

Using role-play to explore strategies for improving palm oil production and sustainability in Cameroon



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“The game has helped us understand many things...”

Introduction

Despite being one of Africa’s largest palm oil producer with an estimated annual production of 300,000 tonnes, Cameroon also imports 130,000 tonnes per yr, according to the national oil refiners association, mostly from Malaysia and more recently from Gabon. Cameroon has three main oil palm production areas, in the South West region (100,758 t/yr), Centre (57,584 t/yr) and Littoral (47,658t t/yr) (INS 2015). Though the industry provides significant revenues, yields per hectare are relatively low, attributed to aging plantations, and limited use of improved seeds and technical knowledge, particularly fertilizer use. Extraction rate of palm oil from fresh fruit bunches in Cameroon is 21% in local industrial mills, and 14% in artisanal mills (Ndjogui et al. 2014).

To reduce imports, the government aims to increase production and productivity, but there are concerns that such plans could negatively affect the country’s biodiversity in its dense humid equatorial forests, or play into existing power asymmetries and disrupt local livelihoods. With the development of such projects since 2003, there was an urgent need to develop a national sustainable palm oil strategy, as a framework for sustainable development of the sector (Hoyle and Levang 2012).

Can decision makers design strategies that will generate inclusive development and avoid negative environmental impacts? Ensuring increased oil palm production without negatively affecting smallholder livelihoods and the environment is a daunting challenge, and not just for Cameroon. To develop strategies leading to sustainable solutions, decision makers must better understand the needs, constraints and aspirations of all stakeholders in the supply chain, from smallholders to millers and second-level processors, and pay greater attention to feedback loops and

variables mediating social, economic and ecological processes.

To tackle complex issues in renewable resource and environment management, role playing games and simulation models are being increasingly used, some based on the participatory approach of companion modelling (Etienne 2014). And in this context, this paper describes an approach aimed at fostering dialogue between value chain stakeholders, academics and government, initiated by WWF and partners in Cameroon. The purpose was to help national supply chain actors and policy makers design trajectories for sustainable ‘green’ development, balancing development with social and conservation objectives. Played with stakeholders for validation and to explore possible future scenarios and levers of actions, analysis of different game sessions would illustrate the differences between the assumptions behind policies, and actual practices.

Introducing the process

A model describing the supply chain in Cameroon was developed through participatory modelling. This began in January 2015 at a WWF scoping workshop, when partners of the Oil Palm Adaptive Landscape (OPAL) project noted the low productivity in Cameroon, and also that smallholders were delivering to low yielding artisanal mills instead of more efficient industrial mills. At the workshop, local producers and processors described their needs, expectations and constraints. These were formulated into possible strategies that were presented to the Inter-ministerial commission for palm oil pricing and to other policy makers who drew insights and explored possible interventions. This was followed with workshops and interviews in all three production areas, leading to a

