Evaluation Report

Lower Usuthu Smallholder Irrigation Project in the Kingdom of Swaziland

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International Cooperation and Development Fund

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Content Table

1. Acronyms

AfDB	African Development Bank
BADEA	Arab Bank for Economic Development in Africa
CLC	Chief's Letter of Consent
ID	Irrigation District
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
FIDIC	International Federation of Consulting Engineers
DBSA	Development Bank of Southern Africa
EIB	European Investment Bank
EU	European Union
FC	Farmer Company
GOS	Government of Swaziland
KRBP	Komati River Basin Project
MNRE	Ministry of Natural Resources and Energy
OFID	OPEC Fund for International Development
SADC	Southern African Development and Community
SWADE	Swaziland Water and Agricultural Development Enterprise
TaiwanICDF	International Cooperation and Development Fund
TPTC	Tripartite Permanent Technical Committee
LUSIP	Lower Usuthu Smallholder Irrigation Project
PDA	Project Development Area
URBA	Usuthu River Basin Authority
WSP	Water Service Provider
WUA	Water Users Association
WUPH	Water Usage Per Hectare

2. Basic Data

The first phase of the Lower Usuthu Smallholder Irrigation Project, known as LUSIP I, comprises four main components: *Upstream*, *Downstream*, *Environmental Mitigation* and *Project Coordination and Management*. The TaiwanICDF provided a loan of US$5 million to co-finance the Mhlathuzane Dam in cooperation with the Development Bank South Africa (DBSA) as part of the *Upstream* component. Given that the TaiwanICDF's contribution shares the same objective as LUSIP I, the TaiwanICDF's contribution covering its loan and subsequent construction works, which will be the focus of this report, will be referred to as "the project," in order to differentiate from LUSIP I. The figure 1 shows the location of the Mhlathuzane Dam.

The project's output, the construction of the Mhlathuzane Dam, was completed in 2008, while LUSIP I was still under implementation in 2014. Therefore, the evaluation report focuses on the dam's contribution to LUSIP's outcome so far.

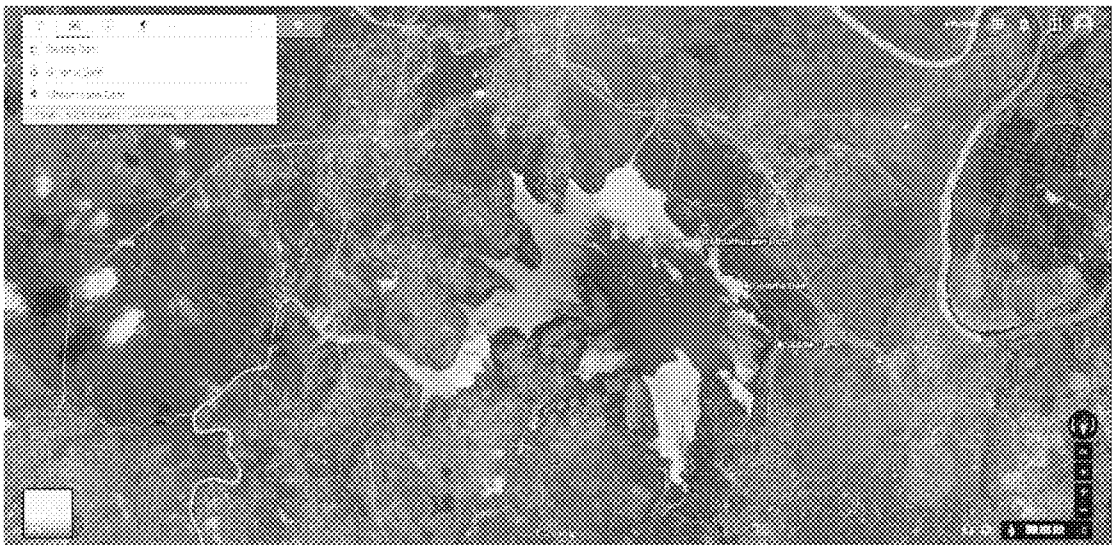

Figure 1: Location of the Mhlathuzane Dam

<table>
<tr><td>Project Name</td><td>Lower Usuthu Smallholder Irrigation Project phase one, LUSIP I</td></tr>
<tr><td>Project Objectives</td><td>The overall objective is the reduction of poverty and improvement in living standards for the population in the Lower Usuthu Basin through commercialization and intensification of agriculture. The immediate objectives are the following:
1. To increase household income, enhance food security and improve access to social and health infrastructure for the rural population.
2. To create the conditions for the transformation of subsistence level smallholder farmers into small scale commercial farmers.</td></tr>
<tr><td>Important Project Milestones</td><td>Loan Agreement<table><tr><td>Agreement Signing Date</td><td>2003/11/19</td></tr><tr><td>Commencement Date</td><td>2006/03/01</td></tr><tr><td>Date of First Disbursement</td><td>2007/10/31</td></tr><tr><td>Date of Second Disbursement</td><td>2008/03/25</td></tr><tr><td>First Repayment Date</td><td>2009/07/15</td></tr></table>Construction Work<table><tr><td>Tender closed</td><td>2005/08/03</td></tr><tr><td>CGI Joint Venture awarded the tender</td><td>2005/11/18</td></tr><tr><td>Construction Start Date</td><td>2006/01/09</td></tr><tr><td>Completion of Construction</td><td>2008/05/31</td></tr></table></td></tr>
<tr><td>Project Cost</td><td>US$5,000,000[1]</td></tr>
<tr><td>Borrower</td><td>Ministry of Finance, Kingdom of Swaziland</td></tr>
<tr><td>Executing Agency</td><td>Swaziland Water and Agricultural Development Enterprise(SWADE)</td></tr>
<tr><td>Financial Terms</td><td><table><tr><td>Loan period</td><td>20 years</td></tr><tr><td>Grace period</td><td>3 years</td></tr><tr><td>Commitment period</td><td>3 years</td></tr><tr><td>Interest rate</td><td>3.5%</td></tr><tr><td>Commitment fee</td><td>0.75% annum</td></tr></table></td></tr>
</table>

[1] For the total cost of the whole LUSIP project, please refer to Appendix 1.

Project Scope	**Outcomes** 1. An increase in annual income to US$900 for a farm of 2.5 hectares during loan repayment period, increasing to US$3,518 following the 3complete repayment of the loan.[2] 2. An increase in annual income from R1,700[3] to R21,216 for a farm of 2.5 hectares.[4] 3. An increase in annual income from SZL5,280 (US$680) to SZL22,900 (US$2,882) for a farm of 2.5 hectares under sprinkler irrigation on S-set soils.[5] **Outputs** The completion of Mhlathuzane Dam, which was co-financed by the TaiwanICDF and the Development Bank of Southern Africa (DBSA). **Activities** The TaiwanICDF provided a loan of US$5 million to co-finance the Mhlathuzane Dam in cooperation with the Development Bank South Africa (DBSA) as part of the LUSIP I's *Upstream* component.

[2] Cited from the 26th TaiwanICDF Board Meeting Reference.p.80

[3] The South African Rand(R) is legal currency in the Common Monetary Area (CMA) and its value is equivalent to the Swazi currency, the Swazi Lilangeni (SZL). The symbol for SZL can be written L, and E

[4] Cited from the TaiwanICDF Appraisal Report Lower Usuthu Smallholder Irrigation Project in The Kingdom of Swaziland p.19

[5] Cited from the ANNEX V of TaiwanICDF Appraisal Report Lower Usuthu Smallholder Irrigation Project in The Kingdom of Swaziland p.34. which part was quote from IFAD's appraisal report.

3. Executive Summary

The main goal of LUSIP I was to improve people's standard of living in the Project Development Area (PDA), one of the most undeveloped areas in Swaziland. The project achieved this goal by creating conditions to transform the local economy from subsistence farming into sustainable commercial agriculture. Such conditions included the provision of water for irrigation, enabling greater numbers of smallholder sugarcane farmers to engage in profitable farming. The TaiwanICDF provided a loan of US$5 million to co-finance the Mhlathuzane Dam, part of the irrigation infrastructure, in cooperation with the Development Bank South Africa (DBSA).

This report evaluates the achievement of the project's outputs and outcome, including the Mhlathuzane Dam and the annual income of smallholders participating in LUSIP I; and the causality between outputs to outcome, including the irrigated area, the operations of farming companies (FCs), and the maintenance of bulk infrastructure and water management mechanisms.

The scope of evaluation focuses on 34 FCs that were working on irrigation schemes on Lots 1 to 4 and which carried out their first harvests between 2011 and 2012. It was found that FCs were established and carried out their functions of working the land and integrating smallholders into the commercial economy; given that water management mechanisms were not set up already, SWADE (Swaziland Water and Agricultural Development Enterprise) played a critical role as WUAs and WSP, taking responsibility to enable FCs' access to water. This report estimates the correlation separately by each FC to eliminate the influence of different irrigation behaviors, and found that of 34 FCs, 28 FCs have positive correlations between water usage and annual income, which

proved the contribution of the Mhlathuzane Dam. However, the coverage of irrigated areas only reached 52 percent, so ideally a more comprehensive survey should be conducted to investigate the status of every FC in the future, when land development is complete.

In terms of performance, the project is ranked "Compliant", and the weighted average score is 3.81. For the ranking system, please refer to Appendix 2. The project supported LUSIP, and was highly relevant to GOS and TaiwanICDF policies. Additionally, cooperating with the DBSA proved to be a good experience. By sharing information, the TaiwanICDF and the DBSA created synergy to expand the effect of both parties' resources and minimize potential risks.

In terms of recommendations, the TaiwanICDF should participate in joint evaluation. This report focuses on a scope of 34 FCs, and on the Mhlathuzane Dam's contribution to the annual income, but the limited sample number may not be representative of the PDA's entire population. LUSIP is a huge program covering land policy, basic living standards, economic empowerment, and water usage systems, and the lessons learned would be valuable for all co-financiers.

The capacity to negotiate prices and employment issues should also be noted. Sugarcane farming has not been able to provide sufficient employment opportunities for residents. In total, the 34 FCs provided 1,188 job opportunities, but only 92 jobs were permanent, equivalent to 7.7 percent of the total, and not sufficient to support the 6,377 persons within the 34 FCs' 1,081 households. Moreover, Ubombo Sugar Ltd.'s sugar prices are closing on the international price, although the price paid to FCs in the PDA is the same as to a traditional large-scale company. Therefore, the capacity to negotiate prices could be a potential positive impact of LUSIP.

4. Evaluation purpose, questions, methods and limitations

The main goal of LUSIP I is to improve the standard of living of the people in the PDA[6]. The project is achieving this goal by creating conditions to transform the local economy from subsistence farming into sustainable commercial agriculture. Such conditions included the provision of water for irrigation, enabling greater numbers of smallholder sugarcane farmers to engage in profitable farming. LUSIP comprises four main components: *Upstream*, *Downstream*, *Environmental Mitigation* and *Project Coordination and Management*. The TaiwanICDF provided a loan of US$5 million to co-finance the Mhlathuzane Dam in cooperation with the Development Bank South Africa (DBSA) as part of the *Upstream* component.

