Research Paper

Cost benefit analysis on establishing a machinery hiring-out centre in Sri Lanka

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Abstract: Reduction of labour is one of the major concerns in the recent past in the agriculture sector of Sri Lanka recent past. Agriculture has become less attractive to youth. Even though mechanization will be one of the better solution to overcome this problem, high cost of capital requirement restricts small land owners to move into mechanization. The Department of Agriculture (DOA) has identified this issue and proposed to establish machinery hiring-out centres to enable the farmers to obtain services at a reasonable rate. This study aimed at estimating the financial feasibility and economic feasibility of hiring-out centres over the project economic life of 10 years. Financial feasibility analysis included financial statement analysis, net project worth assessment and sensitivity analysis. For the purpose of economic analysis, financial prices were converted to shadow prices using the shadow exchange rates and project worth was recalculated. In project analysis, it is common to have multiple IRR rates, which was answered with MIRR estimation representing the actual IRR. Results of the study revealed that the project is financially viable and generates positive net income of Rs. 27 million annually throughout the period, generation of net cash inflow of Rs. 257.7 million, and accumulation of net assets of Rs. 277.7 million. Project worth analysis resulted in a positive financial NPV of Rs. 7.6 million, IRR of 19%, MIRR of 13% and a B/C ratio of 1.03. However, the IRR value and B/C ratio is contradictory to each other due to multiple IRR values and limited time frame of analysis of 10 years and this was addressed through MIRR measure, which is the optimal IRR value of the project and is consistent with the B/C ratio. Economic feasibility analysis showed a positive ENPV of Rs. 10.1 million, EIRR of 28%, EMIRR of 18% and a B/C ratio of 1.05. The study concluded that establishment of a machinery hiring-out centre is feasible at financial and economic conditions in a minimal risk environment. Consequently, government may have a role in facilitating the project implementation with suitable subsidy scheme till the project maturity. Development of a suitable implementation design would be the next step such as a PPP model.

Keywords: Financial Feasibility, Economic Feasibility

Introduction

Reduction of the labour force in agriculture has become a major concern in the Sri Lankan agriculture sector. With youth moving away from the sector over past few decades, the present agriculture labour force is 25.5% of total labour force (DCS, 2018). Mechanization could be a solution to overcome this issue through programs such as ‘Yaya 2’ programme where mechanization is done for combined land parcels.

A recent study has shown replacement of labour in specific crop operations (e.g. land preparation,
harvesting and processing in paddy) and machine usage has increased from 20% to 55% over the period of 1980 to 2013 (Abeyratne, 2017). The Food Agriculture Organization (FAO) of the United Nations has identified a machinery multiform system, which has four categories, namely, pool of machinery owned individuals, joint ownership (corporative), commercial enterprises (full time or part time service contractors), and hiring, renting or leasing schemes offered by dealers or corporative (FAO, 1981). Abeyratne (2017) also reported of another classification based on origin of machinery imported, namely, locally manufactured, and imported equipment modified by farmers locally, where imported machinery are the most common.

Among all machinery, tractors are the most common among Sri Lankan farmers and Sri Lanka custom data shows that tractor availability has increased during the period 1991 to 2001 at a rate of 3.4% (Agriculture tractors: FAO web). The registered number of tractors in Sri Lanka by 2015 was 343,263 (Abeyratne, 2017). From 2015 to 2017, other agriculture machinery imports have increased, namely, seeders and transplanters from 120 to 2,574, combined harvesters and threshers from 1,079 to 23,192 and root and tuber harvesting machines from 4 to 4,406 (Sri Lanka Customs – unpublished reports).

The IFPRI (2015) reported that more than 80% tillage functions are mechanized in Sri Lanka however, machinery usage in the country is relatively low compared to other Asian and South Asian countries. The major reason for such low usage of machinery in the field is the high capital cost, and the drivers for mechanization are high cost of labour, unwillingness of youth for agriculture and ageing population. Further, the present hire market is not properly distributed, the high value machinery is only with large farmer, and most of the past mechanized systems operated by state-owned corporations and cooperatives have failed.

