

# Project Final Report

UNDP Timor-Leste



*Empowered lives.  
Resilient nations.*

## PROJECT PROFILE

Project Identification	Geographic coverage of the project
<ul style="list-style-type: none"> <li>• <b>Project Title:</b> Leveraging ICT to Improve Education and Skills in Timor-Leste</li> <li>• <b>Project ID:</b> 0082979</li> <li>• <b>Web link:</b> <a href="#">Leveraging ICT to improve education and skills in Oé-Cusse   UNDP in Timor Leste</a></li> </ul>	<p><b>National level coverage (Yes/No): No</b></p> <p><b>Number of municipalities covered: 1</b></p>
Strategic Results	Implementing/Responsible partner(s)
<p><b>UNDP Strategic Plan Outcome:</b></p> <p><b>UNDP Strategic Plan Output:</b></p>	<p>1. UNDP Timor-Leste</p>
<p><b>UNDAF/CPD Outcome:</b></p> <p>UNDAF Outcome 1: “People of Timor-Leste, especially the most disadvantaged groups, benefit from inclusive and responsive quality health, education and other social services and are more resilient to disasters and the impacts of climate change”.</p> <p>#1: SO1.2: Children, youth, and adults benefit from inclusive and quality education at all levels in an equitable manner.</p> <p>UNDAF Outcome 3: “Economic policies and programmes geared towards inclusive, sustainable and equitable growth and decent jobs”.</p> <p>SO#3.4: Financial and Technical capacity of relevant institutions enhanced to deliver skills, productivity, and employability of the workforce.</p>	
<p><b>CPD Output:</b></p> <p><b>Outcome 3:</b> “State institutions are more responsive, inclusive, accountable and decentralized for improved service delivery and realization of rights, particularly of most excluded groups”.</p> <p><b>SO #3.3:</b> Capacities and systems of sub-national institutions developed to provide more efficient, accountable, and accessible services to citizens, particularly for poos and other disadvantaged.</p>	
Project Budget (US\$)	Project Duration
<p><b>UNDP Contribution:</b> 0</p>	<p><b>Start Date (day/month/year):</b> 8 May 2019</p>

<b>Government Contribution:</b> DPC: \$26,435.80 Government In-Kind: \$51,500.00	<b>End Date (day/month/year):</b> 30 June 2021
<b>Other Contributions:</b> UNICEF \$ 13,000.00	<b>Implementation Modality (NIM or DIM)</b> DIM
<b>Donor Contributions:</b> <b>Donor 1:</b> UN-India Development Partnership Fund \$881,193.20	
<b>Unfunded: -</b>	
<b>Total project budget:</b> \$972.129.00	

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## Acronyms

ASC	Annual School Census
CDT	Career Development Training
CPD	Country Programme Document
ICT	Information and communication technology
IT	Information technology
MoEYS	Ministry of Education, Youth, and Sports
MoU	Memorandum of Understanding
RAEOA	Special Administrative Region of Oé-Cusse Ambeno
SDGs	Sustainable Development Goals
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
ZEESM TL	Special Economic Zones for Social Market Economy Oé-Cusse, Timor-Leste

## 1. Executive Summary

With the ultimate objective of preparing the students for addressing the challenges and opportunities of the local economy and funded by the UN-India Development Partnership fund, the project aimed to: a) improve education quality in the region by imparting computer skills to primary school and secondary students and b) enhance children and young people's knowledge of financial education and environmental awareness by developing and implementing computer-based educative interactive games.

The project has been able to achieve the overall targets and the two outputs were successfully executed with some of the key achievements as below:

**Output 1:** Improved education quality in Oé-Cusse Region by promoting computer skills to 2,000 children at primary school and 3,370 young students attending secondary school through the implementation of laboratories for IT innovation and experimentation.

