published in 2011, but no updates have been made since then.

2) Conceptualization of HWB

The idea of “happiness” varies from person to person and cannot be defined uniformly. However, human beings have common “life challenges” along their life cycle from birth, enrollment in school, higher education, employment, marriage, childbirth, childcare, retirement, old age, and death, and it is considered that the degree to which people managed to overcome these challenges plays a major factor in defining “happiness.” Based on this framework, Net Personal Happiness captures “happiness” along five evaluation axes (child axis, safety and security/family axis, work/economic axis, solidarity/trust axis, and elderly axis).

3) Methods of measurement and quantification

Each evaluation axis has between two and six specific items (20 items in total) (Figure 2-7). For example, the “child axis” is based on six items: low infant mortality rate, low number of children on waiting lists for daycare centers, low number of children/students not attending school, low incidence of child abuse, and many opportunities to acquire knowledge and education. Each item is further divided into several indicators, resulting in a total of 30 indicators. They consist of measurable, objective indicators.

| Evaluation axes | Items(20) | Specific indicators(30) |
|-----------------------------------|---|---|
| 1.Child axis | (1)Low infant mortality rate | 1-①Deaths per 1,000 children 0-4 years old |
| | (2)Low number of children on waiting lists for daycare centers | 1-②Number of children on waiting list for daycare centers |
| | (3)Low number of children/students not attending school | 1-③Number of children out of school per 1,000 elementary school students 1-④Number of children not attending school per 1,000 junior high school students |
| | (4)Less juvenile delinquency | 1-⑤Number of juvenile offenders per 1,000 under 15 years of age 1-⑥Juvenile crime arrests per 1,000 persons under age 20 |
| | (5)Low incidence of child abuse(raised with care) | 1-⑦Number of consultations on child abuse per 1,000 children under age 15 |
| | (6)Many opportunities to acquire knowledge and education(Capacity building) | 1-⑧Percentage of new junior high school graduates entering high school 1-⑨College enrollment rates for new high school graduates |
| 2.Safety and security/family axis | (1)Less crime and fires | 2-①Number of criminal offenses per 10,000 population 2-②Number of fires per 10,000 population |
| | (2)Less discord in the home | 2-③Number of domestic affairs appeals and domestic affairs mediations received per 1,000 households 2-④Divorce rate |
| | (3)High birth rate | 2-⑤Births per 100 women in the 20-30 age group |
| | (4)Less risk of losing relatives due to unforeseen accidents, suicide, etc. | 2-⑥Traffic fatalities per 100,000 population 2-⑦Number of deaths due to unforeseen accidents (excluding traffic accidents) per 100,000 population 2-⑧Suicides per 100,000 population |
| 3.Work/ economic axis | (1)Low unemployment rate | 3-①Full unemployment rate |
| | (2)Many places for women to work (play an active role) | 3-②Prevalence of women aged 15 years and older in employment |
| | (3)Few people want to change jobs (satisfied with their current jobs) | 3-③Number of job change applicants per 1,000 employed persons aged 15-64 |
| | (4)Fewer households on welfare | 3-④Percentage of households on welfare |
| 4.Solidarity/ trust axis | (1)Many opportunities for connections outside of work | 4-①Percentage of members joining neighborhood associations 4-②Percentage of members joining children's associations 4-③Percentage of members joining senior citizen clubs |
| | (2)Trust others and follow the rules | 4-④NHK subscription rate 4-⑤Percentage of school lunch fees unpaid |
| 5.Elderly axis | (1)Fewer elderly people living alone | 5-①Percentage of elderly living alone |
| | (2)Longer life expectancy | 5-②Average life expectancy (simple average for men and women) |
| | (3)Many physically healthy elderly people | 5-③Percentage of elderly persons certified as requiring nursing care |
| | (4)High percentage of in-home care desired by person concerned | 5-④Percentage of persons certified as requiring nursing care who receive in-home care |

Figure 2-7 List of NPH indicators

Relative rankings are calculated for each of these indicators for the ordinance-designated cities (17 cities), and the results are shown for each indicator (Figure 2-8(a)). The percentage of relatively superior (or inferior) indicators is then calculated to evaluate the “level of happiness“ of the citizens (Figure 2-8(b)). If the number of superior indicators is high, the citizens are considered to have a high “level of happiness.”

| Evaluation axes | Indicators | Rank | Judgement |
|-----------------------------------|--|------|-----------|
| 1.Child axis | 1-①Deaths per 1,000 children 0-4 years old | 10th | △ |
| | 1-②Number of children on waiting list for daycare centers | 1st | ○ |
| | 1-③Number of children out of school per 1,000 elementary school students | 5th | ○ |
| | 1-④Number of children not attending school per 1,000 junior high school students | 8th | △ |
| | 1-⑤Number of juvenile offenders per 1,000 under 15 years of age | 9th | △ |
| | 1-⑥Juvenile crime arrests per 1,000 persons under age 20 | 5th | ○ |
| | 1-⑦Number of consultations on child abuse per 1,000 children under age 15 | 10th | △ |
| | 1-⑧Percentage of new junior high school graduates entering high school | 1st | ○ |
| | 1-⑨College enrollment rates for new high school graduates | 12th | × |
| 2.Safety and security/family axis | 2-①Number of criminal offenses per 10,000 population | 5th | ○ |
| | 2-②Number of fires per 10,000 population | 2nd | ○ |
| | 2-③Number of domestic affairs appeals and domestic affairs mediations received per 1,000 households | 4th | ○ |
| | 2-④Divorce rate | 1st | ○ |
| | 2-⑤Births per 100 women in the 20-30 age group | 6th | △ |
| | 2-⑥Traffic fatalities per 100,000 population | 12th | × |
| | 2-⑦Number of deaths due to unforeseen accidents (excluding traffic accidents) per 100,000 population | 14th | × |
| | 2-⑧Suicides per 100,000 population | 16th | × |
| 3.Work/ economic axis | 3-①Full unemployment rate | 8th | △ |
| | 3-②Prevalence of women aged 15 years and older in employment | 4th | ○ |
| | 3-③Number of job change applicants per 1,000 employed persons aged 15-64 | 11th | × |
| | 3-④Percentage of households on welfare | 5th | ○ |
| 4.Solidarity/ trust axis | 4-①Percentage of members joining neighborhood associations | 1st | ○ |
| | 4-②Percentage of members joining children's associations | 1st | ○ |
| | 4-③Percentage of members joining senior citizen clubs | 2nd | ○ |
| | 4-④NHK subscription rate | 1st | ○ |
| | 4-⑤Percentage of school lunch fees unpaid | 3rd | ○ |
| 5.Elderly axis | 5-①Percentage of elderly living alone | 2nd | ○ |
| | 5-②Average life expectancy (simple average for men and women) | 5th | ○ |
| | 5-③Percentage of elderly persons certified as requiring nursing care | 6th | △ |
| | 5-④Percentage of persons certified as requiring nursing care who receive in-home care | 5th | ○ |

©Niigata City Urban Policy Research Institute

(Note) In the Judgement, ○ indicates relative superiority (1-5th), △ indicates relative medium (6-10th), and cross indicates relative inferiority (11th or lower).

(a) Niigata City's rank for each indicator

| | Evaluation axes1:Child axis | | | | | | | | | 2:Safety and security/family axis | | | | | | | | 3.Work/economic axis | | | | 4.Solidarity/trust axis | | | | | 5.Elderly axis | | | | Percentage of relative superior indicators(%) | Percentage of relative inferior indicators(%) |
|-----------------|-----------------------------|----|----|----|----|----|----|----|----|-----------------------------------|----|----|----|----|----|----|----|----------------------|----|----|----|-------------------------|----|----|----|----|----------------|----|----|------|---|---|
| | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ① | ② | ③ | ④ | ① | ② | ③ | ④ | ⑤ | ① | ② | ③ | ④ | | |
| Sapporo City | 9 | 8 | 3 | 4 | 7 | 8 | 1 | 5 | 16 | 8 | 12 | 6 | 16 | 17 | 9 | 3 | 10 | 14 | 15 | 15 | 15 | 10 | 11 | 17 | 16 | 17 | 10 | 8 | 11 | 13 | 16.7 | 46.7 |
| Sendai City | 7 | 17 | 12 | 13 | 3 | 2 | 9 | 2 | 11 | 7 | 7 | 7 | 5 | 14 | 6 | 5 | 14 | 12 | 12 | 17 | 4 | 4 | 2 | 12 | 9 | 15 | 5 | 3 | 9 | 3 | 26.7 | 26.7 |
| Saitama City | 8 | 7 | 15 | 9 | 8 | 4 | 4 | 3 | 3 | 9 | 9 | 17 | 3 | 9 | 2 | 1 | 5 | 5 | 9 | 14 | 3 | 11 | 9 | 14 | 8 | 14 | 4 | 6 | 3 | 14 | 40.0 | 23.3 |
| Chiba City | 4 | 11 | 4 | 6 | 1 | 13 | 14 | 7 | 10 | 12 | 11 | 12 | 9 | 11 | 5 | 2 | 2 | 9 | 13 | 12 | 7 | 9 | 13 | 16 | 6 | 13 | 6 | 10 | 2 | 2 | 26.7 | 40.0 |
| Kawasaki City | 16 | 14 | 2 | 16 | 4 | 7 | 11 | 10 | 9 | 4 | 5 | 1 | 10 | 7 | 1 | 7 | 6 | 6 | 3 | 10 | 11 | 15 | 10 | 13 | 12 | 7 | 8 | 9 | 8 | 15 | 23.3 | 20.8 |
| Yokohama City | 14 | 16 | 16 | 12 | 6 | 6 | 7 | 6 | 4 | 2 | 4 | 3 | 8 | 10 | 3 | 8 | 4 | 4 | 11 | 13 | 8 | 6 | * | 8 | 7 | 12 | 7 | 2 | 7 | 7 | 27.6 | 24.1 |
| Niigata City | 10 | 1 | 5 | 8 | 9 | 5 | 10 | 1 | 12 | 5 | 2 | 4 | 1 | 6 | 12 | 14 | 16 | 8 | 4 | 11 | 5 | 1 | 1 | 2 | 1 | 3 | 2 | 5 | 6 | 5 | 60.0 | 16.7 |
| Shizuoka City | 2 | 3 | * | * | 2 | 3 | 5 | 8 | 7 | 3 | 6 | 8 | 4 | 5 | 17 | 15 | 7 | 3 | 2 | 5 | 2 | 3 | 8 | 10 | 2 | 9 | 3 | 12 | 4 | 6 | 53.6 | 10.7 |
| Hamamatsu City | 3 | 5 | 14 | 10 | 5 | 1 | 3 | 11 | 15 | 1 | 10 | 10 | 2 | 1 | 15 | 11 | 1 | 1 | 1 | 1 | 2 | 5 | 11 | 3 | 8 | 1 | 1 | 1 | 10 | 63.6 | 20.0 | |
| Nagoya City | 17 | 12 | 8 | 2 | 12 | 9 | 8 | 12 | 5 | 16 | 13 | 9 | 12 | 8 | 10 | 13 | 3 | 7 | 6 | 2 | 6 | * | 7 | 4 | 5 | 5 | 11 | 14 | 5 | 8 | 27.6 | 24.1 |
| Kyoto City | 13 | 6 | 11 | 3 | 10 | 16 | 15 | 17 | 1 | 13 | 1 | 14 | 6 | 16 | 11 | 4 | 9 | 10 | 8 | 7 | 13 | * | * | 7 | 11 | 6 | 14 | 11 | 10 | 1 | 17.9 | 46.4 |
| Osaka City | 11 | 15 | 6 | 15 | 14 | 12 | 9 | 13 | 17 | 16 | 16 | 17 | 13 | 13 | 12 | 17 | 17 | 10 | 6 | 17 | 13 | * | 9 | 17 | 10 | 17 | 17 | 16 | 16 | 0.0 | 79.3 | |
| Sakai City | 15 | 10 | 9 | 14 | 15 | 10 | 17 | 13 | 14 | 14 | 8 | 15 | 15 | 4 | 14 | 6 | 15 | 13 | 16 | 3 | 14 | 12 | 6 | 1 | 14 | 4 | 9 | 15 | 17 | 12 | 10.0 | 63.3 |
| Kobe City | 5 | 13 | 1 | 7 | 13 | 14 | 13 | 4 | 6 | 11 | 15 | 2 | 7 | 15 | 7 | 16 | 13 | 16 | 17 | 8 | 16 | 8 | * | 15 | 13 | 11 | 16 | 13 | 12 | 11 | 13.8 | 65.5 |
| Hiroshima City | 1 | 4 | 13 | 5 | 16 | 11 | 2 | 1 | 2 | 6 | 14 | 11 | 11 | 2 | 8 | 9 | 11 | 2 | 5 | 4 | 10 | 14 | 4 | 3 | 4 | 2 | 12 | 4 | 14 | 4 | 46.7 | 26.7 |
| Kitakyusyu City | 6 | 1 | 10 | 1 | 17 | 17 | 16 | 16 | 17 | 10 | 17 | 5 | 13 | 3 | 16 | 17 | 8 | 15 | 14 | 9 | 9 | 7 | 12 | 6 | 10 | 1 | 13 | 16 | 15 | 9 | 16.7 | 50.0 |
| Fukuoka City | 12 | 9 | 7 | 11 | 11 | 15 | 6 | 14 | 8 | 15 | 3 | 13 | 14 | 12 | 4 | 10 | 12 | 11 | 7 | 16 | 12 | 3 | 3 | 5 | 15 | 16 | 15 | 7 | 13 | 17 | 16.7 | 56.7 |

(Note) 1. The number in each square indicates the rank: blue for relative superiority (1st to 5th), yellow for relative middle rank (6th to 10th), and red for relative inferiority (10th or lower).
2. (*) indicate that there is no data for the city in question.

(b) Comparison with other ordinance-designated cities

Figure 2-8 How the results are presented

4) Data Source / Data Collection Method

The data come from existing data such as administrative statistics and publicly available information.

2.3. Review results (2): Examples of application in screening and assessment

This section presents the results of a review of three initiatives, Gross National Happiness (GNH) by the government of Bhutan, Personal Well-being by the British government, and Gross Arakawa Happiness (GAH) by Arakawa City, and how these indicators are being used for pre-screening, targeting, and post-assessment of individual projects.

2.3.1. Gross National Happiness (GNH)

1) Application in screening and targeting of projects

A tool called the GNH Policy Screening Tool has been developed to incorporate the idea of GNH in the project planning process. The tool identifies 23 items with a strong relationship with GNH (some items overlap with GNH items, but these items have been separately identified as having a strong relationship with GNH), and multiple evaluators score the impact of the project under consideration on each of these items. The average score among the evaluators is calculated; if the average score exceeds the threshold score (23 items x 3 = 69), the project will be approved, and if it falls below the threshold, it will be disapproved.

| | | |
|-----------------------|-------------------|-----------------------------|
| 1. Equity | 9. Family | 17. Anti-corruption |
| 2. Security | 10. Spirituality | 18. Judiciary access |
| 3. Material | 11. Recreation | 19. Judiciary effectiveness |
| 4. Pollution | 12. Support | 20. Rights |
| 5. Biodiversity | 13. Health | 21. Culture |
| 6. Nature | 14. Stress | 22. Discrimination |
| 7. Learning | 15. Information | 23. Values |
| 8. Productivity | 16. Participation | |
| (a) Item | | |
| 1 = Negative impact | | 3 = No impact |
| 2 = Impact is unknown | | 4 = Positive impact |
| (b) Score | | |

Figure 2-9 GNH Policy Screening Tool

There are other tools to screen individual projects in terms of their domain (corresponding to GNH's nine domains), ministry in charge, and sector (project sector, such as agriculture), including the Domain project tool, Ministry project tool, and Sector project tool. As with the Policy Screening Tool, these tools generally assign a score on a 4-point scale to each of the items, create a final score using the average of the scores, and screens projects based on whether or not the final score exceeds the threshold score. While the Policy Screening Tool examines all projects using the same set of items, these additional screening tools specify different sets of items for different domains, ministries, and sectors.

2) Application in project assessment (evaluation)

We were not able to confirm how the GNH indicator has been used in post-project assessment (evaluation).

2.3.2. Personal Well-being

1) Application in screening and targeting of projects

Well-being scores are calculated by region and demography (age and ethnicity) and compared to identify geographic areas and groups with higher needs (Figure 2-10). The relationship between Well-being indicators and other objective indicators is also analyzed to determine what types of interventions can contribute to improving Well-being. However, rather than being used for targeting specific individual projects, Well-being indicators seem to be used from a macro perspective to consider the groups and sectors for which policies/programs should be implemented.

