

## **ECONOMIC ANALYSIS**

### **A. Introduction**

1. The economic analysis was undertaken in accordance with Asian Development Bank (ADB) guidelines.<sup>1</sup> The analysis reviews the project's economic contribution to social welfare and protection and its effects on the beneficiaries. The additional financing of the Food and Nutrition Social Welfare Project has no revenue-earning components and will focus on improving and sustaining the quality of social insurance and social welfare services in Mongolia. The objectives of the proposed additional financing are to (i) strengthen social welfare and insurance processes and information technology (IT) systems; and (ii) strengthen social welfare and social insurance policy, staff capacity, and communication.

### **B. Economic Parameters and Assumption**

2. The economic analysis was conducted over 20 years. Project implementation is expected to commence in July 2014 and continue to the middle of 2017. Economic benefits and costs were expressed in US dollars at constant 2013 prices. A shadow wage rate factor of 1.2 was applied to the wages of skilled workers at the domestic price level. Financial costs were adjusted to economic prices using a shadow exchange rate factor of 1.019.<sup>2</sup>

### **C. Economic Benefit Assumptions**

3. The project supports the Mongolian social insurance and social welfare system's efforts to improve and sustain the quality and efficiency of provision of social insurance and social welfare services, increase transparency, and reduce waiting time of beneficiaries of social insurance and social welfare services in Mongolia. Economic internal rates of returns were derived for the project by analyzing the most important quantifiable economic gains and cost savings and providing conservative estimates of the total economic benefits.

4. **Strengthen social welfare and insurance processes and information technology systems.** This output will (i) improve IT systems to support international accounting standards for the Social Insurance General Office (SIGO); (ii) automate periodic reporting and reduce manual processing; (iii) enhance the transparency of SIGO and the General Office for Social Welfare Services (GOSWS) operations; (iv) establish data analytics and build a business intelligence environment that supports better decision making by the Ministry of Population Development and Social Protection (MPDSP); (v) set up information security and disaster recovery infrastructure; (vi) provide training for SIGO, GOSWS, and the MPDSP staff; and (vii) provide IT equipment at central, *aimag* (province), district, and *soum* (administrative subdivision of the *aimag*) levels. This output will return economic benefits mainly through economic productivity gains, reduction of travel costs for beneficiaries, and reassignment of SIGO and GOSWS human resources for increased system efficiency.

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<sup>1</sup> ADB. 1997. *Guidelines for the Economic Analysis of Projects*. Manila; and ADB. 2000. *Handbook for the Economic Analysis of Health Sector Projects*. Manila.

<sup>2</sup> Rates calculated for ADB. 2004. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Technical Assistance Grant to Mongolia for the Regional Road Development Project*. Manila (Loan 2087-MON for \$37.13 million, approved on 22 July 2004); and ADB. 2010. *Report and Recommendation of the President on a Proposed Supplementary Loan and Grant to Mongolia for the Regional Road Development Project*. Manila (Loan 2621-MON for \$8 million and Grant 0199-MON for \$16 million, approved on 30 March 2010).

**5. Strengthen social welfare and social insurance policy, staff capacity, and communication.** This project output will directly benefit 3.5 million people. This output will (i) rationalize the social welfare system (consolidate benefits, improve the targeting of social welfare benefits, balance cash transfer and services, and link social welfare beneficiaries to employment services); (ii) update the database of poor households identified through proxy means testing and run the grievance and redress mechanism; (iii) provide training for SIGO, GOSWS, and MPDSP staff; (iv) update the social protection strategy; (v) improve the investment opportunities and the financial due diligence of the social protection funds;<sup>3</sup> and (vi) study and make recommendations on gender equality in social protection, balancing cash transfers with services delivery, and better linking of social protection and labor market policies. This project output will return economic benefits by supporting better targeting of poor households once needs are identified and new measures defined during project implementation; the economic benefits cannot be currently quantified for this output.

#### **D. Economic Cost Assumption**

6. Economic costs are based on the estimates of annual project costs. Base costs and physical contingencies were converted to economic costs on the basis of skilled and unskilled labor costs. In addition, recurrent costs have been included to cover maintenance of equipment and human resources.

7. All estimated taxes have been deducted and financial costs have been converted to economic prices through the application of a shadow wage factor of 1.2 for skilled workers and a shadow exchange rate factor of 1.019.<sup>4</sup>

8. Table 1 below represents the economic cost per year:

**Table 1: Economic Cost by Year**  
(\$ million)

| <b>Item</b>                                  | <b>Total Cost</b> | <b>2014</b> | <b>2015</b> | <b>2016</b> | <b>2017</b> | <b>Application of Skilled Work Factor</b> |
|--|-------------------|-------------|-------------|-------------|-------------|---|
| Consultants                                  | 0.53              | 0.31        | 0.05        | 0.02        | 0.00        | 1.2                                       |
| Equipment                                    | 8.97              | 0.02        | 8.41        | 0.54        |             |   |
| Design and Implementation of IT solutions    | 3.23              | 0.15        | 1.39        | 1.09        | 0.60        | SERF 1.019                                |
| Training                                     | 0.49              |             |             | 0.22        | 0.26        | SERF 1.019                                |
| Database construction and maintenance        | 3.17              | 0.02        | 0.71        | 1.23        | 1.22        | SERF 1.019                                |
| Public communication support                 | 0.39              | 0.02        | 0.10        | 0.17        | 0.11        | SERF 1.019                                |
| Workshops and other participatory activities | 0.48              | 0.12        | 0.12        | 0.12        | 0.12        | SERF 1.019                                |
| Project management                           | 0.48              | 0.12        | 0.12        | 0.12        | 0.12        | SERF 1.019                                |
| Upgrade and enhancement of IT system         | 1.02              |             | 0.34        | 0.34        | 0.35        | SERF 1.019                                |
| Human resources                              | 0.78              |             | 0.26        | 0.26        | 0.26        | SERF 1.019                                |

