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Investing in rural people

**President's memorandum  
Proposed additional financing to the  
Kingdom of Tonga for the  
Tonga Rural Innovation Project – Phase II  
(TRIP II)**

Project ID: 2000001197

**Note to Executive Board representatives**

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**For: Approval**

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## Appendices

- I. Updated logical framework incorporating additional financing
- II. Updated summary of the economic and financial analysis

|                               |                             |
|-------------------------------|-----------------------------|
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## **Abbreviations and acronyms**

|          |   |
|----------|---|
| CADP     | community agricultural development plan                   |
| CDP      | community development plan                                |
| DSF      | Debt Sustainability Framework                             |
| EIRR     | economic internal rate of return                          |
| HIES     | Household Income and Expenditure Survey                   |
| LPA      | lead project agency                                       |
| M&E      | monitoring and evaluation                                 |
| MAFFF    | Ministry of Agriculture, Food, Forests and Fisheries      |
| MFNP     | Ministry of Finance and National Planning                 |
| MORDI TT | Mainstreaming of Rural Development Innovation Tonga Trust |
| PBAS     | performance-based allocation system                       |
| PMU      | project management unit                                   |
| SIDS     | Small Island Developing State                             |
| TRIP     | Tonga Rural Innovation Project                            |

## Financing summary

|  |   |
|--|---|
| <b>Initiating institution:</b>             | IFAD  |
| <b>Borrower/Recipient:</b>                 | The Kingdom of Tonga  |
| <b>Executing agency:</b>                   | Ministry of Finance and National Planning (MFNP)  |
| <b>Total project cost:</b>                 | US\$11.785 million  |
| <b>Amount of original IFAD financing:</b>  | SDR 1.09 million<br>(equivalent to approximately US\$1.5 million) loan<br>SDR 1.09 million<br>(equivalent to approximately US\$1.5 million) grant |
| <b>Terms of original IFAD financing:</b>   | 50 per cent Debt Sustainability Framework (DSF) grant and 50 per cent loan on highly concessional terms   |
| <b>Amount of additional DSF grant:</b>     | US\$3.6 million   |
| <b>Amount of additional IFAD loan</b>      | US\$0.9 million   |
| <b>Terms of additional IFAD financing:</b> | 80 per cent DSF grant and 20 per cent loan on highly concessional terms   |
| <b>Contribution of borrower/recipient:</b> | US\$2.85 million  |
| <b>Contribution of beneficiaries:</b>      | US\$1.43 million  |
| <b>Appraising institution:</b>             | IFAD  |
| <b>Cooperating institution:</b>            | Directly supervised by IFAD   |

## Recommendation for approval

The Executive Board is invited to approve the recommendation for the proposed additional financing contained in paragraph 47.

### I. Background and project description

#### A. Background

1. The Government of Tonga has formally requested IFAD to extend additional financing to bridge the financing gap identified in the Tonga Rural Innovation Project – Phase II (TRIP II) when originally approved. The approval of the recommendation for the proposed additional financing would fully resource TRIP II and allow for full implementation of the project as designed.
2. TRIP II was approved by the Executive Board on 19 August 2017 ([EB 2017/LOT/P.7](#)), and entered into force on 23 February 2018, with completion and closing dates of 31 March 2023 and 30 September 2023 respectively. The financing plan for the five-year project, as originally appraised, amounts to US\$10.91 million, consisting of:
  - (i) an IFAD loan of US\$1.5 million;
  - (ii) a Debt Sustainability Framework (DSF) grant of US\$1.5 million;
  - (iii) a financing gap of US\$3.76 million;
  - (iv) a government contribution of US\$2.7 million; and
  - (v) beneficiary contributions estimated at US\$1.4 million.
3. The additional financing of US\$4.5 million sought by the Government is to be provided on IFAD's current DSF terms of 80 per cent grant and 20 per cent highly concessional loan. A slight increase in financing, beyond the originally identified financing gap, reflects the need to enhance disaster preparedness based on lessons learned from Cyclone Gita, which hit Tonga in February 2018. The amount requested would utilize the entire performance-based allocation system (PBAS) allocation for Tonga for the Eleventh Replenishment of IFAD's Resources (IFAD11).

#### B. Original project description

4. The **project goal** is to contribute to improved and resilient livelihoods for Tonga's rural population, and the **development objective** is to enable communities to plan and manage resilient infrastructure and livelihood activities while addressing food security and nutrition. This objective is to be achieved through:
  - (i) **Community development**, to increase communities' capacity to manage resilient infrastructure built to required standards (US\$2.94 million).
  - (ii) **Sustainable economic livelihoods**, to increase the resilience of economic livelihoods through climate-smart, nutrition-sensitive agricultural production systems and handicrafts (US\$3.97 million).
  - (iii) **Project management and coordination**, to enhance capacity for implementing and monitoring project activities (US\$4.88 million).

### II. Rationale for additional financing

#### A. Rationale

5. The main rationale for the additional financing request is to fully resource TRIP II and allow for its full implementation as originally approved by the Executive Board. The project's goal, objectives and components, as well as its implementation and financial arrangements, will remain unchanged from the approved original

- financing. The original completion and closing dates will also be maintained. With additional financing, the Government will be able to draw on the IFAD11 PBAS to deliver all project activities and results targets – ensuring full coverage of the geographical area of 122 communities within the project period, and reaching the original target of 5,190 households.
6. The Ministry of Finance and National Planning (MFNP), in its function of executing agency for TRIP II, commissioned a not-for-profit civil society organization – Mainstreaming of Rural Development Innovation Tonga Trust (MORDI TT) – to implement the project. Having demonstrated its efficacy and reliability in delivering project results under TRIP I (2012-2017), MORDI TT has emerged as the Government's main civil society partner for rural community development. It was thus called upon to lead the response to Cyclone Gita in rural areas, with support from the respective Governments of Australia and New Zealand, the European Civil Protection and Humanitarian Aid Operations, Start Network and Oxfam.
  7. MORDI TT worked in partnership with CARE Australia and Live and Learn in the recovery phase of Cyclone Gita to support communities with shelter; repairs to water, sanitation and hygiene (WASH) infrastructure; and food security and livelihood recovery efforts. This engagement brought to light key lessons that have now been embedded into MORDI TT's development approach. These include: climate-proofing WASH infrastructure, sensitizing community plans to the needs of persons with disability, strengthening community-based institutions that are actively involved in community initiatives as they are potential future strategic partners, investing in preparedness training before cyclone season and strengthening the coordination mechanism between the community and local government level to improve the efficiency and effectiveness of service delivery to the community.
  8. Reflecting on the lessons above, and in view of the continued vulnerability of rural communities to extreme weather events, the proposed project financing is adjusted by US\$742,000 beyond the original financing gap, in order to: (i) improve disaster preparedness in communities supported by TRIP II; and (ii) build linkages with Tongans overseas, who played an important role in the response to Cyclone Gita. This support remains in line with the original project objectives, leverages the community planning approach successfully demonstrated in TRIP I, and delivers on IFAD's commitment to expand its tailored support in Small Island Developing States (SIDS).
  9. Implementation progress in the first year of TRIP II has been satisfactory, despite disruption and delays caused by Cyclone Gita.<sup>1</sup> As part of the community participatory planning in 40 communities in Tongatapu, TRIP II has already trained over 4,900 women and 4,500 men in community planning. Thirty community development plans (CDPs) have been completed, setting the stage for activating the sustainable economic livelihoods component in year 2.
  10. Notwithstanding the good progress in implementation, TRIP II's first supervision mission reported challenges related to financial management, and to high turnover of staff, and a gap in monitoring and evaluation (M&E) leadership. With respect to financial management, in April 2019, the project management unit (PMU) accelerated expenditures and has processed two additional withdrawal applications since the IFAD project supervision mission. It introduced an automated accounting system and the rating for financial management has been upgraded.