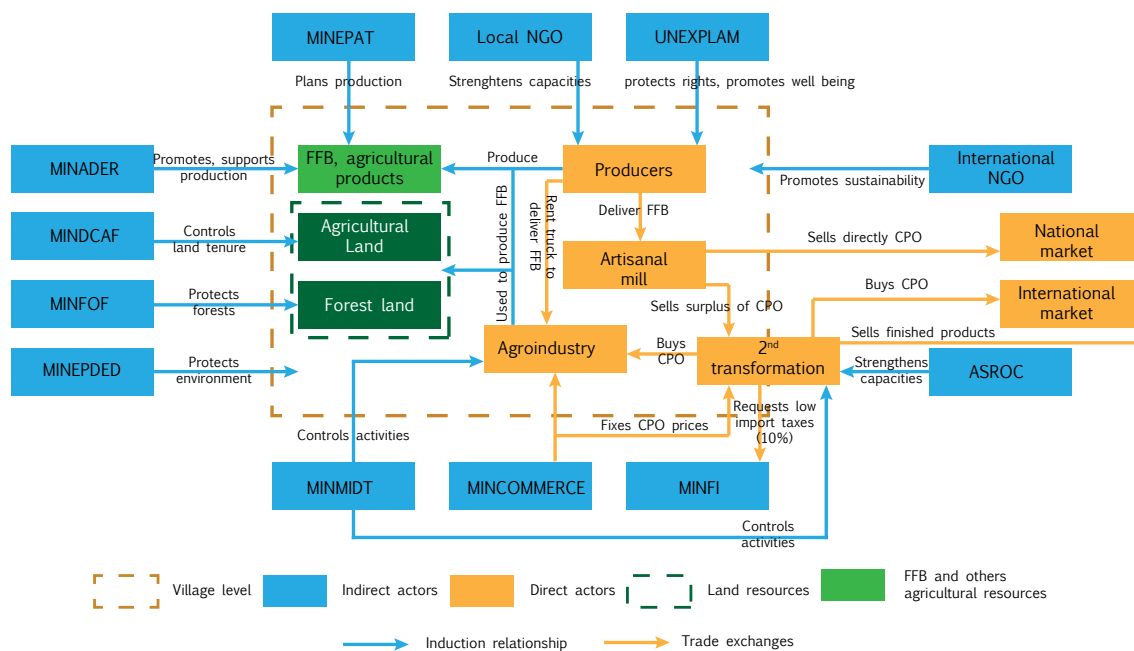


Figure 1. Interactions between actors of the oil palm supply chain in Cameroon.

first prototype of a game, co-developed with producers and industrial actors. It represents the current realities of oil palm landscapes, because it is based on the real life of producers and processors, in the field. During the design of the game, great care was taken not to influence specific behaviour or *what* decisions were made by any of the players/roles, but to explore *why* certain decisions were taken.

One supply chain, multiple actors

Local producers, industrial and artisanal mill owners, secondary processors, local markets, domestic consumers, and international markets, are the main direct actors. Important indirect ‘influencers’ are eight national ministries involved. Other indirect actors include the UNEXPALM producer organization, the national Association of Oil Refiners (ASROC), and numerous local and international NGOs who help strengthen the capacities of producers and decision makers to adopt sustainable palm oil solutions. Figure 1 shows the complex roles and interactions between these multiple direct and indirect actors, and the high level of policy fragmentation such as between the many ministries involved. In addition, it shows the potentially overlapping and conflicting messages sent by indirect actors when

trying to influence the evolution of the supply chain.

Game rules – a reflection of the Cameroonian palm oil system

In April 2016, the first CoPalCam (‘cooperation in the palm oil supply chain in Cameroon’) game was played by the Committee for Palm oil Price Regulation in Yaoundé, based on the conceptual model (Fig 2). Each game begins with a short introduction by a trained ‘game master’ who facilitates the role-play. During sessions, decisions of players and interactions between them are observed and recorded, before a final ‘debriefing’ that encourages players to draw lessons from their experiences (Garcia et al. 2016). The following presents experiences from games played in Littoral (Douala) and South-West (Limbé) regions with 14 players from different backgrounds, including producers, mill owners, secondary processors, decision makers and researchers, and one game played with 14 members of a national policy dialogue for sustainable palm oil organized by WWF Cameroon.

Players can choose amongst four mains roles: smallholder producers, industrial or artisanal mill owners, or secondary processors (soap, vegetable and cosmetic

