Food sovereignty and export crops

Could ECOWAS create an OPEC for sustainable cocoa?[1]

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1. Introduction

Farmer organizations, NGOs and governments of low-income countries are forwarding *food sovereignty* as the leading concept for agricultural trade policy. They point out that food is too important to make whole populations dependent on food imports from world markets. Besides, the production of food crops is vital for the livelihoods of millions of poor farmers in developing countries. Therefore, countries should have the fundamental right to protect their producers of food crops against cheap imports with which they cannot compete.

Food sovereignty is opposed to neo-liberal prescriptions that urge developing countries to rely on export crops and to open their borders for food imports. Nevertheless, even if one rejects a one-sided export-led growth, export crops are still important for the trade balance and the livelihoods of many households in low-income countries. This begs the question which role export crops can play in a policy that has food sovereignty as its guiding idea. To clarify the issue, we discuss two subjects in this paper:

- What is the rationale for a food sovereignty strategy, and what does it mean for export crops?
- How can the farm-gate prices of export crops be improved, and what could ECOWAS do in this respect?

At the end of the paper, we present a ten step plan action plan to improve the prices of cocoa, of which ECOWAS is the world's number one producer.

2. Export crops and food sovereignty

Agriculture, economic development, and the world market

Agriculture is the starter engine of economic development. In virtually all developed countries, modern economic growth started with an economic revolution in agriculture.[2] Agricultural development provided opportunities for agro-industries and food for non-farm workers. Rising farmer incomes created rural markets for urban industries. And commercialisation of agriculture prepared economic cultures for more far-reaching industrialization.[3]

[1] We thank Emmanuel Dormon, Ekko van Ierland, Peter Robbins and Marius Wessel for valuable comments that helped us in writing this paper. We remain wholly responsible for the contents.

[2] Kuznets (1966). Timmer (1988).

[3] Johnston & Mellor (1961). Block & Timmer (1994). Delgado et al. (1993). Hazell & Roell (1983). Some economists think that today, increase in farm incomes is no longer essential for development, because in a globalized economy, export demand could take the place of the domestic demand that is fuelled by farmer incomes. Therefore, economic development could start directly in some export industry, even when agriculture would be stagnant. However, these experts forget that industrial enterprises rely on hired workers and engage in commercial transactions all the time, so that they can only thrive when commercial skills, labour discipline, and trust in non-relatives are sufficiently developed. Some preceding development is needed to create these conditions before successful industrialization is possible. Agricultural development can fulfill this function, because it is less dependent on hired labour and constant transactions than industry, while its development still encourages these conditions (also cf. Timmer 1995).

To enable agriculture to play its role as the starter of development, farmers need prices that allow them to invest and to combat soil degradation. In the history of developed countries, population growth ensured remunerative agricultural prices because more mouths increased the demand for farm products. But the situation in today's low-income countries is entirely different. Although population is skyrocketing, prices remain low because they are depressed by cheap imports. Poor farmers cannot compete with modern farms that are a hundred times more productive. Moreover, those modern farms are themselves trapped in a treadmill that generates global overproduction. Although larger than farms in low-income countries, they are too small to have an influence on price, and can only defend their incomes by adopting new techniques that increase production. Because all modern farmers do this, the effect is oversupply which pushes prices below the cost price, even of modern farmers themselves.[4] As this treadmill depresses the world market prices of products like cereals, oilseeds, or meat, many farmers in low-income countries flee into tropical crops like coffee or cocoa. As a consequence, the world markets for the latter are also glutted – the more so because globalization locks tropical countries too in a treadmill of overproduction.[5]

International trade policy and *food sovereignty*

The above means that international agricultural prices generally have become too low. Even modern farmers cannot invest without government support, let alone small farmers in low-income countries. A sensible solution for this problem would be some agreement between countries to keep world market prices within a desirable range by controlling their supply. That is what OPEC has done for oil, and numerous people and institutions advised a similar approach to agricultural products. This is true for the League of Nations in the 1930s, John Maynard Keynes and the US Department of Agriculture in the 1940s, and FAO, the United Nations and UNCTAD in subsequent decades. They all advocated a system of *managed trade* in agriculture.[6] In line with their advise, the GATT, the international trade treaty that preceded the WTO, did not prescribe free trade for farm products but allowed countries to protect their farmers provided that they would control their production.

The EU and the US signed the GATT, but they violated this vital condition. While protecting their farmers, they refused to control their production. Instead, they used subsidies to dump growing surpluses on the world market. The effect was that world market prices became even more depressed than they already were. Other countries protested, but the US and the EU didn't bother. In the 1980s, the two powers clashed because they were ruining each others' markets with their subsidies. After 6 years of stalemate in the Uruguay Round of GATT negotiations, they concocted a compromise that was enforced upon the rest of the world. All protective measures had to be reduced, but direct payments were to be exempted – even from the obligation that countries that supported their agriculture should control their supply. While the rest of the world had now to reduce its tariff defenses, the US and the EU could continue protecting their farmers without limiting their production, simply by shifting to direct payments for which they alone had the means. In this way, their violation of the GATT was officially sanctioned. In the US, one-third of farm incomes now comes directly from the Exchequer, and the EU is following suit. This is what the US and the EU call 'liberalization', arguing that direct payments would be less trade-distorting then export subsidies. In reality, it is a change in form of protection by which they continue to export large volumes below their own cost of production.[7]

Unlike other countries, developing countries get 'special and differential treatment' in the WTO, which leaves them some leeway for protecting their agriculture by import tariffs. But the World Bank, the IMF, the US and the EU pressure them not to use this room, claiming that liberalization of their trade policies would be good for them.[8] Liberal-economic theory is used to 'prove' the point, soothing the consciences of western policy-makers and clouding the minds of some experts from low-income countries.[9]

[4] See the classical publications of Schultz (1945) and Cochrane (1959) about this.
[5] Koning et al. (2004). Robbins (2003). Talbot (2004).
[6] See Koning et al. (2004) and literature there mentioned.
[7] Ray et al. (2003).
[8] Anderson & Martin (2005).
[9] See FAO (2006) for criticism of the propagandistic model studies made by World Bank-related economists.