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<sup>1</sup> Tropical Cyclone Gita made landfall in the islands of Tongatapu and 'Eua on 12 February 2018. The total economic value of the damage was estimated at US\$164 million, equivalent to 37.8 per cent the GDP of Tonga. MORDI TT delivered shelters, responded with water and sanitation investments, and helped rebuild homes and rural infrastructure. This has been important in assisting rural communities targeted by TRIP II to accelerate their recovery, but the attention required has slowed the start-up of TRIP II.

11. With respect to staffing and M&E, the PMU has now managed to fill most vacant positions and has close to a full contingent of staff. The PMU is head-hunting candidates for the roles of procurement officer and M&E manager. Short-term experts are being engaged to provide support while the recruitment process is in progress. The PMU plans to undertake training and awareness-raising on M&E responsibilities with project stakeholders including community committees, district officers, town officers, community facilitators and agricultural extension officers. This will include training on how to complete the monitoring reports and the type of information to be collected.

## **B. Description of geographic area and target groups**

12. **Project area and the target group.** The project targets rural women, men and youth: an estimated 28,650 people in 5,190 households across 122 communities. The following six island groups are targeted: Vava'u, Ha'apai, Tongatapu, 'Eua, Niufo'ou and Niuatoputapu. This includes almost all of the 22 per cent of households identified as poor by the 2009 household income and expenditure survey. The focus of interventions is on marginalized rural communities characterized by:
  - (a) vulnerability to the impact of climate change and natural disasters;
  - (b) poor access to all types of services;
  - (c) high levels of poverty; and
  - (d) limited market for rural produce.
13. While not all the project participants are poor, the project is guided by specific technical, institutional and economic prerequisites, tested under TRIP I, that ensure that communities are prepared to adopt inclusive and equitable methods. Self-targeting features underpin the project's support for economic activities. Furthermore, economic activities under component 2 will be geographically targeted to prioritize 60 remote and poor outer islands that have completed the community planning process, as per the targeting approach specified under the approved original financing.

## **C. Components/outcomes and activities**

14. **Component 1: Community development** aims to enhance community infrastructure and ensure that it is built to required climate-resilient standards. This is a continuation of TRIP I's component 1 and seeks to expand coverage across the country by the end of TRIP II. Subcomponent 1.1 supports the participatory preparation of CDPs. Subcomponent 1.2 will draw on the CDPs for the construction, operation and maintenance of priority small-scale economic infrastructure.
15. **Component 2: Sustainable economic livelihoods** aims to enhance economic livelihoods through climate-smart, nutrition-sensitive agricultural production systems. Subcomponent 2.1 will support the development of community agricultural development plans (CADPs) responding to economic livelihoods selected by community members. Subcomponent 2.2 will support farmers engaged in sustainable economic livelihoods through climate-resilient practices to:
  - (i) improve agroforestry-based food production systems and demonstration farms;
  - (ii) manage more productive homestead gardens;
  - (iii) support agroforestry production of raw materials for crafts; and
  - (iv) construct weaving halls for women.
16. **Component 3: Project management and coordination** provides support for project implementation, monitoring and strengthening of service delivery.

## D. Benefits, costs and financing

### Project costs

17. The total project cost is estimated at US\$11.785 million over a five-year implementation period. Indicative component costs are detailed in table 2. Indicative project costs by expenditure category and financier are provided in table 3. Physical and price contingencies amount to 4 per cent and 3 per cent of base costs, respectively.

Table 1

#### Original and additional financing summary

(Thousands of United States dollars)

|                             | <i>Original financing</i> | <i>Additional financing</i> | <i>Total</i>  |
|-----------------------------|---------------------------|-----------------------------|---------------|
| IFAD loan                   | 1 498                     | 900                         | 2 398         |
| IFAD DSF grant              | 1 498                     | 3 600                       | 5 098         |
| Beneficiaries (Communities) | 1 428                     | 3                           | 1 431         |
| Borrower/counterpart        | 2 730                     | 125                         | 2 854         |
| Financing gap: IFAD         | 3 758                     | (3 758)                     | -             |
| <b>Total</b>                | <b>10 911</b>             | <b>870</b>                  | <b>11 781</b> |

### Financing and cofinancing strategy and plan

18. Tonga is now classified as "red" under the DSF. Accordingly, IFAD funding will be provided in the form of a grant of US\$3.6 million (80 per cent of the additional financing) and a loan of US\$0.9 million (20 per cent of the additional financing) on highly concessional terms.
19. The total project cost of US\$11.785 million will be financed by: (i) IFAD, for a total amount of US\$7.5 million (63.7 per cent of total costs); (ii) beneficiary contributions of US\$1.43 million (12.1 per cent of total cost); and (iii) a Government contribution of US\$2.85 million (24.2 per cent of total costs).

### Disbursement

20. The financial management and disbursement arrangements for the additional financing will mirror those of the original project. A designated account in United States dollars has been opened by the MFNP to receive the loan and grant funding from IFAD. A project account in local currency has also been opened by the lead project agency (LPA) to cover day-to-day transactions, based on approved annual workplans and budgets (AWPBs) and relevant financial information. Disbursement procedures will be updated in an amendment to the letter to the recipient.

### Summary of benefits and economic analysis

21. The project benefits a total of 28,650 persons in 5,190 households. Benefits will derive from: (i) reduced losses, including lower repair costs and transport and communication costs associated with climate-resilient infrastructure; (ii) increased household incomes from agriculture and craft production; (iii) better organized communities, more inclusive development, and higher quality of life in remote communities; and (iv) improved food security and nutrition.
22. The economic internal rate of return (EIRR) for the project is estimated to be 20 per cent. Sensitivity analysis on variations in costs and benefits indicates robustness in economic returns: an increase in costs of up 30 per cent decreases the EIRR to 16 per cent, as does a two-year delay in benefits. A decrease in benefits of 20 per cent would reduce the EIRR to 17 per cent, while an increase in benefits of 20 per cent results in an EIRR of 22 per cent.