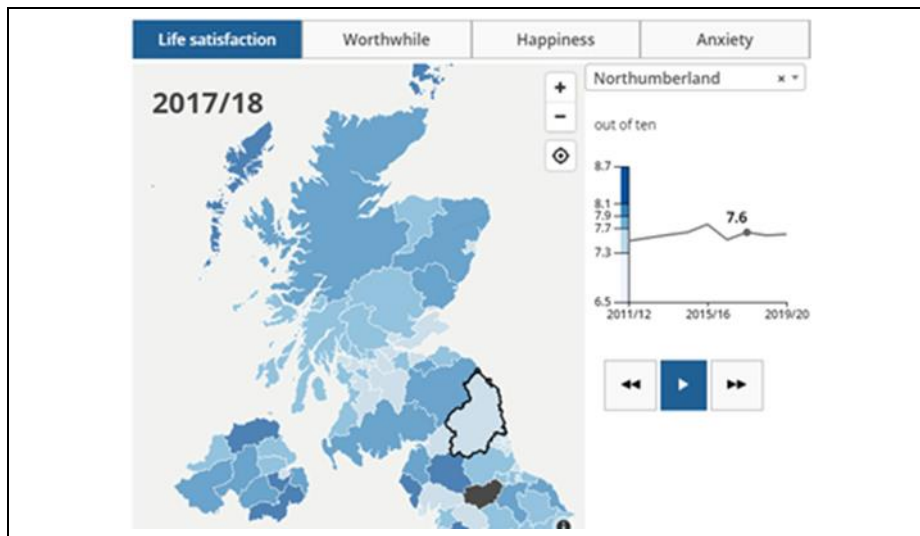


Figure 2-10 Comparison of Personal Well-being Indicators by region

2) Application in project assessment (evaluation)

We were not able to obtain any specific information regarding the use in the post-evaluation of the project.

3) Other

The review reports that although the Personal Well-being indicator is not used for the targeting or assessment, it is used for monetary conversion in cost-benefit analysis. For example, if a 10-point decrease in the crime rate leads to a 1-point improvement in the life satisfaction indicator, and a 1 million yen increase in income also leads to a 1-point improvement in the life satisfaction indicator, the monetary value of a 10-point decrease in the crime rate can be considered to be 1 million yen. In this way, the study suggests the possibility of conducting a cost-benefit analysis of outcomes that are difficult to convert into monetary values by using indicators related to well-being as a mediator for monetary conversion.

2.3.3. Gross Arakawa Happiness (GAH)

1) Application in screening and targeting of projects

The indicator is used for targeting by identifying age groups and characteristics associated with low levels of perceived happiness and considering measures that may be effective for those age groups and characteristics. For example, the ward identifies the generations and characteristics associated with low levels of perceived security/satisfaction with disaster preparedness (20-30s, living alone, living in apartment complexes, etc.) and develops disaster drills that are easy for these groups to participate in.

In addition to the “degree of perception” in each area, the “degree of importance” is also examined. If indicators with a high “degree of importance” but a low “degree of perception” are found, the area is

considered to have higher needs. For example, as shown in Figure 2-11, items in quadrant C, which are high in importance but low in perception, are identified as items with high needs.

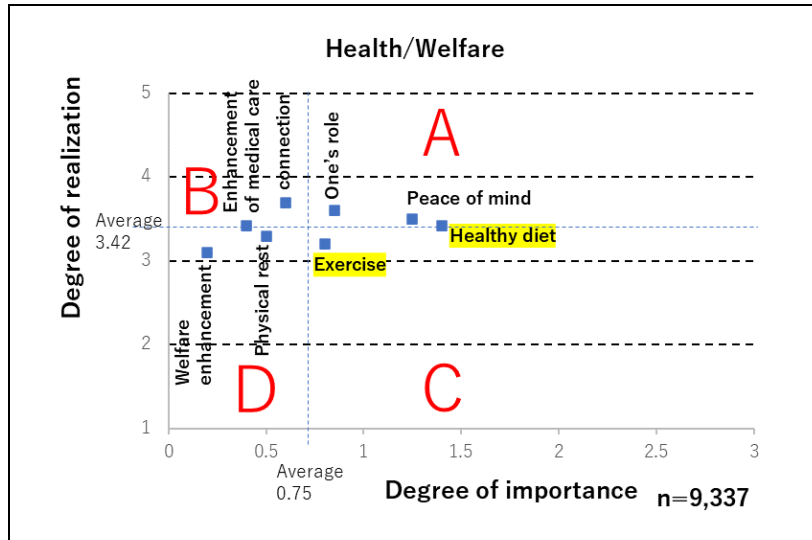


Figure 2-11 Examples of targeting in GAH

2) Application in project assessment (evaluation)

When evaluating projects, these indicators are partially used as outcome indicators for policies and projects. A project analysis sheet for Arakawa Ward (Figure 2-12) shows that one of the outcome indicators incorporates a subjective evaluation indicator for health status, one of primary indicators in GAH's health and welfare field. However, this indicator is only one of a set of indicators that comprise GAH and it used in an isolated manner as an indicator to grasp the subjective state of health; it does not add value from the perspective of happiness and well-being. In addition, Arakawa Ward has not yet clearly decided how it will take into account subjective indicators in evaluation decisions in conjunction with the achievement of other objective indicators that have also been set up.

| Measure Analysis Sheet (FY 2020) | | | | | | | |
|----------------------------------|--|-----------------------|--|------------|----------------|---|--|
| | | | | | | | No1 |
| Measure Name | Health Promotion for Adolescents and Young Adults | | Measure No | 01-01 | Section | Health Promotion Section, Health Department | |
| Related Department Name | Health Department, Health and Prevention Division | | | | | | |
| Administrative Evaluation | Field | I | Lifelong Healthy City | | | | |
| Project System | Policy | 01 | Realization of a town where people can live in good health and vitality throughout their lives | | | | |
| Purpose | Since physical and mental health is the foundation of a happy life, the program promotes and educates people on the importance of health promotion from a young age so that they can form healthy lifestyle habits and support them to lead healthy and fulfilling lives throughout their lives. | | | | | | |
| Indicator | Indicator as the outcome of the measures | Changes in Indicators | | | | | Explanation of Indicators |
| | | FY29 | FY30 | First year | FY2 (Expected) | Target value (FY8) | |
| ① | Percentage of ward residents who feel they are in good health | 38.7 | 42.4 | 44.1 | 45.0 | 45.0 | GAH survey |
| ② | Healthy life expectancy (male, years) | 80.5 | 80.5 | 80.6 | 80.7 | 83.0 | Healthy life expectancy at age 65 (average period of independence at age 65 plus 65 years) |
| ③ | Healthy life expectancy (female, years) | 82.6 | 82.6 | 82.7 | 82.8 | 83.1 | Healthy life expectancy at age 65 (average period of independence at age 65 plus 65 years) |
| ④ | Early life indicator (male) | 81.3 | 74.2 | 72.9 | 72.0 | 70.0 | Deaths among 40-64 year age groups, with national (average 12 years) as 100. |
| ⑤ | Early life indicator (female) | 68.3 | 82.4 | 102.6 | 90.0 | 60.0 | Deaths among 40-64 year age groups, with national (average 12 years) as 100. |

Figure 2-12 Application of GAH indicators in policy evaluation

2.4. Summary of the review

Based on the review above, this section summarizes the results in terms of the conceptualization of HWB, HWB domains and components, quantification methods, data sources and collection methods, and application in screening and assessment.

2.4.1. Conceptualization of HWB

Although none of the indicators directly define HWB, they are consistent in conceptualizing HWB in terms of the degree of fulfillment of various aspects of society and life. In addition to aspects that can be objectively measured, many of these indicators also emphasize subjective and psychological well-being/life satisfaction and incorporate how people perceive their lives.

On the other hand, they can be generally classified into two approaches in terms of the ways in which well-being/life satisfaction and the degree of fulfillment in various areas of society and life (individual domains) are organized to conceptualize HWB (Figure 2-13). In the first approach, subjective well-being/life satisfaction and individual domains are treated in a parallel fashion and HWB is conceptualized as their aggregate (Figure 2-13(a)). In the second approach, subjective well-being/life satisfaction is defined through the degree of fulfillment of each domain (Figure 2-13(b)). The former applies to the Better Life Index, Gross National Happiness, and Net Personal Happiness. The latter applies to the World Happiness Report (“life satisfaction” used in the report), Arakawa Gross Happiness (overall indicator), and Personal Well-being.

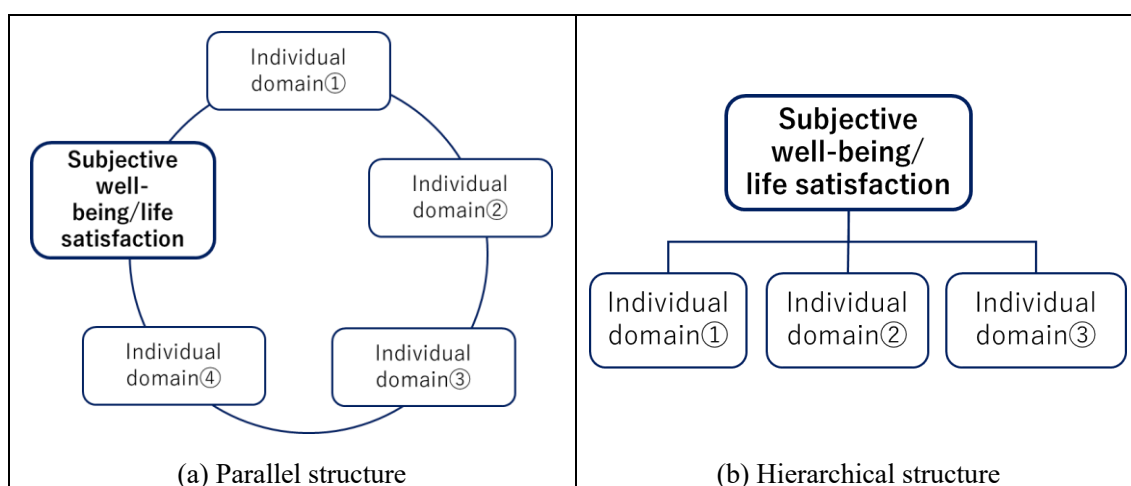


Figure 2-13 Relationship between subjective well-being/life satisfaction and individual domains

2.4.2. Domains and components

Although each indicator or initiative captures HWB from various domains and components, certain common domains and elements can be extracted in the broad classification, as shown in Table 2-5. At the same time, they are significantly different from one another in terms of the sub-indicators that subdivide each domain and specific measurement methods and survey questions.

Table 2-5 Indicators and their domains/components

| | BLI | WHR | GNH | GAH | NPH |
|----------------------------|-----|-----|-----|-----|-----|
| Income/Financial condition | ○ | ○ | ○ | ○ | ○ |
| Employment/Job | ○ | | | ○ | ○ |
| Housing | ○ | | ○ | ○ | |
| Health | ○ | ○ | ○ | ○ | ○ |
| Education | ○ | | ○ | ○ | ○ |
| Leisure time | ○ | | ○ | ○ | |
| Environment | ○ | | ○ | ○ | |
| Safety | ○ | | ○ | ○ | ○ |
| Social ties | ○ | ○ | ○ | ○ | ○ |
| Civic participation | ○ | ○ | ○ | | |
| Subjective well-being | ○ | ○ | ○ | ○ | |

* Domains and elements included in three or more indicators are extracted. BLI: Better Life Index,

WHR: World Happiness Report, GNH: Gross National Happiness, GAH: Gross Arakawa Happiness, NPH: Net Personal Happiness.

2.4.3. Quantification method

Those indicators that directly measure life satisfaction and well-being, such as the World Happiness Report (“life satisfaction” used in the report), Arakawa Gross Happiness (the overall indicator), and Personal Well-being, can be readily quantified by simply calculating the aggregate values of survey responses.

The Better Life Index is scored (from 0 to 10) for each domain. However, the scores for different domains are generally only shown in a dashboard format, and no single integrated index is calculated (the index’s users can calculate it after assigning weights to domains). The Gross Arakawa Happiness also indicates the level of happiness (from 1 to 5) for each domain. However, an integrated index is not created, and the overall level of happiness is determined by a separate single question (the overall indicator).

Both Gross National Happiness and Net Personal Happiness calculate a single integrated indicator. For Gross National Happiness, each indicator in each domain has a pre-defined weight, and calculations are made in accordance with those weights. Although Net Personal Happiness does not explicitly discuss the weighting of each indicator, it calculates the percentage of indicators with relatively high/low rankings, applying, in effect, the same weight to all indicators.

When calculating a single integrated indicator from indicators consisting of multiple domains/components, it is essential to discuss the weighting of each domain/component. The question of which domain should be given greater/smaller weights cannot be determined objectively; this is always a subjective decision, to be made based on value judgments.⁷ The Better Life Index only presents the scores for each domain in a dashboard format and leaves the weighting to the user. This practice sidesteps the discussion about the value judgment associated with such weighting. On the other hand, such discussion on weighting is not required for indicators that directly measure life satisfaction and subjective well-being (World Happiness Report, Arakawa Gross Happiness (overall indicator), and Personal Well-being); it is assumed that the weighting of each domain is done by each survey respondent and represented as their response to questions.

2.4.4. Data source and collection method

The data sources for the indicators/initiatives reviewed are either existing statistical data (Better Life Index, World Happiness Report, and Net Personal Happiness) or data from periodic surveys to measure

⁷ Treating each area equally is also, in effect, making a value judgment that each area is of equal value.

the indicators (Gross National Happiness, Arakawa Gross Happiness, and Personal Well-being). In both cases, surveys are conducted to capture HWB in society as a whole. We did not find any cases in which surveys or data collection were carried out specially at the timing of specific projects or for target areas.

2.4.5. Application in screening and assessment

The review found that all of the indicators reviewed for their application are being used for screening and targeting policies/projects. For screening, in the case of Bhutan, items that are strongly related to Gross National Happiness are used to screen a project for approval by examining the possible impact of the project on each item. Regarding targeting, the Gross Arakawa Happiness and Personal Well-being are used to identify areas and groups with high needs that require intervention. In addition, the Gross Arakawa Happiness is used to compare the importance of each area with the level of perceived happiness and to recognize those areas where their perceived happiness is lower than their level of importance as high-need areas.

Other than the cases with respect to the Gross Arakawa Happiness, no specific examples of using HWB indicators in ex-post assessments were found. One potential reason is that it is not appropriate to use HWB indicators to evaluate a specific project implemented to improve a particular domain because HWB indicators include various domains that may not be directly related to the project. In the Gross Arakawa Happiness, when evaluating a project in a specific area, only individual indicators in related area are selected and used as outcome indicators. For example, for a health promotion project, the indicator would be the degree of perceived health status. However, if we use individual indicators in this manner by disconnecting them from the rest of the index, it is no different from the usual evaluation process, which simply verifies the health status as an outcome of a health promotion project. This approach would not add values to the evaluation from the perspective of HWB. At the same time, however, it may not be appropriate to include indicators for other areas (education, industry, environment, culture, and safety) covered by the Gross Arakawa Happiness when evaluating a project specifically targeting the area of health promotion. Because HWB indicators are originally designed to capture the state and standard of society and living from multiple perspectives, it is impractical to use these indicators as an outcome indicator for individual projects seeking improvement in specific domains⁸.

⁸ Contrarily, although they are not included in this review, there are many empirical studies or evaluations which use the indicators that directly measure life satisfaction and well-being, such as the World Happiness Report (“life satisfaction” used in the report), Arakawa Gross Happiness (the overall indicator), and Personal Well-being, as an outcome indicator which measures effects of an individual intervention.

Chapter 3 Recommendations on the adoption and application of the Human Well-being perspective in JICA project evaluation

This chapter provides recommendations regarding the application of the Human Well-being perspective in the evaluation of JICA projects. This chapter consists of three major parts. First, we make recommendations on the concept of HWB within the context of JICA project evaluation. Second, based on these recommendations, we discuss how the HWB perspective should be specifically adopted in project evaluation (especially ex-post evaluation). Finally, we discuss issues and considerations when conducting evaluations and surveys from the viewpoint of HWB during the course of actual ex-post evaluation work.

The recommendations presented in this report are made from the perspective of considering practical and most value-adding ways to adopt and apply the HWB perspective in the specific context of JICA's project evaluation (especially its ex-post evaluation).⁹

3.1. Conceptualizing HWB

As discussed in section 2.4, all of the reviewed indicators and initiatives are consistent in that they attempt to conceptualize HWB by considering the fulfillment of various domains of society and life. In addition, we also confirmed that there are similarities in terms of emphasizing subjective and psychological well-being/life satisfaction in addition to objectively measurable domains and incorporating how people perceive their own lives. At the same time, we found two major approaches in terms of how subjective well-being/life satisfaction and the degree of fulfillment in various domains of society and life (individual domains) are organized to conceptualize HWB. The first approach tries to understand HWB as a whole by treating subjective well-being/life satisfaction and each domain in parallel. The second approach conceptualizes subjective well-being/life satisfaction through the degree of fulfillment in each domain.

Therefore, in considering how to conceptualize HWB in the evaluation of JICA projects, it is necessary to organize two points: 1) the relationship between subjective well-being/life satisfaction and each domain, and 2) the domains to take into consideration as individual domains. In the following, we present our recommendations on each point.¹⁰

3.1.1. Overall approach

In conceptualizing HWB in the context of JICA, we propose that JICA adopt a framework that

⁹ Therefore, it should be noted that the following discussion of how HWB should be conceptualized is not intended to propose a universally applicable approach beyond the scope of JICA's project evaluation.