(1) Evaluation Purpose

This report will review the achievements of the project and evaluate its performance. The conclusions will be presented to the TaiwanICDF's Board as Lessons Learned so as to promote the quality of project design and implementation for similar projects in the future. In addition, the report will serve as an important reference for the TaiwanICDF's Board in responding to an invitation from the government of Swaziland (GOS) to participate in LUSIP phase two (LUSIP II), the purpose of which is to irrigate more area by extending existing irrigation infrastructure built in LUSIP I. The report focuses on the unique contribution of the TaiwanICDF, namely the completion of Mhlathuzane Dam and the provision of irrigation water.

[6] For the PDA of LUSIP I, please refer to the Appendix 3

Therefore, the report assesses:

A. the project output and outcome achievements, including
   a. the project output: the Mhlathuzane Dam and its water provision situation; and
   b. the project outcome: the annual income of smallholders participating in LUSIP I; and
B. the causality between output and outcome, as the assumptions in the theory of change, including
   a. the irrigated area, and
   b. the operations of farmer companies (FCs)
   c. the maintenance of bulk infrastructure and water management mechanisms.

In terms of criteria, the TaiwanICDF follows its own Regulations Governing the Planning, Appraisal, Implementation, Supervision and Performance Evaluation of International Cooperation and Development Affairs and the OECD/DAC's Evaluating Development Co-operation Summary of Key Norms and Standards to evaluate the relevance, effectiveness, efficiency and sustainability of the results achieved by the project.

(2) Evaluation Questions

A. Did the project achieve its expected outcome and output?
B. How does the completion of Mhlathuzane Dam's contribution to the income increased?
C. How do these assumptions work, in terms of e.g. irrigation area, the operations of FCs and the maintenance of bulk infrastructure and water management mechanisms?

The Design and Monitoring Framework (DMF) was only introduced into the TaiwanICDF's operations relatively recently. As a result, the TaiwanICDF did not apply a DMF to the project in 2003, so this report will refer to the expected outcomes in the reference document provided to TaiwanICDF's Board Meeting and in the text and annex of the TaiwanICDF's Appraisal Report as, the first, second and third expected outcomes, respectively. The expected outcomes, expected output and assumptions are shown below in Table 2.

Table 2: Expected Outcomes, Expected Output and Assumptions

Expected Outcomes	Expected Output	Assumptions
First expected outcome: An increase in annual income to US$900 for a farm of 2.5 hectares during loan repayment, increasing to US$3,518 following the repayment of the loan.	Completion of Mhlathuzane Dam.	FCs are established and operated well, and benefits are shared with smallholders.
Second expected outcome: An increase in annual income from R1,700 to R21,216 for a farm of 2.5 hectares.		Bulk infrastructure is maintained and water management mechanisms are operated well.
Third expected outcome: An increase in annual income from SZL5,280 (US$680) to SZL22,900 (US$2,882) for a farm of 2.5 hectares under sprinkler irrigation on S-set soils.		Irrigated area coverage reaches expected objective.

(3) Methodology and Limitations

A. Evaluation Methodology

The scope of evaluation focuses on 34 FCs that were working on irrigation schemes on Lots 1 to 4 and carried out their first harvests between 2011 and 2012, so the report has sufficient data to evaluate the correlation between the water usage and agriculture yields. For data regarding Lot 1 to Lot 4 and the schedule, please refer to the evaluation matrix in Appendix 4 and 5. Figure 1 shows the position of Lots 1 to 4.

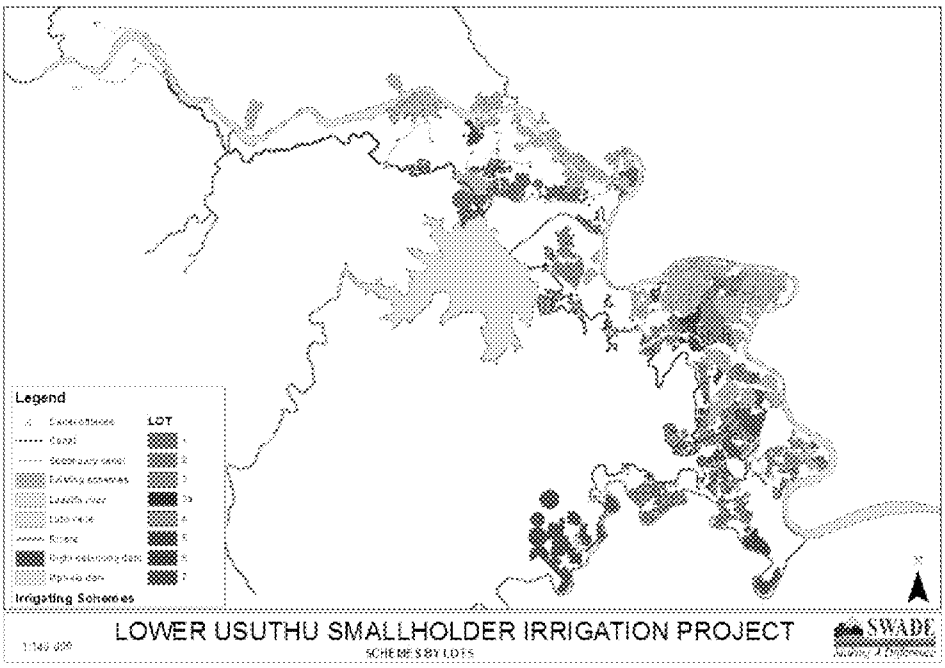

Figure 2: Position of Lots 1 to 4

Based on the design of the project, there should be a positive correlation between data for water usage and data for agricultural yields; similarly, there should be a positive correlation between data for agricultural yields and data for annual income. To prove the contribution of Mhlathuzane Dam, the evaluation methodology adopted

both qualitative and quantitative research methods, with quantitative research being used to collect data on water usage, agricultural yields and annual income, and qualitative research being used to explain such data collected. The target groups of the evaluation survey will include:

a. SWADE, the project implementation agency;
b. Farmer's organizations, including FCs and Water Users Associations (WUA);
c. Households in the PDA.

For the evaluation questionnaires and schedule, please refer to the Appendix 6

B. Limitations

The scope of evaluation focuses on 34 FCs. As a result, this report will provide a comprehensive and accurate assessment of the conditions of beneficiaries and how they work together with the FCs and WUAs that they belong to. However, the limited sample number may not be representative of the PDA's entire population.

Additionally, this report finds that there is a significant difference between each FC's water usages per hectare (WUPH), as in Table 3 below. In 2012, maximum WUPH was almost 37 times greater than the minimum and about 25 times greater in 2013.

Table 3: Water Usage Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
WUPH2012	34	1,093.45	29,495.37	12,747.15	7,504.13
WUPH2013	34	1,793.69	46,210.29	13,049.09	10,028.02

Consequently, due to the need to confirm the data, more evidence is required to support the contribution that water usage had upon agricultural yields, and the contribution of agricultural yields upon annual income in turn. As a result, in order to measure the project's achievements this report estimates the correlation separately, by each FC, to eliminate the influence of different irrigation behaviors, as well as reviews other assumptions in the theory of change.

5. Project background

(1) Country Context and TaiwanICDF's Strategic Priorities

A. Country Context

At the time the TaiwanICDF appraised the project, the PDA was one of the most underdeveloped regions in the country, and residents' livelihoods depended on rain-fed arable farming on SNL[7]. More than two-thirds of the households on the area had access to less than 2 hectares of land, and annual incomes averaged US$100 per capita. Meanwhile, Swaziland's economy was particularly

[7] There are two major types of land ownerships in Swaziland, the Swazi Nation Land (SNL) and Title Deed Land (TDL). SNL is communal and is held in trust for the nation by the King through Chiefs who allocate usufruct rights to individual Swazi families. The Title Deed Land includes commercial farms, estates and ranches that are freehold or on concession agreements.

dependent on agriculture, forming the main source of livelihood for over 75 percent of the population and representing a major source of employment and income in rural areas. Crop production from TDL accounted for about 70 percent of agricultural GDP, while crop production from SNL accounted for only 15 percent.

LUSIP supported the National Indicative Program (NIP), an economic growth and poverty reduction program between the European Commission and Swaziland. The program confirmed the development of agriculture and rural development as its priority, with 70 percent of resources being allocated to this sector.

The GOS's policy for agriculture and irrigation was articulated in a wide-ranging National Development Strategy that was launched in 1999 as a vision for the next 25 years.

B. TaiwanICDF's Strategic Priorities

The TaiwanICDF's participation in the LUSIP I complies with the organization's priority areas – agriculture, public health, education, information and communications technology (ICT), and environmental protection – which together receive the largest share of TaiwanICDF resources.

Taiwan has a long history of cooperation with Swaziland having dispatched its first technical mission in 1969, aiming to upgrade farming techniques and increase and stabilize food production. Since then, Taiwanese missions continued to implement different projects, such as

handicraft vocational training in 1973, a feasibility study for the Kubuta Reservoir Project in 1997, as well as the Two International Roads Project in 1988. Participation in LUSIP I further diversifies the TaiwanICDF's assistance in agriculture development to Swaziland. The project is also done is support of poverty reduction, which is one of the TaiwanICDF's mandates.

(2) Theory of Change

LUSIP I comprises four main components: *Upstream*, *Downstream*, *Environmental Mitigation* and *Project Coordination and Management*. The main objective of the *Upstream* component is to provide infrastructure for collecting, storing and distributing 155 million m^3 of water per annum for the irrigation of 6,500 hectares.

The TaiwanICDF provided a loan of US$5 million to co-finance the Mhlathuzane Dam in cooperation with the Development Bank South Africa (DBSA) as part of the *Upstream* component. To achieve the outcome, the project provided irrigation water by building bulk infrastructure, the Mhlathuzane Dam. For the project to be implemented in coordination with other LUSIP I components, certain assumptions were made, namely that

A. FCs would be established and operate well, and that benefits would be shared with smallholders;
B. Bulk infrastructure would be maintained and water management mechanisms would be operated well;
C. Irrigated area coverage would reach its expected objective.