Table 2

**Additional financing: Project costs by component (and subcomponent) and financier**

(Thousands of United States dollars)

| Component/subcomponent                        | Additional financing |             |                |             | Additional    |            |                |            | Total            |              |
|---|----------------------|-------------|----------------|-------------|---------------|------------|----------------|------------|------------------|--------------|
|   | IFAD DSF grant       |             | IFAD loan      |             | Beneficiaries |            | Government     |            |                  |              |
|   | Amount               | %           | Amount         | %           | Amount        | %          | Amount         | %          | Amount           | %            |
| <b>1. Community development</b>               |                      |             |                |             |               |            |                |            |                  |              |
| 1.1 Community development plans               | 337 515              | 79.2        | 84 379         | 19.8        | -             | 0.0        | 4 303          | 1.0        | 426 197          | 9.2          |
| 1.2 Resilient community infrastructure        | 900 917              | 79.1        | 225 229        | 19.8        | 921           | 0.1        | 12 359         | 1.1        | 1 139 426        | 24.6         |
| <b>Subtotal</b>                               | <b>1 238 432</b>     | <b>79.1</b> | <b>309 608</b> | <b>19.8</b> | <b>921</b>    | <b>0.1</b> | <b>16 662</b>  | <b>1.1</b> | <b>1 565 623</b> | <b>33.8</b>  |
| <b>2. Sustainable economic livelihoods</b>    |                      |             |                |             |               |            |                |            |                  |              |
| 2.1 Community agriculture development plans   | 71 119               | 79.0        | 17 780         | 19.8        | -             | 0.0        | 1 100          | 1.2        | 89 998           | 1.9          |
| 2.2 Sustainable economic livelihoods          | 885 453              | 78.4        | 221 363        | 19.6        | 2 079         | 0.2        | 19 932         | 1.8        | 1 128 828        | 24.4         |
| <b>Subtotal</b>                               | <b>956 572</b>       | <b>78.5</b> | <b>239 143</b> | <b>19.6</b> | <b>2 079</b>  | <b>0.2</b> | <b>21 032</b>  | <b>1.7</b> | <b>1 218 826</b> | <b>26.3</b>  |
| <b>3. Project management and coordination</b> | <b>1 404 996</b>     | <b>76.2</b> | <b>351 249</b> | <b>19.1</b> | <b>-</b>      | <b>0.0</b> | <b>87 305</b>  | <b>4.7</b> | <b>1 843 550</b> | <b>39.8</b>  |
| <b>Total</b>                                  | <b>3 600 000</b>     | <b>77.8</b> | <b>900 000</b> | <b>19.4</b> | <b>3 000</b>  | <b>0.1</b> | <b>125 000</b> | <b>2.7</b> | <b>4 627 999</b> | <b>100.0</b> |

Table 3

**Additional financing: Project costs by expenditure category and financier**

(Thousands of United States dollars)

|                               | Additional financing |             |                |             | Additional   |            |                |            | Total            |              |
|-------------------------------|----------------------|-------------|----------------|-------------|--------------|------------|----------------|------------|------------------|--------------|
|                               | IFAD DSF Grant       |             | IFAD Loan      |             | Communities  |            | Government     |            |                  |              |
|                               | Amount               | %           | Amount         | %           | Amount       | %          | Amount         | %          | Amount           | %            |
| <b>I. Investment costs</b>    |                      |             |                |             |              |            |                |            |                  |              |
| A. Works                      | 1 618 891            | 79.1        | 404 723        | 19.8        | 3 000        | 0.1        | 19 970         | 1.0        | 2 046 583        | 44.2         |
| B. Equipment and materials    | -                    | 0.0         | -              | 0.0         | -            | 0.0        | 448            | 100.0      | 448              | 0.0          |
| C. Vehicles                   | -                    | 0.0         | -              | 0.0         | -            | 0.0        | 286            | 100.0      | 286              | 0.0          |
| D. Goods, services and inputs | 167 709              | 78.8        | 41 927         | 19.7        | -            | 0.0        | 3 296          | 1.5        | 212 932          | 4.6          |
| E. Training                   | 331 461              | 79.0        | 82 865         | 19.7        | -            | 0.0        | 5 349          | 1.3        | 419 675          | 9.1          |
| F. Workshops                  | 35 914               | 78.7        | 8 978          | 19.7        | -            | 0.0        | 763            | 1.7        | 45 655           | 1.0          |
| G. Consultancies              | 322 291              | 79.1        | 80 573         | 19.8        | -            | 0.0        | 4 735          | 1.2        | 407 599          | 8.8          |
| <b>Subtotal</b>               | <b>2 476 266</b>     | <b>79.0</b> | <b>619 067</b> | <b>19.8</b> | <b>3 000</b> | <b>0.1</b> | <b>34 845</b>  | <b>1.1</b> | <b>3 133 178</b> | <b>67.7</b>  |
| <b>II. Recurrent costs</b>    |                      |             |                |             |              |            |                |            |                  |              |
| Salaries and allowances       | 931 737              | 74.4        | 232 934        | 18.6        | -            | 0.0        | 87 305         | 7.0        | 1 251 976        | 27.1         |
| Operating costs*              | 191 997              | 79.1        | 47 999         | 19.8        | -            | 0.0        | 2 850          | 1.2        | 242 846          | 5.2          |
| <b>Subtotal</b>               | <b>1 123 734</b>     | <b>75.2</b> | <b>280 933</b> | <b>18.8</b> | <b>-</b>     | <b>0.0</b> | <b>90 154</b>  | <b>6.0</b> | <b>1 494 822</b> | <b>32.3</b>  |
| <b>Total</b>                  | <b>3 600 000</b>     | <b>77.8</b> | <b>900 000</b> | <b>19.4</b> | <b>3 000</b> | <b>0.1</b> | <b>125 000</b> | <b>2.7</b> | <b>4 627 999</b> | <b>100.0</b> |

\* Includes utilities, vehicle operating costs, travel and meetings, audit, insurance and bank charges.

Table 4

**Project costs by component and project year (PY)**

(Thousands of United States dollars)

|   | <i>Totals including contingencies</i> |                  |                  |                  |                | <i>Total</i>      |
|---|---------------------------------------|------------------|------------------|------------------|----------------|-------------------|
|   | <i>2018</i>                           | <i>2019</i>      | <i>2020</i>      | <i>2021</i>      | <i>2022</i>    |                   |
| <b>1. Community development</b>               |                                       |                  |                  |                  |                |                   |
| 1.1 Community development plans:              | 131 959                               | 225 017          | 224 546          | 118 173          | -              | 699 694           |
| 1.2 Resilient community infrastructure:       | -                                     | 975 153          | 998 293          | 250 202          | 16 653         | 2 240 301         |
| <b>Subtotal</b>                               | <b>131 959</b>                        | <b>1 200 170</b> | <b>1 222 839</b> | <b>368 375</b>   | <b>16 653</b>  | <b>2 939 995</b>  |
| <b>2. Sustainable economic livelihoods</b>    |                                       |                  |                  |                  |                |                   |
| 2.1 Community agriculture development plans   | 31 225                                | 47 509           | 57 592           | 46 995           | -              | 183 320           |
| 2.2 Sustainable economic livelihoods          | 914 671                               | 1 378 944        | 1 490 086        | -                | -              | 3 783 701         |
| <b>Subtotal</b>                               | <b>945 896</b>                        | <b>1 426 453</b> | <b>1 547 678</b> | <b>46 995</b>    | <b>-</b>       | <b>3 967 021</b>  |
| <b>3. Project management and coordination</b> | <b>1 043 077</b>                      | <b>907 646</b>   | <b>995 777</b>   | <b>986 587</b>   | <b>944 488</b> | <b>4 877 575</b>  |
| <b>Total</b>                                  | <b>2 120 932</b>                      | <b>3 534 269</b> | <b>3 766 293</b> | <b>1 401 957</b> | <b>961 140</b> | <b>11 784 591</b> |

**Exit strategy and sustainability**

23. IOE's project completion report validation for TRIP I found that the sustainability of project benefits for households was substantial. TRIP II will replicate and improve effective approaches for sustaining better livelihoods of vulnerable rural communities by: (i) assisting beneficiaries in community and household planning and prioritization processes; (ii) involving beneficiaries in development, financing, operation and maintenance of community economic infrastructure, and sustainable livelihood investments; (iii) linking beneficiaries with markets, microfinance services and improved farmer field schools and agricultural extension services; and (iv) embedding participatory and learning methods in CDPs, CADPs and government processes and systems.
24. MORDI TT is an independent NGO that has acquired significant experience and recognition through successful implementation of the first phase of TRIP. The fact that the Government has agreed to partner with civil society organizations to deliver TRIP II remains innovative in the Tongan context: through this mechanism, the Government is leveraging broader experiences and capabilities in grass-roots mobilization, limiting political influence, applying performance-based incentives, mobilizing qualified personnel outside of the government civil service, and securing demonstrated improvements in efficacy of project delivery, execution and reporting. The project will ensure that this relationship is developed further so that by completion the capacity to support and develop Tonga's rural sector is enhanced and embedded in national systems.