¹⁰ There is another concept, Human Security, which is closely related to HWB. The application of the HWB concept in JICA's evaluation does not contradict the Japanese Government's initiative to propose and promote the concept of Human Security.

comprehensively captures various domains of society and life, including subjective aspects. Then, we propose that the relationship between subjective well-being/life satisfaction and each domain be viewed in a hierarchical manner (Figure 3-1), and that HWB be defined by the degree of fulfillment of each domain, which is then expressed in the form of subjective well-being/life satisfaction. In measuring subjective well-being/life satisfaction, we propose to use the questions¹¹ presented in the OECD guidelines¹² and the questions¹³ used in the Gallup World Poll as a basis.

Since we are concerned with the adoption and application of HWB in the evaluation of JICA projects, we will focus on the HWB of the individuals who are expected project beneficiaries.

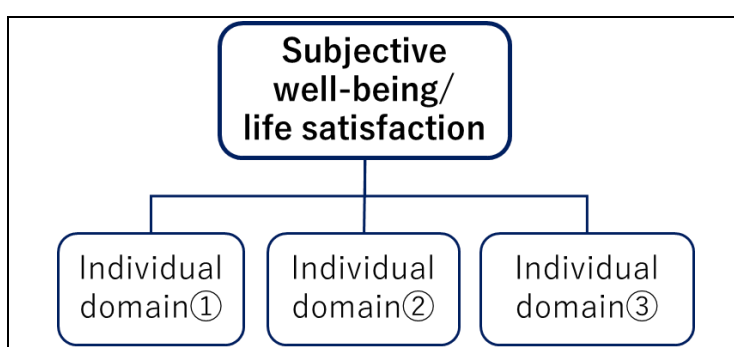


Figure 3-1 Relationship between subjective well-being/satisfaction and individual domains

3.1.2. Conceptualizing individual domains

The following steps were taken in selecting the individual domains that are likely to influence subjective well-being/life satisfaction. First, domains and items that are commonly found in the reviewed HWB indicators were identified. Next, since the existing indicators are created and used mainly for developed countries, we ensured that the differences between developed and developing countries will be reflected by leaving out those indicators that seem to be only relevant to developed countries and extracting those that are likely to be broadly applicable to developing countries. Then, we added domains and items that JICA considers important.

It should be noted that some have pointed out that the definition and measurement of HWB should consider the unique context of a given country or region, such as culture and history. However, it is

¹¹ The following question asks how satisfied you feel, on a scale from 0 to 10. Zero means you feel "not at all satisfied" and 10 means you feel "completely satisfied".

Overall, how satisfied are you with life as a whole these days?

¹² OECD. (2013). *OECD Guidelines on Measuring Subjective Well-being*. Paris: OECD Publishing. <https://doi.org/10.1787/9789264191655-en>.

¹³ Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you.

On which step of the ladder would you say you personally feel you stand at this time?

impossible to define a generic HWB concept in this study that would reflect the context of all communities to be assisted by JICA. Therefore, from the viewpoint of practicality and generality, we considered the HWB concept with a goal of being able to apply it broadly to developing countries in general, rather than reflecting the culture, etc. of a particular country or region. When applying the concept to a specific project evaluation, it will be necessary to consider it from the viewpoints and indicators applicable to individual contexts, based on the ideas presented here.

Based on the above considerations, we propose to capture HWB using the following 11 domains.

| | |
|----------------------|------------------|
| 1) Income and assets | 7) Safety |
| 2) Housing | 8) Governance |
| 3) Health | 9) Work |
| 4) Education | 10) Leisure time |
| 5) Environment | 11) Culture |
| 6) Social connection | |

Figure 3-2 HWB domains

In addition, the following items are presented as specific examples of items and indicators that are expected to be associated with the 11 domains above. These items were extracted from items commonly found in existing indicators and are considered to be broadly applicable to developing countries as well. However, these are only examples, and it is important to consider how to define the sub-items/indicators within each domain and to examine the changes in these domains, based on the context of the project to be evaluated.

Table 3-1 Items and indicators in each domain

| Domain | Item/Indicator |
|-------------------|---|
| Income and Assets | <ul style="list-style-type: none"> Household income Assets held by households |
| Housing | <ul style="list-style-type: none"> Housing availability Housing quality |
| Health | <ul style="list-style-type: none"> Physical Health Mental Health |
| Education | <ul style="list-style-type: none"> Reading and writing Basic arithmetic ability Years of schooling |
| Environment | <ul style="list-style-type: none"> Adverse effects of the natural environment |

| | |
|--------------------------|---|
| | <ul style="list-style-type: none"> • Access to the natural environment |
| Social connection | <ul style="list-style-type: none"> • Connection with the community • Family connections |
| Safety | <ul style="list-style-type: none"> • Crime • Accidents (traffic accidents) • Disaster • Violence |
| Governance ¹⁴ | <ul style="list-style-type: none"> • Level of trust in government agencies • Participation of residents in decision-making • Free choice |
| Work | <ul style="list-style-type: none"> • Employment status • Job satisfaction |
| Leisure time | <ul style="list-style-type: none"> • Leisure and rest time • Time with family, friends, etc. |
| Culture | <ul style="list-style-type: none"> • Respect for cultural norms of behavior • Acquisition of native language |

3.2. Proposed application/adoption in ex-post evaluation

Based on the HWB approach presented above, we offer the following suggestions for specific ways in which HWB can be adopted and applied in JICA's ex-post evaluation.

3.2.1. Basic concept

As mentioned in Section 1.1, the concept of HWB is explicitly adopted in the new DAC criteria and presented as a concept related to "impact," one of the six evaluation criteria. JICA's ex-post evaluation is based on the DAC evaluation criteria. Therefore, we examined how to adopt the concept of HWB in the evaluation of "impact" in JICA's ex-post evaluation.

The DAC's explanation of "impact" states that "impact deals with the ultimate significance and potentially transformative effects of an intervention." In JICA's ex-post evaluation, "ultimate significance of the intervention" is set as an "overall goal" or "impact" at the time of project planning. JICA explicitly instructs that the evaluation of impact in the ex-post evaluation should be made based on the achievement of the overall goal or impact defined at the time of planning. On the other hand, while we know that "potentially transformative changes" other than the defined goals should be discussed in the "other positive and negative impacts" section in the ex-post evaluation, there are no explicit guidelines on how to confirm and verify positive and negative impacts that are not expected

¹⁴ Evaluation items will be selected according to the characteristics of the administrative unit of the project's target area and the scope of assistance.

in advance, currently being left to the discretion of the evaluator. In light of this situation, the adoption of the HWB perspective is expected to make it possible to effectively identify unexpected impacts.

Therefore, we propose to apply and adopt the HWB perspective to visualize unexpected impacts. The specific steps are as follows. First, (1) verify the status of achievement of the indicators that have been defined as indicators of effectiveness and impacts. Then, (2) verify the changes in the subjective well-being/satisfaction of the beneficiaries before and after the project as part of the beneficiary survey. In addition, (3) examine the factors that affected the changes in subjective well-being/satisfaction by using the perspectives of each of the 11 individual domains above as clues to gain a deeper understanding of the impact of the project, including unexpected impacts.¹⁵

When the verification in (1) and (2) above is completed, we will have the following four combinations with respect to the results of verifying the achievement of the defined effectiveness/impact indicators and the changes in subjective well-being/satisfaction. For ① and ②, we believe that it will be possible to ascertain any unexpected positive impacts by understanding the factors contributing to the improvement in subjective well-being/satisfaction. This can be done by examining the changes that occurred and the domains in which such changes occurred. For ③ and ④, it will be possible to examine unexpected negative impacts by verifying the reasons that gave rise to the deterioration of

| | | Effectiveness/Impact Indicators | |
|------------------------------------|-------------------|---|--|
| | | ○Achieved | ×Not achieved |
| Subjective Well-being/satisfaction | ○ Improved | ① In addition to the achievement of project objectives, unexpected positive impacts may have occurred. | ② Although the project objectives have not been achieved, unexpected positive impacts may have occurred. |
| | × Deteriorated | ③ Although project objectives have been achieved, unexpected negative impacts may have occurred. | ④ Project objectives have not been achieved, and unexpected negative impacts may have occurred. |

Figure 3-3 Combinations of verification results

¹⁵ Of course, it is possible that subjective well-being/satisfaction may change due to factors completely unrelated to the project. The proposal here is intended to present a “possibility” of understanding the unanticipated impact, and it is indeed possible to conclude that the project did not produce any unexpected impact.

subjective well-being/satisfaction.¹⁶

For example, for the "Himachal Pradesh Crop Diversification Promotion Project" in India, which was the subject of the case study, the effectiveness and impacts of the project (increased agricultural yields and income) expected by the project have been realized,¹⁷ and the majority of respondents indicated that their subjective well-being/satisfaction had improved compared to the pre-project level (case ① in Figure 3-3), as shown in Box 1. The factors influencing the improvement in subjective well-being/satisfaction were then examined in detail from the perspective of each domain. The results indicated that the project not only helped improve subjective well-being/satisfaction through the effectiveness and impacts assumed in the project, but it also had an impact on the changes in the use of time (in the domain of "leisure"), a reduction of conflict in the village (in the domain of "social connection"), and a reduction of stress (in the domain of "health"), etc. Similarly, in the surveys of other two projects examined in the case studies, we were able to collect information on a wide range of impacts on people's lives that had not been expected (or at least not specified in the plans) at the time of project planning.

Box 1 Examples from a case study (India)

Project summary

The "Himachal Pradesh Crop Diversification Promotion Project" was implemented from 2011 to 2018 to promote crop diversification, especially through the cultivation of highly cashable vegetables, by strengthening agricultural extension support such as the dissemination of agricultural technology, along with the development of production infrastructures such as small-scale irrigation and access roads, thereby contributing to higher farmer income in the region.

Project outcomes and subjective well-being/satisfaction

A survey was conducted on the outcomes of the project: an improvement in access to markets and an improvement in the sales of agricultural products. Of the 21 respondents surveyed, 17 reported an improvement in the former outcome and 20 reported an improvement in the latter outcome; one respondent reported no improvement in either outcome.

¹⁶ Survey respondents may answer "no change" for subjective well-being/satisfaction. If the effectiveness and impact indicators have been achieved, it is assumed that there was also an improvement in subjective well-being/satisfaction; however, if the response is "no change," then this would fall into ③. Conversely, since it is natural to see no changes in subjective well-being/satisfaction when the project fails to achieve its project objectives, any subsequent detailed examination is most likely unnecessary.

¹⁷ It should be noted that due to the limited resources available for conducting the case studies, the effectiveness and impact of the projects are based solely on the subjective judgments of the respondents and are not supported by objective data.

Regarding the question on subjective satisfaction, 19 respondents indicated that there was an improvement, while only two indicated that there was no improvement. One of the two respondents who said there was no improvement in subjective satisfaction said that there was no improvement in any of the outcomes, while the other person said that there was improvement only in product sales.

Factors affecting subjective well-being/satisfaction

Most of the respondents cited the increase in income due to higher crop yields and sales as a factor that affected their subjective satisfaction. Some respondents also indicated that the increased income had resulted in more leisure time, time spent with family, and time spent participating in village organizations and that these factors had had a positive impact on their subjective satisfaction.

In addition, some respondents indicated that their subjective satisfaction had improved because more stable yields and income had helped them reduce stress and become healthier. Furthermore, some respondents reported that the irrigation improvements implemented by the project had reduced conflicts within the village regarding the use of water resources and improved the relationships among the villagers, citing this as a factor in the improvement in their subjective satisfaction.

Of the cases ① through ④ above, cases ② and ③ are particularly important. Since any discrepancy between the expected effectiveness/impacts of the project and the changes in subjective well-being/satisfaction potentially indicates that unexpected changes have occurred, the added value of verifying the existence of such changes is likely to be particularly high. In particular, it would be highly valuable to examine the factors in detail if subjective well-being/satisfaction (case ③) is falling overall even when the project effects have been realized, as such a situation potentially indicates the occurrence of unexpected negative impacts.¹⁸

It should be noted that the recommendation being made here is to use the survey questions on subjective well-being/satisfaction as a jumping-off point to verify and analyze the factors that caused changes in subjective well-being/satisfaction in terms of individual domains that are believed to affect HWB, and not to evaluate (value judgment) the existence and magnitude of the impact a project has on subjective well-being/satisfaction itself.

¹⁸ Therefore, if the resources available for the survey are highly constrained, and if there is no discrepancy between the achievement of the project's expected effectiveness and impact and the change in subjective well-being/satisfaction (cases ① and ④), the evaluation can choose to omit a detailed examination of the causes of subsequent changes in subjective well-being/satisfaction.

3.2.2. Value added to ex-post evaluation

We believe that adopting the HWB perspective into ex-post evaluation in the manner described above will bring added value in three ways. First, it will allow a broader and deeper understanding of the impact of the project on people's lives. Until now, ex-post evaluations have focused on verifying the pre-defined effectiveness and impact indicators and have not adequately examined other impacts. Examinations of the factors that cause changes in subjective well-being/satisfaction in various domains as proposed above are likely to create opportunities to understand potential benefits and risks of the project.

Second, and related to the first point, the proposed approach would reduce the potential risk of immaturely judging the effectiveness and impact of a project based solely on the achievement of the effectiveness/impact indicators defined in the project. For example, in situations where a project achieves its pre-defined effectiveness/impact indicators but created negative impacts in other domains, the evaluation may miscalculate the value of the project if the project's value is evaluated exclusively on account of the achievement of the effectiveness/impact indicators. We believe that the possibility of properly evaluating the value of the project will increase by looking at the subjective aspects of people and examining the changes that occurred in such aspects.

Third, this approach would provide guidance for verifying and examining "other impacts." As mentioned above, in existing ex-post evaluation, the ex-post evaluation reference does not provide explicit guidelines regarding the examination of "other impacts," largely leaving this part of the evaluation to the discretion of the evaluator. It is hoped that clarifying the individual domains that are considered to have an impact on subjective well-being/life satisfaction will provide guidance for examining "other impacts."

3.2.3. Reflection on evaluation decisions

In principle, the evaluation judgment (sub-rating) of effectiveness/impacts in the ex-post evaluation should be based on the degree to which the effectiveness/impact indicators set at the time of planning have been achieved. Therefore, it is appropriate, in principle, to treat unexpected impacts secondarily in the evaluation judgment (sub-rating of effectiveness/impacts) in the same way as how "other positive/negative impacts" are treated in existing ex-post evaluation. On the other hand, in the event of a discovery of any significant unexpected negative impact, this should be reflected in the evaluation judgment according to its severity.¹⁹

In addition, unexpected positive impacts have to be treated carefully. If the achievement level of the

¹⁹ This study does not consider the extent to which "other positive and negative impacts" should be taken into account in assigning sub-rating for effectiveness. We propose that this be done in accordance with the current treatment of "other positive and negative impacts."

pre-defined effectiveness/impact indicators is not sufficient, it is not appropriate to give a high evaluation rating to the project because the original project objective has not been fully achieved, even if other unexpected positive impacts have manifested. Although the fact that there were various positive impacts other than the intended ones should be reported to deepen the understanding of the project, overrating of the project should be avoided.

3.2.4. Projects to adopt and apply HWB

The proposals above can be adopted in and applied to any project. However, if it is necessary to prioritize certain projects for HWB application, it would be appropriate to determine it based on the characteristics of each project. The added value of the adoption/application of the proposal above to the evaluation of JICA projects is expected to be high for the following types of projects.

- Projects that affect multiple domains of people's lives and have multiple possible outcomes
Examples include road maintenance projects, rural electrification projects, and nutrition improvement projects through multi-sectoral interventions. Since such projects are likely to affect people's overall lives in various ways, there will likely be positive or negative changes in unexpected areas that fall outside of pre-defined effectiveness and impact indicators. In contrast, for projects that target a specific and limited domain and have clear and defined project objectives (outcomes) (e.g., a primary education project that concentrates on improving academic skills in arithmetic), the added value to the evaluation would not be high for the proposed approach above, which examines a broad range of domains in people's lives to verify the occurrence of changes.

- Projects that are expected to affect multiple domains of people's lives through the achievement of project objectives
For example, when the project objective (outcome) is defined as improvements in income and livelihood, the outcome itself is limited to income improvement, while various aspects of life may be affected through the improvements in income and livelihood. Thus, adopting the approach proposed above is likely to be highly meaningful for projects in which various changes can be expected to occur after the achievement of the project objectives. In addition to income and livelihood improvement projects, examples of such projects include those projects in which project objectives are an improvement of health conditions or peace-building, such as community reconstruction.

- Projects that are expected to have a direct impact on the lives of the final beneficiaries
Many of JICA's projects, such as capacity-building projects for government officials²⁰ and large-

²⁰ In JICA's technical cooperation projects that aim at capacity-building of government officials, the project goal is

scale infrastructure projects, such as port development, have little direct impact on the lives of the final beneficiaries (or require a long path to have a concrete impact on the lives of the final beneficiaries). Compared to such projects, the approach proposed above is relatively more significant for projects that directly intervene in the lives of final beneficiaries, such as livelihood improvement projects targeting communities.

3.3. Proposed application/implementation in ex-ante evaluation

In this section, we offer the following recommendations regarding specific ways in which it can be implemented and applied in JICA's ex-ante evaluation.