While the US and the EU thus continued with aggressively protecting their own agriculture, they killed the international commodity agreements that had supported the prices of tropical export crops. They had always been hesitant to endorse such agreements that could raise the prices of their imports of these products. Only foreign policy considerations, like the wish to persuade Latin American countries to isolate Cuba, had sometimes swayed them.[10] After their conversion to neo-liberalism in the 1980s, the US and the EU engineered the collapse of the few existing agreements by withdrawing their financial support and setting producing countries against each other.[11] A protracted fall in cocoa and coffee prices followed. It was exacerbated because international donors urged developing countries to raise their production of export crops. Thus the coffee crisis continued by a tenfold increase in production in Vietnam during the 1990s. In recent years, the war in Ivory Coast and bad harvests in Brazil led to some recovery in cocoa and coffee prices, but new price falls are likely to follow when these temporary causes have disappeared.

In brief, both in tropical crops like cocoa and coffee and in mixed crops like cereals and cotton, the egoist policies of the US and the EU are hindering an improvement in world market prices. In this situation, the only expedient option left to low-income countries is to form regional customs unions and to claim their own internal markets using import duties to protect their farmers against cheap imports with which they cannot compete. This option implies prioritizing food crops and other crops that can be sold in the internal market. It requires an increase in import duties, and a determined resistance of attempts (including European Partnership Agreements) to squeeze the policy room that low-income countries have for imposing such duties. In our opinion, this is the rationale of the idea of *food sovereignty* that farmer organizations and governments of low-income countries are opposing to the pseudo-liberalization that the US and the EU try to sell to the world. In a better world, where multilateral supply management would support world market prices, low-income countries might also secure food security and economic development by specializing in suitable export crops and importing part of their food, although they would still need some protection against the superior agribusiness of other regions. But in the world as it currently is, they can only achieve these aims by systematically protecting their own food crop producers.

What does it mean for export crops?

Does the above strategy mean that export crops can be ignored? We think not. Export crops can fit in a strategy that prioritizes the protection of domestic food crops, provided that some conditions are fulfilled:

- *Export crops should support, not destroy rural livelihoods.* An evolution like in some parts of Latin America, where export crops are coupled to massive eviction of small farmers or severe exploitation of labourers should be avoided. In West Africa export crops are largely produced in smallholdings. Nevertheless, in some places, serious problems of labour relations have evolved.[12] Labour protection and land reform may be needed to redress this.
- *Export crops should leave the natural resource base intact.* At current the impact on natural resources differs between crops. For example, while the fertiliser that is applied to cotton helps to moderate soil mining, current production techniques in cocoa entail deforestation and soil degradation (see below). A good policy should achieve a shift to more sustainable techniques.
- *Export crops should provide adequate earnings to farmers.* In the current situation, farmers can neither pay decent wages to labourers nor invest in sustainable production techniques. To redress this, the farm-gate prices of export crops should be improved.

Improving the farm-gate prices of export crops requires first of all a fair distribution of export prices. In several cases, too large a share is still retained by (para)statal bodies. Although the quality decline in cocoa after the dismantling of stabilization and marketing boards in Ivory Coast and Nigeria suggests that a simple dismantling of such bodies may not be the solution,[13] it does not mean that

[10] See Chimni (1987). The US wish to isolate Cuba was the key factor that led to the 1962 coffee agreement.
[11] Maizels (1992). Also Koning et al. (2004).
[12] See STCP (2002) on child labour in cocoa plantations.
[13] See the explanation in Dorward et al. (forthcoming) of the reasons why private entrepreneurs may fail to take over the functions of parastatal bodies in low-income countries.

things can continue in the same old way.[14] Research and extension should involve farmers to become more effective, and private merchants should be allowed to compete with parastatals to force them to improve their efficiency. This would also create room for non-state-controlled enterprises that are owned by farmers themselves.

Yet giving farmers a fairer share of the export price will not be enough if world market prices themselves are too low. In the rest of this paper, we focus on possibilities for ECOWAS to improve the prices that it receives for its export crops. Because developed countries do not support a multilateral system of managed trade, we only consider strategies that could be applied by ECOWAS alone, or together with other developing countries.

3. How to improve the prices of export crops

Various approaches have been forwarded for improving the world market prices of export crops, including trade liberalization, marketing of fair trade or organic products, and the formation of countervailing power against large trading and processing companies.[15] Not all these approaches will work. Developed countries will not cooperate with (real) trade liberalization when it hurts their own interests. Moreover, the sequel of the collapse of the cocoa and coffee agreements shows that trade liberalization does not prevent low prices.

Marketing of fair trade or organic products has been proposed to improve social and environmental sustainability in a liberalized world market. However, the niche markets for these products remain small; their limited scale entails high trade margins; and the necessary certification involves high costs that penalize smaller farmers.[16] These initiatives bring benefits to some farmers and raise the awareness of consumers in importing countries, but they have little effect on average prices.

Formation of countervailing power against the giant international companies in the export crop chains is urgently needed. However, one cannot take a firm stand against large buyers when markets are glutted. Some system of international supply management is a precondition for any attempt to improve the bargaining power of producers.[17] That is why the African Union and the African Group in the WTO are putting supply management for agricultural commodities back on the international agenda.[18] Indeed, adjusting the global supply of export crops to the size of the global demand is vital for improving world market prices. However, the feasibility of doing so differs strongly between the two main export crops of ECOWAS: cotton and cocoa.