**III. Risk management****A. Project risks and mitigation measures**

25. TRIP II is considered a relatively low-risk investment, as the design scales up a proven approach to supporting the development of remote rural communities. The main risks relate to: (i) remoteness, and transport and communication obstacles; (ii) limited sources of finance for community economic infrastructure and sustainable livelihoods; (iii) a declining population (including migration of youth and able-bodied people); (iv) non-conducive land tenure systems, under which land allotments are allocated to elder male heirs and are often underutilized; (v) climate change impact, including extreme weather events; (vi) MORDI TT staff retention; (vii) fiduciary risk relating to adherence to financial management and procurement processes; and (viii) inability of the Ministry of Agriculture, Food, Forests and Fisheries (MAFFF) to fulfil its role of providing extension officers for farmer field schools and related extension activities. Mitigation strategies have been developed during the design and include: (i) realistically designed activities and targets; (ii) specific targeting of income-generating activities;

(iii) capacity-building and awareness-raising; (iv) strengthened project management and collaboration with relevant government agencies; and (v) financial management and procurement arrangements to mitigate fiduciary risk.

## **B. Environment and social category**

26. IFAD's Environmental and Social Assessment Procedures confirm that the project is rated as "Category B". Appropriate measures for screening community and livelihood investments are built into the project and there will be strict adherence with the environmental impact assessment requirements of the Ministry of Lands, Survey and Natural Resources. In addition, as Tonga is rated as "high" for climate risks, the designs of development activities for components 1 and 2 are underpinned with climate-smart and resilient interventions that reduce the risk of climatic events impacting on project outcomes.
27. Concerning social aspects, the project has been designed with implementation procedures specifically tailored to maximize engagement and reach to rural communities, including 22 per cent of the communities identified as poor by the 2009 household income and expenditure survey. The CDPs enhance social and human capital by addressing the sectors of nutrition, health, education and agriculture; and by applying participatory and socially inclusive approaches for formulation and implementation of CDPs. Communities will be empowered through building their capacity for self-mobilization and planning, and by the possibility of taking on board development solutions built on household livelihood assets across extended family networks, thus enabling households to combine agricultural production, employment, migration and remittance incomes.
28. TRIP II supports an inclusive approach to targeting, with particular attention paid to poor rural women and youth. The focus on women and youth is motivated more by their vulnerability and traditional exclusion from decision-making than their relative poverty. The project uses the TRIP I approach to community mobilization, which targets women and youth directly and supports the prioritization of their concerns in CDPs. TRIP II uses socially and culturally appropriate gender mainstreaming and empowerment approaches, drawing on the successful experience of TRIP I to enable women to fill decision-making and planning roles.

## **C. Climate risk classification**

29. Both the original and the new climate risk categories for the project are high. This reflects the fact that Tonga is regularly rated among the nations with the highest level of risk to disasters, with the effects of climate change increasing their frequency and intensity. This poses serious threats to people, the environment and livelihoods in Tonga – especially for communities on the outer islands.
30. In recognition of the high vulnerability of rural communities to extreme climate events, component 1 of TRIP II includes climate risk screening and consideration of alternatives before project activities are implemented. Consideration of climate change and adaptation is an explicit part of component 2, which draws from the climate resilience focus of objectives 1 and 3 in the Tonga Agriculture Sector Plan 2016-2020. New features to strengthen community understanding and implementation of activities that build climate resilience include: (i) development of community agriculture development plans that are founded on climate resilience baselines;<sup>2</sup> and (ii) development and implementation of a farmer field school programme, which will build the capacity of MAFFF and other extension providers in relation to climate-resilient agriculture, for delivery to all project communities.

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<sup>2</sup> This includes village mapping to identify key resources and project activity locations, and to guide communities in their planning to reduce risks; development of baseline data for monitoring (e.g. soil testing, crop diversity by crop type); and development of a simple cost-benefit analysis framework.

## **IV. Implementation**

### **A. Compliance with IFAD policies**

31. TRIP II is fully aligned with the goals and objectives of the IFAD Strategic Framework 2016-2025, IFAD's approach in SIDS, and other relevant policies and strategies, including those for targeting, gender equality and women's empowerment, environment and natural resource management, and climate change. In addition, TRIP II has developed an explicit scaling up pathway – an area of strategic importance to IFAD.

### **B. Organizational framework**

#### **Project management and coordination**

32. The project adopts the same implementation arrangements that functioned effectively under TRIP I, with some adjustments in targeting and approach based on learning. The MFNP is the representative of the borrower/recipient. MORDI TT will be the LPA. MORDI TT will establish a dedicated PMU to support project implementation, and provide periodic and ad hoc reports to MFNP.
33. This arrangement is based on an assessment of MORDI TT's implementation capacity and an institutional review undertaken at design. MORDI TT's implementation of TRIP I: (i) was cost-effective and cost-efficient; (ii) developed a credible reputation with non-governmental and government agencies (mainstreaming of the CDP planning process in national government planning processes) – evidenced by the interest expressed by development partners in funding the priorities identified in the CDPs; (iii) was instrumental in introducing the concept of CDPs as national policy; (iv) spearheaded the use of town officers as local development agents; and (v) demonstrated strong results after introducing a systematic process for community-level planning and development implementation.
34. TRIP II will continue to use a project review and appraisal committee to simultaneously screen, discuss and accept or reject community proposals against eligibility criteria. A project advisory committee (PAC) will be established to advise in areas of governance, policy, networking with other organizations and strategic project overview. The committee will include a representative each from MFNP, MAFFF, the National Reserve Bank of Tonga, the Tonga Chamber of Commerce and Industry, and civil society organizations. Committee responsibilities will cover: (i) reviewing AWPBs; (ii) overseeing six-monthly reviews in cooperation with IFAD's supervision missions; (iii) promoting cooperation and coordination between regional and national government and non-government agencies; (iv) identifying evidence-based policy issues for dialogue among partners; and (v) ensuring project management transparency and accountability.