3.3.1. Basic concept

As with ex-post evaluation, we propose that the HWB perspective be used to consider the possibility of unexpected impacts in advance. The template for the ex-ante evaluation report has a section called "Cross-cutting issues," where JICA instructs the evaluator to "describe any notable matters from the perspectives of climate change, support for peacebuilding, poverty alleviation and considerations for poverty, disability considerations, infectious disease control, social systems and norms, human well-being, human rights, etc." Therefore, we propose that these "cross-cutting items" be considered by examining, based on each domain/item of HWB as indicated in 3.1, whether the project can potentially have an impact in areas outside of the domains where the project attempts to directly cause change. In particular, if a domain/item is expected to have any potential negative impact, the project would be required to incorporate practices to avoid or mitigate such impact, and we believe that such considerations can be made effectively by adopting the HWB perspective.

3.3.2. Projects subject to the application

In principle, we believe that it is possible and meaningful to incorporate the perspectives presented above in all projects. If it is necessary to prioritize certain projects for HWB application, this can be done by using the same approach discussed in 3.2.4 regarding the proposed steps to adopt and apply it in ex-post evaluation.

often the improvement of final beneficiaries' livelihoods as a result of the improved public services provided by trained government officials. In this sense, it may be impractical to ask questions about HWB to the final beneficiaries at the time of the ex-post evaluation because it takes time for the effects on the final beneficiaries to materialize and it is difficult to identify any causal relationship between a technical cooperation project and the changes in the subjective well-being of the final beneficiaries. At the same time, in projects where the project goal is to strengthen the capacity of government officials themselves, it is possible to conduct HWB surveys targeting government officials who are the counterparts of the technical cooperation projects (direct beneficiaries) to verify any unexpected impacts on the government officials themselves (In those cases, it is necessary to choose appropriate domains and indicators for that purpose).

3.4. Considerations when conducting surveys in ex-post evaluation study

Based on the results of the case studies, this section discusses the considerations for surveys when actually conducting an ex-post evaluation study based on the proposed application/adoption of HWB presented above.²¹ As mentioned above, since we assume that the survey on HWB would be conducted as part of the beneficiary survey that is selectively conducted in existing ex-post evaluations, we will not specifically address the parts that are shared with the existing beneficiary survey but focus on additional considerations that arise as part of the survey on HWB.

3.4.1. How to ask questions about changes in subjective well-being/satisfaction

In the case studies, we tested two different sets of questions to capture the "changes" in subjective well-being/satisfaction. The first set of questions ask about the levels of subjective well-being/satisfaction before and after the project separately (on a scale of 0 to 10). The changes are verified based on the difference between them.²² The second type of questions directly ask about the change (measuring the change on a scale from "much less satisfied" to "much more satisfied").²³ Since almost all respondents indicated that their life satisfaction had improved, we were not able to determine the effect of the type of questions on the results; however, the feedback we received from the individuals who actually conducted the survey indicated that the questions that directly asked about the changes were more suitable in terms of the ease of answering questions. These survey interviewers reported that many respondents had difficulty answering questions that asked them to identify their level of well-being/satisfaction on a scale of 0-10, but they found it easier to answer the question about whether or not the level had improved, regardless of the level.

The survey questions to capture changes in subjective well-being/satisfaction in this proposal are designed to be entry points for subsequent items (questions about factors affecting changes in subjective well-being/satisfaction). Accordingly, the purpose of such questions is neither to identify the level and extent of changes in subjective well-being/satisfaction (e.g., a 4-point change from 3 to 7) nor to compare the level of well-being/satisfaction with others. For this reason, these questions, as entry points for subsequent questions, only need to be able to measure whether the subjective well-

²¹ Regarding ex-ante evaluation, a trial through case studies is outside the scope of this study and has not been conducted. Therefore, this section will focus on study considerations in ex-post evaluation.

²² The specific question stems are as follows.

The following question asks how satisfied you feel, on a scale from 0 to 10. Zero means you feel "not at all satisfied" and 10 means you feel "completely satisfied".

Q1. overall, how satisfied are you with life as a whole these days? Please answer between 0 and 10.

Compared to these days, how satisfied were you with your life XX years ago? Please answer between 0 and 10.

²³ The specific question stem is as follows.

Q. Compared to XX years ago, are you more or less satisfied with your life overall?

1. Much less satisfied, 2. Less satisfied, 3. More satisfied, 4. Much more satisfied

Our case study did not include the option "no change." However, when used in actual surveys in evaluation studies, it would be desirable to ask the respondents on a five-point scale that includes the response category "no change."

being/satisfaction of individual respondents has improved, remained the same, or worsened. Therefore, for questions for measuring changes in subjective well-being/satisfaction, we believe that it is preferable to use those questions that directly capture changes.

3.4.2. How to ask questions on factors contributing to changes in subjective well-being/satisfaction

For questions to further probe the factors that may contribute to changes in subjective well-being/satisfaction, the case studies tested two methods: one is to ask open-ended questions such as "What influenced your subjective well-being/satisfaction?" and the second is to ask "Did the domain/item called XX affect your subjective well-being/satisfaction?" with respect to each domain/item. We found that the amount of information collected was overwhelmingly greater with the latter method. In addition, when open-ended questions were used to ask questions, the responses tended to be centered around answers related to changes corresponding to the project's expected effects and provided hardly any information about unexpected changes, which were captured in domain-specific questions. Therefore, it would be preferable to ask about the occurrence or lack of changes in individual domains.

On the other hand, in the case of asking questions about changes in individual domains, asking questions about all items in all 11 domains would require an extended interview time (in fact, some respondents commented that the interview was "too long"). Therefore, to conduct interviews more efficiently, the evaluator can consider removing, in advance, those domains and items that are not considered relevant to the project. However, since the purpose of conducting such a survey is to capture unexpected changes, narrowing down the survey items in advance may defeat its purpose. Therefore, a practical method would be to keep this point in mind and exclude only a minimal number of domain/item-specific questions that are obviously unrelated.

3.4.3. Attention to biases

A common issue in social surveys is that the respondents may infer (discern) the intentions of the questioner and hide their true opinions, giving answers that they think the survey interviewer/administrator expects to hear. In surveys in project evaluations, there is another concern that respondents' expectations regarding the continuation/expansion/cancellation of projects and other matters may lead them to give answers that differ from the reality. In particular, these issues tend to be more problematic with respect to questions that ask for subjective responses, as other people are unable to judge the truthfulness of the responses.

While it is difficult to eliminate these biases completely, it is important to take steps to avoid them whenever possible. For example, in the case studies, we avoided asking "What changes have occurred as a result of the project?" because linking the question explicitly to the project could lead to biased

answers; instead, we asked "What changes have occurred and why?" in as neutral a manner as possible. The evaluators then examined the responses regarding the changes that had occurred and their reasons and made a judgment as to whether they could recognize a relationship with the project (thus, some responses that attributed changes to reasons that are considered unrelated to the project were excluded from the analysis). It would also be important to make it clear to respondents that the researcher is a neutral third-party with respect to the project when conducting interviews.²⁴

Appendix: Case Study Report

²⁴ In the case studies, we also examined whether the order in which questions are asked would result in different patterns of responses. If questions about the effectiveness and impact of the project were asked first, the relevance of the project would be emphasized, and there was a concern that this would bias the subsequent subjective questions. Therefore, we also tried a different version of the questionnaire in which we asked questions about changes in subjective well-being/satisfaction and their factors before directly addressing the content of the project. However, we found that the patterns of the responses were similar between the two versions (project effectiveness and change in subjective satisfaction were both significant), and it was not possible to determine which order would be preferable.

Case Study Report

1. Objectives

The purpose of this case study is to verify the appropriateness of the proposed HWB application to the JICA ex-post evaluation and to examine the survey methodology by conducting a trial survey based on the "Draft Recommendations for the Application of the Human Well-being Perspective in the JICA Project Evaluation" (hereinafter referred to as the "HWB Recommendations"). More specifically, the case studies investigate and confirm the following two points.

(1) Confirming the appropriateness of the proposed application to the ex-post evaluation

The draft HWB recommendations propose the following methods for introduction and application to the ex-post evaluation.

- In addition to the attainment of the operation and effect indicators, subjective well-being/life satisfaction (hereafter referred to as well-being/satisfaction) is measured. Note whether there is a divergence between the two.
- By examining the factors contributing to the divergence, using the perspective of each domain that is thought to affect HWB as a clue, a deeper understanding of the project's impact, including unexpected ones, will be obtained.

Through these methods, we will see if we can actually "gain a deeper understanding of the project's impacts, including unexpected ones.

(2) Examining the survey methodology

The following issues exist in the actual implementation of the survey. Regarding these issues, we will examine which survey method is preferable by trying out multiple patterns of survey methods (question methods).

1) Method of questions on changes in subjective well-being/satisfaction

When capturing "changes" in subjective well-being/satisfaction, there are two methods: one is to ask about pre- and post-project levels of satisfaction separately (on a scale of 0 to 10). The other is to ask directly about "change" compared to the past (on a scale from "much less satisfied" to "much more satisfied"). The survey was to find out which was easier for respondents to answer¹.

¹ It was not to examine the way of asking that captures true changes in subjective well-being/satisfaction. Since the question about changes in subjective satisfaction is only intended as a trigger for subsequent questions, it is not that important to accurately measure respondents' subjective well-being/satisfaction.

2) Method of questions on the factors contributing to changes in subjective well-being /satisfaction
There are two methods when digging deeper into the factors that contribute to changes in subjective well-being/satisfaction. One is to ask open-ended questions such as "What influenced the change in your subjective well-being/life satisfaction?" The other is to ask, "Did the domain/item XX impact your subjective well-being/satisfaction?". The survey examined which method was more effective in gathering in-depth/wide-ranging information.

3) Order of questions

In the interviews, questions about the project's effects and subjective well-being/satisfaction were asked. Suppose questions about subjective well-being/satisfaction are asked after the questions about the project. In that case, respondents may be aware of the relationship with the project, which may bias their answers regarding subjective well-being/satisfaction. Therefore, the survey tried a pattern in which subjective well-being /satisfaction was asked first.

4) Others

The survey also checked for the time required for the interviews and whether there were any questions that respondents had difficulty in answering/understanding.

Based on the above objectives, we conducted the case studies in Tanzania, India, and Bhutan for three projects, one in each country. This report summarizes the case studies, their results, and their insights².

2. Overview of case studies

2.1. Target Projects

The case studies were conducted for three projects: "the Project for Reinforcement of Power Distribution in Dar es Salaam (grant aid)" in Tanzania, "the Himachal Pradesh Crop Diversification Promotion Project (ODA loan)" in India, and "the Project for Improvement of Machinery and Equipment for Construction of Rural Agricultural Road (Phase 3) (grant aid)" in Bhutan. Though the TOR assumed India, Bhutan, and Nicaragua, given the short time frame and remote study, Nicaragua was changed to Tanzania because reliable local consultants could not be secured in advance in Nicaragua.

In selecting projects in each country, among the projects that have already been completed, projects that are considered highly significant for consideration from the perspective of HWB (projects that are considered to have an impact on multiple areas of people's lives) were selected as candidates. Then, the three projects were finally selected based on advice from JICA's Evaluation Department and JICA

² It is not the purpose of the case studies to evaluate the impact of the project on the target population of the projects. The main focus is solely on examining and confirming the appropriateness of proposed introduction and application of HWB and the survey methodology.

offices in each country regarding the accessibility of the project area from the capital city, the acceptability of the survey, and other factors.

2.2. Target Countries

Tanzania

The "Project for Reinforcement of Power Distribution in Dar es Salaam" in Tanzania aimed to improve the supply capacity of the power transmission and distribution network in Dar es Salaam City by installing new transmission and distribution lines and expanding and upgrading substations, thereby contributing to improving the quantity and quality of electricity supply to the residents and social and public facilities in the area. The project started in 2014 and was completed (handed over) in 2017.

The survey for this case study was conducted from January 17 to 22, 2022. The survey targeted 20 residents of Dar es Salaam City, the project's target area. Those who agreed to cooperate with the survey were interviewed among the households in the vicinity of the substations targeted by the project.

India

The "Himachal Pradesh Crop Diversification Promotion Project" in India aimed to promote crop diversification, especially through the cultivation of high cash crops such as vegetables, by strengthening farmer support services such as the dissemination of agricultural technology as well as the development of production infrastructures such as small-scale irrigation and access roads, thereby contributing to higher farmer income in the region. The project was implemented from 2011 to 2018.

The project targeted five districts of Himachal Pradesh, namely Hamirpur, Mandi, Kangra, Unnauna, Bilaspur, and for this case study, three districts, Kangra, Mandi, and Bilaspur, were selected. After coordinating with the provincial and district authorities, five villages were selected, with a total of 21 respondents (3-5 in each village). The survey period was from March 9 to 12, 2022. In selecting the survey respondents, we also asked the authorities in each district to ensure that there were approximately equal numbers of men and women.

Bhutan

The "Project for Improvement of Machinery and Equipment for Construction of Rural Agricultural Road (Phase 3)" of Bhutan aimed to improve the efficiency of farmers' agricultural work, transportation and marketing of farm products, and access to public services through the construction of rural roads and maintenance of existing rural roads throughout Bhutan, thereby contributing to sustainable economic growth in Bhutan.

Three villages, Chungphel, Terzer, and Bhim, in Bumthang Province, were selected for this case study based on the efficiency of travel and survey, with advice from the JICA office. A total of 29 people

were surveyed. The representatives of each village were asked to select the survey respondents so that the number of men and women would be approximately equal. The survey was conducted from March 29 to April 4, although the timing of the survey was delayed due to the pandemic of COVID-19.

3. Survey Methodology and Questionnaires

In the survey, local consultants hired in each country (one person per country) conducted face-to-face interviews with survey respondents using questionnaires³. The questionnaires consisted of the following.

- A) General information about the respondent (sex, age, occupation, etc.)
- B) Questions on the outcomes (effectiveness/impact) of the project
- C) Questions on subjective well-being/satisfaction
- D) Questions on the factors influencing changes in subjective well-being/satisfaction
- E) Question on whether similar changes have occurred in people other than the respondents themselves
- F) Questions on the interview/questionnaire itself, such as how long the interview takes, how easy the questions are to understand and answer, etc.

Concerning C) (questions on subjective well-being/satisfaction), as described above in 1. (2) 1), we tried two methods: one is to ask about the levels of subjective well-being/satisfaction before and after the project separately, and the other is to ask directly about change compared to the past. The specific questions are as follows.

Box 1 Questions on subjective well-being/satisfaction

[Pattern of questions asking about the level before and after the project]

The following question asks how satisfied you feel on a scale from 0 to 10. Zero means you feel "not at all satisfied," and 10 means you feel "completely satisfied".

Q1. Overall, how satisfied are you with life as a whole these days? Please answer between 0 and 10.

Q2. Compared to these days, how satisfied were you with your life XX years ago? Please answer between 0 and 10.

[Pattern of questions asking directly about changes]

Q. Compared to XX years ago, are you more or less satisfied with your life overall?

³ Since the Japanese consultants in charge of this study was unable to travel to the site, the survey was conducted after explaining the content of the survey and interview points to the local consultants remotely (online).

1. Much less satisfied
2. Less satisfied
3. More satisfied
4. Much more satisfied

In addition, questions about life satisfaction on an 11-point scale from 0 to 10 are commonly used to capture subjective happiness/well-being, and the recommendations in this study follow this practice. On the other hand, since it has been pointed out that it is important to capture not only life satisfaction but balance/harmony⁴, we also asked questions regarding balance/harmony.

Box 2 Balance/Harmony questions

[Pattern of questions asking about the level of each]

Q3. In general, how often do you feel the various aspects of your life are in balance?

1. Always
2. Often
3. Rarely
4. Never

Q4. Please consider four years ago. Compared to these days, how often did you feel the various aspects of your life were in balance?

1. Always
2. Often
3. Rarely
4. Never

[Pattern of questions asking directly about changes]

Q. Compared to XX years ago, do you feel the various aspects of your life are more or less balanced?

1. Much less balanced
2. Less balanced
3. More balanced
4. Much more balanced

⁴ See, for example, the following references.

Takano, Sho (2021), "Well-being no Gainen no Jichitai Seisaku heno Tekiyo Kanosei to Kadai nikansuru Kosatsu" (A Study on the Applicability of the Concept of Well-Being to Municipal Policies and Its Issue), *Fukui Chiiki Keizai Kenkyu (Journal of Fukui Regional Economics)* 33, 41-59.

Lomas, T. (2021) Life balance and harmony: Wellbeing's golden thread. *International Journal of Wellbeing*, 11(1), 50-68.

Helliwell, J. F., Layard, R., Sachs, J. D., De Neve, J.-E., Aknin, L. B., & Wang, S. (Eds.). (2022) *World Happiness Report 2022*. New York: Sustainable Development Solutions Network.