Cotton

Cotton can be produced by tropical and temperate countries alike. One-third of global cotton is produced by developed countries (see Table 1). The US alone accounts for one-fifth. Our assumption that developed countries will not co-operate implies that international supply management is unfeasible in this crop. Even WTO 'liberalization' will have a slight effect on international cotton prices. While model studies with full liberalization scenarios have predicted price improvements of over 10 percent,[19] more realistic projections are around 1 percent.[20] Cotton producing developing countries may well demand a strong reduction in subsidies, but the US will make no more than a few modest concessions. Liberal-economic advisers who suggest otherwise are indulging in wishful thinking.[21]

[14] See e.g. Laven (forthcoming) on the cocoa board in Ghana.
[15] See Lines (2005) for a comparison and discussion of these approaches.
[16] Clay et al. (2005). Talbot (2004).
[17] Koning & Robbins (2005). Robbins (2005).
[18] African Group (2006). African Conference of Ministers of Trade on Commodities (2005).
[19] E.g. Baffes (2004).
[20] See 'other crops' in table 3.2 of Polaski (2006).
[21] Even Brazil, which is pressuring the US to reduce its cotton subsidies, may in the end trade this demand for smaller reductions in its protection of manufactures and services.

This leaves ECOWAS with only one feasible option for really improving its cotton revenues: an energetic drive to support its small and medium-scaled textile industry in order to transform its own cotton into clothing for its own market. This should be coupled to import duties on cotton to protect its farmers against imports cheap imports, and to import duties on textile and clothing to protect its weavers and tailors against imported products made from dumping priced cotton. Surely, such a policy would be in line with an international division of labour based on comparative advantage. Even if West African textile producers would be less productive than textile factories in India or China, it would be foolish to continue exporting 95 percent of West Africa's cotton to far-away factories and transporting it all the way back as cloth or garments. However, realising this option requires that ECOWAS keep enough policy space for protecting both its agriculture and its textile industry. The conditions that the EU is making for a European Partnership Agreement would eliminate this space, so it would be necessary to reject these conditions.

Table 1. Cotton lint production in various countries (average of 2000-2005)

	1000 tonnes	% of world production
Developed countries	**7,023**	**34**
United States	4,332	21
Developing countries	**13,822**	**66**
ECOWAS	938	4
World	**20,844**	**100**

Source: FAOSTAT data, 2006

Cocoa

For cocoa there is no large demand within ECOWAS itself. To improve the revenue from it, therefore, there is no alternative but to increase the world market price itself. This requires an international arrangement to control the global supply. Unlike cotton, developed countries cannot grow cocoa, so they cannot thwart such an arrangement by increasing their own production. Moreover, unlike peanuts or natural rubber, cocoa has no close substitutes and the demand for it is inelastic. Thanks to it, a small reduction will suffice induce a significant improvement in prices.[22] In fact, ECOWAS would be well-placed for taking the lead in an attempt at regulating the world market for cocoa. It produces 63 percent of the global supply (see Table 2), unlike e.g. coffee where its share is little more than 3 percent.

Table 2. Cocoa production in various countries (average of 2000-2005)

	1000 tonnes	% of world production
ECOWAS countries	**2,231**	**63**
Côte d'Ivoire	1,334	38
Ghana	523	15
Nigeria	352	10
Other ECOWAS countries	23	1
Non-ECOWAS countries	**1,307**	**37**
Indonesia	534	15
Brazil	189	5
Cameroon	145	4
Other non-ECOWAS countries	438	12
World	**3,538**	**100**

Source: FAOSTAT data, 2006

[22] Maizels et al. (1997).

Many economists (especially those related with the World Bank) see the collapse of the international commodity agreements as proof that supply management of export crops is inherently impossible. Above we have already said that the real reasons for this collapse were political rather than economic. Nevertheless it is true that global supply management is not an easy task to achieve. This is an additional reason for prioritizing the protection of domestic food crops, which can be done by simple import duties. It is quite a challenge to persuade sufficient producing countries to restrict the supply of an export crop; to secure a fair implementation; and to ensure that the benefits actually reach the farmers. Only its governments and its farmer organizations can decide whether and when ECOWAS would be up to this challenge. However, if they would consider taking such an initiative, the history of the international commodity agreements teaches some important lessons:

- *Do not depend on importing countries.* The older commodity agreements depended on importing countries for policing export quotas and for financing buffer stocks. Besides, these agreements were negotiated in a framework that gave a veto to importing countries. The result was endless discussions, ineffective control mechanisms, and the collapse of the few functioning agreements when importing countries changed their minds in the 1980s.[23] If producing countries want to reintroduce supply management schemes, they should do so unilaterally; just like the oil producing countries did in OPEC. This is why the African Group in the WTO is claiming room for such unilateral initiatives in its recent proposal on agricultural commodity issues.[24] The co-operation of a few consuming countries would be helpful, but the scheme should not depend on it.
- *Involve farmer organizations.* The older commodity agreements only involved governments. In many cases, the benefits were skimmed by (para)statal bureaucracies.[25] They did not reach the farmers, who therefore had few incentives to co-operate. To redress these flaws, farmer organizations should play a vital role in the elaboration and implementation of any new scheme.
- *Include production controls.* The commodity agreements tried to manage the supply by buffer stocks and national export quotas. However, they did not control the volume of production itself. This led to smuggling and overflowing of stocks, for once a crop has been produced it is difficult to keep it from the market. Buffer stocks and export quotas are important instruments for supply management, but they should be backed by production controls to make the system effective.[26]

Two main difficulties should be overcome for effective supply management of cocoa. The first is how to prevent some producing countries from acting as free riders who benefit from the improved prices but stay out of the arrangement and do not limit their own supply. The second is how to control the production of millions of smallholders in a fair and effective way, in countries with poor infrastructures and limited administrative capacities.