#### **Financial management, procurement and governance**

35. MFNP will be the representative of the borrower/recipient for the project, with responsibility for approving the AWPB after the endorsement of the PAC. It will have overall accountability for the project, including fiduciary aspects. MORDI TT as the LPA, through a memorandum of understanding with MFNP, will be responsible for day-to-day financial management activities, including accounting, reporting and coordinating audit processes.
36. The inherent fiduciary risk is considered medium in Tonga. Project fiduciary risk was also assessed as medium during design. Measures to mitigate this risk in TRIP II include: (i) retention of TRIP I finance staff, subject to performance assessment; (ii) hiring of additional dedicated finance and procurement staff; (iii) improvement of the existing TRIP I finance and administration manual, with detailed accounting, procurement and documentation management processes; (iv) an automated accounting system and associated training; (v) interim financial reporting submitted to MFNP and IFAD; (vi) periodic compliance audits by the Tonga Office of the Auditor General, reported to MFNP and IFAD, with a focus on reviews of

internal controls and procurement documentation; (vii) audit reports provided to MFNP and IFAD; and (viii) quarterly internal audits by the internal audit office of MFNP.

37. The financial statements for TRIP II will be prepared by MORDI TT on a cash accounting basis, supplemented as necessary by additional data so as to ensure the minimum disclosure under international accounting standards.
38. TRIP II will be audited by a private auditor in line with International Standards on Auditing.
39. **Procurement** will be undertaken according to national procurement rules and regulations to the extent that these are consistent with IFAD's project procurement guidelines. The Government of Tonga updated its public procurement regulations in 2015. As procurement capacity has been identified as a risk, additional specialist human resources will be recruited to support the procurement process.
40. **Governance.** The Government has taken steps to promote qualities of good governance, accountability, transparency, anticorruption, security and rule of law. It is continuing with reform efforts made under the Economic Public Sector Reform Program to improve the effective provision of government services by focusing on three areas of public sector management – public administration, financial management and enterprise reform. To ensure effective governance, the project will incorporate the following measures, to be monitored through a good governance framework: (i) information transparency; (ii) training and capacity-building; (iii) a complaint mechanism for community members; (iv) enhanced supervision and monitoring; and (v) zero tolerance towards fraud and corruption.

### **C. Monitoring and evaluation, learning, knowledge management and strategic communication**

41. **Monitoring and evaluation.** The M&E system will monitor physical and financial progress, as well as progress towards project objectives, and will serve as a key management tool. Inputs, outputs, process and outcomes will be monitored in accordance with logical framework indicators based on the financial management system, staff reports and surveys. Special studies will complement this information through in-depth analysis of topics such as: (i) success factors in mobilizing and motivating youth; and (ii) strategies for investing remittances in productive local business opportunities. The PMU will collect baseline data in each targeted community, in accordance with IFAD's core indicators and the Development Effectiveness Framework. All data will be disaggregated by sex and age.
42. **Knowledge management.** Knowledge management (KM) includes: (i) interaction and engagement with target communities and implementation partners in planning, implementation, monitoring and reporting; (ii) establishing an M&E framework that provides information and analysis for management decision-making against logical framework indicators and AWPBs; (iii) ensuring that knowledge and results are documented and shared with all stakeholders; and (iv) continuing the close relationship between MORDI TT and IFAD on a broad range of KM activities. An addition to TRIP II is a focus on building partnerships, including complete and timely information provision to key stakeholders and partners.

### **D. Proposed amendments to the financing agreement**

43. The financing agreement will be revised in terms of amount, as per table 3. There are no other changes to the financing agreement.

## **V. Legal instruments and authority**

44. A financing agreement between the Kingdom of Tonga and IFAD will constitute the legal instrument for extending the proposed financing to the borrower/recipient. The signed financing agreement will be amended following approval of the additional financing.
45. The Kingdom of Tonga is empowered under its laws to receive financing from IFAD.
46. I am satisfied that the proposed additional financing will comply with the Agreement Establishing IFAD and the Policies and Criteria for IFAD financing.

## **VI. Recommendation**

47. I recommend that the Executive Board approve the proposed additional financing in terms of the following resolution:

RESOLVED: that the Fund shall provide a grant under the Debt Sustainability Framework to the Kingdom of Tonga in an amount of three million six hundred thousand United States dollars (US\$3,600,000) and upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented herein.

RESOLVED FURTHER: that the Fund shall provide a loan on highly concessional terms to the Kingdom of Tonga in an amount of nine hundred thousand United States dollars (US\$900,000) and upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented herein.

Gilbert F. Hougbo  
President

# Updated logical framework incorporating the additional financing

| Results Hierarchy  | Indicators  |          |          |            | Means of Verification   |                                    |  | Assumptions (A) / Risks (R)   |
|--|---|----------|----------|------------|---|------------------------------------|--|---|
|  | Name  | Baseline | Mid-Term | End Target | Source  | Frequency                          | Responsibility   |   |
| <b>Outreach</b>  | <b>1.a Corresponding number of households reached</b>   |          |          |            | Progress Report   | Annual                             | Project  |   |
|  | Women-headed households - Number  | 1 450    | 725      | 1 320      |   |                                    |  |   |
|  | <b>1 Persons receiving services promoted or supported by the project</b>  |          |          |            |   |                                    |  |   |
|  | <b>Adult</b>  |          |          |            |   |                                    |  |   |
|  | <i>Males - Number</i>   | 7 965    | 3 983    | 7 965      |   |                                    |  |   |
|  | <i>Females - Number</i>   | 8 646    | 4 323    | 8 646      |   |                                    |  |   |
|  | <b>Young</b>  |          |          |            |   |                                    |  |   |
| <i>Males - Number</i>  | 3 390   | 1 695    | 3 390    |            |   |                                    |  |   |
| <i>Females - Number</i>  | 3 294   | 1 647    | 3 391    |            |   |                                    |  |   |
| <b>Children</b>  |   |          |          |            |   |                                    |  |   |
| <i>Males - Number</i>  | 8 043   | 4 022    | 3 393    |            |   |                                    |  |   |
| <i>Females - Number</i>  | 7 438   | 3 719    | 3 394    |            |   |                                    |  |   |
| <b>Project Goal</b><br>Contribute to improved and resilient livelihoods for Tonga's rural population   | <b>Improvement in household assets ownership index</b>  |          |          |            | Impact surveys, 2016 HIES, EOP surveys, Focused group discussions (FGDs), Case studies  | Beginning and End of Project (EOP) | Project Mgmt. Unit (PMU), Government of Tonga (Government) | No major changes in Government of Tonga's Strategic Development Framework (2015 - 2025).  |
|  | Households - Percentage (%)   | 0        | 80       | 80         |   |                                    |  |   |
|  | <b>Increased ability of people to manage environmental and climate-related risks</b>  |          |          |            |   |                                    |  |   |
|  | <i>Males - Number</i>   | 19 398   |          |            |   |                                    |  |   |
| <i>Females - Number</i>  | 19 378  |          |          |            |   |                                    |  |   |
| Households - Number  | 6 384   |          | 4 152    |            |   |                                    |  |   |
| <b>Development Objective</b><br>Communities are enabled to plan and manage resilient infrastructure and livelihood activities (including addressing food security and nutrition) | <b>3.2.2 Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices</b>  |          |          |            | Progress Reports  | EOP                                | PMU  | Communities are willing to participate in innovative forms of planning and support, and to contribute to their development - infrastructure and livelihoods. MAFFF is prepared to cooperate with TRIP II at central, district and village levels. |
|  | Households - Percentage (%)   | 0        | 80       | 80         |   |                                    |  |   |
|  | Households - Number   | 6 384    |          |            |   |                                    |  |   |
|  | <b>1.2.1 Households reporting improved access to land, forests, water or water bodies for production purposes</b>   |          |          |            | Construction supervision and inspection reports, mid-term and EOP surveys, FGDs, case studies, FFS Project Reports                  | EOP                                | PMU  |   |
|  | Households reporting improved access to land - Percentage (%)   | 0        | 80       | 80         |   |                                    |  |   |
|  | Households reporting improved access to forests - Percentage (%)  | 0        | 80       | 80         |   |                                    |  |   |
|  | Households reporting improved access to water - Percentage (%)  | 0        | 4 152    | 4 152      |   |                                    |  |   |
|  | Total no. of households reporting improved access to land - Number  | 2 365    | 4 152    | 4 152      |   |                                    |  |   |
|  | Total no. of households reporting improved access to forests - Number   | 2 365    | 4 152    | 4 152      |   |                                    |  |   |
|  | Total no. of households reporting improved access to water - Number   | 0        | 4 152    | 4 152      |   |                                    |  |   |
| <b>Outcome</b><br>Increased community capacity to manage resilient infrastructure built to required standards  | <b>2.2.6 Households reporting improved physical access to markets, processing and storage facilities</b>  |          |          |            | Mid-Term and EOP surveys, FGDs (gender disaggregated), case studies, gender studies on community planning, study on youth inclusion | Annual and Mid-term and EOP        | PMU  | MIA and MAFFF officials and technical staff willing to support plan preparation. Communities prepared to participate in planning. Communities willing to make in-kind and/or cash contributions for development of economic                       |
|  | Households reporting improved physical access to markets - Percentage (%)   | 0        | 80       | 80         |   |                                    |  |   |
|  | Households reporting improved physical access to processing facilities - Percentage (%)   | 0        | 80       | 80         |   |                                    |  |   |
|  | Households reporting improved physical access to storage facilities - Percentage (%)  | 0        | 80       | 80         |   |                                    |  |   |
| <b>Output</b><br>1.1 Community Development Plans (CDP)   | <b>Number people trained in community management topics (RIMS) - Town and District Officers (TOs, DOs), Community Members (CM), and Community Facilitators (CF)</b> |          |          |            | Project/training records, gender study to track women's participation, survey on youth inclusion                                    | Biannual                           | PMU  |   |
|  | DOs - Number of people  | 19       | 19       | 19         |   |                                    |  |   |
|  | TOs - Number of women   | 0        |          |            |   |                                    |  |   |

