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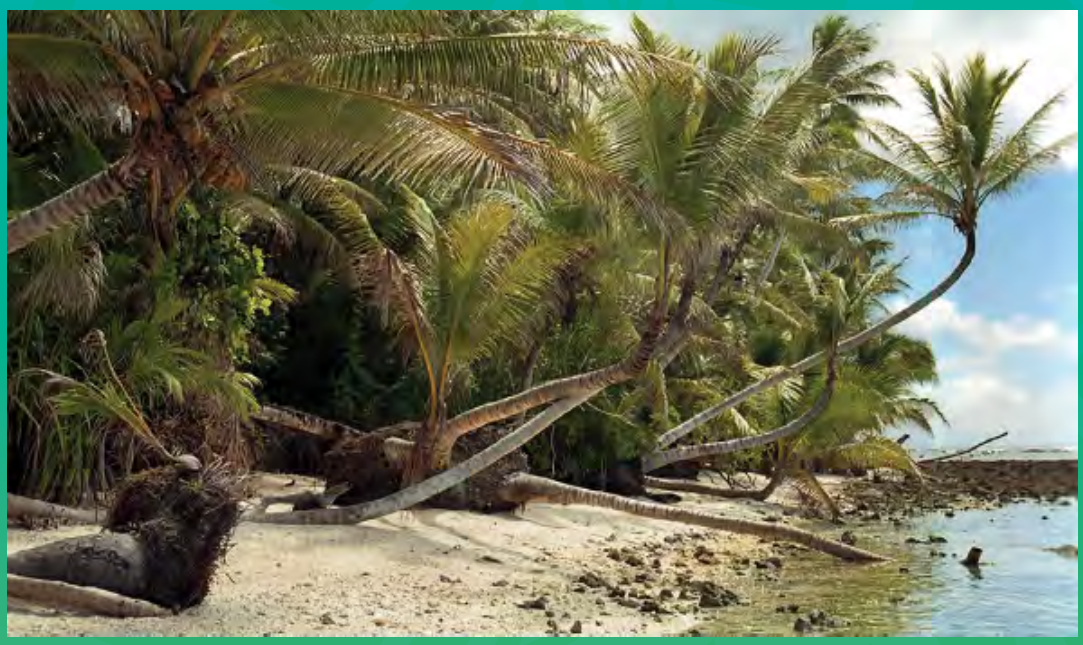
Coconut Risk Management and Mitigation Manual for the Pacific Region



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D. RISKS LINKED TO AGRICULTURAL PRACTICES

By R. Bourdeix and J. Ollivier

There is a kind of balance to be found between the time and resources devoted to a plantation, and the benefits that this plantation will bring. For a farmer, finding that balance requires experience. This equilibrium indeed depends on many factors: the cost of labour, the economic opportunities of selling the production, the availability of land, etc. If agricultural land is widely available, it seems that a fairly extensive farming method would be more profitable in terms of quantity produced per unit of work. The yields are then low, but the work devoted to agriculture is small.

The existence of agricultural risk may rise to a preference for extensive cultivation practices that need a relatively small amount of inputs, labour and investment per unit area. This is due to the lack of a secure and guaranteed link between investment - in agricultural labour and purchase of inputs - and the return on investment (which is very often not immediate) - the volume and value of the yields. For many farmers, low incomes and lack of capital prevent good control of their agricultural environment: irrigation, fertilizers, pesticides are not widely used. Insufficient mechanization and motorization do not facilitate timely interventions over significant areas. The means of transport, storage and conservation are too rudimentary and do not help enough to even out in space and time the annual variations of an agricultural production often subject to the vagaries of nature and markets.

But when the value of land increases, when the land becomes scarce, or when the farmer wants to raise his standard of living, shifting to more intensive farming methods may require more labour and inputs.

Land degradation in many Pacific Island Countries and Territories (PICTs) has become an emerging concern in recent years. The causes of land degradation in PICTs include: deforestation; 2nd or 3rd cycle of coconut monocropping; inappropriate agricultural practices; overgrazing; mining; population pressure; land tenure issues and changing climate. Deforestation and inappropriate agricultural practices especially on sloping lands often lead to soil erosion. A recent study conducted in Africa may also apply to the Pacific region. This study suggests that smallholder farmers are unable to benefit from the current yield gains offered by plant genetic improvement. Continued cropping without sufficient inputs of nutrients and organic matter leads to localised but extensive soil degradation and renders many soils in a non-responsive state. The lack of immediate response to increased inputs of fertiliser and labour in such soils constitutes a chronic poverty trap for many smallholder farmers.