Free riding can be discouraged by using the carrot as well as the stick. The 'carrot' would be a rule that allows for a gradual transfer of production rights to countries where cocoa can be produced at lower cost.[27] This reduces the incentive to free ride for these countries, where expanding production in most attractive. This transfer should occur according to some objective formula that is agreed upon in advance by the participating countries. Countries that lose part of their quota rights by this rule should receive financial compensation to help them to diversify their production.

The 'stick' would be a special trading company that is owned by the international secretariat that runs the scheme. This company would assist in the market operations of the secretariat and act as a broker and sales agent for participating countries that wish to make use of its services. However, it would also make transactions that, while being profitable, at the same time decrease the prices and the price stability of cocoa that is traded outside the arrangement.[28] Again, this would make free riding less attractive for countries.

How to control the production of millions of smallholders is the other tough nut to crack. Developed countries have used individual farmer quotas and acreage reductions for this purpose.[29]

[23] Chimni (1987). Koning et al. (2004). Maizels (1992).
[24] African Group (2006).
[25] Bohman et al. (1996). Gilbert (1996).
[26] Robbins (2003).
[27] Cf. Maizels (1992).
[28] See Koning & Robbins (2005).
[29] The EU still has individual farmer quotas for milk, and Canada, for milk and poultry.

They have done so from the 1930s, long before computers and satellites could assist in the management of such measures. However, administrations and infrastructures in many low-income countries are weaker than they were in developed countries even at that time.[30] Therefore, an alternative line of attack might be considered: a *conservation approach* to supply management.[31] Below we sketch in broad outlines how such an approach in cocoa might look like.

4. A conservation approach for international supply management in cocoa

As has already been said above, ECOWAS produces 63 percent of world cocoa. Three countries - Ivory Coast, Ghana and Nigeria – account for 99 percent of ECOWAS cocoa production (see Table 2). Major non-ECOWAS producers are Indonesia, Brazil and Cameroon. Fifteen years ago, Malaysia was an important producer, but its production has strongly declined. At present, Vietnam is increasing its cocoa production. A few years ago, it was announced that it wanted to plant 100,000 hectares with cocoa, which would mean some 3 percent of global production. More recently, Vietnam seems to have moderated its ambitions.[32] It wants to avoid the experience in coffee, where a strong increase in its production prompted a global crisis that hit its own farmers too.

There are good reasons for combining biodiversity conservation and supply management in cocoa.[33] In its current form, cocoa is a nomadic crop. It grazes virgin rainforests leaving a degraded environment behind after a few decades. Young farmers move along for clearing new forests, while the stay-behinds are trapped in decline.[34] The cycle is accelerated by a shift from shaded plantations to open sun systems. The latter give higher yields, but pests and diseases increase and the productive life of the cocoa trees is shortened. The upshot is large-scale deforestation and conflicts over dwindling forest resources (the war in Ivory Coast started as a cocoa war).[35] Moreover, this way of producing will fail to meet the world's growing demand for cocoa in the future. At present, the supply is maintained by eating the last forest reserves in Ghana and Ivory Coast – a situation that is clearly unsustainable. In the longer term, the demand for cocoa can only be met by replanting of older plantations, a return to shaded systems, and more careful exploitation.[36] Governments and international organizations are taking initiatives to combine shaded systems and forest conservation in frontier areas, and replanting and tree crop diversification in older cocoa areas.[37] However, a shift to sustainable cocoa production requires prices that make it worthwhile for farmers to invest their labour and money in replanting, shade trees, and pest management. Unregulated markets generate strong price fluctuations, which are enhanced by the time lag between planting and harvesting and by speculation in the New York and London cocoa exchanges.[38] Moreover, since the collapse of the cocoa agreements, international cocoa prices have strongly declined, depressing farm-gate prices even where the farmers' share in the export prices improved (Figure 1). This also stimulated the abuse of child labour in some areas.[39] Besides, low prices discouraged careful harvesting, fermenting and drying threatening the quality of the cocoa. In recent years the prices have somewhat improved, but not enough to allow a shift to sustainable production methods. Moreover, if nothing changes, prices may fall again as soon as the war in Ivory Coast is over and Vietnam expands its production.

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[30] Elsewhere, Peter Robbins (an ex-trader in tropical commodities) and I have proposed a system of farmer quotas that might still work in these conditions (Koning & Robbins 2005). However, this requires strong farmer organizations to ensure a fair and efficient implementation. The system proposed in this paper may be more easy to manage.

[31] This too has precedents in developed countries. Especially the US has long used conservation measures to regulate the supply of its agricultural sector.

[32] International Herald Tribune, 2005-08-05 (www.iht.com/articles/2005/08/04/bloomberg/sxcocoa.php).

[33] Rice & Greenberg (2000).

[34] See various chapters in Flood & Murphy (2004).

[35] See Woods (2003).

[36] Gilmour (2004). Wessel & Gerritsma (1993).