| Results Hierarchy   | Indicators   |          |          |            | Means of Verification  |                             |                | Assumptions (A) / Risks (R)  |
|---|--|----------|----------|------------|--|-----------------------------|----------------|--|
|   | Name   | Baseline | Mid-Term | End Target | Source   | Frequency                   | Responsibility |  |
|   | TOs - Number of men  | 0        |          |            |  |                             |                | infrastructure.<br>Communities willing to maintain economic infrastructure.<br>Communities willing to participate in self-monitoring and reporting activities.                                   |
|   | TOs - Total Number of people   | 122      | 122      | 122        |  |                             |                |  |
|   | CMs - Number of women  | 0        |          |            |  |                             |                |  |
|   | CMs - Number of men  | 0        |          |            |  |                             |                |  |
|   | CMs - Total Number of people   | 18 693   | 14 954   | 18 693     |  |                             |                |  |
|   | CFs - Total  | 0        | 60       | 122        |  |                             |                |  |
|   | CFs - Number of men  | 0        | 36       | 73         |  |                             |                |  |
|   | CFs - Number of women  | 0        | 24       | 49         |  |                             |                |  |
|   | <b>Number of CDPs formulated and revised</b>   |          |          |            | Project Records, published CDPs  | Biannual                    | PMU            |  |
|   | New CDPs - Number  | 62       | 62       | 62         |  |                             |                |  |
| CDPs Revised - Number   | 60   | 60       | 60       |            |  |                             |                |  |
| <b>Output</b><br>1.2 Resilient community infrastructure based on CDPs   | <b>2.1.6 Small scale community infrastructure constructed or rehabilitated</b>   |          |          |            | Mid-Term and EOP surveys, CDPs, detailed grant applications, construction supervision and inspection reports, assessments as required by MoI | Biannual                    | PMU            |  |
|   | Market facilities constructed/ rehabilitated - Number  | 0        | 0        | 0          |  |                             |                |  |
|   | Processing facilities constructed/ rehabilitated - Number  | 0        | 0        | 0          |  |                             |                |  |
|   | Storage facilities constructed/ rehabilitated - Number   | 0        | 0        | 0          |  |                             |                |  |
|   | Total - market, processing or storage facilities constructed or rehabilitated  | 0        | 31       | 62         |  |                             |                |  |
|   | <b>Number of community infrastructure management committees trained</b>  |          |          |            | Mid-Term, EOP Reports, detailed grant applications, construction supervision and inspection reports  | Annual and Mid-term and EOP | PMU            |  |
|   | Committees - Number  | 0        | 30       | 62         |  |                             |                |  |
|   | Number of direct beneficiaries of community infrastructure constructed or rehabilitated                                |          |          |            |  |                             |                |  |
|   | Community members - Total beneficiaries  | 11 120   | 5 560    | 11 120     |  |                             |                |  |
|   | Community members - Women beneficiaries  | 5 560    | 2 780    | 5 560      |  |                             |                |  |
| <b>Outcome</b><br>Increased resilience of economic livelihoods based on climate-smart and nutrition-sensitive agricultural production systems | <b>1.2.2 Households reporting adoption of new/improved inputs, technologies or practices</b>                           |          |          |            | Mid-Term and EOP surveys, projects Records (FFS Coordinator Reports)   | Annual and Mid-term and EOP | PMU            | (A) MIA and MAFFF officials and technical staff are willing to support CADP preparation.<br>(A) Communities prepared to participate in planning.   |
|   | Households - Percentage (%)  | 0        | 80       | 80         |  |                             |                |  |
|   | Households - Number  | 4 152    | 4 152    | 4 152      |  |                             |                |  |
| <b>Output</b><br>2.1 Community Agricultural Development Plans (CADPs) - reflecting climate-resilient agricultural systems                     | <b>Number of people trained in climate change risks and responses for increased resilience in agricultural systems</b> |          |          |            | Annual Project Reports, mid-Term and EOP surveys, projects Records (Training Records)  | Biannual, periodic          | PMU            | (A) Communities willing to make in-kind and/or cash contributions for the development of economic livelihoods.<br>(A) Communities willing to maintain their investments in economic livelihoods. |
|   | Govt. Officials - Number of people   | 74       | 200      | 200        |  |                             |                |  |
|   | FFS - Number of people   | 0        |          | 1 200      |  |                             |                |  |
|   | FFS - Number of women beneficiaries  | 0        |          | 600        |  |                             |                |  |
|   | <b>Number of revised/updated village maps including data from village surveys, and included in CADPs</b>               |          |          |            | Projects Records, physical count of maps   | Biannual                    | PMU            |  |
| Village Maps - Number   | 0  | 60       | 60       |            |  |                             |                |  |
| <b>Output</b><br>2.2 Improved practices for increased climate resilience of agroforestry systems on households' tax allotments                | <b>3.1.1 Groups supported to sustainably manage natural resources and climate-related risks</b>                        |          |          |            | Projects/training records Focused group discussions, case studies, participatory end of FFS cycle evaluations disaggregated by gender        | Biannual, periodic          | PMU            | (A) Communities willing to participate in self-monitoring and reporting activities.<br>(A) Farmers willing to attend and participate in structured FFS activities.<br>(A) MAFFF significantly    |
|   | Groups supported - Number  | 0        | 55       | 120        |  |                             |                |  |
|   | Farmers supported - Total number   | 0        | 550      | 1 200      |  |                             |                |  |
|   | Farmers supported - Total women  | 0        |          | 600        |  |                             |                |  |
|   | <b>3.1.4 Land brought under climate-resilient practices</b>  |          |          |            | Project records (village maps), mid-Term and EOP surveys   | Biannual                    | PMU            |  |
|   | Acres of land - Model Farms  | 0        | 113      | 250        |  |                             |                |  |
| Acres of land - Cluster Farms   | 0  | 2 111    | 4 700    |            |  |                             |                |  |
| Total Acres of land – Area  | 0  | 2 224    | 4 950    |            |  |                             |                |  |