<sup>3</sup> This was specifically requested by the Ministry of Finance, and it is in line with SIGO IT upgrading for better and more transparent reporting and forecasting.

<sup>4</sup> ADB. 2003. Economic Analysis of Projects. *Operations Manual*. OM G1/OP. Manila (B.[vi][b]) states that a low economic internal rate of return is acceptable when there are substantial unquantifiable benefits.

| Item                   | Total Cost   | 2014        | 2015         | 2016        | 2017        | Application of Skilled Work Factor |
|------------------------|--------------|-------------|--------------|-------------|-------------|------------------------------------|
| Project management O&M | 0.16         | 0.02        | 0.05         | 0.05        | 0.05        | SERF 1.019                         |
| Physical contingency   | 1.01         | 0.04        | 0.58         | 0.22        | 0.16        | SERF 1.019                         |
| <b>Total</b>           | <b>20.17</b> | <b>0.82</b> | <b>12.12</b> | <b>4.38</b> | <b>3.23</b> |                                    |

IT = information technology, O&M= operation and maintenance, SERF = shadow exchange rate factor.  
Source: Asian Development Bank estimates.

## E. Economic Internal Rate of Return

9. Using conservative project implementation estimates, and considering that only the economic benefit for project output 3.2 has been quantified monetarily, the economic internal rate of return (EIRR) for the project is 14.85%. This reflects the limitation that the economic benefits deriving from the social welfare and social insurance policy, staff capacity, and communication project component cannot be quantified until analyses and studies regarding the most appropriate measures to target poor and vulnerable have been completed. Reducing the total value of the economic benefit by 15% results in an EIRR of 12.13%; reducing the total value of the economic benefit by 20% results in an EIRR of 11.16% (footnote 2).

10. In Table 2, a summary of the calculation of the EIRR is represented. A total amount of \$0.35 million per year to cover maintenance of equipment and human resources is considered. This is calculated using a usual benchmark of 3.5% for maintenance cost of the investment of approximately \$10 million of equipment. To be conservative, it is assumed that the economic benefit will start with 30% from the year 2017 and 100% of economic benefit is expected for 2018; however, some economic benefits could begin in year 2016.

**Table 2: Economic Internal Rate of Return**  
(\$ million)

| Year | Investment Cost | Recurrent Cost | Economic Benefit | Total   | EIRR          |
|------|-----------------|----------------|------------------|---------|---------------|
| 2014 | 0.82            |                |                  | (0.82)  | <b>14.85%</b> |
| 2015 | 10.92           |                |                  | (10.92) |               |
| 2016 | 4.38            |                |                  | (4.38)  |               |
| 2017 | 3.23            |                | 1.22             | (2.01)  |               |
| 2018 |                 | 0.35           | 4.07             | 3.72    |               |
| 2019 |                 | 0.35           | 4.07             | 3.72    |               |
| 2020 |                 | 0.35           | 4.07             | 3.72    |               |
| 2021 |                 | 0.35           | 4.07             | 3.72    |               |
| 2022 |                 | 0.35           | 4.07             | 3.72    |               |
| 2023 |                 | 0.35           | 4.07             | 3.72    |               |
| 2024 |                 | 0.35           | 4.07             | 3.72    |               |
| 2025 |                 | 0.35           | 4.07             | 3.72    |               |
| 2026 |                 | 0.35           | 4.07             | 3.72    |               |
| 2027 |                 | 0.35           | 4.07             | 3.72    |               |
| 2028 |                 | 0.35           | 4.07             | 3.72    |               |
| 2029 |                 | 0.35           | 4.07             | 3.72    |               |
| 2030 |                 | 0.35           | 4.07             | 3.72    |               |

| <b>Year</b> | <b>Investment Cost</b> | <b>Recurrent Cost</b> | <b>Economic Benefit</b> | <b>Total</b> | <b>EIRR</b> |
|-------------|------------------------|-----------------------|-------------------------|--------------|-------------|
| 2031        |                        | 0.35                  | 4.07                    | 3.72         |             |
| 2032        |                        | 0.35                  | 4.07                    | 3.72         |             |
| 2033        |                        | 0.35                  | 4.07                    | 3.72         |             |
| 2034        |                        | 0.35                  | 4.07                    | 3.72         |             |

( ) = negative, EIRR = economic internal rate of return

Source: Asian Development Bank estimates.

11. Details on the economic benefits are provided in Supplementary Document 15 (accessible from the list of linked documents in Appendix 2 of the Report and Recommendation of the President to the Board of Directors).