The following is an unhealthy example from Europe. As nitrogen is the main limiting factor for wheat yield in Europe, farmers have always tended to provide more fertilizer than needed, thus running the tangible risk of lodging and thus a decline in yield. This wheat lodging played an effective role of regulation. The introduction of growth regulators (anti-lodging substances) and dwarf varieties made this risk negligible. As the cost of these regulators and nitrogen was low compared to the selling price of wheat, much of this spontaneous regulation has disappeared. This led to an unreasonable increase in fertilizer doses, with significant pollution of aquifers by nitrates.

In the past, agricultural intensification has developed mainly through breeding, associated with increases in the use of inputs such as chemical fertilizers, herbicides, pesticides, irrigation and mechanization. Such a model has shown adverse effects on the environment. Today, by contrast, 'agricultural ecological intensification' has been proposed, defined as the 'maximization of primary production per unit area without compromising the system's ability to maintain its productive capacity' or as 'producing more food from the same area of land while reducing the environmental impacts'. The contribution of the Pacific region, as developed here under, may integrate in this definition an optimization of agricultural labour.

The intensification pursued to its end implies an artificialization of the environment (irrigation, for example), that should in principle reduce the agricultural risk much more than could the extensive cultivation practices. The control of water often appears as a preferred way to allow farmers to intensify production without the fear of seeing their efforts brutally reduced to nothing. Many governments are willing to invest large budgets in hydro-agricultural development. It is expected that irrigation can make up for the irregularity of the rains and provide the water necessary for the growth and development of cultivated plants when periods of water deficit are more or less predictable. Water control and drainage help to reduce the risk of inadvertent floods and excess water, even if this control seems more difficult than in the case of drought.

Consumers appreciate organic certification for several reasons: preservation of the environment, health concerns (based on the perception that organic products are better), preservation of biodiversity, real or supposed risks related to the cultivation of genetically modified organisms. To these main reasons, there is also a search for foods with better taste qualities; and reflections of a more ethical nature, which go beyond the boundaries of organic farming. These last ones concern the compensations of the producers, the relations of power and domination between stakeholders in food market, and possibility of forging direct links between producers and consumers.

In Europe, the public authorities have committed themselves to organic production. Farmers' organizations follow this movement, but with an attitude sometimes timid and circumspect. For example, in France, from 2007 to 2012, an action plan provided for the tripling of areas dedicated to organic farming (from 2% to 6% of French agricultural area). The plan was divided into 5 areas: structuring studies; research, development and training; adaptation of regulations for collective catering; encouraging the conversion and sustainability of organic farms. Some European peasant organizations were reluctant to put forward arguments in favour of organic production, which at the same time implies criticism of the conventional agriculture practiced by most of their members.

In the Pacific, the situation appears to be reversed - a much larger portion of land is traditionally managed organically. Farmers and their organizations are driving organic farming, with support from regional or global organizations like SPC and ICC. Governments took time to become supportive.

Organic farming in the Pacific region has significant advantages: environmental protection and a higher resilience to environmental changes, increasing farmers' income and reducing external input costs, enhancing social capacity and increasing employment opportunities. However, the main challenges of this production system include lower yields in comparison to conventional systems, difficulties with soil nutrient management, certification and market

barriers, the educational and research needs of small-holders, and the effective support of policy makers.

In many situations, intercropping of coconut palms with food crops and self-consumption should be favoured. Outside of the Pacific region, an African study comparing farm families living in the same geographical area (Rwanda) has shown that those who practice a cash crop (tea) have a more modern lifestyle; but these so called 'modern' families eat less well than those who do not grow tea, even though the modern families spend more to buy their food.

Crop substitution may also be a risk - or an opportunity - for the coconut value chain. For instance, in some Pacific countries plenty of land presently or previously used for sugarcane production could be turned into coconut cultivation. In the case of stimulating an industry of bottled coconut water in the Pacific region, it would become much more profitable to cultivate coconut than sugarcane.

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