### Key achievements

- 5,542 students, 168 schoolteachers, and 118 government staff benefited from the ICT training, including matters in Innovation & Experimentation, Career Development (CDT), basic computer programming, robotics, and curriculum-vitae development.
- Four In-house computer labs and 4-Robotic labs established in eight different schools
- Two mobile computer labs with 2 trainers operated in 14 schools in different locations in Oé-Cusse
- Three ICT manuals developed in Tetum, Portuguese, and English language for teachers on general ICT knowledge, basic computer applications, website design, multimedia technology, internet browsing, and email.
- 120 students from 27 primary, secondary, and vocational schools benefitted from the ICT Bootcamp and Exhibition. The Bootcamp's overall aim was to educate students on becoming potential social entrepreneurs by using ICT to develop real-life solutions for existing problems and to transform their ideas into innovative business concepts

**Output 2:** Enhanced child and young people's knowledge on financial education and environmental awareness through the development and implementation of two computer-based educative interactive games in Tetum and Portuguese language.

### Key achievements

- Two interactive games on "Environmental Awareness" and "Financial Literacy" were developed to enhance people's knowledge of financial education and environmental awareness.
- 35 teachers and 3062 students trained on how to play both interactive games.

The project recognized that if training of this kind continues, Timor-Leste's students can improve their skills very quickly and learn to apply new knowledge and connect with 21st-century technology. As

education in Oé-Cusse is obstructed by a lack of skills education in schools and access to ICT learning and equipment, increased exposure to ICT-focused education yields higher-level impacts on students' life aspirations, as well as contributing to academic performance.

## 2. Background and Context

Prior to its independence in 2002, violence and the struggle for independence had led Timor-Leste to a period of instability and significant erosion of development gains. Emerging out of this context and since independence, the country has achieved substantial progress on human development. The government and people of Timor-Leste successfully laid a foundation of peace, stability and nation-building in the first decade of the youngest country in Asia.

Situated as an enclave within the Western Timor province of Indonesia, Oé-Cusse Region has unique development challenges as it houses the nation's youngest population and has the nation's lowest fundamental indicators in terms of human development. In 2014 the Timor-Leste government established the Special Zones of Social Market Economy (ZEESM TL), and the Special Administrative Region of Oé-Cusse Ambeno (RAEOA) as a regional authority to administer Oé-Cusse.

The Oé-Cusse Region and enclave have faced persistent difficulties in improving basic human development indicators, which continue to remain amongst the lowest in the country as the region did not receive the same allocation of resources as the other provinces. The status of education in Oé-Cusse is affected by a lack of skills education in high schools, insufficient educational materials in the national language (Tetum), and access to ICT learning and equipment. These challenges pose a significant barrier to achieving the country's development goals.

In May 2019, the RAEOA-ZEESM TL and the United Nations Development Programme (UNDP) started this project with the overall goal to improve the quality of primary and secondary education through providing ICT skills and knowledge to the children and youth in the Oé-Cusse Region.



### 3. Project summary and objectives

With the general objective of improving primary and secondary education for the children and young people in Oé-Cusse through the provision of ICT skills and knowledge, the "Leveraging ICT to Improve Education and Skills in Timor-Leste" project began in May of 2019 and ran through June 2021. The project was a partnership program between RAEOA-ZEESM TL and the United Nations Development Programme (UNDP), funded mainly by the India-UN Development Partnership Fund.

The project aimed to achieve two distinct outputs to address the challenges of education in Oé-Cusse.

- 1) First, to improve education quality in the region by teaching computer skills to 2000 children in primary and 3,370 young students in secondary schools through the implementation of laboratories for IT innovation and experimentation. The rationale was to address the lack of *skills education* in schools, limited access to ICT equipment and learning, and the insufficient educational materials in Tetum. The activities around this output involved constructing in-house ICT and robotics labs and facilitating two mobile computer labs to offer ICT training and lessons. The labs have been geographically dispersed to ensure equitable access to ICT infrastructure and, therefore, students attending schools in rural areas were also able to benefit from the service. The project developed curriculum and learning materials in Tetum, Portuguese, and English to train the teachers and the students. The availability of the materials in three languages addresses the complex language issues in the region that can affect educational outcomes. Students, teachers, and the education sector beneficiaries benefit from increased access and equity, improved learning outcomes, and other socio-cultural benefits related to student engagement.
- 2) The second output was to provide education to enhance the child and young people's knowledge of financial and environmental awareness by developing and implementing two computer-based educative interactive games. These games are available in the three languages of Tetum, Portuguese, and English, and contribute to improved skills education, access to ICT learning, and enhanced educational materials in Tetum. The games educate students on environmental problems and solutions and introduce them to the skills and knowledge they need to make informed financial decisions while promoting entrepreneurship early on. Playing the games is expected to directly impact the learning outcomes and prepare the pupils to address the challenges and opportunities of the local economy.