Deraniyagala (2001) reported that there is significant impact of agriculture machinery on technology accumulation. Abeyratne (2017) revealed that there is a significant increase in demand for agriculture machinery among small agriculture holdings, while Samarappuli (2002) reported that there is a significant investment opportunity in agriculture machinery in Sri Lanka. Further, agriculture machinery has been recognized as one of the productivity improvement technologies (Gamage, 2002).

Abeyratne (2017) further suggested that individuals or group ownership, public private partnerships (PPP) and soft loan schemes to promote mechanization in agriculture. In this context, the Department of Agriculture (DOA) of Sri Lanka has proposed to establish machinery hiring-out centres to encourage machinery use in agriculture operations. This study evaluates financial and economic feasibility for a machinery hiring-out centre.

**Methodology**

Total project investment worth Sri Lankan Rupees (LKR) 16 million (Table 1). Machinery hiring-out centre provided a timely service by hiring out its own machinery to farmers at a reasonable rate. The machineries hired out by the centre amounted to LKR 10.7 million, including those used for land preparation, harvesters, processor, etc. as reported by Sidhu and Vatta (2012).

For this study, the technical information (operating time per batch, operating cost, useful life of the machines and maintenance cost) and prices of machinery were obtained Farm Mechanization Research Centre (FMRC) Mahaliluppallama, building construction expenses, costs on office equipment and respective useful lives were obtained from engineering division of DOA. Costs on land obtained comparing with available market rates.

Working capital calculation and expenses during construction were calculated according to the industry standards obtained from FMRC and engineering division of DOA. Machinery hiring out
rate was obtained from the cost of cultivation (COC) survey reports (DOA, 2017) and the number of operating days per machine was calculated based on the cropping calendar of DOA; *i.e.* tractors will be operated for maximum of 2 months per season for land preparation in paddy.

Table 1: Project Investment cost ('000 LKR)

| Item                                         | Local | Foreign | Total  |
|----------------------------------------------|-------|---------|--------|
| **Fixed Assets**                             |       |         |        |
| Land                                         | 800   | 800     | 1,600  |
| Buildings & construction                     | 1,000 | 1,000   | 2,000  |
| Mould board plough for Four wheel tractors   | 120   | 120     | 240    |
| Rotovators with four wheel tractors          | 250   | 250     | 500    |
| Seed paddy cleaners (electric motor driven)  | 200   | 200     | 400    |
| Seed paddy cleaners (two wheel tractor driven)| 180   | 180     | 360    |
| Lowland motorized weeding machines           | 35    | 35      | 70     |
| Highland inter-cultivators                   | 120   | 120     | 240    |
| Drum seeder for paddy                       | 30    | 30      | 60     |
| Box seeder for paddy                        | 25    | 25      | 50     |
| Motorized weeder for paddy                  | 110   | 110     | 220    |
| Mushroom media filling machine               | 300   | 300     | 600    |
| Tractor coupled seeders                      | 100   | 100     | 200    |
| Motorised Paddy trans planter               | 500   | 500     | 1,000  |
| Axial flow water pumps two wheel tractor driven| 80   | 80      | 160    |
| Axial flow water pumps Four wheel tractor driven| 150 | 150 | 300 |
| High pressure sprayers for orchards         | 25    | 25      | 50     |
| Combine harvester                            | 5,000 | 5,000   | 10,000 |
| High capacity Maize shellers                | 500   | 500     | 1,000  |
| Cow pea thresher                             | 400   | 400     | 800    |
| Finger millet thresher                       | 150   | 150     | 300    |
| B Onion seed extractor                       | 350   | 350     | 700    |
| Ground nut harvester                         | 500   | 500     | 1,000  |
| Groundnut pod removers                       | 800   | 800     | 1,600  |
| Groundnut shellers (electric motor driven)  | 300   | 300     | 600    |
| Pulse grading and processing machine (electric motor-driven) | 130 | 130 | 260 |
| Grass mover attachments to four wheel tractors| 300 | 300 | 600 |
| **Total machinery**                          | 10,655| 10,655 | 21,310|
| **Office equip and furniture**               |       |         |        |
| **Total fixed assets**                       | 1,000 | 10,805 | 11,805|