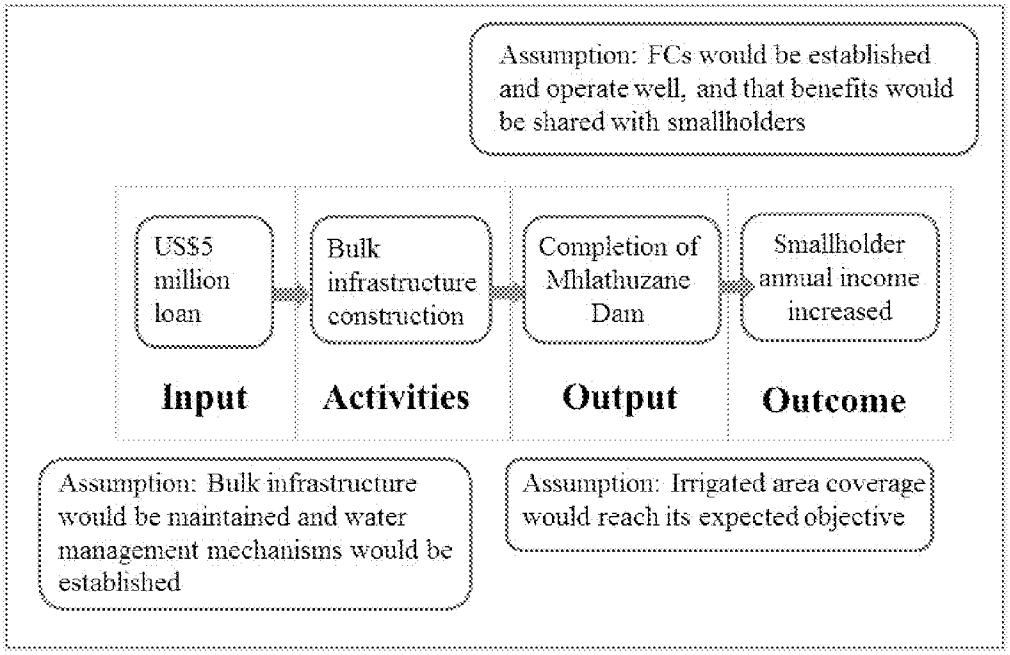

Figure 3: The Project's Theory of Change

6. Project Performance

Evaluation ranks the project's performance of Relevance, Effectiveness, Efficiency, and Sustainability as B(good), C(Compliant), C(Compliant), C(Compliant). The project scored 3.81 from a possible 5. The performance of the project is deemed good; the outcome and content are relevant to the interests of the Republic of China (Taiwan) and the development of the partner country. The implementing agency is able to manage the project and the outcome met projections. The implementing agency communicated with the project team and assisted the project team effectively during implementation, with efficient internal management and effective use of resources. The project's outlook is good in terms of sustainability. For the ranking system, please refer to appendix 2.

(1) Relevance

The relevance of the project is ranked B, good, and the weighted

average score is 4.125.

A. Intervention logic

The identification of the project's problem is clear and concrete, and connected to the design of project. Moreover, project design features intending to prevent predicted problems included[8]:

a. Following the experiences of a similar project, the Komati River Basin Project (KRBP), completed in 2002, by attaching importance to water and soil management;

b. Enhancing the level of beneficiary/community interest and participation in development activities so as to especially deal with the resettlement issue;

c. Following the resettlement, compensation and environment protection lessons from Maguga Dam in the Komati Basin; and

d. Requesting that the executing agency submit progress reports to the project's co-financiers.

B. Consistency

The Usuthu River basin forms a part of the Maputo basin and is shared with two other Southern African Development and Community (SADC) members, Mozambique and South Africa. By recognizing the need to cooperate, the three countries established the Tripartite Permanent Technical Committee (TPTC) in 1983. LUSIP supported the joint management of the Maputo basin and

[8]International Cooperation and Development Fund Appraisal Report Lower Usuthu Smallholder Irrigation Project Appraisal Report p.13

the capture of 155 million m^3 of water, with the intension of promoting the economic development of the eastern part of the Lubombo region. The Swaziland Ministry of Natural Resources and Energy (MNRE) of the GOS signed an agreement with Mozambique and South Africa to ensure the right to access water.[9] Meanwhile, LUSIP also supported the National Indicative Program (NIP), an economic growth and poverty reduction program between the European Commission and Swaziland.

LUSIP complies with the TaiwanICDF's policies, which are:

a. Compliance with the priority areas – agriculture, public health, education, information and communications technology (ICT), and environmental protection – which together receive the largest share of TaiwanICDF resources.

b. The project was co-financed by eight international and regional organizations. The TaiwanICDF is one of the co-financiers and is engaged in a co-financing relationship with the DBSA. This could greatly expand and accelerate the effects of the TaiwanICDF's assistance in the Swaziland and establish a formal channel for the exchange of information and technical know-how with international partners.

C. Formulation quality

The TaiwanICDF did not apply a DMF to the project, but

[9] The special report of LUSIP from Embassy of the Republic of China(Taiwan) in the Kingdom of Swaziland in 2003

this report is able to refer to the expected outcomes stated in the TaiwanICDF's Board Meeting's documents and in the text and annex of the TaiwanICDF's Appraisal Report.

The TaiwanICDF's loan is a part-contribution leading to the expected outcome. The loan of US$5 million is 1.8 percent of total cost[10]. The Mhlathuzane Dam was one of the most important outputs, but it hard to prove that this resulted in the project's success alone.

(2) Effectiveness

The effectiveness of the project is ranked C, Compliant, and the weighted average score is 3.83.

A. Outcome review

From 2012 to 2013[11], the average annual income of all 34 FCs was E8,690.34, equivalent to US$869.03[12]. Over the same period, the average annual income of the three FCs completing their loan repayments was E11,733.33, equivalent to US$1,173.33. The average annual income of the 31 FCs still repaying the loan was E8,395.86, equivalent to US$839.59.

The total farming area is 2,024.67 hectares for an average farming area of 1.87 hectares per FC. Since the expected outcomes were estimated on the basis of 2.5 hectare farming areas, incomes in this report have been weighted according to the actual farming area. As a result, the average annual income of the three FCs completing their

[10] For the total cost of the whole LUSIP project, please refer to Appendix 2

[11] A financial year in Swaziland is from 2012 April to 2013 March.

[12] The TaiwanICDF's Appraisal Report was written in 2003, while the foreign exchange rate USD to Swazi currency was 1USD =7.7 E. However, the current exchange rate is 1USD =10E

loan repayments converts to E15,722.60, equivalent to US$1,572.26. The average annual income of the 31 FCs still repaying the loan converts to E1,1250.50, equivalent to US$112.50.

Compared with the expected outcomes, only FCs repaying loan achieved the expected target. The results are as the figures below.

Table 4: Achievement of *First* Expected Outcome

	FCs Completing Loan Repayments	**FCs Still Repaying Loan**
Expected annual income per householder (US$)	3,518.00	900.00
Actual annual income per householder (US$)	1,173.33	839.59
Income weighted for 2.5 hectare farming area (US$)	1,572.26	1,125.05
Achievement of expected outcome	X	O

Table 5: Achievement of *Second* Expected Outcome

	LUSIP I Participants
Expect annual income per householder (US$)	2,755.3
Weighted annual income per householder (FCs still repaying loan) (US$)	11,250.5
Weighted annual income per householder (FCs completing loan repayments) (US$)	15,722.6
Achievement of expected outcome	X

Table 6: Achievement of *Third* Expected Outcome

	FCs Completing Loan Repayments	FCs Still Repaying Loan
Expected annual income per householder (US$)	2,282.00	680.00
Actual annual income per householder (US$)	1,173.33	839.59
Income weighted for 2.5 hectare farming area (US$)	1,572.26	1,125.05
Achievement of expected outcome	X	O

B. Outputs review

The construction of Mhlathuzane Dam, as well as the construction of two other dams (Golome Dam and Saddle Dam) and a spillway, was put out to tender. Four bidders competed for the construction, and the successful bidder was CGI Joint Venture. The tender was awarded on November 18, 2005 and subsequently signed for on November 25, 2005. The tenders submitted for construction were as below.

Table 7: Tenders Submitted for Construction

Tender	Tender Amount
CGI Joint Venture	E278,402,324.28
Co-operative Muratori Cementisti Ravena	E282,480,887.53
Grinaker LTA Limited	E284,919,177.16
WBHO Construction (Pty) Limited	E312,184,185.56

Construction of the Mhlathuzane Dam and spillway started on January 9, 2006 and was practically completed on May

31, 2008.

C. Assumptions review

a. Operation of FCs

Seventy FCs were established whereas the expected target stated in the PDA was 65. In terms of the 34 FCs under the scope of this evaluation, the relevant chiefs, with the assistance of SWADE, each issued Chief's Letters of Consent (CLCs) relinquishing the land rights of the original owners and allocating them to FCs, which were formed by residents. It is noteworthy that these residents, regardless of whether they had previously owned land and/or regardless of the amount of such land, each became shareholders sharing the same dividend from an FC from the point at which their participation commenced. To be more precise, each household had a member-shareholder participating in an FC on the household's behalf. Besides sharing benefits, each shareholder also had the right to be nominated as a candidate for the FC's board.

Due to the different number of participants comprising each FC, each FC has differing areas of farmland and numbers of shareholders. The 34 FCs working on irrigation schemes on Lots 1 to 4 were formed by 1,081 households as of 2014. On average, an FC has 46.5 households. By households, the largest FC has 97 households while the smallest has 16; in terms of

farmland, the largest FC owns 111.1 hectares while the smallest owns 19.3 hectares.

In terms of business operations, SWADE provided related training, including procurement and accounting. The board of each FC is formed by seven shareholders who were elected by all shareholders and who take responsibility for managing their FC. Besides the board, an FC has a chairman, a farm supervisor, and a clerk. An organizational chart of FCs is shown below as Figure 3.

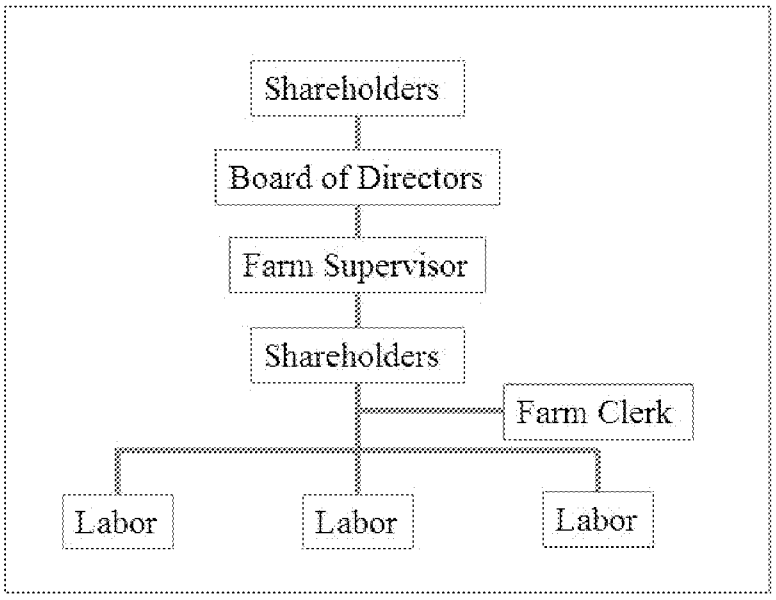

Figure 4: FC's Organization Chart

b. Bulk infrastructure maintenance and water management mechanisms

LUISP (including phases one and two) was identified as a test case for implementing the 2003 national Water Act, with institutions to be established to govern and manage water resources in the Usuthu basin. The