The activities of this project contributed to achieving Outcome 3 of the UNDP Country Programme Document (CPD) under Output 3.3. Moreover, the project directly contributed to Outcomes 1 & 3 of the United Nations Development Assistance Framework (UNDAF).

#### **4. Narrative on Key Results Achieved**

The project implementation was a success given the activities and reaching the overall targets outlined in the project and the programme document. One main challenge that delayed the implementation was the covid-19 pandemic which imposed movement restrictions and therefore a delay in delivery of the goods at the project site or/and affecting the market price. The same also restricted the movement of the specialists to offer their on-site services.

In a nutshell, this project through investment in the ICT had at least four positive impacts, namely:

- reducing inequalities within various regions and populations in Timor-Leste and between other Asian countries,
- reducing regional disparities in access to ICT education in Oé-Cusse
- increasing educational and employment opportunities for all, especially disadvantaged groups such as young girls, and
- improving the overall quality of education in the regions and consequently the nation.

The table below displays the Outputs, activities, targets, and the progress made by the end of the project period.

Result statements	Indicators	Baseline	Original Project Target	Revised Project Target	Result Achieved	Status
<b>Outcome 1:</b> Sub-Outcome 1.2: Children, youth and adults benefit from inclusive and quality education at all levels in an equitable manner (UNDAF sub-outcome 1.2)						
Output 1: Improved education quality in Oé-Cusse Region by promoting computer skills to 1,007 children at primary school and 4,370 young students attending secondary school through the implementation of laboratories for IT innovation and experimentation.	# children and # of young people (50% girls) developed new skills on the use of computers and technology.	<b>Year:</b> 2018  0	1007 children (50% girls) and 4370 young people (50% girls)	2000 children (50% girls) and 3370 young people (50% girls)	<b>2038 children (primary students) (67% girls) and 3,504 young people (secondary students) (53% girls)</b>	
	# schools with access to labs for ICT innovation and experimentation.	<b>Year:</b> 2018  0	15	8	10	To response the government request, the project included 2 new schools in mountainous area to improve rural students' ICT skills.
	# of curriculum and materials developed to provide ICT education in Oé-Cusse.	<b>Year:</b> 2018  0	1	NA	3	The result achieved last year.
	# of schools are providing ICT classes through mobile computer rooms	<b>Year:</b> 2018  0	8	NA	16	
	# of government staff trained on basic ICT	<b>Year:</b> <b>2018</b>  <b>0</b>	NA	100	118	
	# of teachers trained on basic ICT	<b>Year:</b> <b>2018</b>  <b>0</b>	NA	50	168	
<b>Output 2:</b> Enhanced children and young people's knowledge on financial education and environmental awareness	# of computer-based interactive games in Tetum and Portuguese language developed	<b>Year:</b> 2018  0	2		2	
	# children and young people with increased knowledge on financial education and environmental awareness	<b>Year:</b> 2018  0	1,807 children (50% girls) and 6370 young	3370 young students (50% girls)	3032 students (52% girls)	Due to school closer some students couldn't

through the development and implementation of two computer-based educative interactive games in Tetum and Portuguese languages.			students (50% girls)			participate the training
	# teachers trained to use computers and interactive games as part of the education process	<b>Year:</b> 2018  0	20	35	35	The project has crossed the target number of children beneficiaries

\* Although the project achieved the target number of children beneficiaries, the project continued providing training to children as per the request from the government.