| Results Hierarchy  | Indicators  |          |          |   | Means of Verification   |           |                | Assumptions (A) / Risks (R)   |
|--|---|----------|----------|---|---|-----------|----------------|---|
|  | Name  | Baseline | Mid-Term | End Target  | Source  | Frequency | Responsibility |   |
| <b>Output</b><br>2.3 Improved practices for increased climate resilience of homestead gardens                          | <b>1.1.4 Persons trained in production practices and/or technologies</b>                            |          |          |   | Projects/training records   | Biannual  | PMU            | increases travel allowances beyond current levels. (R) MAFFF has further reductions in operational funding. |
|  | Men trained in crop - Number  | 0        | 205      | 450   |   |           |                |   |
|  | Women trained in crop - Number  | 0        | 200      | 450   |   |           |                |   |
|  | Young people trained in crop - Number   | 0        | 300      | 540   |   |           |                |   |
|  | Total persons trained in crop - Number of people  | 0        | 405      | 900   |   |           |                |   |
| <b>Agricultural production facilities with increased water availability (rainwater tanks for 60 FFS model gardens)</b> |   |          |          | Project records (village maps, procurement records), mid-Term and EOP surveys | Biannual  | PMU       |                |   |
| Rainwater Tanks - Number   | 0   | 27       | 60       |   |   |           |                |   |
| <b>1.1.8 Households provided with targeted support to improve their nutrition</b>                                      |   |          |          | Project records (village maps, procurement records), mid-Term and EOP surveys | Biannual  | PMU       |                |   |
| Households - Number  | 0   | 936      | 2 080    |   |   |           |                |   |
| <b>Output</b><br>2.4 Improved agro-forestry-based production and processing centres (weaving sheds) for handicrafts    | <b>Number of processing facilities constructed or rehabilitated for cyclone proof weaving sheds</b> |          |          |   | Project records (village maps, procurement records), mid-Term and EOP surveys | Biannual  | PMU            |   |
|  | Facilities - Number   | 0        | 27       | 60  |   |           |                |   |
|  | <b>Number of women benefiting from cyclone-proof weaving sheds</b>                                  |          |          |   | Mid-Term and EOP surveys, FGDs  | Biannual  | PMU            |   |
|  | Females - Number  | 0        | 405      | 900   |   |           |                |   |
|  | <b>Number of mats and gatu weaved.</b>  |          |          |   |   |           |                |   |
| Mats - Number  | 0   | 405      | 1 500    |   |   |           |                |   |
| Gatu - Number  | 0   | 243      | 900      |   |   |           |                |   |

## Economic and financial analysis

### Approach, Assumptions and Data

1. This appendix synthesizes results for the financial and economic assessment of the overall project as well as of the seven specific interventions envisaged for implementation under components 1.2 and 2.2. The project will be implemented in 122 communities throughout the country.
2. Project interventions focus delivering higher resilience of community infrastructure and increased resilience of livelihoods based on climate-smart and nutrition-sensitive agriculture production systems. The objective of this analysis is to determine the economic and financial viability of these interventions and their potential impacts for family labour and household incomes.
3. Models have been prepared to assess the economic and financial viability of the proposed investments in infrastructure and livelihood activities which will generate direct, quantifiable benefits. Data for these models was collected during the design missions in Tonga, principally from local sources, including meetings and discussions during visits to local communities. Other sources of data include the Asian Development Bank, the World Bank and the International Monetary Fund as well as commercial banks and other local institutions and agencies.
4. The analysis uses the domestic price numeraire as the basis for calculations. Financial prices are those applying in mid 2016 when the analysis for original financing was initially prepared. A standard conversion factor (SCF) for Tonga was calculated using import and export data from World Bank and IMF sources for 2013 to 2015. The SCF was estimated to be 0.8 and therefore the shadow exchange rate factor (SERF) is 1.25. To convert financial to economic prices, taxes and duties are removed and the traded portion of the price is multiplied by the SERF. The weighted average cost of capital for the project is based on the cost of funds from the IFAD loan and grant, the Government of Tonga and participating communities. For Government and the communities, the nominal cost of funds was taken as the Reserve Bank of Tonga's weighted average lending rate. For the economic analysis, the cost of unskilled labour was adjusted by a shadow wage rate factor of 0.9; the sensitivity analysis includes tests for alternative values. The opportunity cost of capital (OCC) used for the project is 12%. The overall project and all but two of the individual interventions are economically viable at an OCC of 12% and will therefore be viable at any selected lower rate.

### Interventions

#### A Benefits and Beneficiaries

5. **Benefits.** The major measurable benefits resulting from the Project include: (i) increased agricultural and handicraft production resulting in improved household incomes, (ii) avoided damage and losses due to cyclones, (iii) savings in labour from increased on-farm mechanization, and (iv) time savings from improved access due to the upgrading of roads and bridges.
6. Other benefits, which are not easily quantifiable, include: (i) improved community organization, empowerment and quality of life in remote communities; and (ii) increased food security and improved nutrition. The development of more social cohesion in communities through the learning experience of the participatory consultation process and an improved enabling environment for attracting other development partner support which the community development plans will generate will also be an important benefit. The increase in community well-being and improved livelihoods will make community environments more attractive places in which to live. This outcome should reduce the pressure for outward migration and

attract expatriate community members to return from overseas and reside in their villages, thereby contributing to more viable and balanced communities.