MNRE, with SWADE, was charged with undertaking the establishment of national and local water management institutions: the Usuthu River Basin Authority (URBA), an Irrigation District (ID) for LUSIP I, as well as local WUAs formed by representatives of FCs and a Water Service Provider (WSP) to physically operate and maintain the major infrastructure.[13] However, this condition was changed in 2010 when SWADE was transferred to the Ministry of Agriculture, and since this time the principal secretary of the MNRE has not remained as a member of the SWADE Board. This means, according to SWADE's report, that key aspects of water institution development have not received the attention and coordinated action that is needed for the sustainable management of the up-stream works.[14] Consequently, the RBA and WSP are not yet established. To fill the gap, SWADE has been contracted on an interim basis to operate as the WSP and take responsibility in collecting water fees and maintaining infrastructure. The current contract is scheduled to expire in March 2016, when the MNRE is expected to have established a permanent WSP for the wider LUSIP zone.[15]

A WUA was formed by FCs sharing the same offtakes

[13] Lower Usuthu Smallholder Irrigation Project (LUSIP) Project Completion Report–Final Draft ver.10, 23May 2014. p.28.
[14] Lower Usuthu Smallholder Irrigation Project (LUSIP) Project Completion Report–Final Draft ver.10, 23May 2014. p.14.
[15] Lower Usuthu Smallholder Irrigation Project (LUSIP) Project Completion Report–Final Draft ver.10, 23May 2014. p.28.

extended from main channels. By participating and reporting estimated weekly water usage quantity, FCs can co-manage water by themselves within a WUA. Ideally, WUAs gather water usage data and report to the WSP so that the WSP can operate the infrastructure needed to control the flow of irrigation water flow and avoid waste. However, according to interviews by the evaluation mission, given that 10 WUAs were established, these organizations didn't perform such functions. FCs reported their requirements and paid water fees to SWADE directly. Additionally, the water fee was E450 per hectare yearly; as part of this fee, E354 would be used for operating and maintaining the infrastructure, and E96 went to the ID.

c. Irrigated area coverage

The irrigated area achieved 3,370 hectares while the expected target was 6,500 hectares. Infrastructure was completed in 2009 and land development started thereafter. The lands were mainly granted by EU and GOS, and the reasons for the delay were[16]:

(a) EU procurement procedures, which resulted in an 18 month turn-around time for the tendering process for land development and crop establishment; and that

(b) The GOS had contributed far more to the whole

[16] Lower Usuthu Smalholder Irrigation Project Exit Strategy. P6

project than initially envisaged, with the 2008 financial crisis unfortunately constraining its capacity to fully release funds to support the timely realization of project targets. For the Lots finance information, please refer to Appendix 7.

Figure 5 shows land developed and land targeted for development.

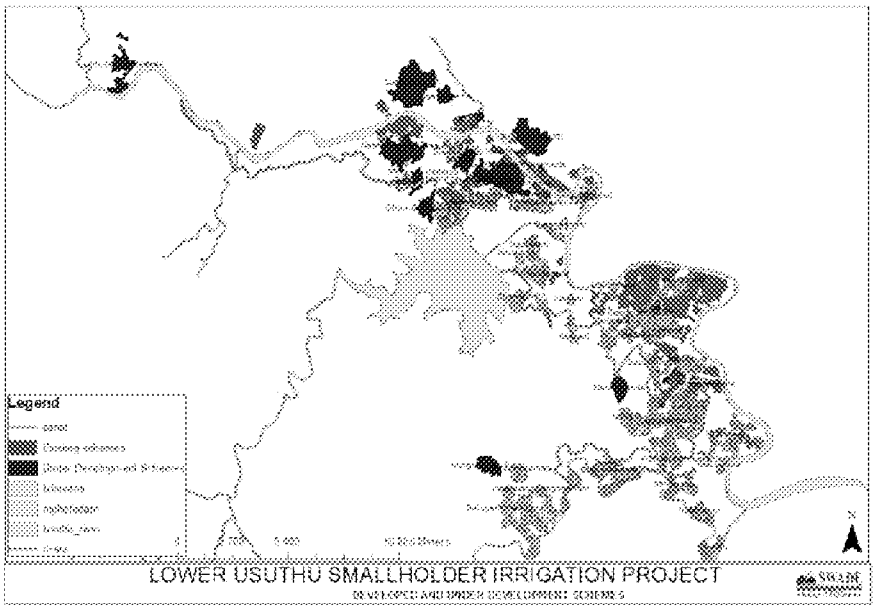

Figure 5: Irrigated area coverage

Due to the delay, the project couldn't be completed within the timeframe stipulated in the financing agreement, whose original project closure date was March 31, 2012 for the component's supporter, IFAD. The GOS has requested an extension of the loan facility to March 31, 2015.[17]

LUSIP's target group comprised 3,418 households,

[17] Lower Usuthu Smalholder Irrigation Project Exit Strategy. P1

representing 20,166 people. The 34 FCs under the scope of this evaluation comprised 1,081 households, which represents 31.63 percent of the target group.

D. Causality between output and outcome

FCs were established and carried out their functions of working the land and integrating smallholders into the commercial economy; given that water management mechanisms were not set up already, SWADE played a critical role as WUAs and WSP, taking responsibility to enable FCs' access to water. The income of smallholders participating in LUSIP is significantly increased, but because of a significant difference between each FC's WUPH, it is hard to prove the contribution that water usage had upon agricultural yields, and the contribution of agricultural yields upon annual income in turn. This report estimates the correlation separately by each FC to eliminate the influence of different irrigation behaviors. The report calculated the coefficient of water usage and annual income data in 2012 and 2013. It found that of 34 FCs, 28 FCs have positive correlations between water usage and annual income, which proved the contribution of the Mhlathuzane Dam.

However, the coverage of irrigated areas only reached 52 percent, so ideally a more comprehensive survey should be conducted to investigate the status of every FC.

(3) Efficiency

The efficiency of the project is ranked C, Compliant, and the

weighted average score is 3.45.

A. Achieving the expected outcome with efficient inputs

The total cost of the construction was E344,158,649.82, which was 23.6 percent more than the tendered amount of E278,402,324.28. The extra cost was paid by the GOS. Billed and as-built costs are shown in the table below.[18]

Table 8: Construction Costs

Component	**Tendered**	**As Built**
All Sections	110,937,482.70	109,342,713.95
Mhlathuzane Dam	75,910,063.31	85,436,678.03
spillway	41,655,926.22	46,837,810.60
Colome Dam and River Diversion Channel	30,047,625.82	25,931,745.43
Golome Outlet	8,655,492.27	8,099,637.81
Saddle Dam	11,195,733.92	5,910,521.63
Variation Orders		9,267,058.29
Escalation by formula		18,507,225.00
Rise and Fall on materials and levies		20,684,459.00
Settlement of Claims		14,144,323.00
General total	**278,402,324.28**	**344,158,649.82**

The increased cost was largely due to the rising cost of materials (fuels, and steel and cement) and labor, which contributed toward 60 percent of the increased cost. The extremely high domestic inflation rate over the project period could be the main cause of this, with inflation averaging 7 percent per year between 2005 and 2013,

[18] Lower Usuthu Smallholder Irrigation Project Mhlathuzane Dam, Golome and Saddle Dams, spillway & Offtake Work Construction report. p.3

which consequently increased prices, especially for upstream works.[19]

Furthermore, in terms of LUSIP I, the influence of delays and cost increases on the IRR was significant, as below[20]:

Table 9: Internal Rate of Return (IRR), LUSIP I

	With Upstream Cost	
Period	20 yrs	25 yrs
Appraisal		8%
Completion	3%	6%

B. Efficiency of processes

a. According to the loan agreement: "The disbursement of the loan will be made in two procedures. Any eligible expenditure having a total contract price of or above US$300,000 shall be financed through the *Direct Payment Procedure*; any eligible expenditure having a total contract price of less than US$300,000 shall be financed through the *Special Fund Procedure* to ensure the loan was used to the project."[21]

b. Initially, project implementation was expected to take place over a period of eight years, and the construction of irrigation infrastructure works would be carried out during project years 3-6. In fact, construction was completed during 2006 to 2008, complying with the

[19] Lower Usuthu Smallholder Irrigation Project(LUSIP)Project Completion Report–Final Deaft ver.10, 23May 2014. p.14

[20] Lower Usuthu Smallholder Irrigation Project(LUSIP)Project Completion Report–Final Deaft ver.10, 23May 2014. p.14

[21] Loan agreement between International Cooperation and Development Fund and Kingdom of Swazialnd. P.19

design.[22]

c. For the procurement and tendering procedures, all co-financiers agreed on international competitive bidding procedures, that the tenders would be based on International Federation of Consulting Engineers (FIDIC) procedures, and that the tendering procedures for each financier would apply to the component it funded. Thus, the GOS confirmed that Taiwanese firms would have equal and fair treatment in any bidding financed under the TaiwanICDF's loan.

d. Construction of the Mhlathuzane Dam and spillway started on January 9, 2006 and was practically completed on May 31, 2008, representing an overrun of 50 days. It was evident during the course of the works that the contractor had underestimated the amount of work to be performed. The programming showed that all rock excavated from the spillway would either be crushed or directly used for rockfill in Golome and Saddle Dams without any provision for stockpiling. Furthermore, the provision rate of excavation was not matched by the placing rate of rockfill and the crushing rate, so there was bound to be a lot of stockpiling. Grouting activities were also not arranged properly across both Mhlathuzane and Golome gorges after excavation of the whole foundation because of their steepness, and

[22] International Cooperation and Development Fund Appraisal Report Lower Usuthu Smallholder Irrigation Project Appraisal Report p.13

consequently could only be performed in stages after sections of the foundations were opened.[23]

(4) Sustainability

The sustainability of the project is ranked C, Compliant, and the weighted average score is 3.83.

A. Local society demands

Mhlathuzane Dam was designed as a straight Roller-Compacted Concrete (RCC) dam. The necessary weir length to accommodate a 1-in-100-year return period flood was calculated to be 42 m and the forecast project year for the dam in 50 years. The operation of the dam has provided irrigation water for the PDA, and routine activities have been implemented, including cleaning and monitoring. According to the data analyzed from the dam's pressure relief grains, crack meters, and side drains for both dams, the dam is safe to the public.[24]

B. Executing/implementation agency's management and policies

FCs started paying water fees (E450/ha/yr) to support the project. As part of this fee, E354 has been used for operating and maintaining the infrastructure, and E96 supports the management of the ID. Based on cost recovery basis operations for the whole LUSIP infrastructure, SWADE proposed that the water fee be set at E545/ha/yr. However, this is higher than LUSIP

[23] Lower Usuthu Smallholder Irrigation Project Mhlathuzane Dam, Golome and Saddle Dams, spillway & Offtake Work Construction report. p.5

[24] 44th Quarterly Progress Report January-March 2014 p.25

schemes had budgeted for in business models and would adversely affected smallholders' viability, and so the budget had a ceiling of E450/ha. The final proposal is for the FCs to pays to the ceiling rate while the GOS subsidizes the shortfall.[25]

C. External circumstances

Sugarcane farming is a mature industry in Swaziland with a complete production and marketing system. Three mills based in different areas refine the produce. The official Swaziland Sugar Association (SSA) is committed to meeting the requirements and expectations of the sugar industry, such as exporting, and estimating the yield quantity.