For D) (questions on the factors that influenced changes in subjective well-being/satisfaction), two methods were also used as described in 1. (2): one was to ask the open-ended questions, and the other was to ask about individual domains/items. The specifics are as follows. Note that, as a point to keep in mind in the interview, asking questions explicitly tied to the project may cause bias in the answers, so we avoided asking "what changes were caused by the project" and asked "what changes were caused and why" in as neutral a manner as possible. The evaluators then examined the responses regarding the changes that occurred and the reasons for them and made a judgment as to whether the changes were caused by the project (thus, although some responses indicated that the changes occurred for reasons unrelated to the project, they were excluded from consideration).

Box 3 Questions on reasons for changes in subjective well-being/satisfaction

[Pattern of questions to ask with open-ended questions]

Q. What influenced the change in your life satisfaction?

[Pattern of questions to ask in each area]

Q1. Are the following aspects related to the changes in the level of your life satisfaction?

1. Household income/assets Yes/No
2. Income inequality Yes/No
3. Availability of housing Yes/No
4. ...

As for the aspects in which you answered "Yes" in Q1, a) how is it related to the changes in your life satisfaction, and b) why it happened?

Question E) (regarding whether similar changes have occurred in people other than the respondents themselves) was added to examine the generalizability of the responses. Beneficiary surveys in ex-post evaluation are generally small-scale, targeting at most a few dozen people. Therefore, it is difficult to generalize the information obtained from the survey targets to the entire project target. To quantitatively generalize results, it is necessary to randomly select a sample of an appropriate size from the population of interest. Still, conducting such a relatively large quantitative survey is not practical due to budget constraints in ex-post evaluation⁵. Therefore, in this survey, we qualitatively examined generalizability by asking respondents whether the changes they experienced (or did not experience) also occurred (or did not occur) in others.

⁵ Of course, we believe there is room to consider conducting quantitative surveys on a larger scale as an option.

Box 4 Questions about changes other than the respondent's own

Q1. Are there other persons who have the same experiences as you?

Q2. If yes in Q1, about how many persons have the same experiences, and why you think so?

In addition, as mentioned in section 1, the questionnaires were designed with patterns in which questions about project effectiveness were asked first, followed by questions about subjective satisfaction (B to CDE) and the opposite order (CDE to B), and the impact of this pattern was also examined⁶.

Based on the above points, eight patterns of questionnaires, "a" through "h," were developed and used. The actual questionnaires are attached as an appendix⁷. In the actual survey, questions were asked based on the questionnaire prepared in English and translated into the appropriate language by the local consultant according to the target population⁸. The purpose of this survey was not to collect quantitative data but to qualitatively understand what kind of changes were brought to the respondents. Therefore, the questionnaires were not designed to be read verbatim but rather to encourage the local consultants to adjust the wording of the questions and the way they asked and to ask further questions, as appropriate, to facilitate the elicitation of information. The questionnaires were positioned as a guideline for the interview.

Table Questionnaire Patterns

| | Project Effectiveness → Subjective Satisfaction | | Subjective Satisfaction → Project Effectiveness | |
|--|---|--------------------------|---|--------------------------|
| | Ask by individual domain | Ask open-ended questions | Ask by individual domain | Ask open-ended questions |
| Ask about changes in subjective satisfaction | a | b | c | d |
| Ask the level at pre and post | e | f | g | h |

⁶ Concerns about bias regarding subjective questions were also raised by the external expert committee.

⁷ Since the actual interviews were conducted web-based, some parts of the attached questionnaires do not accurately reflect the layout or the relationship between responses (e.g., the next question may change depending on the answer to the previous question). In addition, since the content of the questionnaires is almost the same in each country except for the section on project effectiveness (some wording was adjusted), only the examples used in India are attached.

⁸ No problems arose in this case because one local consultant in each country conducted the interviews. However, if more than one surveyor conducts the interviews, it may be necessary to prepare the questionnaire itself in the appropriate language to ensure consistency in wording in the local language.

4. Case Study Results

4.1. Project Outcomes and Subjective Well-Being/Satisfaction

Tanzania

As outcomes of the project, the improvement of electricity supply and voltage were examined. All 20 respondents indicated that the power supply had improved compared to the pre-project level. Regarding the voltage improvement, 15 respondents answered that there had been an improvement, while the remaining five said there had been no problem before the project.

Regarding the question on subjective satisfaction, 19 of the 20 respondents indicated that it had improved, and only one answered that it had worsened. The one respondent who responded that it had worsened said that the power supply had improved but that there had been no improvement in voltage (since there was no problem, to begin with).

India

The survey asked about improvements in market access and sales of agricultural products as outcomes of the project. Of the 21 respondents, 17 indicated improvement in the former and 20 in the latter, and one respondent stated that there had been no improvement in either outcome.

Regarding the question on subjective satisfaction, 19 respondents indicated that there had been an improvement, while only two stated that there had been no improvement. One of the two respondents said there had been no improvement in market access and only an increase in product sales and the other indicated that there had been no improvement in any of the outcomes.

Bhutan

In the interview, the improvements in market access and sales of agricultural products were examined as the project's outcomes. Regarding market access, 27 of the 29 respondents said they had problems before the project, and all 27 said it had improved after the project. Regarding the marketing of agricultural products, 15 respondents indicated that there had been an improvement. In contrast, the remaining 12 stated that there had been no problems before the project in the first place.

Regarding subjective satisfaction, all 29 respondents indicated that it had improved.

Summary

In all three countries, the project's anticipated outcomes are generally realized. Most of the respondents answered that their subjective satisfaction level had improved. Although some respondents in Tanzania and India indicated that their subjective satisfaction had not changed or worsened, the project's outcomes had not been fully realized for these respondents (including both those who said that there had been no problems in the first place and those who said that there had been problems but no

improvement). The project outcomes and subjective satisfaction are considered to be generally consistent.

4.2. Factors Affecting Subjective Well-being/Satisfaction

Tanzania

As a factor for improvement in subjective satisfaction, many respondents cited increased income due to improved and stable electricity supply and the ability to conduct various businesses using electricity more efficiently. Other factors cited as contributing to improved life satisfaction included the educational impact of allowing children to study after dark and reducing the danger of going out at night due to the improvement of streetlights.

In addition to these effects typically expected in the electric power project, some respondents mentioned that the stable availability of electricity in their homes allowed them to use air conditioners and fans and to get better rest. Some respondents also said they could spend more time with their families because there were fewer interruptions to their work due to power outages, and they could return home on time.

India

Most respondents cited increased income due to higher crop yields and sales as a factor that affected subjective satisfaction. Some respondents also indicated that the increased income resulted in more leisure time, time spent with family, and time spent participating in village organizations, which positively impacted subjective satisfaction.

In addition, some respondents indicated that as a result of stable yields and income, they were less stressed and healthier, which increased their subjective satisfaction. Furthermore, some respondents cited the reduction in conflicts within the village regarding the use of water resources because of the irrigation improvements implemented by the project and the improvement in relationships within the village as a factor in the improvement in subjective satisfaction.

Bhutan

As for Bhutan, the primary response was that the increase in income due to higher crop yields and sales of agricultural products, which had been assumed as the project objective, had an impact on subjective satisfaction. In addition, several respondents indicated that road construction improved their living environment due to easier access to construction materials and the ability to improve or replace their housing, coupled with higher income. Many respondents indicated that road construction improved traffic conditions, which in turn made it easier to get to health and educational facilities and to visit relatives and friends who live far away, which affected their level of life satisfaction.

Other comments included the improvement in security and safety due to improved road access, which allowed police and officials to rush to the village quickly in case of emergencies. In addition, some stated that improved road access enabled intermediaries who buy agricultural products to come to the village, giving them more time to rest and spend time with their families, resulting in higher levels of satisfaction.

Summary

In all countries, many respondents cited the realization of expected outcomes by the project as a factor that influenced their subjective satisfaction. On the other hand, as mentioned above, we also received responses about changes that are not usually assumed in project planning. By asking a wide range of factors that affected subjective satisfaction, we obtained a broad range of information about the project's impact on people's lives.

4.3. Examination of Survey Methodology and Questionnaires

As described in 1. and 3., we tried several question patterns to examine which survey method would be desirable. The results of the examination on the four issues, 1)-4) described in 1. (2), are presented below.

Method of questions on changes in subjective well-being/satisfaction

As mentioned above, we tried two methods: one is to ask about the levels of subjective well-being/satisfaction before and after the project separately, and the other is to ask directly about change compared to the past. Since almost all respondents indicated that their subjective well-being/satisfaction had improved, it is impossible to determine the effect of the question methods on the results. Still, local consultants concluded that directly asking about the change was more appropriate for ease of response. Many respondents had difficulty answering the question about where the level was on a scale of 0-10 while answering whether it improved or not seemed easier.

Although we added questions on balance/harmony as a question to capture subjective happiness/well-being, the responses were almost the same as those to the questions on life satisfaction (those who answered that their life satisfaction had improved also answered that their balance/harmony had improved).

Method of questions on factors contributing to changes in subjective well-being /satisfaction

Two methods were also used in asking about factors affecting the change: one was to ask the open-ended questions, and the other was to ask about individual domains/items. The result showed that the latter method was far better regarding the richness of information collected. In addition, the responses to the open-ended questions tended to focus on changes that had been assumed as the project outcomes, and very little information was collected on unexpected changes that were captured in the questions

for each domain/item.

On the other hand, the latter method of the interview took longer, and respondents also commented that the interviews were "long" (the average time required was about 40 minutes for those who were asked open-ended questions and about 85 minutes for those who were asked on individual domains/items).

Order of questions

Concerning whether to ask questions on project outcomes first or questions on subjective satisfaction first, the results showed that the trend of responses (both project effect and change in subjective satisfaction were significant) remained the same for both methods of questions.

Others

Although it is difficult to say how long the interviews took because of the variations in the questionnaires as described above, the shortest was 22 minutes, the longest was 222 minutes⁹, the mean was 48 minutes, and the median was 40 minutes. Of the 71 total respondents, eight indicated that the time required was short, 47 stated that it was adequate, and 16 indicated it was long. All respondents who answered that the time required was long were eligible for the questionnaires, which asked about the factors contributing to changes in subjective satisfaction in each domain/item.

Regarding the ease of answering the question, some respondents had never received a question on subjective satisfaction before and found it difficult to answer. In addition, some respondents said they had difficulty understanding the concept of "work-life balance" (they did not have such a concept in the first place).

5. Summary: Implications for the Ex-post Evaluation

As indicated in Section 1, the purposes of the case studies were to (1) confirm the appropriateness of the proposed application to ex-post evaluation and (2) examine and confirm the survey methodology.

Confirmation of the appropriateness of the proposed introduction and application to ex-post evaluation

As indicated in 4.1. and 4.2., by surveying changes in subjective well-being/satisfaction and the factors that brought about these changes, it was possible to collect a wide range of information on the impact on people's lives that was not expected (or at least not specified in the plan) at the project planning. The information collected can be broadly classified into two categories, as shown in Figure. One is information on other outcomes directly brought about (horizontal information) by the implementation

⁹ As for the interview that took 222 minutes, there were interruptions along the way, so not all of it can be taken as interview time.

of the project. For example, in the case of India, along with the expected outcome of the increase in income due to higher crop yields and sales, we have information on another outcome of improved relationships within the village due to reduced conflicts caused by the use of water resources. The second is information about the change in people's lives (impact¹⁰) brought about by materializing the expected outcomes (vertical information). In the same example in India, respondents reported, as a result of the expected outcome of increased income, they could have more time to rest and spend with their family and enjoy better health conditions due to reduced stress.

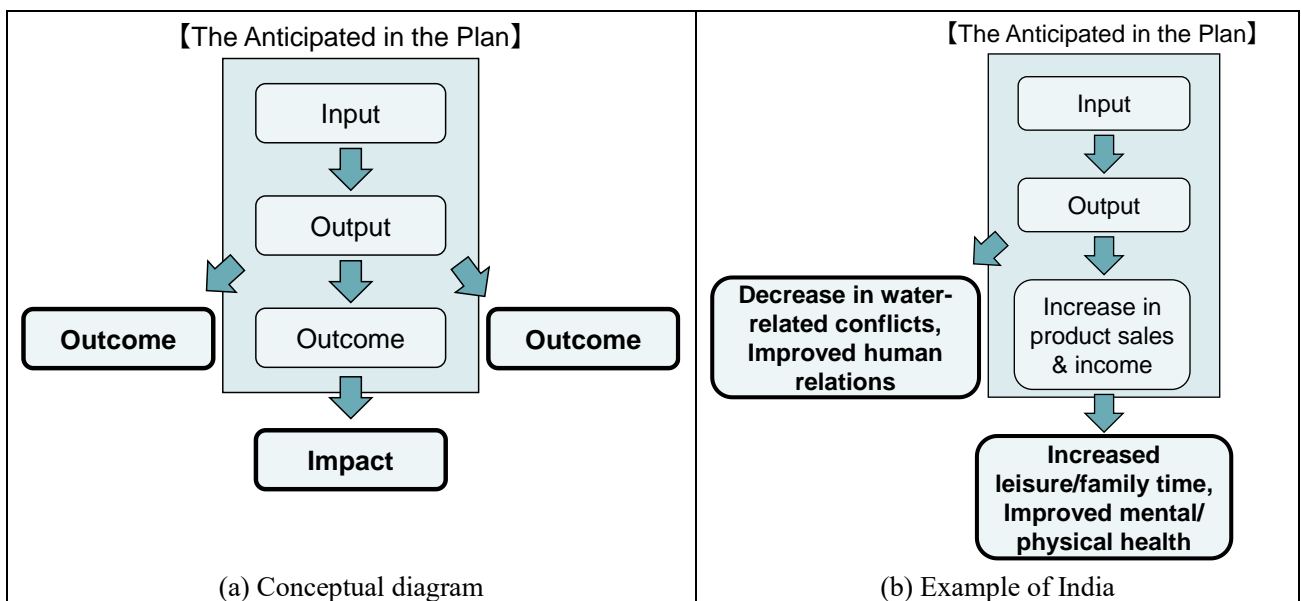


Figure 1 Information obtained from the survey

In this way, it is possible to gain a more multifaceted and in-depth understanding of the project's effects by taking changes in subjective well-being/satisfaction as a starting point and digging deeper into the factors that brought about such changes. This result supports the appropriateness of the application of the HWB perspective to the ex-post evaluation in this way.

On the other hand, we must carefully interpret the information. In the case studies above, the targets of all projects responded positively, resulting in a broad understanding of unexpected positive changes. While it is important to identify such unanticipated positive changes broadly and deeply, the value judgment (evaluation judgment) of a project should, in principle, be based on the degree of achievement of pre-defined goals (i.e., whether or not the expected outcomes have been realized). Other unexpected changes should only be treated as supplementary in evaluation judgment. Therefore, it is important not to overrate the value of the project even if various positive changes are confirmed

¹⁰ The terms "outcome" and "impact" are used here for convenience to express the hierarchy of change (the relationship between one change causing the next change). The change that occurs first is conveniently described as the "outcome" and the next change caused by the occurrence of the outcome as the "impact".

through the survey.

Examination and confirmation of survey methodology

Regarding the survey methodology, we considered the four issues presented in section 1. (2). For the first issue, capturing changes in subjective well-being/satisfaction, it would be preferable to ask about the changes themselves rather than the respective pre/post levels. In this proposal, we are not interested in the level and extent of change in subjective well-being/satisfaction (e.g., the level changed 4 points, from 3 to 7), nor are we interested in comparing the level of subjective well-being/satisfaction with others. Thus, knowing whether individual respondents' subjective well-being/satisfaction has improved, remained the same, or worsened would be sufficient as a starting point for subsequent questions.

Second, regarding the factors that influenced the changes in subjective well-being/satisfaction, asking whether or not there was a change in each of the individual domains is preferable since a broader range of information could be obtained. On the other hand, in this study, 23 domains/items were identified as ones that could potentially affect subjective well-being/satisfaction, and questions were asked for each of them, which, as mentioned above, required a longer interview time. For more efficient interviews, it is conceivable to exclude those domains/items that are not considered relevant to the project in advance. However, since the purpose of conducting such a survey is to capture unexpected changes, narrowing down the survey items in advance may be a downfall. Therefore, it would be realistic to exclude only the minimum number of questions related to domains/items that are clearly irrelevant.

As for the third issue, the order of questions, the trend of responses was the same in either way of asking, and it was not possible to conclude which was preferable based on the results of this survey. However, since it is important to avoid bias in the answers, it is necessary to avoid questions that directly ask about the relation to the project, as indicated in section 3.

Finally, as for the impressions of the respondents and local consultants, some commented that the time required for the interviews was long and that some questions were difficult to answer, but overall, there were no major problems. Although the time required may be a little long, we were able to survey about 20 respondents in each country in about five days. Therefore, we believe that a survey of the same scale as this one could be conducted within the framework of the current ex-post evaluation with some additional workload.

To the interviewer: Please fill in the following basic information about the interview.

Number _____
Answer Date and Time _____

To the interviewer: Please read the following sentences to the respondent.

We would like to ask you some questions about your life. Your response will help us to understand about the project. All the answers you give will be confidential and will not be shared with anyone other than members of our survey team.

Thank you very much for your cooperation.

To the interviewer: Questions start here.

Please start to read the following questions and fill in the his/her responses.