In summary:

- A total of 5,542 secondary, pre-secondary, and primary school students (53% female and 47% male) and from 24 schools received basic training on word processing, spreadsheet, slide presentation, and use of the internet. After the training, students are now able to write text using a word processor and can access the internet.
- 118 government staff and 168 teachers received training on basic computer-based applications and digital file management and internet access(e.g., Microsoft Word, Excel, computer operation, email).
- Two interactive educative games have been developed in Tetum and Portuguese languages. One game is on environmental protection and the other one is on financial literacy.
- Four In-house computer labs and 4-Robotic labs established in eight different schools
- Two mobile computer labs with 2 trainers are operating in 14 schools in different locations in Oé-Cusse
- Three ICT manuals were developed in Tetum, Portuguese, and English language for teachers on general ICT knowledge, basic computer applications, website design, internet browsing, and email.
- 3,062 secondary level students benefitted from the training provided through interactive educative games. They learned about recycling of products, waste management, clean environment, saving behavior, creating a business network, etc.
- Eight school inspectors have been equipped with android and trained in collecting, sharing, and analyzing school-related information efficiently.
- 120 students from 27 primary, secondary, and vocational schools benefitted from the ICT Bootcamp and Exhibition. The Bootcamp's overall aim was to educate students on becoming potential social entrepreneurs by using ICT to develop real-life solutions for existing problems and to transform their ideas into innovative business concepts

- A report on ICT curricula in secondary education for Timor-Leste has been prepared and handed over to the Ministry of Education, Youth and Sports. The report has been reviewed and approved by the director-general of secondary education of the Ministry

The data suggest that the introduction of ICT education in school education, training of teachers on student-centered methodology, and innovative uses of ICT in the classrooms are likely to contribute to enhancing the quality of education in the region. Likewise, the development of educational games in local language and participation of about 53% girls are likely to contribute to making the education inclusive as stipulated by the project outcome: Children, youth, and adults benefit from inclusive and quality education at all levels in an equitable manner (UNDAF sub-outcome 1.2)

#### 4.1 A Specific Story

A number of beneficiaries have expressed their appreciation for the project and how it has positively impacted their education experiences.

A 17-year-old secondary school student, from ESG Sano Antonio, participated at a robotics, website design, and basic computer training programme. In her own words:

*“before I didn’t know how to research on the internet. Now I understand though and have little knowledge on how to do research on the internet. My presentation project was about pollution, especially global pollution affecting our planet. In this moment, our planet is in danger. This ability I gained gives enormous advantages in applying for university or work in future.”*



*Immaculada Ena, age 17, (left one) a student of secondary schools (ESG Santo Antonio). She took part in a robotics, website design and basic computer application training program.*

Similarly, Marcelo Colo, a student ETV Palaban, participated in a robotics training programme. Before the training, Marcelo did not know how to operate a computer or what a robot was. When interviewed, Marcelo remarks, “but today I have a chance.” Providing a chance for students to access their right to 21st-century education is a significant impact of the project. Marcelo also recognized the knowledge as advantageous, stating, “It will sustain my study in the field of engineering and technology.” Engagement with technology helped Marcelo feel aspirational and hopeful of the future, identifying potential opportunities to apply this knowledge during and after schooling.

#### **4.2 Contribution towards the UNDAF and CPD Outcomes:**

The project titled *Leveraging ICT to Improve Education and Skills in Timor-Leste* successfully contributed to the implementation and execution of the Country Program as well as the UNDAF.

**Outcome 3:** “State institutions are more responsive, inclusive, accountable and decentralized for improved service delivery and realization of rights, particularly of most excluded groups”.

**Output 3.3:** Capacities and systems of sub-national institutions developed to provide more efficient, accountable, and accessible services to citizens, particularly for poor and other disadvantaged.

**Outcome 1, SO 1.2:** Children, youth, and adults benefit from inclusive and quality education at all levels in an equitable manner.

**Outcome 3, SO#3.4:** Financial and Technical capacity of relevant institutions enhanced to deliver skills, productivity, and employability of the workforce.

