

# Unintended Economic Consequences of Biotrade in Namibian Marula Plant Oil: a Study of Changing Patterns of Economic Behaviour

Unabsichtliche wirtschaftliche Folge des Biotrades in namibisches Marula  
Pflanzenöl: Eine Studie zum Wandel von Mustern des wirtschaftlichen  
Verhaltens

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## Summary

Marula fruit are traditionally gathered and processed as an important women's collaborative activity in the north central region of Namibia. After the abolition of apartheid, the end of the Cold War, and the expansion of commodification of marula food products, the commercialization of marula oil production was supported through formation of a women's cooperative and the establishment of two international biotrade contracts, with the aim to empower local women and the poor. This study conducts an institutional analysis of changes in rules concerning marula use, understood as impacts from biotrade. Findings reveal that gender, power asymmetries and unstable social contexts have influenced the changes in rules that came with implementation of marula oil biotrade in Namibia.

**Keywords:** biotrade, gender, Institutions of Sustainability, marula, bounded rationality

## Zusammenfassung

Das Sammeln und die Verarbeitung der Marula-Frucht stellt eine wichtige traditionelle Frauenaktivität in Nord-Zentral Namibia dar. Nach der Abschaffung der Apartheid, der Beendigung des kalten Krieges und des Bürgerkrieges sowie der Verbreitung der

Kommodifizierung von Marula-Fruchtprodukten wurde mit der Kommerzialisierung der Marula-Ölproduktion begonnen. Zielsetzung war die Ermächtigung der lokalen Frauen und der Armen durch die Gründung einer Frauengenossenschaft sowie durch alternative Biotrade-Verträge im Rahmen der Wertschöpfungskette von Kosmetika. Diese Studie führt eine institutionelle Analyse in Hinblick auf den Wechsel der Nutzungsregeln von Marula-Früchten als Auswirkung des Biotrade durch. Die Ergebnisse zeigen, dass es wichtig ist, die Gender-Machtasymmetrie und den instabilen sozialen Kontext bei der Einführung von Biotrade bei der Produktion von namibischem Marula-Öl zu berücksichtigen.

**Schlagerworte:** Biotrade, Gender, Institutions of Sustainability, Marula und eingeschränkte Rationalität

## 1. Introduction

Marula is one of the traditionally multipurpose fruit trees used in Northern Namibia and across southern Africa (SHACKLETON et al., 2003). Traditional customs regulate gendered property rights on access to marula fruit and its processing, with women playing a significant role in the conservation of the marula resource and associated regional culture, including the barter exchange and gift giving of marula fruit products. Starting in 1990 this region experienced the elimination of massive restrictions on economic activities, thanks to the combined events of: the abolishment of apartheid, with the declaration of independence of Namibia from South Africa, the end of civil war in the region, and the end of the Cold War, where bordering Angola had been on the side of the Soviet Union and South Africa on the side of the United States of America. Following this major historical change, urbanization has been expanding in the region, which has triggered the commercialization of marula fruit products in local markets. As a result, two marula governance structures, barter and commercial trade, exist side by side in the region. In 1996 the Namibian government initiated measure to foster international trade in crude marula oil, with the aim to increase income opportunities for local women (DU PLESSIS, 2006). Marula oils, produced as an indigenous natural product by the Eudafano Women's Cooperative (EWC), are sold at a premium to two overseas foreign customers based on two biotrade contracts that aim to

regulate transactions of goods and services derived from biodiversity (UN, 2007, 1): one with the Body Shop UK, through the Community Trade Programme; and one with the French cosmetic company Aldivia, through an ABS (Access to genetic resources and Benefit Sharing) contract (PTA and ALDIVIA, 2006; THE BODY SHOP, 2007), developed according to the third objective of the United Nations Convention on Biological Diversity (UN, 1993).

By generating additional value, in terms of empowering local women, impacts from biotrade on local resource use rules can serve as a criterion for consumers selecting these products. With that in mind, this study aims to explain the mechanisms influencing choices of economic actions which are affected by the designed institutional changes of (i) the formation of the EWC and (ii) the establishment of the biotrade contracts. This can be understood as a sequence of institutional changes that arise with interactions between designed biotrade rules, developed in a Western social context, and Namibian social norms, influenced by the postcolonial African context.

