

## Promoting Timor-Leste's local and indigenous knowledge for sustainable development<sup>1</sup>

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### Introduction

Local and indigenous knowledge, as defined by UNESCO's programme on Local and Indigenous Knowledge Systems (LINKS), refers to "understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings" (UNESCO, undated). Local and indigenous knowledge (LINK) is synonymous with terms such as traditional ecological knowledge (TEK), indigenous knowledge (IK), local knowledge, and rural peoples' and/or farmers' knowledge. As is clear from these synonyms, LINK is not necessarily restricted to knowledge owned by people officially recognized, or those who consider themselves, indigenous. Rather than associating knowledge with a group of people, it is useful to consider the characteristics of local and indigenous knowledge itself, which typically (a) originates and is maintained within a community; (b) is disseminated orally from generation to generation; (c) develops and changes over generations; and (d) is embedded in a community's way of life. Local and indigenous knowledge takes diverse forms, such as stories, songs, folklore, proverbs, cultural values, beliefs, rituals, customary laws, language, and agricultural practices (CBD, undated). For rural and indigenous peoples, this knowledge is highly relevant to their daily lives, since it allows them to make decisions about fundamental aspects of everyday life and is the basis for a broad range of problem-solving strategies. LINK is intimately linked to a wide range of issues fundamental to a people's well-being, such as livelihoods and food security, biodiversity conservation, health and medicine, observations of and adaptation to climate change, natural disaster preparedness and response, and identity and self-esteem.

Timor-Leste, an emerging post-conflict small island development state, is rich in both biological and cultural diversity. Located in an area where the Asian and Australian continents converge, Timor-Leste contains flora and fauna common to both regions. The tropical climate in a varied terrain of mountains, 700 km of coastline, dry forest, and grasslands provides habitats that sustain many different species. Similarly, the population consists of several distinct indigenous groups of Malayo-Polynesian (Austronesian) and Melanesian-Papuan descent, with over 16 ethnic languages spoken, in addition to Portuguese and Indonesian. Considering its relatively small geographical area, the cultural and biological diversity in Timor-Leste is immense. This also means that there is a wide variation in local and indigenous knowledge systems within the country.

Like many other indigenous peoples, the East Timorese are concerned about the threats to this diversity: degradation of the environment through deforestation, soil erosion, and overgrazing; loss of their cultures and languages; and disintegration of their unique ethnic identities. As indigenous people are exposed to increasing global changes, they are responding and adapting to them by accommodating new lifestyles and practices. While these changes offer new opportunities, traditional knowledge systems are increasingly at risk due to lack of opportunities for knowledge transmission, erosion of social support networks, and loss of cultural identity and heritage. In light of such challenges, it is evident that preservation, maintenance and transmission of traditional knowledge systems are vital for conservation of biological and cultural diversity.

This paper presents UNESCO's activities between 2011-2013 to promote the use of local and indigenous knowledge related to environmental conservation, hydro-meteorological hazards and climate change in Timor-Leste. The programme included organizing seminars, conducting research, and developing educational materials based on such knowledge. The paper identifies and analyzes the challenges and

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lessons learned through this process. The central theme in this paper is the need to promote international recognition of local and indigenous knowledge as an important resource in development programmes. In order to do so, it is necessary to obtain a better understanding of such knowledge, and come up with ways to use it effectively. Recommendations on how such knowledge can be harnessed to move Timor-Leste towards sustainable development are outlined in the conclusion of this paper.

### **UNESCO's programme on Local and Indigenous Knowledge Systems**

UNESCO's LINKS programme has implemented activities worldwide since 2000. These activities fall into three main themes: (1) revitalizing knowledge and indigenous education; (2) local and indigenous conservation and management; and (3) climate change and adaptation.

The objectives of the programme are:

- to empower local and indigenous peoples in environmental management by advocating recognition and mobilization of their unique knowledge, know-how and practices; and
- to contribute to safeguarding of LINK by reinforcing their inter-generational transmission.