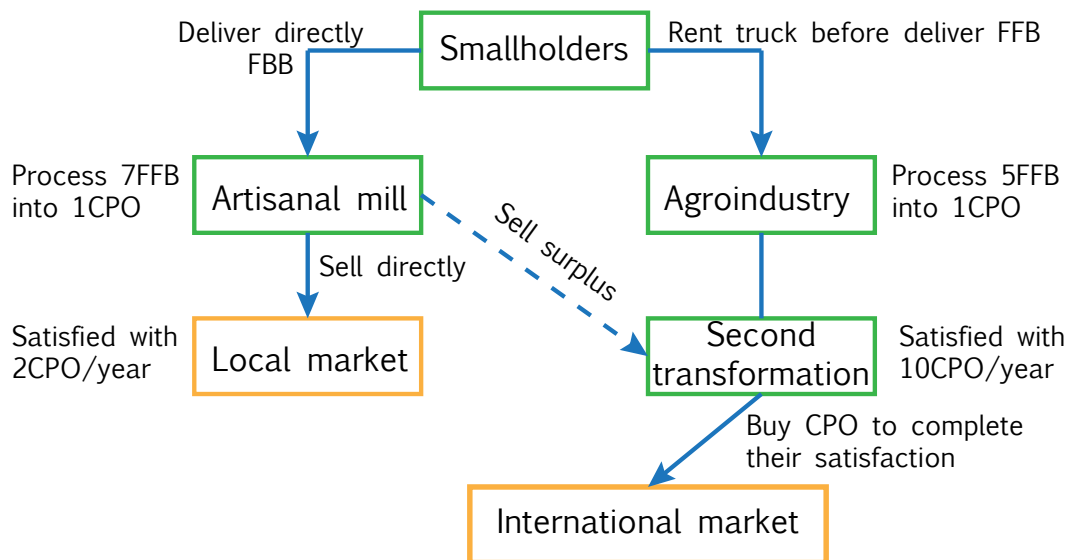


Figure 2. The CoPalCam conceptual model. Green boxes represent players; yellow boxes represent counters whose decisions are scripted by the research team. Adapted from Fauvelle et al. 2016.

makers), all located in the same production area (Figure 2). Smallholders decide where to deliver their harvest. Industrial mills are more efficient, requiring only five units of fresh fruit bunches to produce one unit of crude palm oil, whereas artisanal mills need seven units for the same output. Delivery to artisanal mills is direct, whereas delivery to industrial mills requires the renting of a truck. Crude palm oil from industrial mills is sold directly to secondary processors at a government-fixed price. That produced by artisanal mills is sold on local markets, satisfied with two units of crude palm oil per year, with surpluses eventually sold to secondary processors with a capacity for up to ten units. If this is not satisfied from domestic production, processors will source from international markets, but level of imports in turn influences market prices at artisanal mills. The game is played in turns for a hypothetical ‘year’, with a high and low season, with three and one harvest rounds in each, respectively.

Challenges and bottlenecks

The debriefings that followed each game were found to be crucial learning events, building on what was learnt while playing the game itself. During debriefings, players highlighted difficulties they faced in the game, and linked these to the challenges and bottlenecks they were familiar with in

their everyday life. Different issues were raised, of which a few are described below as examples.

Price volatility, taxes and lack of transparency. The price that secondary processor pay industrial mill owners for crude palm oil is regulated by the State. But this is not the case for fresh fruit bunches delivered to artisanal mills nor the price in local markets. As a result, differential treatments, unequal profit margin distribution and the lack of transparency exposes smallholders who lack bargaining power. Playing their own roles in one game, some complained. “The real problem is the unstable market price, and the government doesn’t want to homogenize it so producers can benefit. Buyers impose their price”. However, one consequence of power asymmetries between industry and producers is that producers tend to prefer artisanal mills. Tabe Robert Taku, who works at an industrial mill in Dibombari, playing his own role, confirmed that in reality, “Some people can never come to us because our prices are too low”. The issue of taxes is also mentioned by Tsewele John, a producer in Eseka: “VAT is imposed on smallholders who supply to industry, so it’s better to go to artisanal mills...”.

The poor state of roads. Delivery to industrial mills is tied to (low) availability



Role playing allows stakeholders in the oil palm supply chain to understand the needs and issues of others

of expensive trucks, reflecting the logistic constraints faced by smallholders. During one game, someone who played the role of an industrial mill owner observed that “no farmer can rent a truck to bring fruit to me in the low season, so they rather sell at the same price to artisanal mills”. Why would farmers incur transport costs when artisanal mills are nearby and offer the same price? Ebanda Ernest, a producer from Dibombari, lamented the poor roads, particularly in the July low season when rains made transport very difficult. New contracts between industrial mills and smallholder producers can be redesigned based on such observations.