| Pre-operational Costs                        |       |         |        |
|------------------------------------------------|-------|---------|--------|
| Expenses during construction                  | 100   | 100     | 200    |
| Interest during construction                  | 675   | 675     | 1,350  |
| **Total Pre-operational Costs**             | 775   | 0       | 775    |

| Working capital                              |       |         |        |
|------------------------------------------------|-------|---------|--------|
| Inventory                                    | 1,965 | 1,965   | 3,930  |
| Cash liquidity                               | 666   | 666     | 1,332  |
| **Total working capital**                    | 2,631 | 0       | 2,631  |
| **Total of Investment Costs**                | 4,406 | 10,805  | 15,211|

Required human resources and their salary and wages are shown in Table 2. The salary and wages were obtained from the labour demand survey (DCS, 2017) and 25% incentive was considered as deductions for Employee Provident Fund (EPF) and Employee Trust Fund (ETF).
Table 2: Human resource requirement

| Category                  | Number | Monthly Salary (LKR) |
|---------------------------|--------|----------------------|
| Manger                    | 1      | 60,000               |
| Technical officers        | 3      | 40,000               |
| Drivers / Operators       | 10     | 30,000               |
| Labourer (unskilled)      | 2      | 25,000               |

Demand analysis for the project was not done as past studies have shown there is potential to increase the use of machinery in agriculture. Discount rate was used for calculation of the present values and rate representing the cost of capital of the project, and was calculated using the weighted average cost of capital (WACC) of equity and loans (Equation 1; Farber et al., 2006):

$$WACC = \frac{D \times r + E \times i}{l} \times 100$$  \hspace{1cm} \text{Equation 1}

where, $D=$ Loan value, $r=$ Loan rate, $E=$ Equity (Own finance), and $i=$ Equity cost of capital. The equity cost of capital is the cost of capital of own finance (opportunity cost of capital), which was calculated using the capital assets pricing model (CAPM) (Equation 2; Kisman and Shintabelle, 2015):

$$CAPM = r_f + (r_m - r_f) \times \beta$$  \hspace{1cm} \text{Equation 2}

where, $r_f =$ Risk free interest rate (Treasury bill rate), $r_m - r_f =$ Market risk premium, $\beta =$ beta factor (performance compared to benchmark of 1).

Equity risk rates were calculated for different countries and equity risk for Sri Lanka obtained as 12.2% (Country Default Spreads and Risk Premiums, 2019). In project analysis, internal rate of return (IRR) is one of the most important measure of project worth, nevertheless subjected to problem of multiple optimal solutions (multiple IRR) and thus, Modified Internal rate of return (MIRR) was used to correct the problem. However, MIRR requires reinvestment rate and for calculation of optimal IRR, and thus, the weighted average cost of capital was used as reinvestment rate (Kierulff, 2008).

Financial feasibility of the project
The financial feasibility study consists of three major components, namely,

(1) A financial statement analysis including measuring of profitability throughout project economic life span (income and expenditure statement), financial position of the project (balance sheet) and real cash net flow of the project (cash flow statement)

(2) Financial measures of project including four major parameters, namely, (a) internal Rate of Return (IRR), which is the discount rate that makes the discounted net present values of benefits after costs equal to be zero, project is accepted when IRR is more than or equal to the cost of capital. (b) Net Present Value (NPV), which is the difference between the present value of cash inflows and the present value of cash outflows, project is accepted when value is positive, (c) Cost Benefit Ratio (B/C ratio), which is the ratio between discounted cash inflows over discounted cash outflows, project is accepted only when ratio is ≥1, and (d) Payback Period, which is the number of the years the cumulative net cash flows of the project equal the initial investment cost. It indicates the number of years in which the project is in risk. Two cases of project worth with and without finance were calculated.

(3) Sensitivity analysis to measure the financial feasibility of the project under
unfavourable conditions that exist during economic period of the project. It was tested for three situations, namely (a) Increase in all operation costs by 5% (Sensitivity 1), (b) Decrease in product Prices by 5% (Sensitivity 2), and (c) Increase in costs by 5% and decrease product prices by 5% (Sensitivity 3).