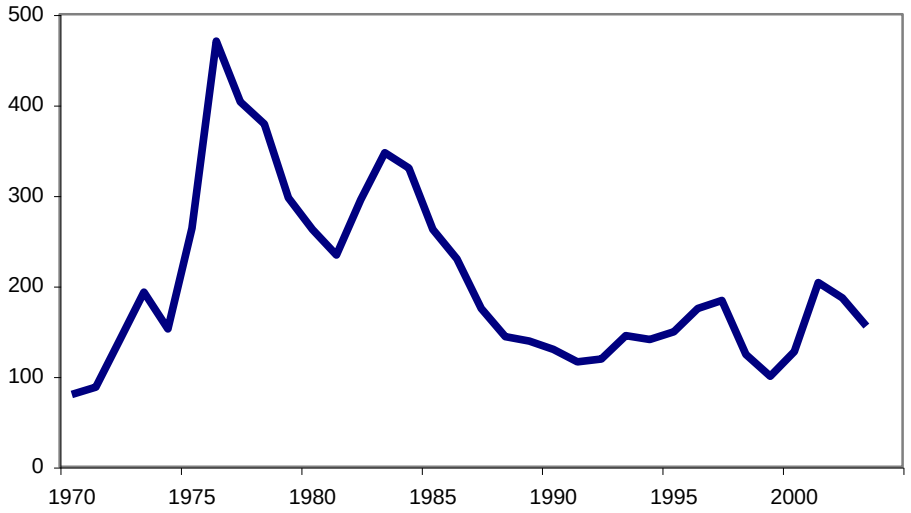
[37] E.g. Government of Ghana et al. (2004).

[38] Maizels et al. (1997).

[39] STCP (2002).

In this situation, an arrangement that would stabilize prices, improve farmer earnings and make cocoa production more sustainable would benefit all stakeholders. Consumers could be assured that the chocolate they buy does not involve 'slave labour' or forest destruction. They have an interest in anything that helps reducing the poverty that is causing mass migration and other trouble that affect their own regions. The costs for them would be negligible. The farm-gate cocoa price is little more than 0.5 percent of the final consumer price. Besides, the two are quite unrelated. As for international dealers, processors and retailers, they would benefit from more stable and predictable prices. A rise in farm-gate prices would hardly affect the demand for their products. Conversely, it could greatly increase the farmers' room for investing in sustainable production systems that would allow a reliable supply of good quality cocoa that entails no reputation problems. Only speculators who earn money from price fluctuations would stand to loose.

Nevertheless, few stakeholders will take the initiative for an arrangement. For consumers cocoa is only one of many products, and dealers and processors do not like 'government interference'.[40] Therefore, the initiative should come from farmer organizations and producing country governments, for which an arrangement is much more urgent. Below we sketch a 10 step action plan that they could use.



Source: UNCTAD prices indices

Figure 1: Cocoa prices in the New York & London exchanges (SPDs/tonne; 2000 = 100)

A ten step action plan

1. The first step would be that governments and farmer organizations of cocoa producing countries unite in an international cocoa producers' organization. The initiative could be taken by ECOWAS jointly with Indonesia, Brazil and Cameroon, which together control 87 percent of world cocoa. The organization is equipped with a permanent secretariat. This establishes its own trading company, hiring experienced and trustworthy staff for it who share the aims of the arrangement. (They could be recruited from the ranks of traders and managers who have worked with fair trade companies.) The organization asks citizens groups and fair trade companies in consuming countries for support, and invites international dealers and processors to co-operate, appealing to their corporate social responsibility. Under the guidance of the international secretariat, the countries agree on the national base quotas that each of them receives. These are based on the volumes produced during a uniform base period (e.g., the last three years). Some flexibility is given to emerging producers (Vietnam), and a formula is adopted that will allow a gradual transfer

[40] Besides, some may worry about an arrangement that would complicate certain manipulations like transfer pricing abuse that are rife in the commodity trade.

of quota rights from high-cost countries to low-cost countries in the future (the 'carrot' against free riding). The countries agree on the price band that is needed to allow decent earnings and a transition to sustainable cocoa production, and the secretariat ascertains the uniform percentage by which the national quotas should be reduced to bring the prices into this band. A transition period (e.g., 5 years) is fixed within which all countries should reduce their production to their adjusted quotas. The governments pledge that, during the transition period, the share of farm-gate prices in the export prices will not be reduced. Besides, governments and farmer organizations agree on a minimum level of this farmers' share (e.g., 65 percent) to be respected after the transition period.

2. To prepare the implementation of the quotas, each country designates two types of zones:
   - *No-clearing zones* are forest areas where no clearings for cocoa are allowed.
   - *Diversification zones* are low-productive old cocoa areas where cocoa trees are to be dug up and diversification crops will be developed. These can be tree crops like citrus or oil palm, but also food crops that become more profitable when tariffs on food imports have been raised. Governments prepare diversification plans for these zones in close consultation with farmer organizations.
3. The actual implementation of the arrangement starts with all producing countries imposing a common export tax. This comes on top of existing national taxes, and the entire revenue from this new tax is transferred to the international secretariat. This uses part of it for having its trading company buy sufficient stocks and production surpluses to move the world market price of cocoa within the agreed price band. Preferably low quality products are purchased from the market. Apart from a buffer stock, all purchases are destroyed or denatured (e.g. into animal feed) to induce expectations of price rises, thereby stimulating private stockholding and moderating the size of the intervention required. To gain sufficient support among farmers, world market prices are raised sufficiently to allow some immediate improvement in farm-gate prices in spite of the tax.
4. Meanwhile, the secretariat's company starts its activities as 'stick' against free riding. Due to its direct relationships with the secretariat, farmer organizations and participating governments, the company has superior market intelligence. Also, it can grant traded options with limited risks because they are underwritten by member countries. The company uses these advantages for profitable transactions that have the effect of decreasing the level and stability of the prices of cocoa from free rider countries. For example, the company might unexpectedly buy or sell free rider products, in short-term periods of free rider market shortages or gluts and sell or buy back these supplies profitably. This would have the effect of increasing the uncertainty in the free rider segment of the market. Several other types of market 'guerrilla' tactics would be available to the company using more sophisticated derivatives strategies. Fair trade and organic companies could support this action by not accepting any cocoa that is produced in free rider countries.[41]
5. Part of the tax revenue is refunded to governments to finance the changes in the diversification zones. They use it for setting up marketing chains and for giving credit to farmers to bridge the period before the new crops can be harvested, in accordance with the diversification plans that have been prepared for this purpose. In addition, farmers in the diversification zones receive premiums for digging up their cocoa trees (including abandoned plantations, which are refuges of pests and diseases). The uprooting is voluntary, and the premium should be sufficient to persuade farmers. However, the governments should make it clear that, after the transition period, all trading in cocoa from the diversification zones will be banned. The diversification process is monitored by the international secretariat to ensure that farmers are provided with attractive alternatives and that cocoa trees are indeed uprooted. As the uprooting advances, the volume of surpluses that the secretariat needs to buy from the world market to maintain the new price level will decrease, so that an increasing part of the tax money can be refunded for diversification and uprooting.
6. The secretariat transfers another part of the export tax revenue to farmer organizations. These use it for an energetic mobilization campaign to get farmers in the cocoa areas organized in self-ruled associations. These local organizations take care of bulking and grading, so that higher quality beans can receive a better price which will stimulate farmers to improve fermentation and drying.