Silent expansion, and the fate of the forest

One strategy to increase production is to expand the cultivated area, but communities and conservationists alike are concerned about impacts this will have on biodiversity and alternative livelihood options (Strona et al. 2018). Once raised, a new possibility was added to the game rules. This allowed players the possibility of clearing forests and expanding production area, provided they complied with a set of conditions imposed by formal and customary tenure rights. But this in fact much more complicated, as control over

land is not watertight and a new layer of regulation is unlikely to change matters. While changes on the board are slow to happen, a sudden transition in the latter part of the game shows expansion by smallholders into public land is a possibility and is likely to happen if not adequately prevented (Figure 3). One smallholder confirmed this during a debriefing. “I find a forest. The first year I can cultivate 5-6 ha. I do not inform the administration and neither is the administration aware. After five years I have 90-100 ha. That’s why I say [speaking to the Ministry of Forestry] that the authorization you talk about is in reality not applicable, if I deal directly with elders and the village head.”

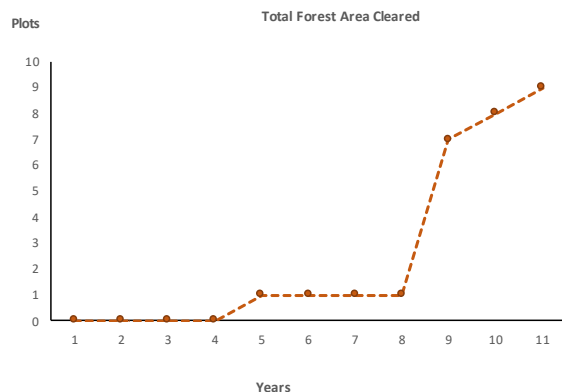


Figure 3: Total forest cleared during a game in Douala.
Source: Game session data, 02-06-2017, expansion scenario played



Role playing allows stakeholders in the oil palm supply chain to understand the needs and issues of others

Proposed smallholder strategies for sustainable palm oil production

Many suggestions arose during and after games, providing valuable and often innovative insights into ways forward. In response to high costs of establishing and maintaining plantations, players suggested that the government should promote the creation of nurseries and training for smallholders in agricultural techniques. They requested fertilizer subsidies to increase yields without expanding production area, and discussed taxation and price control not only for crude palm oil but also for fresh fruit bunches. They suggested support was needed to improve the efficiency of artisanal mills and to develop infrastructure, to reduce costs of production. And to prevent loss of critical forest habitats, participative local zoning was suggested for each village.

These issues deserve to be taken seriously by decision makers, and different policy options can also to be tested in the safe environment provided by the game. Several layers of complexity emerged from the messages that participants took home, also indicating different depths of strategic thinking. For example, is it possible to anticipate the impacts of fertilizer subsidies on the system? The immediate effect would

probably be to increase productivity gains, and a shallow strategic analysis could stop there and proceed to implementation. But a more careful analysis may suggest an increased capacity by smallholders to convert forest – the opportunity costs of conserving forest having increased, precisely because fertilizers have increased productivity. Instead of concentrating production in existing areas and reducing pressure on the forests, this measure could fuel a wave of silent expansion, as farmers respond to new opportunities. But to identify and integrate indirect and long term impacts into the analysis is not easy. Such analytical depth requires a vantage point, and the game offer this to the participants, making links obvious, even if it takes a few games.

Conclusions

The role playing CoPalCam game creates conditions for integrative dialogue, allowing stakeholders with different and sometimes opposed objectives to better understand each other and negotiate joint strategies. “The game has helped us understand many things, especially in face-to-face discussions with the Socapalm mill”, says one smallholder Ebanda Ebanda Ernest. They also highlight the many challenges faced within the oil palm value chain in Cameroon, such as low productivity,

infrastructure and transportation issues, lack of social cooperation and prices volatility. Political will to improve the production system, modernize the artisanal sector and to collaborate with civil societies is a move in the right direction.