Key assumptions: The operating time of each machine was assumed as 8 hrs and operating days per month as 30 days, while the number of operating months was calculated based on cropping calendar. Further, the machinery hiring centre was assumed not to have a significant impact on the existing demand for machinery. The loan amount was expected to be LKR 10 million, been is a subsidized loan obtained at rate of 6.75% ("Jaya Isura" loan scheme 1) repayable in seven years including a grace period of one year, i.e. the operating cost of the machines that has not given the expected performances similar to other types of machines.

For pricing, the operating margin was used as 55% on operating costs. Tax exemption was expected to be given throughout the project economical life, and was considered to be 10 years. Gryglewicz et al. (2008) showed that the economic life of a project is finite and is in the range of 10 to 35 years. The calculated revenue and operating costs for machinery hiring centre are shown in Table 5.

Economic feasibility
Economic analysis measures economic contribution of the project to the society and rationality of requisite resources allocation to the project and discounted measures of project worth were used to estimate returns. Analysis include two steps, namely (1) adjustments to transfer payments- for this project loan effect was removed, and (2) both input and output of the project were categorized into tradable and non-tradable items (Table 3), where market prices of all non-tradable items were multiplied with standard conversion factors (Table 4) for Sri Lanka calculated by the Asian Development Bank (ADB, 2004).

Table 3: Tradable and non-tradable inputs

| Input                  | Tradable | Non-tradable |
|------------------------|----------|--------------|
| Land                   | Yes      |              |
| Building               | Yes      |              |
| Machinery              | Yes      |              |
| Labour                 | Yes      |              |
| Fuel                   | Yes      |              |
| Lubricants             | Yes      |              |
| Furniture and fittings | Yes      |              |
| Water                  | Yes      |              |
| Electricity            | Yes      |              |

Table 4: Shadow price calculation

| Item                  | SCF/ SWRF* | SCF value | Shadow Price | ADB Project reference                   |
|-----------------------|------------|-----------|--------------|-----------------------------------------|
| Labour - Unskilled    | SWRF       | 0.75      | SCF*SWRF     | Southern Province Rural Economic        |
| Other non-tradable    | SCF        | 0.9       | SCF          | Advancement Project, 2001               |

* SCF = standard conversion factor; SWRF = Shadow Wage Rate Factor

All the adjusted cash flows using the shadow exchange rates were discounted using Social Discount Rate (SDR) use for the economic analysis was 12% of India (ADB, 2013) and IRR, MIRR, NPV, PBP and B/C ratios were recalculate.
Table 5: Revenue and operating costs of machinery hiring centre