Section 1: Basic Information

Q1. Where do you live? (Region, District, Village)

Q2. Please provide your mobile phone number

Q3. Are you male or female?

1. Male
2. Female

Q4. How old are you?

Q5. What is your current marital status?

1. Married or living together
2. Divorced or separated
3. Widowed
4. Never married and never lived together

Q6. What is your current occupational status?

1. Unemployed
2. Farmer
3. Trader/shopkeeper/businessman
4. School student/trainees/university students
5. Government officer
6. Corporate employee
7. Private employee
8. Housewife/husband (Homemaker)
9. No need to work

- 10. Given up looking for job
- 11. Others (specify.....)

Section2: Project Effects

Q7. Did you have any problems with access to a market before 2018?

- 1. Yes→GO TO Q8
- 2. No→GO TO Q11

Q8. What kind of problems did you have?

Q9. Do you have the same problems at present?

- 1. Yes→GO TO Q11
- 2. No→GO TO Q10

Q10. Why were the problems solved?

Q11. Did you have any problems with sales of farm products before 2017?

- 1. Yes→GO TO Q12
- 2. No→GO TO Q15

Q12. What kind of problems did you have?

Q13. Do you have the same problems at present?

- 1. Yes→GO TO Q15
- 2. No→GO TO Q14

Q14. Why were the problems solved?

SECTION 3: Core question for Life satisfaction

Q15. Compared to four years ago, are you more or less satisfied with your life overall?

- 1. Much less satisfied
- 2. Less satisfied
- 3. More satisfied
- 4. Much more satisfied
- 5. I don't know

SECTION 4: Supplementary information for Life satisfaction

Q16. Compared to four years ago, do you feel the various aspects of your life are in

more or less balanced?

1. Much less balanced
2. Less balanced
3. More balanced
4. Much more balanced
5. I don't know

SECTION 5: Reasons of changes in life satisfaction

Q17. Are the following aspects related to the changes in the level of your life satisfaction?

| | |
|--|---------------|
| 1. Household income/assets | 1. Yes, 2. No |
| 2. Income inequality | 1. Yes, 2. No |
| 3. Availability of housing | 1. Yes, 2. No |
| 4. Quality of housing | 1. Yes, 2. No |
| 5. Health | 1. Yes, 2. No |
| 6. Education | 1. Yes, 2. No |
| 7. Negative impacts from the natural environment | 1. Yes, 2. No |
| 8. Access to the natural environment | 1. Yes, 2. No |
| 9. Connection with the community | 1. Yes, 2. No |
| 10. Connection with family | 1. Yes, 2. No |
| 11. Helping another person | 1. Yes, 2. No |
| 12. Safety | 1. Yes, 2. No |
| 13. Violence | 1. Yes, 2. No |
| 14. Level of trust in the government | 1. Yes, 2. No |
| 15. Participation in political decision-making | 1. Yes, 2. No |
| 16. Free choice to what to do in your life | 1. Yes, 2. No |
| 17. Discrimination and exclusion | 1. Yes, 2. No |
| 18. Availability of employment | 1. Yes, 2. No |
| 19. Job satisfaction | 1. Yes, 2. No |
| 20. Work-life balance | 1. Yes, 2. No |
| 21. Enough rest | 1. Yes, 2. No |
| 22. Proficiency in the mother tongue | 1. Yes, 2. No |
| 23. Respect for cultural norms of behavior | 1. Yes, 2. No |

Q18. As for the aspects which you answered "Yes" in Q17, a) how it is related with the changes in your life satisfaction and b) why it happened.

| Domain | a) How is it related? | b) Why it happened? |
|----------------------------|-----------------------|---------------------|
| 1. Household income/assets | | |
| 2. Income inequality | | |
| 3. Availability of housing | | |
| 4. Quality of housing | | |
| 5. Health | | |

| | | |
|--|--|--|
| 6. Education | | |
| 7. Negative impacts from the natural environment | | |
| 8. Access to the natural environment | | |
| 9. Connection with the community | | |
| 10. Connection with family | | |
| 11. Helping another person | | |
| 12. Safety | | |
| 13. Violence | | |
| 14. Level of trust in the government | | |
| 15. Participation in political decision-making | | |
| 16. Free choice to what to do in your life | | |
| 17. Discrimination and exclusion | | |
| 18. Availability of employment | | |
| 19. Job satisfaction | | |
| 20. Work-life balance | | |
| 21. Enough rest | | |
| 22. Proficiency in the mother tongue | | |
| 23. Respect for cultural norms of behavior | | |

Q19. a) As for the aspects which you answered in Q17 and Q18, are there other persons who have the same experiences as you and b) Why do you think so? c) If yes, about how many persons have the same experiences and d) why you think so?

| Domain | a) Other persons having same experiences? | b) why do you think so? | If yes for a) | |
|----------------------------|---|-------------------------|--|-------------------------|
| | | | c) About how many persons have the same experiences? | d) why do you think so? |
| 1. Household income/assets | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many | |

| | | | | |
|--|--------------------------------------|--|---|--|
| | | | 5. Not Applicable | |
| 2. Income inequality | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 3. Availability of housing | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 4. Quality of housing | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 5. Health | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 6. Education | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 7. Negative impacts from the natural environment | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 8. Access to the natural environment | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 9. Connection with the community | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |

| | | | | |
|--|--------------------------------------|--|---|--|
| 10. Connection with family | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 11. Helping another person | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 12. Safety | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 13. Violence | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 14. Level of trust in the government | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 15. Participation in political decision-making | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 16. Free choice to what to do in your life | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 17. Discrimination and exclusion | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 18. Availability of employment | 1. Yes 2. No | | 1. Very few 2. Few | |

| | | | | |
|--|--------------------------------------|--|---|--|
| | 3. Not Applicable | | 3. Many 4. Very many 5. Not Applicable | |
| 19. Job satisfaction | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 20. Work-life balance | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 21. Enough rest | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 22. Proficiency in the mother tongue | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 23. Respect for cultural norms of behavior | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |

**This is the end of the questionnaire about yourself.
At last, I would like to ask you a few questions about this interview itself.**

SECTION 6: Procedure of survey

Q20. Were there any questions that were difficult to answer?

1. Yes →GO TO Q21
2. No →GO TO Q22

Q21. Which question was difficult to answer and why?

| Which question | Why |
|----------------|-----|
| | |
| | |

Q22. How was the question period?

1. Long
2. Appropriate
3. Short

**This is the end of interview.
Thank you very much for your cooperation.**

To the interviewer: Please give us your feedback on the survey.

SECTION 7: Review of interview

Q23. How long did it take you to complete this questionnaire?

| |
|--|
| |
|--|

Q24. Did the respondent understand the questions?

1. Yes →GO TO Q26
2. No →GO TO Q25

Q25. Which question the respondent did not understand and why?

| Which question | Why |
|----------------|-----|
| | |

Q26. Did the respondents seem to have any difficulty in answering the questions?

1. Yes→GO TO Q27
2. No→GO TO Q28

Q27. which question the respondent seemed to have difficulty in answering and why?

| Which question | Why |
|----------------|-----|
| | |

Q28. Do you think this questionnaire was properly designed to explore deeper into the factors that influenced the change in life satisfaction?

1. Yes →GO TO Q30
2. No →GO TO Q29

Q29. Please explain the main reason.

| |
|--|
| |
|--|

Q30. Was it possible to find out the relationship between the project and the changes in the life satisfaction of the respondents without asking them the direct relationships?

1. Yes →GO TO Q32
2. No →GO TO Q31

Q31. Please explain the main reason which made you difficult to find out it.

| |
|--|
| |
|--|

Q32. Did it take too much time for the respondents to answer?

1. Yes →GO TO Q33
2. No →Completed

Q33. Please explain which questions took the most time to answer.

| |
|--|
| |
|--|

This is the end of the questionnaire. Thank you very much for your cooperation.

To the interviewer: Please fill in the following basic information about the interview.

Number _____
Answer Date and Time _____

To the interviewer: Please read the following sentences to the respondent.

We would like to ask you some questions about your life. Your response will help us to understand about the project. All the answers you give will be confidential and will not be shared with anyone other than members of our survey team.

Thank you very much for your cooperation.

To the interviewer: Questions start here.
Please start to read the following questions and fill in the his/her responses.

Section 1: Basic Information

Q1. Where do you live? (Region, District, Village)

Q2. Please provide your mobile phone number

Q3. Are you male or female?
1. Male
2. Female

Q4. How old are you?

Q5. What is your current marital status?
1. Married or living together
2. Divorced or separated
3. Widowed
4. Never married and never lived together

Q6. What is your current occupational status?
1. Unemployed
2. Farmer
3. Trader/shopkeeper/businessman
4. School student/trainees/university students
5. Government officer
6. Corporate employee
7. Private employee
8. Housewife/husband (Homemaker)
9. No need to work

- 10. Given up looking for job
- 11. Others (specify.....)

Section2: Project Effects

Q7. Did you have any problems with access to a market before 2018?

- 1. Yes→GO TO Q8
- 2. No→GO TO Q11

Q8. What kind of problems did you have?

Q9. Do you have the same problems at present?

- 1. Yes→GO TO Q11
- 2. No→GO TO Q10

Q10. Why were the problems solved?

Q11. Did you have any problems with sales of farm products before 2017?

- 1. Yes→GO TO Q12
- 2. No→GO TO Q15

Q12. What kind of problems did you have?

Q13. Do you have the same problems at present?

- 1. Yes→GO TO Q15
- 2. No→GO TO Q14

Q14. Why were the problems solved?

SECTION 3: Core question for Life satisfaction

Q15. Compared to four years ago, are you more or less satisfied with your life overall?

- 1. Much less satisfied
- 2. Less satisfied
- 3. More satisfied
- 4. Much more satisfied
- 5. I don't know

SECTION 4: Supplementary information for Life satisfaction

Q16. Compared to four years ago, do you feel the various aspects of your life are in

more or less balanced?

1. Much less balanced
2. Less balanced
3. More balanced
4. Much more balanced
5. I don't know

SECTION 5: Reasons of changes in life satisfaction

Q17. What influenced the change in your life satisfaction?

Q18. As for your answers for Q17, a) are there other persons who have the same experiences as you and b) Why do you think so? c) If yes, about how many persons have the same experiences and d) why you think so?

| a) Are there other persons having same experiences? | b) why do you think so? | If yes for a) | |
|---|-------------------------|--|-------------------------|
| | | c) About how many persons have the same experiences? | d) why do you think so? |
| 1. Yes 2. No | | 1. Very few 2. Few 3. Many 4. Very many | |

**This is the end of the questionnaire about yourself.
At last, I would like to ask you a few questions about this interview itself.**

SECTION 6: Procedure of survey

Q19. Were there any questions that were difficult to answer?

1. Yes →GO TO Q20
2. No →GO TO Q21

Q20. Which question was difficult to answer and why?

| Which question | Why |
|----------------|-----|
| | |
| | |

Q21. How was the question period?

1. Long
2. Appropriate
3. Short

**This is the end of interview.
Thank you very much for your cooperation.**

To the interviewer: Please give us your feedback on the survey.

SECTION 7: Review of interview

Q22. How long did it take you to complete this questionnaire?

| |
|--|
| |
|--|

Q23. Did the respondent understand the questions?

1. Yes →GO TO Q24
2. No →GO TO Q25

Q24. Which question the respondent did not understand and why?

| Which question | Why |
|----------------|-----|
| | |

Q25. Did the respondents seem to have any difficulty in answering the questions?

1. Yes→GO TO Q26
2. No→GO TO Q27

Q26. which question the respondent seemed to have difficulty in answering and why?

| Which question | Why |
|----------------|-----|
| | |

Q27. Do you think this questionnaire was properly designed to explore deeper into the factors that influenced the change in life satisfaction?

1. Yes →GO TO Q28
2. No →GO TO Q29

Q28. Please explain the main reason.

| |
|--|
| |
|--|

Q29. Was it possible to find out the relationship between the project and the changes in the life satisfaction of the respondents without asking them the direct relationships?

1. Yes →GO TO Q30
2. No →GO TO Q31

Q30. Please explain the main reason which made you difficult to find out it.

| |
|--|
| |
|--|

Q31. Did it take too much time for the respondents to answer?

1. Yes →GO TO Q32
2. No →Completed

Q32. Please explain which questions took the most time to answer.

| |
|--|
| |
|--|

This is the end of the questionnaire. Thank you very much for your cooperation.

To the interviewer: Please fill in the following basic information about the interview.

Number _____
Answer Date and Time _____

To the interviewer: Please read the following sentences to the respondent.

We would like to ask you some questions about your life. Your response will help us to understand about the project. All the answers you give will be confidential and will not be shared with anyone other than members of our survey team.

Thank you very much for your cooperation.

To the interviewer: Questions start here.

Please start to read the following questions and fill in the his/her responses.

Section 1: Basic Information

Q1. Where do you live? (Region, District, Village)

Q2. Please provide your mobile phone number

Q3. Are you male or female?

1. Male
2. Female

Q4. How old are you?

Q5. What is your current marital status?

1. Married or living together
2. Divorced or separated
3. Widowed
4. Never married and never lived together

Q6. What is your current occupational status?

1. Unemployed
2. Farmer
3. Trader/shopkeeper/businessman
4. School student/trainees/university students
5. Government officer
6. Corporate employee
7. Private employee
8. Housewife/husband (Homemaker)
9. No need to work

10. Given up looking for job
11. Others (specify.....)

SECTION 2: Core question for Life satisfaction

- Q7. Compared to four years ago, are you more or less satisfied with your life overall?
1. Much less satisfied
 2. Less satisfied
 3. More satisfied
 4. Much more satisfied
 5. I don't know

SECTION 3: Supplementary information for Life satisfaction

- Q8. Compared to four years ago, do you feel the various aspects of your life are in more or less balanced?
1. Much less balanced
 2. Less balanced
 3. More balanced
 4. Much more balanced
 5. I don't know

SECTION 4: Reasons of changes in life satisfaction

- Q9. Are the following aspects related to the changes in the level of your life satisfaction?

| | |
|--|---------------|
| 1. Household income/assets | 1. Yes, 2. No |
| 2. Income inequality | 1. Yes, 2. No |
| 3. Availability of housing | 1. Yes, 2. No |
| 4. Quality of housing | 1. Yes, 2. No |
| 5. Health | 1. Yes, 2. No |
| 6. Education | 1. Yes, 2. No |
| 7. Negative impacts from the natural environment | 1. Yes, 2. No |
| 8. Access to the natural environment | 1. Yes, 2. No |
| 9. Connection with the community | 1. Yes, 2. No |
| 10. Connection with family | 1. Yes, 2. No |
| 11. Helping another person | 1. Yes, 2. No |
| 12. Safety | 1. Yes, 2. No |
| 13. Violence | 1. Yes, 2. No |
| 14. Level of trust in the government | 1. Yes, 2. No |
| 15. Participation in political decision-making | 1. Yes, 2. No |
| 16. Free choice to what to do in your life | 1. Yes, 2. No |
| 17. Discrimination and exclusion | 1. Yes, 2. No |
| 18. Availability of employment | 1. Yes, 2. No |
| 19. Job satisfaction | 1. Yes, 2. No |
| 20. Work-life balance | 1. Yes, 2. No |
| 21. Enough rest | 1. Yes, 2. No |
| 22. Proficiency in the mother tongue | 1. Yes, 2. No |
| 23. Respect for cultural norms of behavior | 1. Yes, 2. No |

- Q10. As for the aspects which you answered "Yes" in Q9, a) how it is related with the changes in your life satisfaction and b) why it happened.

| Domain | a) How is it related? | b) Why it happened? |
|--|-----------------------|---------------------|
| 1. Household income/assets | | |
| 2. Income inequality | | |
| 3. Availability of housing | | |
| 4. Quality of housing | | |
| 5. Health | | |
| 6. Education | | |
| 7. Negative impacts from the natural environment | | |
| 8. Access to the natural environment | | |
| 9. Connection with the community | | |
| 10. Connection with family | | |
| 11. Helping another person | | |
| 12. Safety | | |
| 13. Violence | | |
| 14. Level of trust in the government | | |
| 15. Participation in political decision-making | | |
| 16. Free choice to what to do in your life | | |
| 17. Discrimination and exclusion | | |
| 18. Availability of employment | | |
| 19. Job satisfaction | | |
| 20. Work-life balance | | |
| 21. Enough rest | | |
| 22. Proficiency in the mother tongue | | |
| 23. Respect for cultural norms of behavior | | |

Q11. a) As for the aspects which you answered in Q9 and Q10, are there other persons who have the same experiences as you and b) Why do you think so? c) If yes, about how many persons have the same experiences and d) why you think so?

| Domain | a) Other persons having same experiences? | b) why do you think so? | If yes for a) | |
|--|---|-------------------------|---|-------------------------|
| | | | c) About how many persons have the same experiences? | d) why do you think so? |
| 1. Household income/assets | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 2. Income inequality | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 3. Availability of housing | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 4. Quality of housing | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 5. Health | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 6. Education | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 7. Negative impacts from the natural environment | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |

| | | | | |
|--|--------------------------------------|--|---|--|
| 8. Access to the natural environment | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 9. Connection with the community | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 10. Connection with family | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 11. Helping another person | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 12. Safety | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 13. Violence | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 14. Level of trust in the government | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 15. Participation in political decision-making | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 16. Free choice to what to do in | 1. Yes 2. No | | 1. Very few 2. Few | |

| | | | | |
|--|--------------------------------------|--|---|--|
| your life | 3. Not Applicable | | 3. Many 4. Very many 5. Not Applicable | |
| 17. Discrimination and exclusion | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 18. Availability of employment | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 19. Job satisfaction | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 20. Work-life balance | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 21. Enough rest | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 22. Proficiency in the mother tongue | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 23. Respect for cultural norms of behavior | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |

Section5: Project Effects

Q12. Did you have any problems with access to a market before 2018?