D. Human resources

SWADE is a wholly owned government company that falls under the Ministry of Agriculture. It is controlled and monitored as a public enterprise. Based on the experience implemented in KRBP, SWADE was able to implement LUSIP and submit progress report to the project's financers.

E. Legislative or regulatory

LUSIP was a test case of the Water Act No.7 of 2003, which governs the management of water as a resource in Swaziland. Given that the legislation was favourable to LUSIP, the primary challenge has been the serious cash flow limitations faced by the GOS. This has meant that even though the River Basin Authority has been gazetted,

[25] LUSIP Water Pricing Proposal.p.2

it has not been fully operational.

7. Lessons learned and recommendations

(1) Findings

A. Cooperation with international organizations involved appraising and monitoring the project comprehensively so as to minimize potential risks

For the project design, the TaiwanICDF was one of LUSIP's eight co-financers and also engaged in a close co-financing relationship for Mhlathuzane Dam with the DBSA. To that end, each category of costs and expenditures eligible to be financed under the agreement would be financed on a pro-rata basis, with 36 percent to be borne out of the loan provided or to be provided by the TaiwanICDF, and 64 percent to be borne out of the loan provided or to be provided by the DBSA.

The two parties exchanged views and information about matters relating to the project, such as by sharing information regarding the main findings and results of supervision and by promptly informing the other of any event which might interfere with or threaten the project. Therefore, the TaiwanICDF was able to appraise and monitor the project comprehensively so as to minimize potential risks.

B. It needs more evidences to define the project's contribution upon outcome

For this evaluation, although Mhlathuzane Dam was definitely an important output to LUSIP, and farmers' incomes have evidently increased, it was hard to prove that

the TaiwanICDF's input, a loan of US$5 million, could result in the expected outcome. This report could only speculate on the causality between the dam and the increased annual income of those smallholders.

C. Employment problems

Given that the project partly achieved its expected outcome, this report found that employment conditions were noteworthy. Almost all of farming land owned by the 34 FCs was used to grow sugarcane[26]; however, sugarcane farming was not able to provide sufficient employment opportunities for residents. According to the responses to questionnaires, there were 14 kinds of job within the FCs, but only supervisors, clerks, and cane rangers were permanent employees, other forms of employments, such as those involving fertilizers and herbicides, were temporary. In total, the 34 FCs provided 1,188 job opportunities, but only 92 jobs were permanent, equivalent to 7.7 percent of the total, and not sufficient to support the 63,779 persons within the 34 FCs' 1,081 households. Overall, jobs were open to 1.86 percent of the total population. The report found that given that annual income increased, but also that household employment diminished.

D. Price risks

FCs are highly dependent on the stability of sugar prices. In the condition that there is a positive correlation between

[26] According to the questionnaires responded, only 2 FCs used 3.6 and 3 hectares grown beans and maize as alternative crops.

the prices local mill buying sucrose from FC and smallholder's annual income, once price drop could have a negative impact to the smallholder. The table shows relative detail.

Table 10: Detailed Data on Sugar Industry Prices

	Ubombo mill, sucrose[27] (US$)	Smallholders' annual income[28] (US$)	Imported European sugar[29] (US$)
2010/11	197.07		571.42
2011/12	239.24	6,753	585.052
2012/13	299.06	8,690	579.25
2013/14	332.09	759,661	582.98

It is noteworthy that the incomes of the households that participated in LUSIP I increased dramatically from 2012/13 to 2013/14. However, evaluation was not able to explain how growing a single crop could lead to an 87-fold increase in income. The TaiwanICDF contacted SWADE in an attempt to learn more about these conditions, but did not receive a response.

The report calculates shareholders' income in 2012/13 because the data collected during the mission showed which FCs had repaid their loan and which had not. On the other hand, evaluating the project's performance based on 2013/14 data could yield different results. The situation should be re-evaluated in the future upon the completion

[27] Data source: interviewed from Ubombo mill's staff.
[28] Average income includes those both who completing loan repayments and still repaying loan.
[29] Data source: http://www.indexmundi.com/commodities/?commodity=sugar-european-import-price&months=60

of LUSIP I.

E. Visibility

Visibility was one of the TaiwanICDF's considerations in participating in LUSIP I. However, the beneficiaries, namely farmers from FCs, were not aware of the participation of the TaiwanICDF. Documents from a relevant TaiwanICDF Board Meeting suggested that investing in physical infrastructure would promote the organization, but for SWADE's staff and farmers, IFAD, which supported the downstream component and took charge of land and agribusiness affairs, was the most well-known donor. Consequently, it cannot be said that the project satisfied the TaiwanICDF's demand for visibility.

(2) Conclusion and lessons learned

A. Performance of the project

The project supported LUSIP, and was relevant to GOS and TaiwanICDF policies. Additionally, cooperating with the DBSA proved to be a good experience. By sharing information, the TaiwanICDF and the DBSA created synergy to expand the effect of both parties' resources and minimize potential risks.

However, the project only partly achieved the expected outcome. After weighting, FCs still repaying the loan achieved the expected target, while FCs which completed loan repayments did not. Given that annual income increased, it would seem that the extent of such increases

were not sufficient for FCs which completed loan repayments. In the appraisal report, growing sugarcane would bring the biggest benefit for smallholders and there is no evidence showing any environmental or political external factors having a negative influence on the agricultural yield. This report suggests that the project overestimated the proportion of loan repayments in the annual costs of FCs.

Table 11: Smallholders' Annual Income for FCs Completing Loan Repayments

The First Expected Outcome(US$)	The Third Expected Outcome(US$)	The actual achievement (US$)
3,518	2,282	1,572

Table 12: Smallholders' Annual Income for FCs Still Repaying Loans

The First Expected Outcome(US$)	The Third Expected Outcome(US$)	The actual achievement (US$)
900	680	1,125.05

B. Supplementary measures

In terms of employment problems and price risks, it was found that LUSIP I needs more supplementary measures to strengthen farmers' capabilities and agribusiness systems. In fact, the design of LUSIP I contained a similar component designed to promote the farming of alternative crops, and irrigated land ultimately comprised 3,050 hectares of sugar, 182 hectares of alternative crops and 139 hectares of commercial gardens[30]. However, this

[30] Lower Usuthu Smallholder Irrigation Project (LUSIP) Project Completion Report–Final Draft ver.10, 23 May 2014. p.20.

represents only 17 percent of the target for alternative crops and 40 percent for commercial gardens. The latter category includes some production for home consumption.[31] The development of alternative crops remains a challenge, particularly due the reluctance of the finance sector to invest in rural economic activities other than sugar.[32] However, there has been some progress in the development of alternative cash crops, with bananas providing one good example: Two companies received financing to plant bananas over a total of 61.4 hectares, supporting a total of 51 households.[33]

(3) Recommendations

A. TaiwanICDF should participate in joint evaluation

This report focuses on a scope of 34 FCs, and on the Mhlathuzane Dam's contribution to the annual income, but the limited sample number may not be representative of the PDA's entire population. LUSIP is a huge program covering land policy, basic living standards, economic empowerment, and water usage systems, and the lessons learned would be valuable for all co-financiers.

B. Capacity to negotiate prices and employment issues should be noted

Table 10 indicates that Ubombo Sugar Ltd.'s sugar prices

[31] Lower Usuthu Smallholder Irrigation Project (LUSIP) Project Completion Report–Final Draft ver.10, 23 May 2014. p.x.

[32] Lower Usuthu Smallholder Irrigation Project (LUSIP) Project Completion Report–Final Draft ver.10, 23 May 2014. p.xi.

[33] Lower Usuthu Smallholder Irrigation Project (LUSIP) Project Completion Report–Final Draft ver.10, 23 May 2014. p.23.

are closing on the international price, although the price paid to FCs in the PDA is the same as to a traditional large-scale company. Therefore, the capacity to negotiate prices could be a potential positive impact of LUSIP.

C. TaiwanICDF's participation

Beneficiaries' incomes have clearly increased after joining LUSIP I, and performance to date has been good. However, in terms of its own participation in similar projects, the TaiwanICDF should:

a. Clarify the causality between the its own input and LUSIP I's expected outcome, which was unclear;

b. Consider combining and/or utilizing its other technical assistance resources and experiences in Swaziland to monitor and potentially contribute toward the project further, for instance through support to the farming and marketing of alternative crops, which would also have the benefit of improving its visibility.

Appendix 1: Total Costs for Whole LUSIP Project (million)[34]

Table 1: LUSIP Expenditure by Component and Financier

Component	ICDF	Co-Fin							Ext. fin	Benef.	GOS	Total	%
		IFAD	AfDB	EIB	EU	BADEA	DBSA	OFID					
1. Up-Stream													
I） Off-Take and Reservoir	5		8.21			11.36	9.69		34.26	0	67.54	101.8	36.70
II） Main Canal				31.02					31.02	0	23.83	54.85	19.77
III）LUSIP I Distributions（2" & 3"）			4.76						4.76	0	2.14	6.90	2.49
Sub-Total	5		12.97	31.02		11.36	9.69		70.04		93.51	163.55	58.96
II Dowa-Stream													
I） Chiefdom Development & Land		0.96							0.96			0.96	0.35
II） Economic Empowerment		3.98			12.32				16.30	8.16	31.15	55.61	20.05
III） Water Institutions		0.06							0.06		2.21	2.27	0.82
IV） Life Sustenance		0.08						6.28	6.36		1.63	7.99	2.88
V） Resettlement		1.03							1.03		12.16	13.19	4.75
VI） ADEMU		10.68					0.36		11.04		12.84	23.88	8.61
Sub-Total	0	16.79	0	0	12.32	0	0.36	6.28	35.75	8.16	59.99	103.9	37.45
PMU					9.96				9.96			9.96	3.59
TOTAL	**5**	**16.79**	**12.97**	**31.02**	**22.28**	**11.36**	**10.05**	**6.28**	**115.75**	**8.16**	**153.5**	**277.41**	
%	1.80	6.05	4.68	11.18	8.03	4.10	3.62	2.26	41.73	2.94	55.33	100	

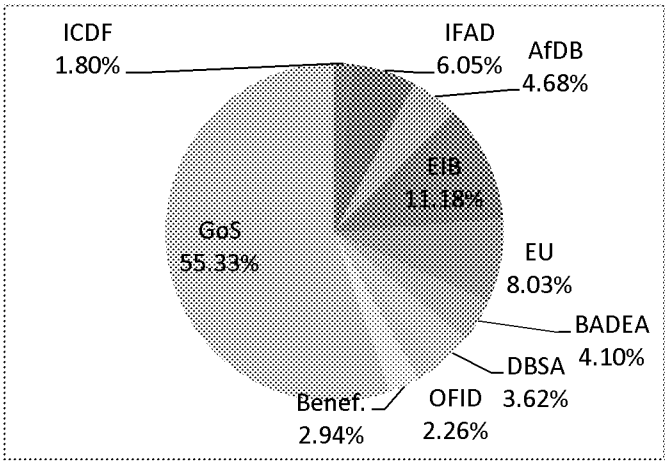

Figure 6: Percentage of each Financier's Expenditure

[34] The project budget was estimated to be US $116 million and contributed by existed financiers (Ext. fin). At completion, external financiers would contributed around 44% of the total expenditure of US $287 million. The increases have been met by the Government of Swaziland (GOS.), the beneficiaries (Benef.), and OFID and the EU.