| Item                                                                 | Capacity per hour | Operating cost per hour (LKR) | Total Operating cost (Rs ‘000) | Revenue (Rs ’000) |
|----------------------------------------------------------------------|-------------------|-------------------------------|--------------------------------|------------------|
| Mould board plough for Four wheel tractors                         | ac 0.6            | 1,372.16                      | 1,317                          | 2,127            |
| Rotavators with four wheel tractors                                 | ac 0.5            | 1,995.72                      | 1,916                          | 3,093            |
| Seed paddy cleaners (electric motor driven)                        | kg 120            | 167.6                         | 40                             | 260              |
| Seed paddy cleaners (two wheel tractor driven)                      | kg 120            | 167.6                         | 40                             | 260              |
| Lowland motorized weeding machines                                  | ac 0.1            | 467.92                        | 898                            | 725              |
| Highland inter-cultivators                                         | ac 0.1            | 391.67                        | 188                            | 607              |
| Drum seeder for paddy                                              | ac 0.2            | 70                            | 34                             | 109              |
| Box seeder for paddy                                               | ac 0.2            | 70                            | 34                             | 109              |
| Motorized weeder for paddy                                         | ac 0.1            | 467.92                        | 674                            | 725              |
| Mushroom media filling machine                                     | bag 150           | 245.2                         | 706                            | 380              |
| Tractor coupled seeders                                            | ac 0.5            | 973.2                         | 467                            | 1,508            |
| Motorised Paddy transplanter                                       | ac 0.4            | 1,524.67                      | 732                            | 2,363            |
| Axial flow water pumps (two wheel/four wheel tractor driven)        | ac 0.4            | 799.8                         | 1,536                          | 1,240            |
| Axial flow water pumps (two wheel/four wheel tractor driven)        | ac 0.4            | 799.8                         | 1,536                          | 1,240            |
| High pressure sprayers for orchards                                | ac 1.0            | 799.8                         | 2,303                          | 1,240            |
| Combine harvester                                                   | ac 0.8            | 3,875.54                      | 3,721                          | 6,007            |
| High capacity Maize sheller                                        | kg 3.5            | 1,482.93                      | 1,424                          | 2,299            |
| Cow pea thresher                                                    | kg 0.9            | 1,099.8                       | 1,056                          | 1,705            |
| Finger millet thresher                                             | kg 0.7            | 1,099.8                       | 1,056                          | 1,705            |
| Big Onion seed extractor                                            | kg 20             | 386.93                        | 371                            | 600              |
| Groundnut harvester                                                | ac 0.5            | 800                           | 768                            | 1,240            |
| Groundnut pod removers                                             | ac 1.0            | 1,316.53                      | 1,264                          | 2,041            |
| Groundnut shellers (electric motor-driven)                         | kg 450            | 925.33                        | 888                            | 1,434            |
| Pulse grading and processing machine (electric motor-driven)       | kg 50             | 351.8                         | 338                            | 545              |
| Grass mover attachments to four wheel tractors                     | ac 1.5            | 766.27                        | 1,471                          | 1,188            |
| Total                                                               |                   |                               | 24,777                         | 38,405           |
Results and Discussion

Financial statement analysis
Cash flows of the machinery hiring centre are shown in Table 6, fund flow statement and discounted analysis of the financial cash flows are shown in Table 7. Income statement of the project illustrates the annual income tax exempted profit of Sri Lanka Rupees (LKR) 26.6 million in year 1 and LKR 27.5 million at the end of economic life of the project (Annex 1).

The results revealed that the project has generated net income during the considered period of time. Cash flow statement (Table 6) showed that the sources of funds and their applications of the project, revealing liquidity of the project due to net positive accumulation of funds. Project balance sheet statement showed the financial position of the project, showing a strong financial position at the end of the project of LKR 277.7 mn (Annex 1).

Financial Measures of Project Worth
The calculated financial measures of project worth IRR, MIRR, NPV, PBP and B/C ratio are shown in Table 7. The NPV of the project is positive and the calculated IRR was higher than the cost of capital revealing the profitability of the project. A greater NPV and IRR in the financing option compared to the self-financing option suggest that a mixed financing option would be most suited. Moreover, the B/C ratio > 1 showed that the project has high social benefit such as creation of employment, etc. However, there is a mismatch between IRR and B/C ratio due to multiple IRR, and consequently B/C ratio compared with MIRR, which is consistent with the results.

Table 7: Financial project worth at 8.8% cost of capital

| Measure                                | Without finance | With finance |
|----------------------------------------|-----------------|--------------|
| Internal Rate of Return (IRR)          | 19%             | 36%          |
| Modified Internal Rate of Return (MIRR)| 13%             | 16%          |
| Pay Back Period (PBP) in years         | 5.29            | 2.74         |
| Net Present Value (NPV) (LKR ’000)    | 7,621           | 8,726        |
| Net Present Value of benefits (NPVb)  | 231,721         | 240,912      |
| Net Present Value of costs (NPVc)     | 224,100         | 232,186      |
| Benefit/Cost (B/C) Ratio               | 1.03            | 1.04         |

Sensitivity analysis
The results of the Sensitivity analysis are shown in Table 8. The results revealed that the product prices are sensitive more than the input prices. Moreover, low MIRR values and negative NPV values indicate that the project may not profitable under adverse conditions.