Contribution to UN-SDGs: The project directly speaks to the 4<sup>th</sup> UN Sustainable Development Goal (SDG#4) to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. The integration of ICT in schools improves access to opportunities that students may otherwise be excluded from and ensures children and young people can access their Right to 21st-century education in an inclusive environment. Based on this, the project also contributes indirectly to SDG #10: Reduced Inequality as well as SDG#3: Gender Equality.

## **5. Cross-Cutting Issues**

### **5.1 Gender Equality, Women's Empowerment, and Social Inclusion**

The ICT project strived to provide education in an inclusive and safe environment for all students. Throughout the project life, the project educated a total of 5,542 students across Oé-Cusse students (about 53% female and 47% male) from 24 schools received basic training on word processing, spreadsheet, slide presentation and use of the internet. After the training, students are now able to write text using a word processor and can access the internet.

35 teachers and 3032 students are training on how to play games. During the game playing session, students learned about the green environment, waste management, recycling product and business literacy e.g. creating business network, saving money, and starting small business using own developed products. The games are inspiring to making entrepreneurship in the local community.

Female students have been able to confidently present their work and teach their peers, as well as show their new skills in several public events (e.g. ICT in education conference held in October 2020, Friendship Korean week held in November 2020). The students are deemed likely to continue developing their knowledge with continued open access information, developing their professional future with improved opportunity for employment opportunities in the 21st-century economy.

In addition to being committed to providing equal opportunities to ICT education for male and female students, the project's mobile lab activities contribute to reducing regional disparities between students in rural areas and urban areas.

The Bootcamp is a way to transform their ideas into innovative business concepts for the most motivated teams. The goal of the Bootcamp is to educate students on becoming potential social entrepreneurs by solving existing problems and developing real-life solutions with workable market potentials. After completing the two-day long training, a workshop, and competitions, students showcased their model projects at the exhibition. To join the Bootcamp, near about 500 students participated inhouse schools competitions where is 57% are girls. Therefore, 30 students were designated as the winners and runner-up for five competition categories, namely, basic and advanced ICT skills, website design, robotics, and innovation using IoT.

### **5.2 South-South and Triangular Cooperation**

The project is under South-South and Triangular Cooperation through a partnership with the Republic of India. India is a world leader in the IT sector. Therefore, the project benefited from exchange activities between India and Timor-Leste to facilitate knowledge transfer regarding education for IT literacy and innovation labs. Although due to the constraints imposed by the COVID-19 pandemic such cooperation was hindered during 2020, the project successfully conducted an online training on 5-7 May 2021 by the

international trainers from India (Robolab Technology Pvt. Ltd.) provided online training on robotic and IoT technology using Arduino equipment; simultaneously the national trainers provided hands-on training on Robotics and website design.

## **6. Partnerships**

UNDP and the Project worked closely with the Special Administrative Region of Oé-Cusse Ambeno (RAEOA) and implemented the project in partnership with the UN Resident Coordinator's Office (RCO) and the UNICEF, thanks to the generous financial contribution of the Government of the Republic of India through the UN Office of South-South Cooperation (UNOSCC).

The RAEOA's Government, through the Regional Secretary of Education and Social Solidarity, has worked closely to ensure quality and the better delivery of education. UNICEF advised the UNDP to ensure project activities meet the highest standards of education based on the situational context. As a result of such partnership, the project developed three ICT education manuals for primary school students, secondary school students, and teachers nationally, utilizing UNICEF's knowledge contribution.

## **7. Implementation Challenges and Lessons Learned**

The project implementation was a success given the activities and reaching the overall targets outlined in the project and the programme document. There were, however, a number of challenges pertaining to the nature of the ICT project and those imposed by the pandemic. Certain other technological difficulties such as poor mobile and internet connectivity as well as the poor road conditions did affect the implementation during the rainy seasons.

One main challenge was at the nature of the ICT project which was introducing such new concepts in the region. There was no previous experience on the subject matter nor the ICT capacities were present in the region. It was the "first of a kind" in creating such games, manuals etc. Therefore, the concept was foreign to the local authorities and stakeholders.

With the same token, there was a lack of skills and technical capacity to install high-tech in the labs. This was a challenge which directly affected the smooth implementation of the project.