Appendix 2: Criteria Rankings

Project Performance Evaluation

(Applicable to project completion, validation and evaluation)

(1) Relevance

The relevance of the project is ranked B, Relevant, and the weighted average score is 4.13.

Sub-Criteria	Key Performance Indicator	Score (tick as appropriate) 1 Very Low 5 Very High
1-1 Intervention Logic	1-1-1 Degree to which the project's expected outcome (project goal) achieved the policy goal of the partner country in terms of its development.	1 2 3 4 ■5
	1-1-2 Degree to which the project met the interests of the R.O.C. in the partner country (region) in terms that secured the diplomatic relationship between the R.O.C. and the partner country.	1 2 3 ■4 5
	1-1-3 Degree to which the project met the vision, strategy and development goals of the TaiwanICDF.	1 2 3 4 ■5
1-2 Project Consistency	1-2-1 Degree to which the design of the results chain could be deemed to have been able to meet the needs of the target group when the project was approved by the Board of the TaiwanICDF.	1 2 3 ■4 5
	1-2-2 Degree to which the outcome of implementation met the development goals of the partner country upon project completion or transfer.	1 2 3 4 ■5
	1-2-3 Degree to which the target group benefited from the outcome or products of this project upon completion or transfer.	1 ■2 3 4 5
1-3 Formulation Quality	1-3-1 Degree to which the results projected in the project feasibility study were realized in actual implementation. This should include the environmental, economic (industrial), technological and legal aspects of project implementation.	1 2 3 ■4 5
	1-3-2 Degree to which the project was able to identify stakeholders and facilitate communication to a sufficiently wide scope to enable its comprehensive formulation.	1 2 3 4 ■5

	1-3-3 Degree to which the implementation capability of implementing agency met expectations. This should include the aspects of organization, SOP and operation standards, quality of human resources, past performance and financial health.	1 2 3 4 5
	1-3-4 In terms of the quality of problem analysis, degree to which the project was able to identify the causes of problems precisely, and analyze the scope of influence of these problems and propose feasible solutions.	1 2 3 4 5
	1-3-5 Degree to which the outcome, outputs and activities of the project were reasonably planned with respect to the relevant relationship between causes and effects.	1 2 3 4 5
	1-3-6 Degree to which the design of the results chain took limitations in the local environment into consideration and was deemed practical and feasible.	1 2 3 4 5
	1-3-7 Degree to which the indicators for outcome and outputs, and the baseline and targets used to monitor the effectiveness of this project, were reasonably set.	1 2 3 4 5
	1-3-8 Degree to which the methods used and the frequency of the collection of project-monitoring data were able to provide sufficient information to project managers.	1 2 3 4 5
	1-3-9 Quality of the design of the project's milestones and work plan.	1 2 3 4 5
	1-3-10 Degree to which the design of the project enabled the optimal identification of risks and the effective planning of risk buffering and mitigation solutions.	1 2 3 4 5
Summary (Please summarize the performance of each sub-criterion)		
Intervention Logic	The identification of the project's problem is clear and concrete, and connected to the design of project. Moreover, certain features of project design were intended to prevent predicted problems. Requests were made for the executing agency to submit progress reports to the project's co-financiers. However, causality between output and outcome was not clear and more evidence is needed to link the TaiwanICDF's input to the outcome.	
Project Consistency	LUSIP supported the joint management of the Maputo basin. The Swaziland Ministry of Natural Resources and Energy (MNRE) of the GOS signed an agreement with Mozambique and South Africa to ensure the right to access water. Meanwhile, LUSIP also supported the National Indicative Program (NIP), an economic growth and poverty reduction program between the European Commission and Swaziland.	

	LUSIP complies with one of the TaiwanICDF's priority areas, namely agriculture, and its policy of cooperating with other international organization. However, LUSIP did not satisfy the TaiwanICDF's demand for visibility.
Formulation Quality	The TaiwanICDF did not apply a DMF to the project, but this report is able to refer to the expected outcomes stated in the TaiwanICDF's Board Meeting documents and in the text and annex of the TaiwanICDF's Appraisal Report. The TaiwanICDF's loan is a part-contribution leading to the expected outcome. The loan of US$5 million is 1.8 percent of total costs. The Mhlathuzane Dam was one of the most important outputs, but it hard to prove that this resulted in the project's success.

(2) Effectiveness

The effectiveness of the project is ranked A, Highly Efficacious, and the weighted average score is 4.83.

Sub-Criteria	Key Performance Indicator	Score (tick as appropriate) 1 Very Low 5 Very High
2-1 Achievement of Project Outcome	2-1-1 Degree to which the target group needs the services, products or knowledge resulting from the project after the project was implemented and evaluated.	1 2 3 **4** 5
	2-1-2 Degree to which the project achieved the outcome as scheduled and projected.	1 2 3 **4** 5
	2-1-3 Degree to which the outputs of the project met their projected quality.	1 2 3 4 **5**
2-2 Management Effectiveness	2-2-1 Degree to which the efforts of the implementing agency made a substantial contribution to the outcome and target group.	1 2 **3** 4 5
	2-2-2 Degree to which project personnel (including experts and consultants engaged on a short-term basis or the personnel of the commissioned organization) contributed to the achievement of the outcome.	1 2 3 **4** 5
	2-2-3 Degree to which the project was effectively promoted such that the target group understood the content of the project and was willing to accept the concept, knowledge and methods planned to achieve in this project.	1 2 3 4 **5**
Summary (Please summarize the performance of each sub-criterion)		
Achievement of Project Outcome	Construction of the Mhlathuzane Dam and spillway started on January 9, 2006 and was practically completed on May 31, 2008. However, the project only partly achieved the expected outcome. After weighting, FCs still repaying the loan achieved the expected target, while FCs which completed loan repayments did not. Given that annual income increased, it would seem that the extent of such increases were not sufficient for FCs which completed loan repayments. Moreover, the coverage of irrigated areas only reached 52 percent, so ideally a more comprehensive survey should be conducted to investigate the status of every FC.	

Management Effectiveness	For the project design, the TaiwanICDF was one of LUSIP's eight co-financers and also engaged in a close co-financing relationship for the Mhlathuzane Dam with the DBSA. To that end, each category of costs and expenditures eligible to be financed under the agreement would be financed on a pro-rata basis, with 36 percent to be borne out of the loan provided or to be provided by the TaiwanICDF, and 64 percent to be borne out of the loan provided or to be provided by the DBSA. The two parties exchanged views and information about matters relating to the project, such as by sharing information regarding the main findings and results of supervision and by promptly informing the other of any event which might interfere with or threaten the project. Therefore, the TaiwanICDF was able to appraise and monitor the project comprehensively so as to minimize potential risks.

(3) Efficiency

The efficiency of the project is ranked B, Efficient, and the weighted average score is 3.45.

Sub-Criteria	Key Performance Indicator	Score (tick as appropriate) 1 Very Low 5 Very High
3-1 Efficiency of Inputs	3-1-1 Based on the information available now, degree to which the products, services and knowledge resulting from this project represented appropriate solutions for the target group.	1 2 3 4 ■5
	3-1-2 Degree to which the budget of this project (projected funding requirements) was able to meet the requirements of project implementation.	1 ■2 3 4 5
	3-1-3 Degree to which the project was able to effectively utilize resources and maximize the effects of such resources.	1 2 ■3 4 5
3-2 Efficiency of Processes	3-2-1 Degree to which the activities of the project could be implemented as planned and delivered products (services) on time or in advance.	1 2 ■3 4 5
	3-2-2 Degree to which TaiwanICDF personnel were effective in communication and the cooperative relationship helped to enhance the efficiency of project administration.	1 2 ■3 4 5
	3-2-3 Degree to which the implementing agency effectively communicated with other local organizations or stakeholders, serving as a bridge between the project team and the local community.	1 2 3 4 ■5
	3-2-4 Degree to which the implementing agency complied with the legal documents signed between the two parties and implemented the project as pledged in the agreement (including, if funding was pledged, degree to which the implementing agency ensured such funds were in place on time).	1 2 3 ■4 5
	3-2-5 Degree to which the implementing agency assisted the project team in implementing the project in good faith, and disclosed project-related information fully during project implementation.	1 2 3 4 ■5
	3-2-6 Degree to which project efficiency was monitored and regularly audited against a set of indicators and mechanisms based on a DMF (design and monitoring framework).	■1 2 3 4 5

	3-2-7 Degree to which the project was able to effectively manage the work of the project team (specialists and consultants) and facilitate them to effectively achieve the expected outcome.	1 2 3 4 5 ☐ ☐ ■ ☐ ☐
	3-2-8 Degree to which the project was able to implement local procurement in conformity with regulations and the quality of the procured products met requirements.	1 2 3 4 5 ☐ ☐ ☐ ■ ☐
Summary (Please summarize the performance of each sub-criterion)		
Efficiency of Inputs	The total cost of the Mhlathuzane Dam construction tender was E344,158,649.82, which was 23.6 percent more than the tendered amount of E278,402,324.28. The extra cost was paid by the GOS. The increased cost was largely due to the rising cost of materials (fuels, and steel and cement) and labor, which contributed toward 60 percent of the increased cost. The extremely high domestic inflation rate over the project period could be the main cause of this, with inflation averaging 7 percent per year between 2005 and 2013, which consequently increased prices, especially for upstream works.	
Efficiency of Processes	Project implementation was expected to take place over a period of eight years, and the construction of irrigation infrastructure works would be carried out during project years 3-6. In fact, construction was completed during 2006 to 2008, complying with the design. For the procurement and tendering procedures, all co-financiers agreed on internationally competitive bidding procedures, that the tenders would be based on International Federation of Consulting Engineers (FIDIC) procedures, and that the tendering procedures for each financier would apply to the component it funded. Thus, the GOS confirmed that Taiwanese firms would have equal and fair treatment in any bidding financed under the TaiwanICDF's loan. Monitoring reports were provided during the construction of the dam.	

(4) Sustainability

The sustainability of the project is ranked A, Most Likely, and the weighted average score is 3.83.