1. Yes→GO TO Q13
2. No→GO TO Q16

Q13. What kind of problems did you have?

Q14. Do you have the same problems at present?

1. Yes→GO TO Q16
2. No→GO TO Q15

Q15. Why were the problems solved?

Q16. Did you have any problems with sales of farm products before 2017?

1. Yes→GO TO Q17
2. No→GO TO Q20

Q17. What kind of problems did you have?

Q18. Do you have the same problems at present?

1. Yes→GO TO Q20
2. No→GO TO Q19

Q19. Why were the problems solved?

**This is the end of the questionnaire about yourself.
At last, I would like to ask you a few questions about this interview itself.**

SECTION 6: Procedure of survey

Q20. Were there any questions that were difficult to answer?

1. Yes →GO TO Q21
2. No →GO TO Q22

Q21. Which question was difficult to answer and why?

| Which question | Why |
|----------------|-----|
| | |
| | |

Q22. How was the question period?

1. Long

2. Appropriate
3. Short

**This is the end of interview.
Thank you very much for your cooperation.**

To the interviewer: Please give us your feedback on the survey.

SECTION 7: Review of interview

Q23. How long did it take you to complete this questionnaire?

| |
|--|
| |
|--|

Q24. Did the respondent understand the questions?

1. Yes →GO TO Q25
2. No →GO TO Q26

Q25. Which question the respondent did not understand and why?

| Which question | Why |
|----------------|-----|
| | |

Q26. Did the respondents seem to have any difficulty in answering the questions?

1. Yes→GO TO Q27
2. No→GO TO Q28

Q27. which question the respondent seemed to have difficulty in answering and why?

| Which question | Why |
|----------------|-----|
| | |

Q28. Do you think this questionnaire was properly designed to explore deeper into the factors that influenced the change in life satisfaction?

1. Yes →GO TO Q30
2. No →GO TO Q29

Q29. Please explain the main reason.

| |
|--|
| |
|--|

Q30. Was it possible to find out the relationship between the project and the changes in the life satisfaction of the respondents without asking them the direct relationships?

1. Yes →GO TO Q32
2. No →GO TO Q31

Q31. Please explain the main reason which made you difficult to find out it.

| |
|--|
| |
|--|

Q32. Did it take too much time for the respondents to answer?

1. Yes →GO TO Q33
2. No →Completed

Q33. Please explain which questions took the most time to answer.

| |
|--|
| |
|--|

This is the end of the questionnaire. Thank you very much for your cooperation.

To the interviewer: Please fill in the following basic information about the interview.

Number _____
Answer Date and Time _____

To the interviewer: Please read the following sentences to the respondent.

We would like to ask you some questions about your life. Your response will help us to understand about the project. All the answers you give will be confidential and will not be shared with anyone other than members of our survey team.

Thank you very much for your cooperation.

To the interviewer: Questions start here.

Please start to read the following questions and fill in the his/her responses.

Section 1: Basic Information

Q1. Where do you live? (Region, District, Village)

Q2. Please provide your mobile phone number

Q3. Are you male or female?

1. Male
2. Female

Q4. How old are you?

Q5. What is your current marital status?

1. Married or living together
2. Divorced or separated
3. Widowed
4. Never married and never lived together

Q6. What is your current occupational status?

1. Unemployed
2. Farmer
3. Trader/shopkeeper/businessman
4. School student/trainees/university students
5. Government officer
6. Corporate employee
7. Private employee
8. Housewife/husband (Homemaker)
9. No need to work

10. Given up looking for job
11. Others (specify.....)

SECTION 2: Core question for Life satisfaction

- Q7. Compared to four years ago, are you more or less satisfied with your life overall?
1. Much less satisfied
 2. Less satisfied
 3. More satisfied
 4. Much more satisfied
 5. I don't know

SECTION 3: Supplementary information for Life satisfaction

- Q8. Compared to four years ago, do you feel the various aspects of your life are in more or less balanced?
1. Much less balanced
 2. Less balanced
 3. More balanced
 4. Much more balanced
 5. I don't know

SECTION 4: Reasons of changes in life satisfaction

Q9. What influenced the change in your life satisfaction?

- Q10. As for your answers for Q17, a) are there other persons who have the same experiences as you and b) Why do you think so? c) If yes, about how many persons have the same experiences and d) why you think so?

| a) Are other persons having same experiences? | b) why do you think so? | If yes for a) | |
|---|-------------------------|---|-------------------------|
| | | c) About how many persons have the same experiences? | d) why do you think so? |
| 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |

SECTION 5: Project Effects

- Q11. Did you have any problems with access to a market before 2018?
1. Yes→GO TO Q12
 2. No→GO TO Q15

Q12. What kind of problems did you have?

- Q13. Do you have the same problems at present?
1. Yes→GO TO Q15

2. No→GO TO Q14

Q14. Why were the problems solved?

| |
|--|
| |
|--|

Q15. Did you have any problems with sales of farm products before 2017?

1. Yes→GO TO Q16
2. No→GO TO Q19

Q16. What kind of problems did you have?

| |
|--|
| |
|--|

Q17. Do you have the same problems at present?

1. Yes→GO TO Q19
2. No→GO TO Q18

Q18. Why were the problems solved?

| |
|--|
| |
|--|

**This is the end of the questionnaire about yourself.
At last, I would like to ask you a few questions about this interview itself.**

SECTION 6: Procedure of survey

Q19. Were there any questions that were difficult to answer?

1. Yes →GO TO Q20
2. No →GO TO Q21

Q20. Which question was difficult to answer and why?

| Which question | Why |
|----------------|-----|
| | |
| | |

Q21. How was the question period?

1. Long
2. Appropriate
3. Short

**This is the end of interview.
Thank you very much for your cooperation.**

To the interviewer: Please give us your feedback on the survey.

SECTION 7: Review of interview

Q22. How long did it take you to complete this questionnaire?

| |
|--|
| |
|--|

Q23. Did the respondent understand the questions?

1. Yes →GO TO Q24
2. No →GO TO Q25

Q24. Which question the respondent did not understand and why?

| Which question | Why |
|----------------|-----|
| | |

Q25. Did the respondents seem to have any difficulty in answering the questions?

1. Yes→GO TO Q26
2. No→GO TO Q27

Q26. which question the respondent seemed to have difficulty in answering and why?

| Which question | Why |
|----------------|-----|
| | |

Q27. Do you think this questionnaire was properly designed to explore deeper into the factors that influenced the change in life satisfaction?

1. Yes →GO TO Q29
2. No →GO TO Q28

Q28. Please explain the main reason.

| |
|--|
| |
|--|

Q29. Was it possible to find out the relationship between the project and the changes in the life satisfaction of the respondents without asking them the direct relationships?

1. Yes →GO TO Q31
2. No →GO TO Q30

Q30. Please explain the main reason which made you difficult to find out it.

| |
|--|
| |
|--|

Q31. Did it take too much time for the respondents to answer?

1. Yes →GO TO Q32
2. No →Completed

Q32. Please explain which questions took the most time to answer.

| |
|--|
| |
|--|

This is the end of the questionnaire. Thank you very much for your cooperation.

To the interviewer: Please fill in the following basic information about the interview.

Number _____
Answer Date and Time _____

To the interviewer: Please read the following sentences to the respondent.

We would like to ask you some questions about your life. Your response will help us to understand about the project. All the answers you give will be confidential and will not be shared with anyone other than members of our survey team.

Thank you very much for your cooperation.

To the interviewer: Questions start here.
Please start to read the following questions and fill in the his/her responses.

Section 1: Basic Information

Q1. Where do you live? (Region, District, Village)

Q2. Please provide your mobile phone number

Q3. Are you male or female?
1. Male
2. Female

Q4. How old are you?

Q5. What is your current marital status?
1. Married or living together
2. Divorced or separated
3. Widowed
4. Never married and never lived together

Q6. What is your current occupational status?
1. Unemployed
2. Farmer
3. Trader/shopkeeper/businessman
4. School student/trainees/university students
5. Government officer
6. Corporate employee
7. Private employee
8. Housewife/husband (Homemaker)
9. No need to work

- 10. Given up looking for job
- 11. Others (specify.....)

Section2: Project Effects

Q7. Did you have any problems with access to a market before 2018?

- 1. Yes→GO TO Q8
- 2. No→GO TO Q11

Q8. What kind of problems did you have?

Q9. Do you have the same problems at present?

- 1. Yes→GO TO Q11
- 2. No→GO TO Q10

Q10. Why were the problems solved?

Q11. Did you have any problems with sales of farm products before 2017?

- 1. Yes→GO TO Q12
- 2. No→GO TO Q15

Q12. What kind of problems did you have?

Q13. Do you have the same problems at present?

- 1. Yes→GO TO Q15
- 2. No→GO TO Q14

Q14. Why were the problems solved?

SECTION 3: Core question for Life satisfaction

The following question asks how satisfied you feel, on a scale from 0 to 10. Zero means you feel “not at all satisfied” and 10 means you feel “completely satisfied”.

Q15. Overall, how satisfied are you with life as a whole these days? Please answer between 0 and 10.

Q16. Compared to these days, how satisfied with your life were you four years ago? Please answer between 0 and 10.

SECTION 4: Supplementary information for Life satisfaction

Q17. In general, how often do you feel the various aspects of your life are in balance?

1. Always
2. Often
3. Rarely
4. Never

Q18. Please consider four years ago. Compared to these days, how often did you feel the various aspects of your life were in balance?

1. Always
2. Often
3. Rarely
4. Never

SECTION 5: Reasons of changes in life satisfaction

Q19. Are the following aspects related to the changes in the level of your life satisfaction?

| | |
|--|---------------|
| 1. Household income/assets | 1. Yes, 2. No |
| 2. Income inequality | 1. Yes, 2. No |
| 3. Availability of housing | 1. Yes, 2. No |
| 4. Quality of housing | 1. Yes, 2. No |
| 5. Health | 1. Yes, 2. No |
| 6. Education | 1. Yes, 2. No |
| 7. Negative impacts from the natural environment | 1. Yes, 2. No |
| 8. Access to the natural environment | 1. Yes, 2. No |
| 9. Connection with the community | 1. Yes, 2. No |
| 10. Connection with family | 1. Yes, 2. No |
| 11. Helping another person | 1. Yes, 2. No |
| 12. Safety | 1. Yes, 2. No |
| 13. Violence | 1. Yes, 2. No |
| 14. Level of trust in the government | 1. Yes, 2. No |
| 15. Participation in political decision-making | 1. Yes, 2. No |
| 16. Free choice to what to do in your life | 1. Yes, 2. No |
| 17. Discrimination and exclusion | 1. Yes, 2. No |
| 18. Availability of employment | 1. Yes, 2. No |
| 19. Job satisfaction | 1. Yes, 2. No |
| 20. Work-life balance | 1. Yes, 2. No |
| 21. Enough rest | 1. Yes, 2. No |
| 22. Proficiency in the mother tongue | 1. Yes, 2. No |
| 23. Respect for cultural norms of behavior | 1. Yes, 2. No |

Q20. As for the aspects which you answered "Yes" in Q17, a) how it is related with the changes in your life satisfaction and b) why it happened.

| Domain | a) How is it related? | b) Why it happened? |
|----------------------------|-----------------------|---------------------|
| 1. Household income/assets | | |
| 2. Income inequality | | |

| | | |
|--|--|--|
| | | |
| 3. Availability of housing | | |
| 4. Quality of housing | | |
| 5. Health | | |
| 6. Education | | |
| 7. Negative impacts from the natural environment | | |
| 8. Access to the natural environment | | |
| 9. Connection with the community | | |
| 10. Connection with family | | |
| 11. Helping another person | | |
| 12. Safety | | |
| 13. Violence | | |
| 14. Level of trust in the government | | |
| 15. Participation in political decision-making | | |
| 16. Free choice to what to do in your life | | |
| 17. Discrimination and exclusion | | |
| 18. Availability of employment | | |
| 19. Job satisfaction | | |
| 20. Work-life balance | | |
| 21. Enough rest | | |
| 22. Proficiency in the mother tongue | | |
| 23. Respect for cultural norms of behavior | | |

Q21. a) As for the aspects which you answered in Q17 and Q18, are there other persons who have the same experiences as you and b) Why do you think so? c) If yes, about how many persons have the same experiences and d) why you think so?

| | | | | |
|--------|------------------|-------------------------|---------------|---------------|
| Domain | a) Other persons | b) why do you think so? | If yes for a) | |
| | | | c) About how | d) why do you |

| | having same experiences? | | many persons have the same experiences? | think so? |
|--|--------------------------------------|--|---|-----------|
| 1. Household income/assets | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 2. Income inequality | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 3. Availability of housing | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 4. Quality of housing | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 5. Health | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 6. Education | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 7. Negative impacts from the natural environment | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 8. Access to the natural environment | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not | |

| | | | | |
|--|--------------------------------------|--|---|--|
| | | | Applicable | |
| 9. Connection with the community | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 10. Connection with family | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 11. Helping another person | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 12. Safety | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 13. Violence | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 14. Level of trust in the government | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 15. Participation in political decision-making | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 16. Free choice to what to do in your life | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 17. Discrimination | 1. Yes | | 1. Very few | |

| | | | | |
|--|---|--|--|--|
| and exclusion | 2. No 3. Not Applicable | | 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 18. Availability of employment | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 19. Job satisfaction | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 20. Work-life balance | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 21. Enough rest | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 22. Proficiency in the mother tongue | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 23. Respect for cultural norms of behavior | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |

**This is the end of the questionnaire about yourself.
At last, I would like to ask you a few questions about this interview itself.**

SECTION 6: Procedure of survey

- Q22. Were there any questions that were difficult to answer?
1. Yes →GO TO Q23
 2. No →GO TO Q24

Q23. Which question was difficult to answer and why?

| Which question | Why |
|----------------|-----|
| | |
| | |

Q24. How was the question period?

1. Long
2. Appropriate
3. Short

**This is the end of interview.
Thank you very much for your cooperation.**

To the interviewer: Please give us your feedback on the survey.

SECTION 7: Review of interview

Q25. How long did it take you to complete this questionnaire?

| |
|--|
| |
|--|

Q26. Did the respondent understand the questions?

1. Yes →GO TO Q28
2. No →GO TO Q27

Q27. Which question the respondent did not understand and why?

| Which question | Why |
|----------------|-----|
| | |

Q28. Did the respondents seem to have any difficulty in answering the questions?

1. Yes→GO TO Q29
2. No→GO TO Q30

Q29. which question the respondent seemed to have difficulty in answering and why?

| Which question | Why |
|----------------|-----|
| | |

Q30. Do you think this questionnaire was properly designed to explore deeper into the factors that influenced the change in life satisfaction?

1. Yes →GO TO Q32
2. No →GO TO Q31

Q31. Please explain the main reason.

| |
|--|
| |
|--|

Q32. Was it possible to find out the relationship between the project and the changes in the life satisfaction of the respondents without asking them the direct relationships?

1. Yes →GO TO Q34
2. No →GO TO Q33

Q33. Please explain the main reason which made you difficult to find out it.

| |
|--|
| |
|--|

Q34. Did it take too much time for the respondents to answer?

1. Yes →GO TO Q35
2. No →Completed

Q35. Please explain which questions took the most time to answer.

| |
|--|
| |
|--|

This is the end of the questionnaire. Thank you very much for your cooperation.

To the interviewer: Please fill in the following basic information about the interview.

Number _____
Answer Date and Time _____

To the interviewer: Please read the following sentences to the respondent.

We would like to ask you some questions about your life. Your response will help us to understand about the project. All the answers you give will be confidential and will not be shared with anyone other than members of our survey team.

Thank you very much for your cooperation.

To the interviewer: Questions start here.

Please start to read the following questions and fill in the his/her responses.

Section 1: Basic Information

Q1. Where do you live? (Region, District, Village)

Q2. Please provide your mobile phone number

Q3. Are you male or female?

1. Male
2. Female

Q4. How old are you?

Q5. What is your current marital status?

1. Married or living together
2. Divorced or separated
3. Widowed
4. Never married and never lived together

Q6. What is your current occupational status?

1. Unemployed
2. Farmer
3. Trader/shopkeeper/businessman
4. School student/trainees/university students
5. Government officer
6. Corporate employee
7. Private employee
8. Housewife/husband (Homemaker)
9. No need to work

10. Given up looking for job
 11. Others (specify.....)

Section2: Project Effects

Q7. Did you have any problems with access to a market before 2018?