Table 8: Project sensitivity

| Item       | Sensitivity 1 Without loan | Sensitivity 2 Without loan | Sensitivity 3 Without loan | Sensitivity 1 With loan | Sensitivity 2 With loan | Sensitivity 3 With loan |
|------------|-----------------------------|----------------------------|-----------------------------|--------------------------|--------------------------|--------------------------|
| IRR        | 4.0%                        | 3.3%                       | -12.7%                      | 3.1%                     | 1.8%                     | -18.7%                   |
| MIRR       | 6.7%                        | 6.3%                       | -4.3%                       | 6.8%                     | 6.3%                     | -4.3%                    |
| PBP        | 24.8                        | 30.7                       | -7.9                        | 32.7                     | 56.5                     | -5.4                     |
| NPV ('000) | -3,676                      | -3,966                     | -15,171                     | -2,467                   | -2,860                   | -14,010                  |
| B/C Ratio  | 0.98                        | 0.98                       | 0.94                        | 0.99                     | 0.99                     | 0.94                     |

IRR == internal rate of return; MIRR = Modified Internal Rate of Return; PBP = Payback period (years); NPV = Net present value; B/C ratio = benefit/cost ratio
Table 6: Fund flow statement

| Item                             | Year ending on 31st December (Sri Lanka Rs '000) |
|----------------------------------|-------------------------------------------------|
|                                  | Current year                                   | Future Years                             |
|                                  | 0 1 2 3 4 5 6 7 8 9 10                       |                                          |
| Cash inflow                      |                                                 |                                          |
| Current revenue                  | 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 | 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 |
| Total funds from operation       | 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 | 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 |
| Working Capital Recovery         |                                                 | 2,631                                    |
| Residual value of project assets | 2,631                                           | 5,284                                    |
| Total cash inflow without finance| 0 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 46,320     |                                          |
| Cash outflow                     | 2,631                                           |                                          |
| Working capital                  | 2,631                                           |                                          |
| Investment in fixed assets & replacement | 12,605                       | 5,655 5,000 5,655 5,655 5,655 5,655 5,655 5,655 5,655 5,655 |
| Pre-prod. & prod. expenses       | 775 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 | 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 |
| Payment of Tax                   | 0 0 0 0 0 0 0 0 0 0 0                           |                                          |
| Total cash outflow without finance| 14,046 33,058 33,058 38,713 33,058 38,058 38,713 33,058 38,713 33,058 33,058 | 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 |
| Net cash flow without finance     | -14,046 5,347 5,347 -308 5,347 347 -308 5,347 5,347 -308 13,262 |                                          |
| Loan                             | 10,000                                          |                                          |
| Debt Service                     |                                                 |                                          |
| Interest                         | 675 580 479 370 255 132                       |                                          |
| Principal                        | 1,407 1,502 1,603 1,711 1,827 1,950           |                                          |
| Total Debt                       | 675 1,987 1,980 1,974 1,966 1,958 1,950        |                                          |
| Total cash inflow with finance    | 10,000 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 | 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 38,405 46,320 |
| Total cash outflow with finance   | 14,046 33,733 35,045 40,693 35,031 40,024 40,671 35,008 33,058 38,713 33,058 | 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 33,058 |
| Net cash flow with finance        | -4,046 4,672 3,360 -2,289 3,373 -1,619 -2,267 3,397 5,347 -308 13,262 |                                          |
Economic Analysis

Results of the economic analysis (Table 9), at social discount rate of 12%, revealed significant net positive economic benefits to the society having higher EIRR, EMIRR, ENPV and B/C ratio.

Table 9: Economic project worth at social discount rate of 12%

| Measure                                              | Value     |
|------------------------------------------------------|-----------|
| Economic Internal Rate of Return (EIRR)              | 28%       |
| Economic Modified Internal Rate of Return (EMIRR)    | 18%       |
| Pay Back Period (PBP) in years                       | 3.52      |
| Economic Net Present Value (ENPV) (LKR '000)         | 10,089    |
| Economic Benefit/ Cost (B/C) Ratio                   | 1.05      |

Conclusion

The IRR values of the project and B/C ratio are not consistent due to multiple IRR values and limited time frame of 10 years, which was rectified with the MIRR, the real IRR value. The project to establish a machinery-hiring centre has generated significant financial and economic net benefits and hence, investment is worthy. However, project is unable to bear the significant adverse conditions and thus, requires stronger mechanism to address the issue. Provision of a suitable subsidy scheme for the project until its maturity and facilitation of the approval procedure of the project for the second phase by designing a project implementation plan through mechanisms through a Private Public Partnership (PPP) is recommended.

