A Global Strategy for the conservation and use of Coconut Genetic Resources 2018-2028

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LA RECHERCHE AGRONOMIQUE POUR LE DÉVELOPPEMENT
COGENT
Coconut genetic resources for enhanced livelihoods
Bioversity International

some bigger islands such as those of the Philippines. Utilization of coconut biomass residues such as shells and husks for heat and power generation is common in the coconut and allied industries.

Although coconut palms are widely planted in coastal zones to reduce erosion, no scientific study has yet been conducted to assess, quantify and eventually promote this use. When used for beach landscaping, these palms tolerate flooding better than *Casuarina* trees (filao). For instance, coconut palms played a crucial role during the 2004 tsunami and saved hundreds of lives by reducing the intensity of wave. In many coastal villages, coconut palms remained standing even when many houses and other buildings were flattened.

2.5.10 Coconut conservation, landscapes and ecotourism

In 2015, more than 1.2 billion international tourist arrivals were counted worldwide[51]. For a long time, tourism has been associated with sea, sand and sun, often referred to as the 3Ss. Local and international tourism is significantly associated with coastal environments. Coconut palms have long been associated with the natural aesthetics of tropical tourist destinations.

Ecotourism can potentially provide important economic benefits to local people and help protect biodiversity. Community-based ecotourism has become a popular tool for biodiversity conservation and sustainably boosting livelihoods; based on the principle that biodiversity must pay for itself by generating economic benefits, particularly for local people. Local stakeholders and international companies involved in tourism can be convinced to develop ecotourism programmes favouring coconut genetic resources conservation. For the tourism industry evolving in a competitive environment, it becomes more and more important to stand out from the standard fare that tourism offers. Coconut palms should not symbolize anonymous exoticism. They can tell true stories, specifically related to local cultures, and they could be used in the framework of an ecotourism and anthropotourism approach.

In addition to the beauty of standing coconut palms, there is a wide range of possibilities to use coconut for tourism and ecotourism activities. The concept of a coconut park (Coconut World) was elaborated in Australia to harness the potential of coconut for ecotourism, linked with education, research and genetic conservation (Samosir et al. 2006).

[51] See URL: http://data.worldbank.org/indicator/ST.INT.ARVL

BenTre Festival

A fine example is the 3rd Coconut Festival held in Ben Tre, Vietnam, with hundreds of thousands of domestic and foreign visitors and local people taking part. The festival is not only a show-case of coconut products made by local processors but it also features the unique beauty of the Ben Tre province. These include highly appreciated activities such as: A coconut product exhibition and commercial fair; Community cultural activities; a coconut road art installation ; a coconut food festival; a Miss Beauty of coconut land; Visiting coconut plantation; a fine arts & handicrafts contest; a seminar on how to best promote the value chain of coconut; a ceremony to honour coconut farmers;

Dragon made from tender coconuts in Ben tre festival, Vietnam

It is an opportunity for farmers, researchers, managers, processors and traders to exchange their techniques on growing coconuts and processing high value products to improve the local Ben Tre coconut industry in particular and Vietnam coconut industry in general.

The majority of world's inhabitants are urban. Coconut palms are widely used for landscaping in cities and towns in tropical regions. The number of coconut palms planted annually in public places greatly outstrips the total number palms existing in all the *ex situ* coconut genebanks. Many coconut palms are planted in public places without considering genetic resource aspects, and even sometimes without even a landscaping rationale.

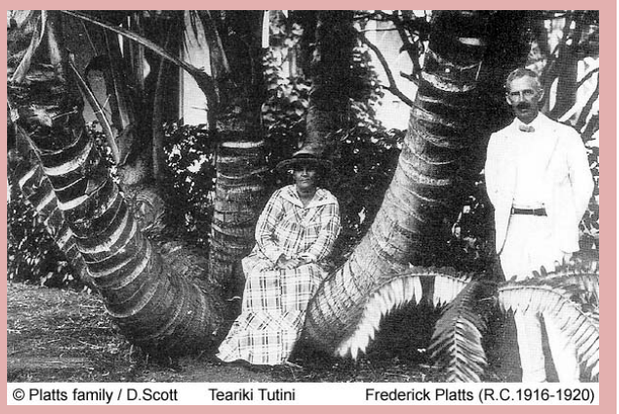
Adult palms for landscaping?