7. **Beneficiaries.** Component 1 will be implemented in 62 communities and component 2 shall be implemented in 60 communities. Component 1 communities target a total of 3,863 households with 21,998 people and component 2 communities include 2,576 households with 13,550 people, for a project total of 6,349 households with 35,538 household members.
8. **Cyclone Proof Community Halls.** The project will provide an estimated 16 community halls at an average cost of TOP 156,700 (US\$71,227). Quantified benefits are the value of lives saved during severe cyclones, small fees for the use of the hall by community groups (to defray utilities costs) and 50% of the benefits accruing to weaving sheds (see below) as a proxy for the use of the halls for handicraft activities. Community halls have many other uses and also play an important role in developing and sustaining community cohesion.
9. **Wharf Upgrading.** For many of Tonga's communities the sea is both a source of food and marketable produce and is the highway to local markets and social services. Wharves are an important part of local economic infrastructure. When properly designed and constructed, they can protect local boats from damage during storm surges and moderate cyclones. The average cost of upgrading a wharf is estimated at TOP65,000 (US\$ 29,545). The quantified benefits of wharf upgrading include the prevention of damage to boats and the incremental income from fishing that will accrue to boats that would otherwise have been damaged and been out of action for a typical three-week repair period. Damage to boats can also disrupt a community's communications with markets and other services, at a cost which has not been quantified.
10. **Tractors.** Some communities may choose to invest in a tractor to help with on-farm production. A tractor costs TOP 29,550 (US\$13,432) plus TOP 8,000 (US\$3,636) for accessories and has an average life of 7 years. The benefit of having a tractor in the community is the significant labour saving for households that hire the tractor for ploughing and other on-farm tasks: an hour of the tractor's time can save several days of labour. This may make possible increased on-farm crop production, although this potential has not been included with the quantified benefits.
11. **Roads and Bridges.** One option for community infrastructure upgrading will be the improvement of short sections of road and small local bridges. This would serve to improve access to farms, markets and other economic and social services. The average cost is TOP 48,000 (US\$21,818) and the quantifiable benefits are the time savings arising from improved access for each household in the community.
12. **Weaving Sheds.** The purpose of weaving sheds is to provide women's groups an improved environment for weaving pandanus mats. Sheds are estimated to cost TOP 40,000 (US\$ 18,180) each and as many as 30 may be constructed under the project. The sheds lead to more efficient production and better quality. It is estimated that with the sheds there will be a 10% reduction in the time required to produce mats with a corresponding increase in the number of mats produced. At the same time there will be an improvement in quality, estimated at about 5%.
13. **Home Gardens.** Support for home gardens will include the provision of water tanks and fencing as well as tools and seeds. The purpose is to provide income from the sale of vegetables, but also to support improvements in households' diets and the health of members. The investment for each garden is TOP8,245 (US\$3,830) and at least is expected to be implemented in each of the communities in Component 2. The benefit of the investment is the net value of vegetables produced. The value of improved nutrition has not been quantified.
14. **Model Farms, Cluster Famers and Farmer Field Schools.** A major project intervention under Component 2 will be the introduction and development of Farmer

Field Schools nationwide. It is anticipated that a total of 1 200 farmers will be trained, of whom 876 will adopt what they have learned into their farming practices. Some of these will participate in model farms (one in each of the 60 communities) or in cluster farms (i.e. several farms working together to coordinate production) and others will adopt the practices learned in the FFS on their own farms. The improvements in farm production and output induced by the FFS are estimated using a single farm crop model for a standard allotment of 8 acres. In the without project situation yams and manioc are cultivated on 4 acres with the remainder left fallow. With the project, manioc and yams are planted on a total of 5 acres and 1 acre each of vanilla and sandalwoods are added. Both vanilla and sandalwood are cash crops that provide good returns at existing prices. Vanilla begins cropping from the fifth year after planting and crops for an average of 9 years. Sandalwood is in high demand and can be milled in two parts after 16 and 20 years, and then replanted. The benefits are increased production of manioc and yams and the new production of vanilla and sandalwood. The investment per 8 acre allotment is TOP 9,628 (US\$ 4,376).

## Economic and Financial Analysis

### A Results of the Analysis

15. The EIRR for the whole project was estimated based on the costs and benefits for the seven interventions above together with the costs for components 1.1 and 1.2 and all project management costs. The EIRR for the project is 17.0 per cent and the FIRR is 14.6 per cent. Switching values for costs and benefits are +17 per cent and -14 per cent respectively in economic prices and +15 per cent and -13 per cent respectively for financial prices.
16. Key results for the seven interventions assessed are given in the table. Two have EIRRs below the assumed OCC of 12 per cent, although in the case of home gardens it is only slightly so. Community halls suffer from relatively high cost and limits in quantifying the full benefits. Non-quantifiable benefits also need to be taken into consideration. On the financial side, the FIRR for community halls is only a little below the WACC of 1.6 per cent. For home gardens, the FIRR is below the OCC, but safely above the WACC.

Table 1

Results of the Economic and Financial Analysis (IRR & switching values)

| Item                       | Economic     |             |             | Financial    |             |             |
|----------------------------|--------------|-------------|-------------|--------------|-------------|-------------|
|                            | IRR          | costs       | benefits    | IRR          | Costs       | benefits    |
| <b>Project</b>             | <b>17.0%</b> | <b>+17%</b> | <b>-14%</b> | <b>14.6%</b> | <b>+15%</b> | <b>-13%</b> |
| Community halls            | -0.4%        | -30%        | +43%        | 1.1%         | -28%        | +29%        |
| Wharf upgrading            | 39.8%        | +90%        | -44%        | 44.2%        | +65%        | -54%        |
| Tractors                   | 44.4%        | +22%        | -18%        | 32.8%        | +13%        | -6%         |
| Roads and bridges          | 16.7%        | +19%        | -16%        | 18.1%        | +35%        | -26%        |
| Weaving sheds              | 41.4%        | +117%       | -54%        | 46.2%        | +153%       | -57%        |
| Home gardens               | 11.1%        | -2%         | +2%         | 6.0%         | -9%         | +7%         |
| FFS, Model & cluster farms | 23.7%        | +19%        | -13%        | 19.8%        | +16%        | -12%        |

Notes: 1) Switching values for economic analysis at 12%; for financial analysis at 10%

### B Financial Impacts for Beneficiary Households

17. All the interventions except community halls and roads and bridges will have a direct impact on household incomes.
18. **Wharf Upgrading.** An upgraded wharf will prevent damage to boats and loss of income while boats are being repaired. On average, three boats (two large and one

small) are damaged per year and are out of action, during repairs, for three weeks. This loss is estimated to average TOP8,750 (US\$3,977) in income per year for affected boats. Since there is no information on the number working on each boat, this amount cannot be apportioned to households.

19. **Tractors.** The benefits accruing to tractors are the savings for households that substitute tractor use for manual labour. The net savings after paying for the tractor amount to TOP 288 (US\$131) per household per year assuming that each household has 2 acres ploughed per year. This does not include the benefit to the household if the saved time is applied to other productive activities.
20. **Weaving sheds.** Labour is the largest input into the weaving of mats. Benefits accrue from more efficient work in the improved space, with a 10% decrease in the labour required per mat and a 10 per cent increase in the number of mats produced. The overall result is incremental income per weaving group of TOP4,512 (US\$2,050) or TOP 1,128 (US\$512) per weaver. The estimated total work days required for this production is 505 per group, to give an incremental return to labour of TOP 8.94 (US\$4.06) per day.
21. **Home gardens.** Half of home garden production is assumed to be sold and half consumed by the household. Cash income from half the production less all cash expenses comes to TOP 1,017 (US\$462). In addition, the value of household labour is TOP 1,680 (US\$764). Considering all production, both consumed and sold, the incremental return to labour is TOP24 (US\$11.90) per labour day while the return to family labour is TOP 80 (US\$36.40) per day.
22. **FFS, Model and Cluster Farms.** The adoption of the FFS practices by farmers, including improved production of field crops and the introduction of vanilla and sandalwood as cash crops, generates significant benefits for households over time. Vanilla only produces from the fifth year after planting and sandalwood is only harvested 16 and 20 years after planting. Estimated income from this farm varies from year to year as production varies. Incremental income averages TOP 6,160 (US\$2,800) over the 20-year project life but is over TOP 26,000 (US\$11,818) in the years when sandalwood is harvested. Incremental returns to labour, once the crops are established, vary between TOP 22 and TOP 63 (US\$10 and US\$28.60) per year.