Sub-Criteria	Key Performance Indicator	Score (tick as appropriate) 1 Very Low 5 Very High
4-1 Sustainability of Outcome	4-1-1 Based on the information available now, possibility of maintaining the current achievements under the available human resources, other resources, institutions and financial status, and natural resources.	1 ☐ 2 ☐ 3 ☐ 4 ■ 5 ☐
	4-1-2 Based on the information available now, degree to which external factors, including the natural, economic (industrial) and political environment of the partner country (region), have had a positive effect on the long-term development of the project (please give a higher score if such criteria are better and more visible).	1 ☐ 2 ☐ 3 ■ 4 ☐ 5 ☐
	4-1-3 Based on the information available now, degree to which the project's risk control mechanism(s) is/are able to effectively identify risks and ensure that the project will not be jeopardized by unforeseen risks.	1 ☐ 2 ■ 3 ☐ 4 ☐ 5 ☐
4-2 Sustainability of Project Management	4-2-1 Based on the information available now, degree to which the management (production) methods established by this project and the revenues generated are able to sustain its continuous operations and create value.	1 ☐ 2 ☐ 3 ☐ 4 ■ 5 ☐
	4-2-2 Based on the information available now, degree to which the implementing agency of this project is in good financial standing and follows internal management practices that support sustainable operations and are able to maintain the sustainability of the project's outcome.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ■
	4-2-3 Based on the information available now, possibility of the continuing participation of the target group or stakeholders in the project.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ■
Summary (Please summarize the performance of each sub-criterion)		
Sustainability of Outcome	The Mhlathuzane Dam was designed as a straight roller-compacted concrete (RCC) dam. The necessary weir length to accommodate a 1-in-100-year return period flood was calculated to be 42 m and the forecast project year for the dam in 50 years. The operation of the dam has provided irrigation water for the PDA, and routine activities have been implemented, including cleaning and monitoring. According to the	

	data analyzed from the dam's pressure relief grains, crack meters, and side drains for both dams, the dam is safe to the public.
Sustainability of Project Management	LUSIP was a test case of the Water Act No.7 of 2003, which governs the management of water as a resource in Swaziland. Given that the legislation was favourable to LUSIP, the primary challenge has been the serious cash flow limitations faced by the GOS. This has meant that even though the River Basin Authority has been gazetted, it has not been fully operational. FCs started paying water fees (E450/ha/yr) to support the project. As part of this fee, E354 has been used for operating and maintaining the infrastructure, and E96 supports the management of the ID. Based on cost recovery basis operations for the whole LUSIP infrastructure, SWADE proposed that the water fee be set at E545/ha/yr. However, this is higher than LUSIP schemes had budgeted for in business models and would adversely affected smallholders' viability, and so the budget had a ceiling of E450/ha. The final proposal is for the FCs to pay the ceiling rate while the GOS subsidizes the shortfall.

Definitions of Scores

1	The result does not meet the standard of the criterion by a significant margin or a major fallacy is present. "Major fallacy" is defined as a practice which has or could cause major loss or damage to the reputation of the TaiwanICDF or which violates the laws of the R.O.C. or the partner country.
2	The result does not meet the standard of the criterion and major improvements will be needed.
3	The result meets the standard of the criterion without major issues.
4	The result meets the standard of the criterion, but some improvement may be needed.
5	The result meets the standard of the criterion without any issues.

3. 3. Criteria Rankings

The scores are distributed to four rankings: Excellent, Good, Standard, Substandard and Poor. The scores representing the four rankings are then used to represent the evaluation result of the respective criterion. For example, the score for the criterion "relevance" of a project is 4.2, which falls into the ranking of "Good" (B).

Criterion	Ranking	Interval between Rankings and Score
Relevance (25%)	Excellent	A $4.6 \leq N \leq 5$
	Good	B $4 \leq N < 4.6$
	Compliant	C $3 \leq N < 4$
	Substandard	D $2 \leq N < 3$
	Poor	E $1 \leq N < 2$
Effectiveness (25%)	Excellent	A $4.6 \leq N \leq 5$
	Good	B $4 \leq N < 4.6$
	Compliant	C $3 \leq N < 4$
	Substandard	D $2 \leq N < 3$
	Poor	E $1 \leq N < 2$
Efficiency (25%)	Excellent	A $4.6 \leq N \leq 5$
	Good	B $4 \leq N < 4.6$
	Compliant	C $3 \leq N < 4$
	Substandard	D $2 \leq N < 3$
	Poor	E $1 \leq N < 2$
Sustainability (25%)	Excellent	A $4.6 \leq N \leq 5$
	Good	B $4 \leq N < 4.6$
	Compliant	C $3 \leq N < 4$
	Substandard	D $2 \leq N < 3$
	Poor	E $1 \leq N < 2$

4. Performance Intervals

The overall project performance ranking will be the average score of each criterion's scores. However, the combinations of rankings are adjusted based on the priority of each criterion. The principles are:

(1) if a project is ranked as *Excellent* or *Good* in the overall performance but contains an "E" ranking in any of the criteria, it will be directly ranked as *Compliant*, and

(2) if a project is ranked as *Compliant* in the overall performance but contains more than two "Es" or three "Cs" in the combination of rankings, it will be directly ranked as *Substandard*.

Project Performance

Performance		Reference Interval	Description of Performance
Performed well	Excellent A	$4.6 \leq N < 5$	The performance of the project is excellent; **the project can serve as a Best Practice for other projects or TaiwanICDF departments.**
	Good B	$4 \leq N < 4.5$	The performance of the project is deemed good.
Compliant C		$3 \leq N < 3.9$	The overall performance of the project is deemed compliant, which means the project **met the required standard of the TaiwanICDF.**
Substandard D		$2 \leq N < 2.9$	The overall performance of the project is deemed substandard.
Poor E		$1 \leq N < 1.9$	The overall performance of the project is deemed poor.

Appendix 3: The PDA of LUSIP

The PDA of LUSIP I is marked in purple and LUSIP II marked in brown

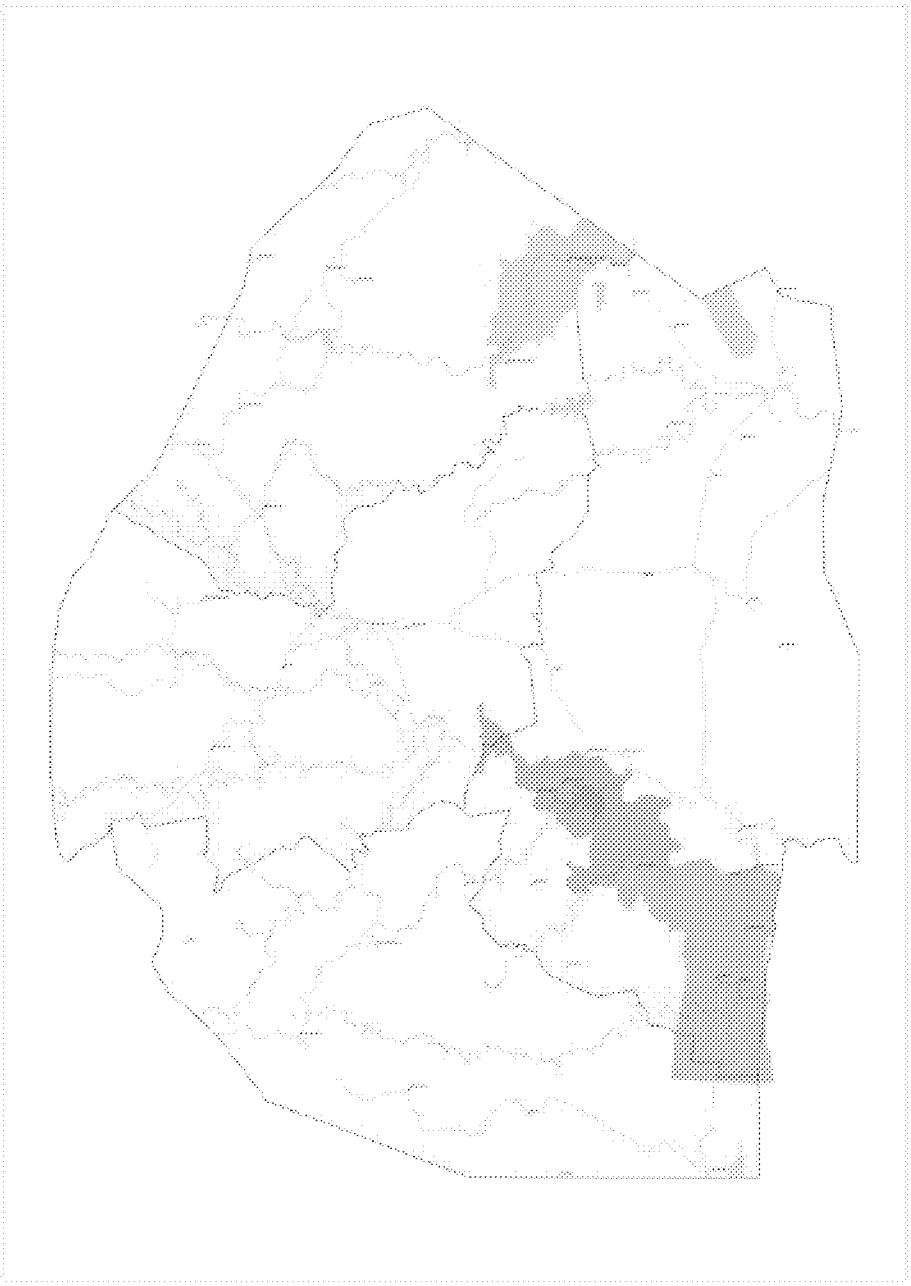

Figure 1: The PDA of LUSIP (LUSIP I is marked in purple and LUSIP II marked in brown)

Appendix 4: Data for Lot 1 to Lot 4

Table 1: Data Timing

	Lot 1 7 FCs, 205 HHs	Lot 2 6 FCs, 398 HHs	Lot 3 8 FCs, 347 HHs	Lot 3a 3 FCs, 98 HHs	Lot 4 10 FCs, 33 HHs
Agricultural data	2011-2013	2011-2013	2012-2013	2012-2013	2012-2013
Water usage data	2013	2013	2013	2013	2013

"HH" means household.

Table 12 shows that the most comprehensive data is available for Lot 1 and Lot 2, running from 2011 to 2013, while Lot 3 to Lot 4 have data for 2012 to 2013 only. Water usage data is only available for 2013.