In order to elucidate these mechanisms, this study employs Hagedorn's Institutions of Sustainability (IoS) framework (HAGEDORN, 2008), which depicts the conceptual structure of institutional change using four decomposed elements, transactions, actors, institutions and governance structures, and the action arena, where they meet. This framework provides a logical representation of interactions between social and ecological systems and the regulation of human actions by institutions, highlighting how these create transactions, which are, in turn, affecting interdependencies between social and ecological systems (HAGEDORN et al., 2002). The IoS takes transactions as the unit of analysis, assuming that they give coherence to the interconnectedness of human actors and natural systems (HAGEDORN, 2008, 361f). The main transacted elements focused upon in this study are marula plant oils, money, information, and property rights entitlements. Institutions are understood here as "humanly devised constraints that shape human interactions (NORTH, 1990, 3)", and are assumed to include both formal constraints, such as laws, and informal constraints, such as norms of behaviour.

Following WILLIAMSON's (2000) four level model of economic institutions, mechanisms of change may be explained as a product of interactions across four temporally embedded realms: social embeddedness, composed of social beliefs and traditional norms (very

slow changing, over hundreds of years); institutional environment, such as property rights (slow changing, over decades); governance, or formal rules (can change within a few years); and resource allocation and employment (changing continuously). Governance structures are understood here, again following WILLIAMSON (1975), as a system of rules and instruments that serves the enforcement of formal rules.

Based on the combination of these frameworks, we explore how power, as conceptualized by SIMON (1979), can be understood as a determinant of institutional change in the case of marula trade in northern Namibia. In particular, we explore how bounded rationality and asymmetrical bargaining relations have helped give rise to unintended institutional changes. Bargaining power is understood here as the ability of economic actors to achieve outcomes that favour their specific distributional interests by convincing other actors of possible action choices under power asymmetrical relations (FARRELL and KNIGHT, 2003, 544).

Conventional economic methods tend to presume that economic phenomena have the regularity of a closed system, based on which they can be explained by parsimonious theories. However, this study takes a position that actual economic phenomena do not contain such regularity. Rather actors select choices of economic actions, based on intentions, customs, impressions, etc. Each actor recognizes only a limited scope of the structure of the world. Each actor holds limited cognitive abilities or rationalities for choices of economic actions (SIMON, 1979). In particular for the understanding of economic activities in Africa, it is important to consider the historical development of colonial and post-colonial eras. African states are a combination of Western institutional sets, introduced under colonial rule, and social rules based in African traditional social systems (CHABAL and DALOZ, 1999, 9). Therefore, their concepts of economic rationality and economic efficiency are different from those defined in European economic theory (FAFCHAMPS, 2004). Referring to bounded rationality (SIMON, 1979), the individual rationality of any economic actor can be assumed to mean the impossibility of acquiring unlimited knowledge and for the individual African economic actor in our study this may be compounded by the difficulty of processing information provided from European cultures.

Taking into account postcolonial African economic theory, this study gives importance to analysing systems of human thoughts and images, or to use the term of FOUCAULT (1979, 48f), discourse. Analysing discourse within the scope of this research is a method to elucidate economic phenomena under social, political and historical context.

## **2. Methods**

The qualitative data used here were collected through a combination of document surveys on marula uses and associated social and political contexts (e.g. DEN ADEL, 2010; SULLIVAN and O'REGAN, 2003; SHACKLETON et al., 2003), and semi-structured and unstructured interviews with 31 individuals and groups, during fieldwork in Windhoek and the North Central region of Namibia, in 2011. Interviewees were selected based on document surveys as well as from lists of actors involved in designed institutional changes, including ABS contracts and the EWC and its support structures. They were, for instance, traditional users of marula resources, including local Ovambo female villagers and three women's associations, representatives of the EWC, a consultancy - the Centre for Research, Information, Action in Africa (CRIAA), and two Namibian ministries - the Ministry of Agriculture, Water and Forestry as well as the Ministry of Environment and Tourism. Interviews with traditional users were conducted through local interpreters familiar with Marula culture in the studied region. Data were analysed by coding texts with the aim to extract concepts and categories, which were sorted over the four components of the IoS framework: institutions, governance structures, transactions, and actors. These links were then logically explained using the IoS framework and Williamson's four level model of institutions, complemented by use of Simon's concept of bounded rationality to contextualise the factor of asymmetrical power.

## **3. Results**

We first summarize the mechanism of intended institutional changes in the marula economy in Namibia. The studied institutional changes are meant to influence transactions in marula fruit at the local level. This designed institutional set of the women's cooperative and the biotrade

contracts was implemented under social contexts, which are regulated by both traditional customs and market rules concerning the use and trade of marula. Changes in institutional performance produced a new transaction flow, the sale of marula kernels, which regulates monetary transactions between involved actors. As a result, members of the EWC face new economic action choices, regarding how to transact their marula products: sales of kernel or oil production under barter exchange, sales in local market, and/or sales to the cooperative. In addition to these intended changes, we also observed changes in economic activities that were not part of the biotrade plan. Some reflect general changes in use of marula as a resource and are not discussed. Others appear to be closely related to the introduction of biotrade contracts. In particular we observed: (i) changes in labour allocation, which reflect the assertion of previously established gender based rules for the assignment of economic activities; (ii) changes in processing and trade, which reflect the commercialisation of marula use.