The UNESCO Office in Jakarta has implemented LINKS activities related to theme (1) in Timor-Leste since 2011. Two events were organized to raise awareness of the importance of LINK: a workshop co-organized by the Timor-Leste National Commission for UNESCO (TL NatCom) and Haburas Foundation held in June 2011; and a seminar hosted by the TL NatCom in May 2012. A book titled *Matenek Lokal, Timor Nian! (Traditional Knowledge of Timor!)*,<sup>3</sup> edited by Demetrio do Amaral de Carvalho, was published in 2012. The publication is a compilation of papers that explore the various aspects of local and traditional knowledge and its relation to nature conservation, land management and natural resource management, as well as industry. The book also outlines recommendations for promoting LINK and how to integrate it into development policies.



Fishermen taking out traditional fish trap (*Opa sesou*) to the sea from Makili Village, Atauro.  
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<sup>3</sup> The book is available in hard copy in Tetum only. A limited number of hard copies is still available. Please contact the author or UNESCO Antenna Office in Dili to obtain a copy. Soft copies of the Tetum and English versions of the book can be downloaded from: [http://portal.unesco.org/geography/en/ev.php-URL\\_ID=15178&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/geography/en/ev.php-URL_ID=15178&URL_DO=DO_TOPIC&URL_SECTION=201.html).

UNESCO has also developed educational & awareness-raising material based on local and indigenous knowledge For livelihoods in Timor-Leste. In 2011, environmental education materials for youth and adults were published in cooperation with Timor Aid Foundation.<sup>4</sup> These booklets and posters can be used as primary or supporting teaching materials in non-formal education. These materials were piloted in three Community Learning Centres in the country in December 2011. Two booklets and five posters on LINK related to fishing methods and coastal ecosystems were published, in cooperation with Roman Luan in 2013.<sup>5</sup> These materials will help transmit traditional marine ecological knowledge to youth, and increase the awareness of villagers towards the establishment of a marine protected area and customary laws (*Tara bandu*) on sustainable use of marine resources.

While the above activities have been implemented over a period of a few months, UNESO Jakarta has also been implementing a longer-term project that falls under themes (1) and (3) above. The following section describes the results of this project.

### **Strengthening the resilience of communities towards hydro-meteorological hazards and climate change impacts**

UNESCO Jakarta has promoted the use of local and indigenous knowledge related to hydro-meteorological hazards and climate change in order to increase communities' resilience by integrating such knowledge with science since 2011, as part of a three-year project in Indonesia, the Philippines and Timor-Leste. Activities in Timor-Leste are being implemented in close cooperation with the Timorese National Disaster Management Directorate (NDMD) while the National Center of Scientific Investigation at the National University of Timor-Leste (UNTL-CNIC) conducted research during 2012-2013.

Research to identify and document LINK took place in three villages: Raimea (Covalima), a lowland coastal area that frequently experiences heavy rains and floods, droughts, and storms; Lau-Hata (Liquiça), an upland coastal area with an extended dry season, non-stop rains, floods, landslides, rise in sea-level, and strong winds; and Maluru-Beaço (Viqueque), a coastal village exposed to droughts, heavy rains, storms, rise in sea-level and sea-water temperature, erosion, and landslides. Various forms of LINK related to hydro-meteorological hazards and climate change were identified and documented through focus group discussions (FGDs) and interviews in December 2012, involving *lia-na'in*, traditional leaders, women, youth, local authority representatives, teachers and church representatives.

Traditional ceremonies and rituals based on respect for nature are practised to apologize to nature after a hazard (*Monu ain ba lulik*), to stop heavy rainfall and storms (e.g., *Lakapogoa* in Lau-Hata), and to stop rain (*Queror* in Lau-Hata and *Bare-bare* in Maluru-Beaço). Customary laws (*Tara bandu*) related to conservation of the environment play important roles in preventing and mitigating landslides and floods. Alternative food sources such as sago and tubers are eaten to ensure food security in times of disasters, drums (*Guci*) are used to preserve food and medicine during the rainy season, and local materials are used to secure roofs (*Ai Tatan*) and to act as a shield (*Lenik*) during strong winds.

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<sup>4</sup> Three booklets on plants in Timor-Leste used for textile production, on producing red and blue colours from native dye plants for *tais* dyeing, and on Nino Konis Santa National Park were published. Six posters to assist class activities were also produced. A limited number of hard copies of the booklets in the Tetum language are available. To obtain a copy, please contact the author or UNESCO Antenna Office in Dili. Soft copies can be downloaded from [http://portal.unesco.org/geography/en/ev.php-URL\\_ID=15186&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/geography/en/ev.php-URL_ID=15186&URL_DO=DO_TOPIC&URL_SECTION=201.html).