It is feasible to transfer and replant Tall adult coconut palms, even reaching 10 m high or more. There is a substantial and very lucrative market for such adult palms for public places and resorts; the palm prices are often calculated by the length of the stem, at US$100 per meter or more.

Some exceptional coconut palms have become local tourist attractions such as the 'Seven in one' palm in Rarotonga, Cook Island[52], the "Seven Branch coconut freak" in Karakit, Malaysia, the Eight-headed coconut palm in Ko Samui Island in Thailand, or

[52] See the full story, including DNA molecular analysis, at URL: http://cookislands.bishopmuseum.org/showarticle.asp?id=9

the 14-branch coconut palm at Baa in Maalhos Island, Maldives[53]. These rare "branched" palms were never studied and sampled for conservation in *ex situ* collections. They may help understand the functioning of the growing point; this may contribute to the improvement *in vitro* cultivation techniques.



A 14 branched coconut palm located on the island of Baa. Maalhos (left) and The "Seven in one" coconut palm in Rarotonga, Cook Islands (right).

2.6 Coconut germplasm exchange

Coconuts have been moving all over the tropical world. Recognition of the importance of coconut germplasm collecting, movement, exchange and conservation has prompted the establishment of national and international genebanks with a considerable collective range of genetic diversity.

The Convention on Biological Diversity (CBD) entered into force on 29 December 1993. It has three main objectives:

- The effective conservation of biological diversity;
- The sustainable use of the components of biological diversity;
- The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) is an international agreement with the overall goal of supporting global food security, allowing governments, farmers, research institutes and agro-industries to work together by pooling their genetic resources and sharing the benefits from their use – thus protecting and enhancing food crops while giving fair recognition and benefits to local farmers who have nurtured these crops through the millennia. It was adopted in 2001 by the United Nations Food and Agriculture Organization and came

[53] See URL: http://www.flickr.com/photos/48697218@N04/4525383340/

into force in 2004. The Treaty's truly innovative solution to access and benefit sharing, the Multilateral System, puts 64 of our most important crops – crops that together account for 80 percent of the food we derive from plants – into an easily accessible global pool of genetic resources that is freely available to potential users in the Treaty's ratifying nations for some uses. Coconut is one of these 64 crops, listed in the Annex 1 of the Treaty.

However, access to these resources is often restricted by pests and diseases affecting the germplasm and its safe movement, by the complexity of institutional legal and policy frameworks for the exchange of materials, and by the lack of commitment of some countries to provide conserved germplasm at the international level.

As presented below, the safe movement and exchange of coconut germplasm has been a major focus of COGENT and international organizations like CGIAR and FAO.

Traditional coconut germplasm exchange

Historically, international germplasm movements were sometimes conducted by monarchs or chiefs. This even influenced the name of some countries. For instance, Niue is an island nation in the South Pacific Ocean, 2,400 kilometres northeast of New Zealand which was originally known as Nukututaha. It was renamed after a chief's sons and their followers travelled to their ancestors' original homeland in Samoa. When they decided to return to Nukututaha, the chief of Manu'a, Moa, gave them two special coconut varieties and explained why each one was special. On returning to Nukututaha, the chief's sons held up these special coconuts and said "Ko e Niu è!" (Behold the coconut!). One coconut variety is Niu pulu, the coconut grown especially for making sennit rope used in constructing traditional buildings and making canoes. The other coconut is the Niu tea, the medicinal coconut. Its juice, husk, leaves, and just about every other part are used as medicine for a variety of ailments as well as for drinking and as food. According to this tradition, the name of the island was changed to Niue to honour the arrival of these two special varieties of coconut and to remember the chief of Manu'a, who gifted them.