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Annex 1

A1. Income and expenditure statement

| Item                                      | 1            | 2            | 3            | 4            | 5            | 6            | 7 to 10       |
|-------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| **Sales**                                 | 38,405       | 38,405       | 38,405       | 38,405       | 38,405       | 38,405       | 38,405       |
| **Cost of sales**                         |              |              |              |              |              |              |              |
| **Operating cost**                        |              |              |              |              |              |              |              |
| Wages                                     | 7,050        | 7,050        | 7,050        | 7,050        | 7,050        | 7,050        | 7,050        |
| **Overheads**                             |              |              |              |              |              |              |              |
| Utilities                                 | 20           | 20           | 20           | 20           | 20           | 20           | 20           |
| Repair & maintenance                      | 117          | 117          | 117          | 117          | 117          | 117          | 117          |
| Depreciation                              | 1,651        | 1,651        | 1,651        | 1,651        | 1,651        | 1,651        | 1,651        |
| **Total overheads**                       | 1,788        | 1,788        | 1,788        | 1,788        | 1,788        | 1,788        | 1,788        |
| **Total cost of sales**                   | 8,838        | 8,838        | 8,838        | 8,838        | 8,838        | 8,838        | 8,838        |
| **Gross profit/loss**                     | 29,567       | 29,567       | 29,567       | 29,567       | 29,567       | 29,567       | 29,567       |
| **Operating expenses**                    |              |              |              |              |              |              |              |
| Salaries                                  | 900          | 900          | 900          | 900          | 900          | 900          | 900          |
| General expenses                          | 96           | 96           | 96           | 96           | 96           | 96           | 96           |
| Insurance                                 | 118          | 118          | 118          | 118          | 118          | 118          | 118          |
| Marketing Expenses (2.5% on sales)        | 960          | 960          | 960          | 960          | 960          | 960          | 960          |
| **Total operating expenses**              | 2,074        | 2,074        | 2,074        | 2,074        | 2,074        | 2,074        | 2,074        |
| **Operating profit/loss**                 | 27,492       | 27,492       | 27,492       | 27,492       | 27,492       | 27,492       | 27,492       |
| **Other expenses**                        |              |              |              |              |              |              |              |
| Interests                                 | 675          | 580          | 479          | 370          | 255          | 132          |              |
| Amortization                              | 155          | 155          | 155          | 155          | 155          | 155          |              |
| **Total other expenses**                  | 830          | 735          | 634          | 525          | 410          | 132          |              |
| **Net profit/loss**                       | 26,662       | 26,757       | 26,859       | 26,967       | 27,082       | 27,361       | 27,492       |
### Cash Flow Statement

**A2: Cash flow statement**

| Item                          | Year ending at 31st December (Sri Lanka Rs. ‘000) |
|-------------------------------|--------------------------------------------------|
|                               | Current year | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Sources of funds:             |              |   |   |   |   |   |   |   |   |   |   |    |
| Operating profit/loss         | 27,492       | 27,492 | 27,492 | 27,492 | 27,492 | 27,492 | 27,492 | 27,492 | 27,492 | 27,492 | 27,492 | 27,492 |
| Add back: Depreciation       | 1,651        | 1,651 | 1,651 | 1,651 | 1,651 | 1,651 | 1,651 | 1,651 | 1,651 | 1,651 | 1,651 | 1,651 |
| Total funds from operation   | 29,144       | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 |
| Commercial bank loans        | 10,000       |   |   |   |   |   |   |   |   |   |   |    |
| Paid-up capital              | 6,011        |   |   |   |   |   |   |   |   |   |   |    |
| Total sources of funds       | 16,011       | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 | 29,144 |