[41] See Koning & Robbins (2005).

They also provide credit to farmers for inputs and the hiring of labour, and can undertake community activities like providing water pumps, grain mills or electricity. The local associations combine in national unions that can negotiate with their governments.

7. After the transition period, sufficient trees have been uprooted to sustain the new prices without further destruction of surpluses. The international secretariat can limit its market intervention to running a buffer stock for short-term price stabilization and commercial operations to discourage free riding, which should be self-financing. Governments are now free to use part of the increased export earnings for purposes such as public investments in roads, health and education, also outside the cocoa areas. They negotiate the farm-gate prices for cocoa with the unions of cocoa farmer associations. However, the minimum share of farm-gate prices in the export price that has been agreed upon at the outset is respected.
8. Meanwhile, the common export tax is maintained. The international secretariat hands the tax revenue that is no longer needed for other purposes over to the cocoa farmer associations. These use it to give payments per hectare of cocoa to farmers. In case of sharecropping arrangements (*abusa, abunu* etc.), payments are divided between owners and sharecroppers in proportion to their shares. To qualify for payments, farmers should meet certain standards. Only productive fields are paid for, no abuse should be made of workers, etcetera. An important condition is that fields should be shaded or that serious work is made of reintroducing shade trees (which can start with border shading). Farmers who feel unfairly treated can appeal to arbitrage committees. The allocation of payments by the associations is supervised by representatives of the international secretariat. If this finds an association lacking in fairness or efficiency, it can replace it with other organizations, trusted institutions like churches, or its own agents if needed.
9. Once the balance in international markets is no longer threatened, a sustainable rise in yields is pursued. Local associations and extension workers organize farmer field schools to introduce better weeding, removal of diseased pods, and spraying (preferably with organic pesticides like *neem*). Replanting of cocoa in combination with reforestation and tree crop diversification is stimulated in designated areas. Plans for this are made by governments in close consultation with farmer organizations. Meanwhile, care should be taken to keep production within the national quotas. One reason for giving farmers payments per hectare rather than higher prices per kilo is to avoid uncontrolled yield increases from undermining the effort to balance the market.[42] Besides, new uprooting and diversification measures may be needed to prevent replanting and improved yields from causing new overproduction. Governments and farmer organizations manage the supply by balancing all measures. Fair trade and organic companies can contribute their mite by using their niche market premiums in accordance with the plans that governments and farmer organizations make for this purpose.
10. Over the years, the price band that is maintained by the arrangement is adjusted to the production costs in the participating countries. The world demand for cocoa increases with some 2 percent per year, which means that the national quotas can gradually be expanded. Every couple of years, a small part of the total quota room is transferred from high-cost to low-cost producer countries according to the formula that the participating countries have agreed upon. To avoid misunderstandings, this formula should be based on objective indicators than can be ascertained by the international secretariat.[43] Preferably, the general increase in quotas should exceed the loss in production rights by high-cost countries, so that no country is forced to cut down its production in absolute terms. Countries that lose quota rights receive financial compensation from an adjustment fund. This is managed by the international secretariat and financed, partly out of the common export tax, and partly by contributions from countries that benefit from the quota transfer.[44] The financial compensation also serves to help farmers in high-cost countries to diversify their production. Governments and farmer organizations decide together on the way in which the compensation money is used.

[42] In many countries, farmers have ample room for raising yields by more careful cultivation and harvesting (Dormon et al. 2006), and strong price rises could make them use this room.

[43] Possible indicators are the purchasing prices that farmers are willing to pay for cocoa fields or the payments needed to induce them to replanting.

[44] Cf. Talbot (2004: 216-217).

Some estimates

To illustrate the financial and economic feasibility of this action plan, we constructed a simple economic model to estimate the outcomes of a concrete version of it. The model is a partial equilibrium simulation model based on stylized market data for 2002/03. In it, supply and demand respond to price changes according to empirical elasticity estimates for the cacao sector based on (see Maizels et al, 1997, chapter 7). Six regions are distinguished: ECOWAS, Indonesia, Cameroon, Brazil, an aggregate group including all other cacao producing countries, and the rest of the world. This last region comprises all countries that consume, but not produce cacao. The model considers the period 2006 till 2020. It assumes that the global demand for cocoa increases with 2 percent per year. For some selected details see Table 2[45].