1. Yes→GO TO Q8
2. No→GO TO Q11

Q8. What kind of problems did you have?

Q9. Do you have the same problems at present?

1. Yes→GO TO Q11
2. No→GO TO Q10

Q10. Why were the problems solved?

Q11. Did you have any problems with sales of farm products before 2017?

1. Yes→GO TO Q12
2. No→GO TO Q15

Q12. What kind of problems did you have?

Q13. Do you have the same problems at present?

1. Yes→GO TO Q15
2. No→GO TO Q14

Q14. Why were the problems solved?

SECTION 3: Core question for Life satisfaction

The following question asks how satisfied you feel, on a scale from 0 to 10. Zero means you feel “not at all satisfied” and 10 means you feel “completely satisfied”.

Q15. Overall, how satisfied are you with life as a whole these days? Please answer between 0 and 10.

Q16. Compared to these days, how satisfied with your life were you four years ago? Please answer between 0 and 10.

SECTION 4: Supplementary information for Life satisfaction

- Q17. In general, how often do you feel the various aspects of your life are in balance?
1. Always
 2. Often
 3. Rarely
 4. Never
- Q18. Please consider four years ago. Compared to these days, how often did you feel the various aspects of your life were in balance?
1. Always
 2. Often
 3. Rarely
 4. Never

SECTION 5: Reasons of changes in life satisfaction

- Q19. What influenced the change in your life satisfaction?

| |
|--|
| |
|--|

- Q20. a) As for the aspects which you answer for Q19, are there other persons in this village who have the same experiences as you and b) Why do you think so? c) If yes, about how many persons have the same experiences and d) why you think so?

| a) Are there other persons having same experiences? | b) why do you think so? | If yes for a) | |
|---|-------------------------|--|-------------------------|
| | | c) About how many persons have the same experiences? | d) why do you think so? |
| 1. Yes 2. No | | 1. Very few 2. Few 3. Many 4. Very many | |

**This is the end of the questionnaire about yourself.
At last, I would like to ask you a few questions about this interview itself.**

SECTION 6: Procedure of survey

- Q21. Were there any questions that were difficult to answer?
1. Yes →GO TO Q22
 2. No →GO TO Q23

- Q22. Which question was difficult to answer and why?

| Which question | Why |
|----------------|-----|
| | |
| | |

- Q23. How was the question period?
1. Long
 2. Appropriate
 3. Short

**This is the end of interview.
Thank you very much for your cooperation.**

To the interviewer: Please give us your feedback on the survey.

SECTION 7: Review of interview

Q24. How long did it take you to complete this questionnaire?

| |
|--|
| |
|--|

Q25. Did the respondent understand the questions?

1. Yes →GO TO Q27
2. No →GO TO Q26

Q26. Which question the respondent did not understand and why?

| Which question | Why |
|----------------|-----|
| | |

Q27. Did the respondents seem to have any difficulty in answering the questions?

1. Yes→GO TO Q28
2. No→GO TO Q29

Q28. which question the respondent seemed to have difficulty in answering and why?

| Which question | Why |
|----------------|-----|
| | |

Q29. Do you think this questionnaire was properly designed to explore deeper into the factors that influenced the change in life satisfaction?

1. Yes →GO TO Q31
2. No →GO TO Q30

Q30. Please explain the main reason.

| |
|--|
| |
|--|

Q31. Was it possible to find out the relationship between the project and the changes in the life satisfaction of the respondents without asking them the direct relationships?

1. Yes →GO TO Q33
2. No →GO TO Q32

Q32. Please explain the main reason which made you difficult to find out it.

| |
|--|
| |
|--|

Q33. Did it take too much time for the respondents to answer?

1. Yes →GO TO Q34
2. No →Completed

Q34. Please explain which questions took the most time to answer.

| |
|--|
| |
|--|

This is the end of the questionnaire. Thank you very much for your cooperation.

To the interviewer: Please fill in the following basic information about the interview.

Number _____
Answer Date and Time _____

To the interviewer: Please read the following sentences to the respondent.

We would like to ask you some questions about your life. Your response will help us to understand about the project. All the answers you give will be confidential and will not be shared with anyone other than members of our survey team.

Thank you very much for your cooperation.

To the interviewer: Questions start here.

Please start to read the following questions and fill in the his/her responses.

Section 1: Basic Information

Q1. Where do you live? (Region, District, Village)

Q2. Please provide your mobile phone number

Q3. Are you male or female?

1. Male
2. Female

Q4. How old are you?

Q5. What is your current marital status?

1. Married or living together
2. Divorced or separated
3. Widowed
4. Never married and never lived together

Q6. What is your current occupational status?

1. Unemployed
2. Farmer
3. Trader/shopkeeper/businessman
4. School student/trainees/university students
5. Government officer
6. Corporate employee
7. Private employee
8. Housewife/husband (Homemaker)
9. No need to work

10. Given up looking for job
 11. Others (specify.....)

SECTION 2: Core question for Life satisfaction

The following question asks how satisfied you feel, on a scale from 0 to 10. Zero means you feel “not at all satisfied” and 10 means you feel “completely satisfied”.

Q7. Overall, how satisfied are you with life as a whole these days? Please answer between 0 and 10.

Q8. Compared to these days, how satisfied with your life were you four years ago? Please answer between 0 and 10.

SECTION 3: Supplementary information for Life satisfaction

Q9. In general, how often do you feel the various aspects of your life are in balance?

1. Always
2. Often
3. Rarely
4. Never

Q10. Please consider four years ago. Compared to these days, how often did you feel the various aspects of your life were in balance?

1. Always
2. Often
3. Rarely
4. Never

SECTION 4: Reasons of changes in life satisfaction

Q11. Are the following aspects related to the changes in the level of your life satisfaction?

| | |
|--|---------------|
| 1. Household income/assets | 1. Yes, 2. No |
| 2. Income inequality | 1. Yes, 2. No |
| 3. Availability of housing | 1. Yes, 2. No |
| 4. Quality of housing | 1. Yes, 2. No |
| 5. Health | 1. Yes, 2. No |
| 6. Education | 1. Yes, 2. No |
| 7. Negative impacts from the natural environment | 1. Yes, 2. No |
| 8. Access to the natural environment | 1. Yes, 2. No |
| 9. Connection with the community | 1. Yes, 2. No |
| 10. Connection with family | 1. Yes, 2. No |
| 11. Helping another person | 1. Yes, 2. No |
| 12. Safety | 1. Yes, 2. No |
| 13. Violence | 1. Yes, 2. No |
| 14. Level of trust in the government | 1. Yes, 2. No |
| 15. Participation in political decision-making | 1. Yes, 2. No |

| | |
|--|---------------|
| 16. Free choice to what to do in your life | 1. Yes, 2. No |
| 17. Discrimination and exclusion | 1. Yes, 2. No |
| 18. Availability of employment | 1. Yes, 2. No |
| 19. Job satisfaction | 1. Yes, 2. No |
| 20. Work-life balance | 1. Yes, 2. No |
| 21. Enough rest | 1. Yes, 2. No |
| 22. Proficiency in the mother tongue | 1. Yes, 2. No |
| 23. Respect for cultural norms of behavior | 1. Yes, 2. No |

Q12. As for the aspects which you answered “Yes” in Q11, a) how it is related with the changes in your life satisfaction and b) why it happened.

| Domain | a) How is it related? | b) Why it happened? |
|--|-----------------------|---------------------|
| 1. Household income/assets | | |
| 2. Income inequality | | |
| 3. Availability of housing | | |
| 4. Quality of housing | | |
| 5. Health | | |
| 6. Education | | |
| 7. Negative impacts from the natural environment | | |
| 8. Access to the natural environment | | |
| 9. Connection with the community | | |
| 10. Connection with family | | |
| 11. Helping another person | | |
| 12. Safety | | |
| 13. Violence | | |
| 14. Level of trust in the government | | |
| 15. Participation in political decision-making | | |
| 16. Free choice to what to do in your life | | |
| 17. Discrimination and exclusion | | |
| 18. Availability of employment | | |

| | | |
|--|--|--|
| 19. Job satisfaction | | |
| 20. Work-life balance | | |
| 21. Enough rest | | |
| 22. Proficiency in the mother tongue | | |
| 23. Respect for cultural norms of behavior | | |

Q13. a) As for the aspects which you answered in Q11 and Q12, are there other persons who have the same experiences as you and b) Why do you think so? c) If yes, about how many persons have the same experiences and d) why you think so?

| Domain | a) Other persons having same experiences? | b) why do you think so? | If yes for a) | |
|----------------------------|---|-------------------------|---|-------------------------|
| | | | c) About how many persons have the same experiences? | d) why do you think so? |
| 1. Household income/assets | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 2. Income inequality | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 3. Availability of housing | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 4. Quality of housing | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 5. Health | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 6. Education | 1. Yes | | 1. Very few | |

| | | | | |
|--|---|--|--|--|
| | 2. No 3. Not Applicable | | 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 7. Negative impacts from the natural environment | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 8. Access to the natural environment | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 9. Connection with the community | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 10. Connection with family | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 11. Helping another person | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 12. Safety | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 13. Violence | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 14. Level of trust in the government | 1. Yes 2. No 3. Not | | 1. Very few 2. Few 3. Many | |

| | | | | |
|--|---|--|--|--|
| | Applicable | | 4. Very many 5. Not Applicable | |
| 15. Participation in political decision-making | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 16. Free choice to what to do in your life | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 17. Discrimination and exclusion | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 18. Availability of employment | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 19. Job satisfaction | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 20. Work-life balance | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 21. Enough rest | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |
| 22. Proficiency in the mother tongue | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not | |

| | | | | |
|--|--------------------------------------|--|---|--|
| | | | Applicable | |
| 23. Respect for cultural norms of behavior | 1. Yes 2. No 3. Not Applicable | | 1. Very few 2. Few 3. Many 4. Very many 5. Not Applicable | |

SECTION 5: Project Effects

Q14. Did you have any problems with access to a market before 2018?

1. Yes→GO TO Q15
2. No→GO TO Q18

Q15. What kind of problems did you have?

Q16. Do you have the same problems at present?

1. Yes→GO TO Q18
2. No→GO TO Q17

Q17. Why were the problems solved?

Q18. Did you have any problems with sales of farm products before 2017?

1. Yes→GO TO Q19
2. No→GO TO Q22

Q19. What kind of problems did you have?

Q20. Do you have the same problems at present?

1. Yes→GO TO Q22
2. No→GO TO Q21

Q21. Why were the problems solved?

**This is the end of the questionnaire about yourself.
At last, I would like to ask you a few questions about this interview itself.**

SECTION 6: Procedure of survey

Q22. Were there any questions that were difficult to answer?

1. Yes →GO TO Q23
2. No →GO TO Q24

Q23. Which question was difficult to answer and why?

| Which question | Why |
|----------------|-----|
| | |
| | |

Q24. How was the question period?

1. Long
2. Appropriate
3. Short

**This is the end of interview.
Thank you very much for your cooperation.**

To the interviewer: Please give us your feedback on the survey.

SECTION 7: Review of interview

Q25. How long did it take you to complete this questionnaire?

| |
|--|
| |
|--|

Q26. Did the respondent understand the questions?

1. Yes →GO TO Q28
2. No →GO TO Q27

Q27. Which question the respondent did not understand and why?

| Which question | Why |
|----------------|-----|
| | |

Q28. Did the respondents seem to have any difficulty in answering the questions?

1. Yes→GO TO Q29
2. No→GO TO Q30

Q29. which question the respondent seemed to have difficulty in answering and why?

| Which question | Why |
|----------------|-----|
| | |

Q30. Do you think this questionnaire was properly designed to explore deeper into the factors that influenced the change in life satisfaction?

1. Yes →GO TO Q32
2. No →GO TO Q31

Q31. Please explain the main reason.

| |
|--|
| |
|--|

Q32. Was it possible to find out the relationship between the project and the changes in the life satisfaction of the respondents without asking them the direct relationships?

1. Yes →GO TO Q34
2. No →GO TO Q33

Q33. Please explain the main reason which made you difficult to find out it.

| |
|--|
| |
|--|

Q34. Did it take too much time for the respondents to answer?

1. Yes →GO TO Q35
2. No →Completed

Q35. Please explain which questions took the most time to answer.

| |
|--|
| |
|--|

This is the end of the questionnaire. Thank you very much for your cooperation.

To the interviewer: Please fill in the following basic information about the interview.

Number _____
Answer Date and Time _____

To the interviewer: Please read the following sentences to the respondent.

We would like to ask you some questions about your life. Your response will help us to understand about the project. All the answers you give will be confidential and will not be shared with anyone other than members of our survey team.

Thank you very much for your cooperation.

To the interviewer: Questions start here.
Please start to read the following questions and fill in the his/her responses.

Section 1: Basic Information

Q1. Where do you live? (Region, District, Village)

Q2. Please provide your mobile phone number

Q3. Are you male or female?
1. Male
2. Female

Q4. How old are you?

Q5. What is your current marital status?
1. Married or living together
2. Divorced or separated
3. Widowed
4. Never married and never lived together

Q6. What is your current occupational status?
1. Unemployed
2. Farmer
3. Trader/shopkeeper/businessman
4. School student/trainees/university students
5. Government officer
6. Corporate employee
7. Private employee
8. Housewife/husband (Homemaker)
9. No need to work

- 10. Given up looking for job
- 11. Others (specify.....)

SECTION 2: Core question for Life satisfaction

The following question asks how satisfied you feel, on a scale from 0 to 10. Zero means you feel “not at all satisfied” and 10 means you feel “completely satisfied”.

Q7. Overall, how satisfied are you with life as a whole these days? Please answer between 0 and 10.

Q8. Compared to these days, how satisfied with your life were you four years ago? Please answer between 0 and 10.

SECTION 3: Supplementary information for Life satisfaction

Q9. In general, how often do you feel the various aspects of your life are in balance?

- 1. Always
- 2. Often
- 3. Rarely
- 4. Never

Q10. Please consider four years ago. Compared to these days, how often did you feel the various aspects of your life were in balance?

- 1. Always
- 2. Often
- 3. Rarely
- 4. Never

SECTION 4: Reasons of changes in life satisfaction

Q11. What influenced the change in your life satisfaction?

Q12. a) As for the aspects which you answer for Q11, are there other persons in this village who have the same experiences as you and b) Why do you think so? c) If yes, about how many persons have the same experiences and d) why you think so?

| a) Are there other persons having same experiences? | b) why do you think so? | If yes for a) | |
|---|-------------------------|--|-------------------------|
| | | c) About how many persons have the same experiences? | d) why do you think so? |
| 1. Yes 2. No | | 1. Very few 2. Few 3. Many 4. Very many | |

SECTION 5: Project Effects

Q13. Did you have any problems with access to a market before 2018?

1. Yes→GO TO Q14
2. No→GO TO Q17

Q14. What kind of problems did you have?

Q15. Do you have the same problems at present?

1. Yes→GO TO Q17
2. No→GO TO Q16

Q16. Why were the problems solved?

Q17. Did you have any problems with sales of farm products before 2017?

1. Yes→GO TO Q18
2. No→GO TO Q21

Q18. What kind of problems did you have?

Q19. Do you have the same problems at present?

1. Yes→GO TO Q21
2. No→GO TO Q20

Q20. Why were the problems solved?

**This is the end of the questionnaire about yourself.
At last, I would like to ask you a few questions about this interview itself.**

SECTION 6: Procedure of survey

Q21. Were there any questions that were difficult to answer?

1. Yes →GO TO Q22
2. No →GO TO Q23

Q22. Which question was difficult to answer and why?

| Which question | Why |
|----------------|-----|
| | |
| | |

Q23. How was the question period?

1. Long

2. Appropriate
3. Short

**This is the end of interview.
Thank you very much for your cooperation.**

To the interviewer: Please give us your feedback on the survey.

| |
|---------------------------------------|
| SECTION 7: Review of interview |
|---------------------------------------|

Q24. How long did it take you to complete this questionnaire?

| |
|--|
| |
|--|

Q25. Did the respondent understand the questions?

1. Yes →GO TO Q27
2. No →GO TO Q26

Q26. Which question the respondent did not understand and why?

| Which question | Why |
|----------------|-----|
| | |

Q27. Did the respondents seem to have any difficulty in answering the questions?

1. Yes→GO TO Q28
2. No→GO TO Q29

Q28. which question the respondent seemed to have difficulty in answering and why?

| Which question | Why |
|----------------|-----|
| | |

Q29. Do you think this questionnaire was properly designed to explore deeper into the factors that influenced the change in life satisfaction?

1. Yes →GO TO Q31
2. No →GO TO Q30

Q30. Please explain the main reason.

| |
|--|
| |
|--|

Q31. Was it possible to find out the relationship between the project and the changes in the life satisfaction of the respondents without asking them the direct relationships?

1. Yes →GO TO Q33
2. No →GO TO Q32

Q32. Please explain the main reason which made you difficult to find out it.

| |
|--|
| |
|--|

Q33. Did it take too much time for the respondents to answer?

1. Yes →GO TO Q34
2. No →Completed

Q34. Please explain which questions took the most time to answer.

| |
|--|
| |
|--|

This is the end of the questionnaire. Thank you very much for your cooperation.