Another main challenge that delayed the implementation was the covid-19 pandemic which imposed movement restrictions and therefore a delay in delivery of the goods at the project site or/and affecting the market price. The same also restricted the movement of the specialists to offer their on-site services. With the same token the pandemic imposed a shutdown on the schools, and therefore, students were not able to attend online nor onsite trainings.



Last, but not least, the changes in the political leadership throughout the project implementation was a challenge with direct affect on the timely and smooth implementation.

### **Lessons Learned**

One of the findings was that the sustainability of training is challenged by a lack of infrastructure. Many participants did not have access to a personal or even a shared computer to practice their learned skills.

Additionally, the project found that there is only one ICT curriculum for the secondary level. The curriculum materials are completely based on information literacy and computer specifications and are too advanced for many students. The project provided feedback to the MoEYS through RAEOA Government and the MoEYS requested the project to assist in the ICT curriculum reform to make it more applicable to basic computer use and understanding. It is recommended that moving forward the simpler and non-technical language to be used in the ICT curriculum which will make it easier to understand, more cmprehendable and therefore more applicable.

Last but not least, the project proves that the teaching methodology heavily impacts participant’s level of understanding. Participants learn progressively better when courses are delivered in an active learning style – i.e. where courses are delivered in a way that allows for direct application of knowledge via in-class work and examples. Hence, the core nature of this project was fulfilled and encourages more similar projects for the future.

## **8. Provisional Financial Summary**

Jan-Mar 2021

<b>Output</b>	<b>Source of Funding</b>	<b>Approved Budget (USD)</b>	<b>Expenditure (USD)</b>	<b>Balance (USD)</b>
<b>Output 1</b>	Indian Fund	20,125.00	32,602.60	(12,477.60)
	Indian Fund	1,500.00	647.06	852.94
	Indian Fund	50,702.30	36,453.73	14,248.57
	Indian Fund	2,253.70	2,341.75	(88.05)
	Indian Fund	20,410.12	17,433.06	2,977.06
<b>Output 2</b>	Indian Fund	2,070.00	(483.95)	2,553.95
	Indian Fund	480.00	(3,296.00)	3,776.00
	Indian Fund	2,253.70	1,180.90	1,072.80
	Indian Fund	20,171.16	9,136.95	11,034.21

<b>Project Management Unit (PMU)</b>	Indian Fund	35,637.60	25,594.76	10,042.84
<b>DPC</b>	Government Fund	4,668.11	8,253.99	(3,585.88)
<b>GMS</b>	Indian Fund	4,808.15	4,853.20	(45.05)
<b>TOTAL</b>		<b>165,079.84</b>	<b>134,718.05</b>	<b>30,361.79</b>

*Project can revise the table below per project document.*

## Annexes

### Photographs in Action:



*Picture 1: Six school Inspectors after receiving tablets.*



*Picture 2: The Regional Secretary of Education and Social Solidarity distributing tablets to School Inspectors*



Picture 3: Students from ETV Palaban school practicing spreadsheet applications.



Picture 4: Students from orphanage center practicing Microsoft office application to creating invoices.



*Picture 5: The primary school students practicing Microsoft word during the training session.*



*Picture 6: The primary students are participating the basic computer operation training program through mobile computer labs.*



*Picture 7: Total 45 government staff participated the training 29-31 march 2021 at Aenmat school in-house computer lab*



*Picture 8: Ana Maria (ICT trainer) providing basic ICT training to 22 government staff at in-house computer lab of Oesilo school*



Picture 9: The regional secretary of education in Oé-CusseOé-Cusse visited Oslo school's ICT lab during the game's training programme. The project developed two interactive educative games to enhance knowledge of environmental awareness and financial literacy.



Picture 10: H.E. Mr. Venkat Narayanan, Counsellor & Commercial Representative Embassy of India, on behalf of the Ambassador of India to the Democratic Republic of Timor-Leste delivering speech



Picture No. 11: Participants are in the queue for registration process; participants follow the health regulation on COVID 19 by wearing facemasks and using hand sanitizer before entering the venue.



Picture No. 12: Online test class after equipment installation at Baqui school