Table 3. Some selected world cacao model characteristics

See accompanying Excel sheet for details about Tables and figures (you can use this to further edit/adjust them)

	unit	ECOWAS	Cameroon	Brazil	Indonesia	Other Prod	RoW	Aggregate average
Market and policy data								
land area used	1000 ha	686.70	49.00	56.70	148.75	124.60	0.00	1065.75
production	1000 t	1962.00	140.00	162.00	425.00	356.00	0.00	3045.00
share in production	%	0.64	0.05	0.05	0.14	0.12		1.00
demand	1000 t	64.72	16.18	40.45	404.50	80.90	3438.25	4045.00
excess supply	1000 t	1897.28	123.82	121.55	20.50	1275.10	-3438.25	0.00
consumer price	$	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00
parastatal agency financing tax (ad valorem)	$	100.00	50.00	50.00	50.00	50.00	0.00	0.00
distribution and handling margin (fixed)	$	100.00	100.00	100.00	100.00	100.00	100.00	100.00
producer price of beans	$/t	1300.00	1350.00	1350.00	1350.00	1350.00	1400.00	1400.00
producer revenue total	mill.$	2550.60	189.00	218.70	573.75	480.60	0.00	4012.65
Behavioural response & technical coefficients								
supply price elasticity	-	0.25	0.25	0.25	0.25	0.50	0.50	
land input elasticity	-	1.00	1.00	1.00	1.00	1.00	1.00	
land input-output price elasticity	-	0.13	0.13	0.13	0.13	0.50	0.50	
demand price elasticity	-	-0.25	-0.25	-0.25	-0.25	-0.25	-0.15	
demand income elasticity	-	0.10	0.10	0.10	0.10	0.10	0.55	
income growth	%	1.50	1.50	1.50	1.50	1.50	2.50	
yield shaded/yield unshaded	fraction	0.80	0.80	0.80	0.80	0.80	0.80	
slippage factor uprooted land	fraction	0.75	0.75	0.75	0.75	0.75	0.75	
exogenous land increase growth rate	%	0.50	0.50	0.50	0.50	0.50	0.50	

Source: own estimates based on Tony Lass ??, pp.8-15 and Maizels et al, 1997, pp.105-141

To estimate the outcomes of the above action plan, we had to take a number of concrete decisions (see Figure 2 below). We imagine that the plan would be introduced in 2006. In this year, a ban on new clearings in the no-clearing zones would be introduced. We assume that this reduces the autonomous (price independent) expansion of the cocoa area from 0.5 percent to 0.2 percent per year. In addition, an export tax of $300 per tonne is introduced. Of the revenues, 5 percent is used to finance the operational costs of the international secretariat, which recur each year. Until 2010, another 10 percent of the revenues is transferred to farmer organizations for their campaign to organize cocoa farmers in self-ruled associations. In the same period, the rest of the revenues is used for buying production surpluses out of the market and for uprooting trees and developing alternative crops in the diversification zones. In 2006, 275 thousand tonnes of cocoa are purchased and destroyed or denaturated. These purchases decrease in the following years to become zero in 2010. The yearly purchases can be seen in Figure 2. This also shows the shares of the total cocoa area that are taken out of production by uprooting in the diversification zones (this has to be read with the right axis scale). In 2006, 0.5% of the area is taken out of production, from 2007 to 2009, 2 percent yearly, and from 2009 to 2011 0.5 percent yearly. In total, 8 percent of the total cocoa area is thus taken out of production. Because old cocoa fields that are no longer harvested are also uprooted, we assume that 1.7 hectare

[45] More details are available upon request from the authors.

should be uprooted to take 1 hectare out of production. We assume that the amount of money needed for uprooting (uprooting premium plus diversification costs) is 10 times the market price of the cocoa that the uprooted trees produced (or would have produced if they were harvested).

Table 4. Applied policy instrument mix

		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
export tax (per unit)	$/t	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
DP1 supply scheme compensation payment	$/t	0	0	0	0	240	240	240	240	240	240	240	240	240	240	240
DP2 conservation scheme payment	$/t	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
intervention	1000t	275	190	175	100	0	0	0	0	0	0	0	0	0	0	0
% reduction of area uprooted (initial area is base ar	%	1	2.5	2.5	2.5	0.5	0.5	0.5	0	0	0	0	0	0	0	0
DP3 buying out payment (per unit)	$/ha	18260.83	17816.14	18178.43	17860.42	15875.25	16254.7	16523.74	16851.15	17217.52	17459.53	17713.74	17964.8	18204.98	18491.76	18792.69

In combination, this combination of destruction of surpluses and area reductions allows an immediate increase in farm-gate cocoa prices of about 10 percent compared to the situation without intervention (see Figure 2). After 2010, the export tax is lowered to $225 per tonne (15 percent of the equilibrium price of $1500 per ton that the model predicts in the absence of the arrangement). The revenues are now mainly transferred to cocoa farmers associations to give payments per hectare of cocoa to farmers who produce in a socially and environmentally sustainable way. (Table 5 shows the export tax revenues and how its spending on various purposes evolves over time). We assume that all farmers adjust their production so that all of them receive these payments. The payments will induce new increases in yields and area, but less than outright price rises would do. We assume that the effect of payments on yields will be one half of that of a corresponding price rise, but that the ban on new clearings in the no-clearing zones reduces the effect on area to one-fifth. As a result to the payments and the prices effects, farmers now receive about one-third more revenue than what they would have earned without the arrangement (see Figure 2). At the same time there is still some budget left for additional measures would these prove necessary.