<sup>5</sup> One booklet provides information on several traditional fishing methods, including ceremonies and legends associated with the use of fish traps, as documented in Makili village. The other booklet documents traditional uses of mangroves, sea grass and corals in Bikeli village. The posters are based on research conducted in Makili and Bikeli villages, and describe ways to improve traditional fishing methods and to use mangroves, sea grasses and corals sustainably. They emphasize the importance of safeguarding traditional ecological knowledge related to fishing and the coastal ecosystem for the communities' sustainable future. They are available online from: [http://www.unesco.org/new/en/jakarta/about-this-office/single-view/news/launch\\_of\\_fishing\\_method\\_booklet\\_and\\_posters\\_on\\_marine\\_traditional\\_ecological\\_knowledge\\_in\\_timor\\_leste/](http://www.unesco.org/new/en/jakarta/about-this-office/single-view/news/launch_of_fishing_method_booklet_and_posters_on_marine_traditional_ecological_knowledge_in_timor_leste/)

Observation of the sun, moon, clouds, stars, sky, sea, animals, plants, and insects allow coastal communities to predict storms, heavy rainfall, floods, droughts, and landslides. For example, when white clouds come down fast from the mountains to the sea, and form black lines of cloud (*kalohan tasi risku metan*) above the sea in Maluru-Beaço, it is predicted that there will be strong winds and/or a big storm. In Raimea, villagers predict whether summer will be prolonged, a rainy season is coming, or if there will be drought, depending on how the *manu tuturik* birds sing.



Traditional house with *Ai Tatan* and *Lenik* in Raimea, Covalima. © UNESCO/UNTL-CNIC.

Local and indigenous knowledge that helps coastal communities predict hazards enable them to develop ways to better prepare for such hazards, as well as to mitigate their impacts. Traditional beliefs, rituals, and laws help communities mitigate impacts of future hydro-meteorological hazards and climate change, because they engender and reinforce respect for the environment and strengthen social relationships. Strengthening LINK is extremely important given that technical means of preventing and mitigating natural disasters are not available in many parts of Timor-Leste, which are isolated and lack basic infrastructure such as reliable roads. Considering also the cultural and linguistic diversity of Timor-Leste, reinforcing social relationships and promoting beliefs and practices that lead to environmental conservation will also decrease coastal communities' vulnerability to hazards.

Local knowledge and practices were presented to groups of villagers during FGDs as part of a community validation process held in January and April 2013. The villagers then responded with their assessments, and most observations of the sun, clouds, sea, animals, and insects were considered as a valid means to predict hazards, while measures to ensure food security and local materials used to secure roofs were considered valid response mechanisms.

In the next phase of the project, LINK will be validated by scientists, which would then enable LINK to scientific knowledge and technology. After this, locally driven and context-specific educational and awareness-raising materials, action and adaptation plans will be developed. These steps are vital in the process of enabling the formation of local strategies to help communities develop their own means of predicting and dealing with hazards, disasters, and climate change impacts, and will be taken in close partnership with NDMD from September 2013 until June 2014.

## **Challenges and lessons learned to promote indigenous knowledge and practices for sustainable development in Timor-Leste**

Action research, also called participatory action research or participatory research, involves participation of local people in research, from the design of the research itself, data collection and analysis, to the practical application of findings. It allows researchers and local people to interact in meaningful ways (O'Reilly 2005). In the context of LINK, action research involves recording and documenting collective knowledge and worldviews of a people, with local community members involved from the beginning, and with the understanding that such research can result in acquisition of information that is useful to both scientists and local people.

As much as possible, the UNESCO activities on LINK in Timor-Leste described above were a result of such processes. Education and awareness-raising materials were developed based on research undertaken by Timorese organizations. For example, knowledge and practices related to fishing methods/traps, and various uses of seaweeds and mangroves, were identified and documented by researchers from the villages, who were trained on conducting research by the community-based NGO. Research results were presented back to the communities, and comments were solicited to verify that the information collected was valid and represented the knowledge of most (if not all) villagers.