However, the issue of sustainable management of agricultural land remains inadequately addressed and is as yet unresolved. And the continuing but silent expansion of smallholders into forested areas has the potential to change the landscape in the long run. The game allowed all these issues to be highlighted and discussed by all stakeholders in a transparent, fair and dispassionate manner. In game sessions, hard facts were discussed and constructive ideas proposed, with experiences leading to changes in perceptions and attitudes, a critical first step towards behavioural changes. As Ebanda concluded: “We noticed direct engagement from Socapalm after the game, as they organized two sessions of discussion with producers and promised they would help us with fertilizers and help us to work together.”

The game has since been used again for education purposes in Cameroon, played with national and international media for further diffusion of outcomes, and in Switzerland, played with primary and secondary school children. Most recently, the game was used to explore scenarios regarding oil palm developments in a changing landscape in Uganda (Tropenbos 2018).

Cameroon is moving toward sustainable palm oil production. The government has taken up many initiatives to achieve this, including a commitment to adopt a national strategy for this aim. And the CoPalCam can help in the discussions to follow. All stakeholders are keen on ways to increase their incomes, but not if this causes a loss for the environment. As one player said, after discovering the benefits of smallholder cooperatives during the game: “We need to go back in the village and practice the same cooperation as we did in the game.”

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References

- Fauvelle, E., P. Levang, E. Ngom, A. Dray, L. Miaro, N.H. Durrel and C. Garcia. 2016. *CoPalCam: Exploring the complexities of the palm oil supply chain in Cameroon. Participatory modelling, stakeholder engagement and capacity building through role playing games*. In: International Conference on Scenarios and Models of Biodiversity and Ecosystem Services in Support of Decision Making, 24-26 August 2016, Montpellier, France.
- Etienne, M. 2014: *Companion Modelling. A participatory approach to support sustainable development*. The Netherlands: Springer. XII, 403pp.
- Etienne M., C. Le Page and M. Cohen. 2003. “A step-by-step approach to building land management scenarios based on multiple viewpoints on multi-agent system simulations”. *Journal of Artificial Societies and Social Simulation* 6(2).
- Garcia, C., A. Dray and P. Waeber. 2016. “Learning begins when the game is over: Using games to embrace complexity in natural resources management.” *GAIA - Ecological Perspectives for Science and Society* 25(4): 289-291.
- Hoyle, D. and P. Levang. 2012. *Le développement du palmier à huile au Cameroun*. WWF. p15.

Institut National de la Statistique (INS). 2015. *Annuaire statistique du Cameroun, édition 2015*. Chapitre 14: Agriculture..pp 232-255.

Ndjogui T.E., R.N. Nkongho, S. Rafflegeau, L. Feintrenie and P. Levang. 2014. *Historique du secteur palmier à huile au Cameroun*. Occasional Paper 109. Bogor, Indonesia: CIFOR.

Strona G., S.D. Stringer, G. Vieilledent, Z. Szantoi, J. Garcia-Ulloa and S. Wich. 2018. "Small room for compromise between oil palm cultivation and primate conservation in Africa". *PNAS* 115(35): 8811-8816.

Tropenbos, 2018. *New insights into oil palm impacts through role-playing. Stakeholder views from Buvuma Island, Uganda*. Infobrief. Tropenbos International, Wageningen, the Netherlands. 2pp.

This paper was submitted for inclusion in the forthcoming edition of **ETFRN News 59 - Exploring inclusive oil palm production**, due for release in early 2019. This will contain 20 papers plus interviews, presenting examples of innovative and inclusive palm oil production systems. It will assess what has not worked, but importantly, it will analyse what positive practices and policies have worked for more inclusive palm oil production and why, as we strive towards more collective and sustainable solutions to this apparently intractable problem.

This paper will undergo final editing prior to publication of the complete edition, and as such, could differ from the version presented here.

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Cover photo: Players during the role game in Cameroon



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