**Application of funds:**

| Item                          | Year ending at 31st December (Sri Lanka Rs. ‘000) |
|-------------------------------|--------------------------------------------------|
|                               | Current year | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Operating expenses:           |              |   |   |   |   |   |   |   |   |   |   |    |
| Investment in fixed assets    | 12,605       | 5,655 | 5,000 | 5,655 | 5,655 |   |   |   |   |   |   |    |
| Pre-production expenses       | 775          |   |   |   |   |   |   |   |   |   |   |    |
| Interest on bank loans        | 675          | 580 | 479 | 370 | 255 | 132 |   |   |   |   |   |    |
| Repayment of bank loan        | 1,407        | 1,502 | 1,603 | 1,711 | 1,827 | 1,950 |   |   |   |   |   |    |
| Increase of current assets (other than cash) | 1,965 | . |   |   |   |   |   |   |   |   |   |    |
| Total application of funds    | 15,345       | 675 | 1,987 | 7,635 | 1,974 | 6,966 | 7,613 | 1,950 | - | 5,655 | - |    |
| Cash surplus/deficit          | 666          | 28,469 | 27,157 | 21,508 | 27,170 | 22,178 | 21,530 | 27,194 | 29,144 | 23,489 | 29,144 |    |
| Cash at the beginning of the year | 666 | 29,135 | 56,292 | 77,800 | 104,971 | 127,148 | 148,679 | 175,872 | 205,016 | 228,505 |    |
| Cash at the end of the year   | 666          | 29,135 | 56,292 | 77,800 | 104,971 | 127,148 | 148,679 | 175,872 | 205,016 | 228,505 | 257,649 |    |
## A3: Balance sheet (all figures are in Rs. '000)

| Item                                | Year ending at 31st December |
|-------------------------------------|-----------------------------|
|                                     | Current year | Future Years |
|                                     | 0            | 1 2 3 4 5 6 7 8 9 10 |
| **Assets**                          |              |              |
| **Current assets**                  |              |              |
| Cash & bank balance                 | 666          | 29,135 56,292 77,800 104,971 127,148 148,679 175,872 205,016 228,505 257,649 |
| Inventory                           | 1,965        | 1,965 1,965 1,965 1,965 1,965 1,965 1,965 1,965 1,965 1,965 |
| Total current assets                | 2,631        | 31,100 58,257 79,765 106,935 129,113 150,644 177,837 206,981 230,470 259,614 |
| **Fixed assets**                    |              |              |
| Fixed assets at cost                | 12,605       | 12,605 12,605 12,605 12,605 12,605 12,605 12,605 12,605 12,605 12,605 |
| Less: accumulated depreciation      | 1,651        | 3,303 (701) 951 (2,398) (6,401) (4,750) (3,098) (7,102) (5,450) |
| Fixed assets net                    | 12,605       | 10,954 9,302 13,306 11,654 15,003 19,006 17,355 15,703 19,707 18,055 |
| Pre-production expenses             | 775          | 775 775 775 775 775 775 775 775 |
| Less: accumulated amortization      | -            | 155 310 465 620 775 |
| Preproduction expenses net          | 775          | 620 465 310 155 |
| Total assets                         | 16,011       | 42,673 68,024 93,381 118,744 144,116 169,650 195,192 222,684 250,177 277,669 |
| **Liabilities & equity**            |              |              |
| Current maturities of bank loan     | -            | 1,407 1,502 1,603 1,711 1,827 1,950 |
| Total current liabilities           | -            | 1,407 1,502 1,603 1,711 1,827 1,950 |
| Long term liability : bank loan     | 10,000       | 8,593 7,091 5,488 3,777 1,950 |
| **Equity**                          |              |              |
| Paid-up capital                     | 6,011        | 6,011 6,011 6,011 6,011 6,011 6,011 6,011 6,011 6,011 6,011 |
| Accumulated retained earning        | -            | 26,662 53,420 80,279 107,245 134,328 161,689 189,181 216,674 244,166 271,658 |
| Total equity                         | 6,011        | 32,673 59,430 86,289 113,256 140,339 167,699 195,192 222,684 250,177 277,669 |
| Total liabilities & equity          | 16,011       | 42,673 68,024 93,381 118,744 144,116 169,650 195,192 222,684 250,177 277,669 |