Table 2: Relationship between Farming Companies and Water User Associations

WUAs	**Chiefdom**	**FCs**	**Lot**
Golome	Ngcamphalala	Kuhle Kutentela	2
		Ngcwaleni	2
		Nxutsamlo	4
Embusweni/Tikane		Embusweni Matshentima	3
		Tikane	3
Esicojeni		Mthomanzi	3
		Kusetandleni	4
		Nconconco	3a
Inyoni Icula		M & S	2
		Matimavu	2
		Libhumani	4
		Maphobeni Cane Growers	3a

		Madvwaleni	3a
Lutsatsawe		Mpondweni	2
		BaMoyaMunye	2
		Makhubula	4
Mazi		Maweni	4
Sink		Sesibonile	3
		Sibayesincane	3
Umphisi		Tikhumbule	3
		Ingugwane	3
		Ziyahle	4
		Mtfweni	4
		Phendukani	4
D		Ngcamphalala	3
Tfutfuka Ngemanti	Gamedze	Mganyaneni	1
		Kuselangeni	1
		Sitamimphilo	1
		Sukumani	1
		Inyoni	1
		Sibhotela	1
		Imbali	1
		Gcekeni	4

Appendix 5: 34 FC's information

Table 1: 34 FC's information

LOT	Name of scheme	Area Sugar (ha)	Year of First harvest	Area Other (ha)	Total Net Area ha	Members No	Area per h/h Ha
LOT4	Chubekani	52.0	2012	7.1	59.1	26	2.0
LOT3	Embusweni	80.2	2012	4	84.2	52	1.5
LOT4	Gcekeni	49.4	2012	0	49.4	28	1.8
LOT1	Imbali YaMadlenya	54.9	2011	30	84.9	25	2.2
LOT3	Ingugwane	69.5	2012	0	69.5	60	1.2
LOT3	Kuhle Kubonela	48.8	2012	11	59.8	52	0.9
LOT2	Kuhle Kutentela	55.5	2011	17	72.39	79	0.7
LOT1	Kuselangeni	50.5	2011	0	50.5	15	3.4
LOT4	Kusetandleni Lokuhle	62.6	2012	10.8	73.4	46	1.4
LOT4	Libhumani	75.8	2012	0	75.8	49	1.5
LOT2	M & S	81.3	2011	32	113.6	23	3.5
LOT3A	Madvwaleni	37.5	2012	14	51.5	22	1.7
LOT4	Makhubula	66.8	2012	0	66.8	61	1.1
LOT3A	Maphobeni Cane Growers	62.7	2012	0	62.7	43	1.5
LOT2	Matimavu	83.2	2011	15	98.26	38	2.2
LOT4	Maweni	38.5	2012	100.5	139	91	0.4
LOT1	Mganyaneni Farmers Ass	60.0	2011	0	60	21	2.9
LOT2	Moya Munye	56.0	2011	0	56.03	16	3.5
LOT2	Mpondweni Investment	79.6	2011	40	119.64	95	0.8
LOT4	Mtfweni	103.9	2012	0	103.9	56	1.9
LOT3	Mthomanzi	92.6	2012	30.2	122.8	54	1.7
LOT3A	Nconconco	68.4	2012	7.4	75.8	33	2.1
LOT2	Ngcwaleni	106.2	2011	27	133.15	64	1.7
LOT4	Nxutsamlo	19.3	2012	3.5	22.8	16	1.2
LOT1	Nyoni Khalakahle	49.9	2011	5	54.9	30	1.7
LOT4	Phendukani	112.5	2012	2	114.5	63	1.8
LOT3	Sesibonile	22.8	2012	0	22.8	16	1.4

LOT1	Setamiphilo eNgonini	36.4	2011	0	36.4	26	1.4
LOT3	Sibayesincane	31.4	2012	0	31.35	18	1.7
LOT1	Sibhotela Investment	50.8	2011	0	50.8	28	1.8
LOT1	Sukumani Ngonini	42.8	2011	30	72.8	23	1.9
LOT3	Tikane	91.7	2012	0	91.7	42	2.2
LOT3	Tikhumbute	60.3	2012	0	60.3	54	1.1
LOT4	Ziyahle	82.0	2012	26.2	108.2	97	0.8
SUM	**34**	**2135.72**		**413**		1462	**1.7**

Appendix 6: the evaluation questionnaires and schedule

LUSIP Agricultural Data Survey:
For Farming Company

Dear Sir/Madam:

Thank you for your help in completing this *Lower Usuthu Small Holder Irrigation Project （LUSIP） Agricultural Data Survey.*

The purpose of this survey is to:

1. Gather agricultural data about each *farming company* （FC）; and
2. Understand the *profit sharing process* for FCs in LUSIP.

These data will used by the TaiwanICDF to assess the performance of the LUSIP. The TaiwanICDF, a co-financer of LUSIP, is an international development organization and is currently implementing several other projects in Swaziland, including the *Healthcare Personnel Training Program*, the *King's Dairy Farm—Royal Corporation Assistance Project* and the *Seed Potato Production Project*.

The results of evaluation will form an important reference for the TaiwanICDF in joining LUSIP II, the extension project for the original LUSIP.

Project evaluation needs to be based on conscientious use of data and careful analysis. By providing reliable and accurate information, you will be helping the TaiwanICDF to cooperate with the government of Swaziland more closely and smoothly.

We sincerely request your kind assistance in completing this questionnaire, and thank you in advance for your time and effort.

Mai Yu-wei, Project Manager
Huang Yi-chuang, Project Manager
Research, Development and Evaluation Office
TaiwanICDF

Section 1. Participant Information			
Participant name			
Participant address			
Participant phone			
Position in the FC			
Sex	M F	Age	

Section 2. Farming Company Information			
FC name			
Chiefdom			
Date of establishment			
Number of households		Lot	

Module 1. Water Usage Data				
In this module, you are invited to explain your FC's water usage situation and fees.				
1	How much water （m^3） has your FC consumed per year?			
	2011		2013	
	2012		2014	
2	How much has your FC paid for irrigation water?			
	2011		2013	
	2012		2014	

Module 2. Agricultural Data				
In this module, you are invited to explain your FC's agricultural situation.				
1	How many hectares has your FC harvested each year?			
	2011		2013	
	2012		2014	
2	How many tons of cane has your FC harvested each year?			
	2011		2013	
	2012		2014	
3	How many tons of sugar has your FC harvested each year?			
	2011		2013	
	2012		2014	
4	What is the actual gross revenue （E） of your FC?			
	2011		2013	
	2012		2014	
5	How much revenue （E） has your FC shared with households?			
	2011		2013	
	2012		2014	

Module 3. Open Questions
For your FC, by what process do you decide how much profit to share with households?
For your FC, what is the most important factor influencing the quantity of water you use?

LUSIP Water Usage Survey: For Water User Associations

Dear Sir/Madam:

Thank you for your help in completing this *Lower Usuthu Small Holder Irrigation Project （LUSIP） Water Usage Survey*.

The purpose of this survey is to:

3. Gather water usage data for each *farming company* （FC）; and
4. Understand the operational situation of *water user associations* （WUAs）.

These data will used by the TaiwanICDF to assess the performance of the LUSIP. The TaiwanICDF, a co-financer of LUSIP, is an international development organization and is currently implementing several other projects in Swaziland, including the *Healthcare Personnel Training Program*, the *King's Dairy Farm—Royal Corporation Assistance Project* and the *Seed Potato Production Project*.

The results of evaluation will form an important reference for the TaiwanICDF in joining LUSIP II, the extension project for the original LUSIP.

Project evaluation needs to be based on conscientious use of data and careful analysis. By providing reliable and accurate information, you will be helping the TaiwanICDF to cooperate with the government of Swaziland more closely and smoothly.

We sincerely request your kind assistance in completing this questionnaire, and thank you in advance for your time and effort.

Mai Yu-wei, Project Manager
Huang Yi-chuang, Project Manager
Research, Development and Evaluation Office
TaiwanICDF

Section 1. Participant Information			
Participant name			
Participant address		Phone No.	
Position in the WUA			
Sex	M F	Age	

Section 2. Water User Association Information			
WUA name		Chiefdom	
Date of establishment			
Date started to provide water			
Number of FCs		Lot	

Section 3. Water Usage Data								
How much water （m^3） has been consumed by the FCs belonging to the WUA?								
FC name								
2011								
2012								
2013								
2014								

Section 4. Water Fees								
How much have FCs been charged for water fees per year?								
FC name								
2011								
2012								
2013								
2014								

Section 5. Methods （Open Question）	
1	Which organization is taking responsibility for deciding water fee rates given that the River Basin Authority（RBA）, the Irrigation District（ID）, and Water Service Provider （WSP） haven't been established?
2	How does the WUA spend its water fees?

Farmer Company:

2013/14

Position	Member	Non-member

Alternative crops:

2012/13

Position	Member	Non-member

Name:

Tel:

	10/05	10/06	10/07	10/08	10/09	10/10	10/11
Morning	Arrive Swaziland	Visit the Taiwanese Embassy and make a presentation to the ambassador about the goal and method of the evaluation mission	Visit the ADEMU, to understand the operating conditions of farming companies and water user associations	Visit the Tfutfuka Ngemanti water user association in Gamedze to gather data on farming companies' water usage	Visit the following farming companies to gather agricultural data:Mganyaneni、Kuselangeni、Sitamimphilo、Sukumani	Visit the following farming companies to gather agricultural data: Inyoni、Sibhotela、Imbali、Gcekeni	
Afternoon	Visit the Taiwan mission in Swaziland	Visit the headquarter of SWADE, the LUSIP's implementation agency, to explain the goal of the evaluation mission	Visit Ubombo Sugar Ltd, a miller producing sugar for farming companies in the Project Area	Interview with the SWADE's staff Ray Gama			

	10/12	**10/13**	**10/14**	**10/15**	**10/16**	**10/17**	**10/18**
Morning		Visit the Ngcamphalala chiefdom to explain the goal of the evaluation mission	Visit the site containing the project infrastructure	Visit the following farming companies to gather agricultural data: Kuhle Kutentela、Ngcwaleni、Nxutsamlo、Embusweni、Matshentima、Tikane、Mthomanzi、Kusetandleni、Nconconco、M & S、Matimavu、Libhumani、Maphobeni Cane Growers、Madvwaleni	Visit the following farming companies to gather agricultural data: Mpondweni、BaMoyaMunye、Makhubula、Maweni、Sesibonile、Sibayesincane、Tikhumbule、Ingugwane、Ziyahle、Mtfweni、Phendukani、Ngcamphalala	Visit the Economy Planning and development department Visit the Ministry of finance department Visit the CEO of SWADE	Visit beneficiaries working for farming companies
Afternoon		Visit the Golome water users association in Ngcamphalala to gather data on water usage by the following farming companies: Embusweni/Tikane, Esicojeni, Inyoni Icula, Lutsatsawe,					

		Mazi, Sink and Umphisi					

Appendix 7: the Lots Grant finance information

Table 1:Grant Finance by Lot By Year (SZL)

Sum of Total Devt.					
Lot	**2010**	**2011**	**2012**	**2013**	**Grand Total**
EUT1/Lot 1	26,046,108.00				26,046,108.00
EUT2/Lot 3		32,049,962.00			32,049,962.00
EUT3/Lot 3A		13,653,205.00			13,653,205.00
EUT4/Lot 5			36,113,258.00		36,113,258.00
EU Total					107,862,533.00
GOVT1/Lot 2	25,239,298.00				25,239,298.00
GOVT2/Lot 4		51,804,251.00			51,804,251.00
GOVT3/Lot 6				27,277,653.83	27,277,653.83
GOVT Total					104,321,202.83
Grand Total	**51,285,406.00**	**97,507,418.00**	**36,113,258.00**	**27,277,653.83**	**212,183,735.83**

Table 2:Area developed

Sum of Sugar Planted (Hectare)					
Lot	**2010**	**2011**	**2012**	**2013**	**Grand Total**
EUT1/Lot 1	357.1				357.1
EUT2/Lot 3		493.39			493.39
EUT3/Lot 3A		168.3			168.3
EUT4/Lot 5			469.1		469.1
EU Total					1487.89
GOVT1/Lot 2	475.1				475.1
GOVT2/Lot 4		654.5			654.5
GOVT3/Lot 6				314.5	314.5
GOVT Total					1444.1
Grand Total	**832.2**	**1316.19**	**469.1**	**314.5**	**2931.99**