Using the IoS, informed by Williamson's model, we understand these two types of phenomena to be economic institutional changes that can be situated across Williamson's four levels. Action arenas of marula fruit use extend across an historic and a continuous time scale, respectively. The abolishment of apartheid and the end of the Cold War and the civil war provided freedom of choices of economic activities to local actors. This political change made it possible to introduce the new practice of commercial trade in marula products as an institutional innovation at the social embeddedness level. Transactions of marula fruit products and money formed the new governance structure of a local market in marula. This commodification process provided a basis for the wider commercialization of marula oil. The local market has subsequently been expanded by urbanization, which increases not only flows of money and goods in the village economy but also opportunities for well-paid non-agricultural jobs: an institutional innovation at the allocation and employment level. In addition, urbanization alters beliefs, values and behaviours of local villagers, which may be a trigger decreasing the value of processing marula fruit or even of trees. These institutional changes at two different levels both influence financial incentives for the literate rich, who now face an action choice regarding what to do with their labour. When the incentive is large enough, they move away

from agricultural activities and the motivation to follow customary rules regarding the processing of marula decreases.

We also observed an action arena of fruit access rights. Here, the institutional performance designed by the establishment of the EWC creates two institutional changes: one at a social embeddedness level and one at the resource allocation level. A strong customary norm prohibits men from even coming close to trees during the harvest season. However, the economic incentive to increase household income through cooperative activities motivates men to violate a moral code on resource use, risking sanction by other villagers. This enables some EWC members to allocate their access rights to fruit not to other local women but to men in their own household, with some husbands supporting their wives, who are members of the EWC, by collecting fruit. Keeping in mind a customary tendency toward male occupation of income bearing activities, the habituation of this change might decrease income access opportunities for poor women in the region.

We also observed unintended changes associated with the mechanization and commercialization of alcohol production. Through the expansion of urbanization in the studied region, the processing of fruit meat for alcohol, which was originally a barter and gift giving economy, is now increasingly oriented toward the sale of alcohol. Simultaneously, the processing of marula fruit is mechanized in some rich households, using juice extraction machines that were originally owned by the EWC and which are also sold in towns. This mechanization enables the local rich to use the marula resource intensively and to increase their income. This can be understood as a change in the property of technology, combined with a reduction in the cultural value placed on the social work of processing marula for alcohol leading to marula fruit becoming a private interest. This is reflected both in the private appropriation of the machines required to process alcohol, which were originally owned by the EWC, and also by increasing commercialization of alcohol transactions.

Recalling the tendency, mentioned above, not only income but also work with machines is understood, under local norms, as man's work. Finally, labour with machines at the EWC is male dominated, in keeping with local social beliefs that labour with machines is man's work, in spite of the EWC being a women's cooperative. This can be understood to reflect a tendency to habituate gendered considerations

of labour allocation through a system of thought (HAUGAARD, 2003). Due to lack of availability of female labour capable of working with machines, female labour is substituted by male labour, a trend that may be expected to continue in future.

#### **4. Discussion**

Our results indicate that the intended changes in institutions regulating economic uses of marula in the study region do not only empower local women and the poor but rather exacerbate existing power asymmetries between the rich and the poor and between genders. Following HOWARD (2003), these changes can also be understood to decrease traditional female knowledge on in-situ resource conservation, social capital of local support networks for sharing fruit, and cultural diversity based on women's social activities related to uses of marula fruit and products. These unintended institutional changes can be understood as adverse effects from biotrade.

This study elucidates the institutional performance designed through biotrade contracting, which was intended to generate additional value via implementation of institutional change. However, we find that biotrade contracting has also generated institutional change in unintended ways, under a dynamically changing social context.

Using WILLIAMSON's (2000) temporal hierarchy model of institutional change, this study has looked into changes arising across the four levels, ranging from resource allocation and employment, through to social embeddedness. We have adapted SIMON's (1979) concept of bounded rationality to the IoS analytical framework (HAGEDORN et al., 2002), which we used to explain interactions between designed biotrade institutions and social norms within an action arena of uses of marula fruit, exploring how new rules were influenced by and reinforced existing power asymmetries. The resulting adapted IoS framework provides a means to evaluate the extent to which biotrade contracting has realized the creation of expected additional value, which was supposed to come from institutional changes empowering local women. Our findings suggest that additional value has not been fully realized in the study region and that closer attention to interdependencies between intended and unintended institutional changes is required, if that additional value is to be realized in future.



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