After these processes, communities recognized the importance of their knowledge, including traditional ceremonies, and called for their revitalization and transmission to the younger generations. It was clear from meetings with some communities that the author attended, that by having an outsider from an international organization come to their village to valorize their knowledge, they became more proud of their traditional beliefs, which they had previously characterized as “backward”. They became aware of the relevance of their knowledge and practices to sustainable development, and were keen to have the training materials widely disseminated to transmit environmentally friendly traditional knowledge and practices to the younger generations.

Promoting the valorization of local and indigenous knowledge, however, is not without its challenges. The challenges are categorized in this paper as those pertaining to knowledge identification and documentation, and those related to methodology.

First, there are many forms of knowledge that are considered private, or in some circumstances, sacred and powerful. The author heard first-hand a story of a *Lia-na'in* who shared a sacred song, and passed away soon afterwards. Such anecdotes are common among many indigenous populations. Therefore, the LINK to be documented and promoted for disaster risk reduction need to be public knowledge that its holders are able and willing to share, and do not affect its sanctity. Second is loss of local and indigenous knowledge. Loss or erosion of local and indigenous knowledge has been noted and documented in many parts of the contemporary world, as a direct result of global changes, specifically globalization and migration. This is especially true in a country where the impacts of globalization are being felt in the remotest of villages, with the positive impacts still slow in coming. More research must take place before LINK is abandoned and lost.

The above challenges affect research on local and indigenous knowledge in general, but are particularly pronounced in Timor-Leste. The second set of challenges pertains to methodology. First, ensuring close communication and monitoring of activities was a particularly notable challenge, since the author, responsible for overseeing activities, was based in Jakarta. In an effort to overcome this challenge, consultants were hired to work closely with the local organizations for some of the projects. There was much room for improvement to this arrangement and thus, the focus of many projects was shifted to focus more on building the capacities of local NGOs. Another notable challenge in Timor-Leste was securing participation of marginalized members of society, especially women and the illiterate. Much of the LINK were collected from men and community leaders, since most of the researchers were men, and women often did not take part in, speak out, or actively participate in many of the meetings and FGDs. In the future, it would be necessary to ensure gender parity, considering that women's knowledge is integral to promoting disaster risk reduction, since they are the most vulnerable and suffer disproportionately higher mortality during disasters.

## Conclusions

From the activities implemented under UNESCO's LINKS programme in Timor-Leste, I conclude that promoting and valorizing local and indigenous knowledge can lead to sustainable use and management of land, sea, and resources, reduce communities' vulnerability to disasters, and help them to better adapt to climate change. I assert that local and indigenous knowledge need to be acknowledged as an important resource in development programmes in Timor-Leste. Valorizing LINK will also be a factor in facilitating community ownership of the development process. In order to harness LINK to move the country towards sustainable development, it is important that such knowledge be:

- acknowledged, transmitted and practised by communities;
- dynamic and adapt over time (to cope with changes, such as climate); and
- integrated with scientific knowledge.

There are a few caveats in promoting the valorization of LINK. First, there are aspects of local and indigenous knowledge that can be an obstacle in achieving sustainable development, especially when such knowledge is taken out of its context, i.e., the ecosystem, worldviews and beliefs within which they developed. Second, measures must be taken to ensure that LINK does not reinforce prejudices existing within communities, especially those pertaining to women. Third, it is necessary to avoid romanticizing LINK, as this can reduce its reliability (CBD, 2003). Fourth, local and indigenous knowledge is not static, but dynamic and complex, and often links natural, social, and cultural worlds (Cruikshank, 2005). In this regard, care should be taken so that the focus is not simply on 'ancient' practices.

I maintain that the first step in any activity to use local and indigenous knowledge for communities' sustainable development should be action research to identify and document such knowledge. All stakeholders need to be willing to work together in this process, which requires sufficient time to build trust. Moreover, all stakeholders must understand that this is a two-way learning process. It is necessary to obtain a better understanding of such knowledge, before we can work out ways to effectively use them.

I believe that closer cooperation and dialogue between researchers on Timor-Leste, especially academics and development organization professionals, is key to promoting the international recognition of local and indigenous knowledge as an important resource in development programmes.

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