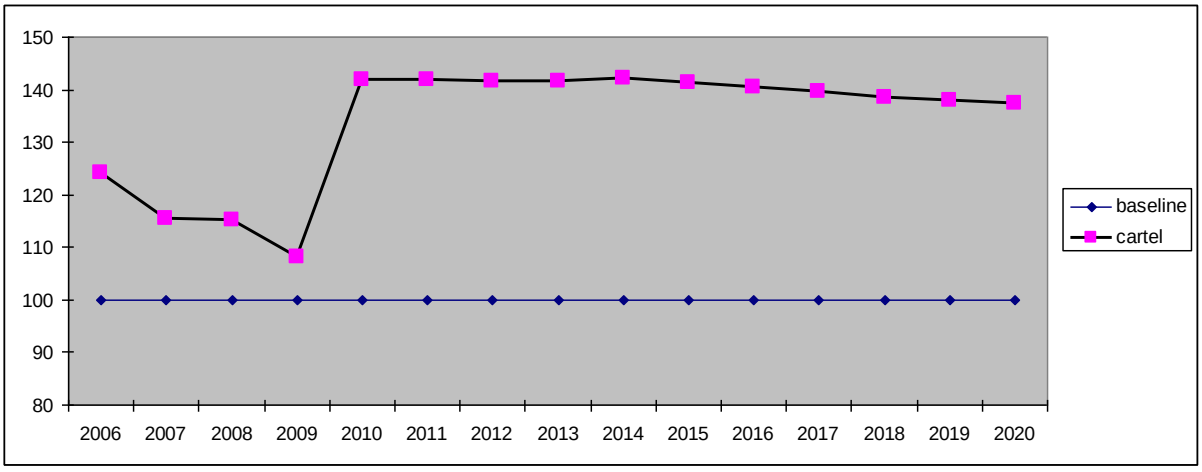


Figure 2. Producer revenues under the supply management program (indexes, baseline is 100)

Table 5. Budget: income and expenditures

		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
export tax revenues	1000$	830393.8	817781.1	821480.7	811453	815530.9	823656.1	832798.5	841622.3	854121.4	864775.3	874525.8	884436.6	894961.7	904512.1	914511.3
DP1 supply scheme compensation expenditures	1000$	0	0	0	0	761717.1	767835.6	774967.2	781756.5	791435.4	799844.9	807518.3	815330.6	823336.1	831138.3	838966.1
DP2 conservation scheme expendutres	1000$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP3 buying out expenditures	1000$	194614.8	474688.9	484341.6	475868.6	84595.25	86617.23	88050.87	0	0	0	0	0	0	0	0
Intervention costs	1000$	502172.9	338506.7	318122.5	178604.2	0	0	0	0	0	0	0	0	0	0	0
Organisational costs	1000$	16607.88	16355.62	16429.61	16229.06	16310.62	16473.12	16655.97	16832.45	17082.43	17295.51	17490.52	17688.73	17891.23	18090.24	18290.23
Farm organizations mobilisation costs	1000$	83039.38	81778.11	82148.07	81145.3	81553.09	0	0	0	0	0	0	0	0	0	0

To test the vulnerability of the programme to free riding, a similar scenario was run, but now it was assumed that only ECOWAS, Indonesia, Cameroon and Brazil would cooperate. The simulation

results showed that this changes the results, but only to a rather limited extent. The program will still work, be feasible and attractive for the cartel of participating countries.[46]

5. Concluding remarks

We think that our proposal would be a robust and transparent arrangement. It is self-financing and not dependent on external support. Yet the improved sustainability will appeal to consumers and help persuading other stakeholders. The operations by the trading company and the gradual transfer of quota rights to low-cost countries decrease the incentives for countries to free ride. The strong role of the international secretariat assures all participants that the agreed principles will be fairly applied. The sovereignty of national governments is respected, for they control the restructuring of their cocoa sectors and negotiate the partition of the export price in their own countries.[47] The agreed minimum share that farmers get of this price, the negotiating power of the new associations, and the allocation of hectare payments through these associations, ensure that farmers will benefit. The international secretariat's supervision of the allocation process guarantees fairness to individual farmers.

The arrangement is within the rules of the General Agreement on Tariffs and Trade. In its article XXXVIII, this allows member countries to enter into international arrangements *'to stabilize and improve conditions of world markets*' in commodities. Such arrangements could include measures '*designed to attain stable, equitable and remunerative prices for exports of such products'*. In its recent proposal to the WTO, the African Group emphasizes that this allows unilateral action by producing countries, including the levying of an export tax for the purposes indicated above.[48]

The above-presented design is not the only one possible. Alternative elaborations could also do, and other features could be added. For instance, reintroduction of shade and diversification coupled to reforestation would contribute to carbon sequestration, so that Kyoto protocol mechanisms might be invoked to help finance the arrangement.[49] Governments and farmer organizations should carefully study and compare all possibilities.

A critical aspect of any plan for controlling cocoa supply is diversification to allow the uprooting of older trees. This should not solely depend on cash crops, which may themselves be prone to oversupply. Food crops should also be involved. This requires that food crops become more attractive, which is only possible if import tariffs are raised. This is an additional reason why supply management in export crops should fit into a broader *food sovereignty* policy.

Any proposal for supply management will provoke criticism by opponents who will exaggerate the amount of bureaucracy involved. In reality, the administration costs will be dwarfed by the increase in export earnings. Moreover, such increase would obviate the need of numerous aid projects, which involve much higher administration costs and inefficiencies than supply management. Nevertheless, attempts to introduce supply management in tropical export crops may be faced with resistance from developed countries and international financial institutions that might threaten withdrawal of aid or trade preferences. Developing countries should help each other to withstand this pressure and announce that they will only co-operate on issues that developed countries find important (e.g. foreign investor rights) if the latter promise to refrain from such actions. Once supply management schemes for a number of crops are effective, export taxes could be used to establish a

[46] The presented model figures as an illustration and provides only a simplified version of the cacao market and the policy arrangement. The shaded/unshaded types of production are still treated as exogenous. Moreover no quota reallocation over countries is considered yet. The growth of the market due to the growth of demand creates a supply response which roughly implies that all producing countries expand their production proportionally.

[47] The active way in which this uses its superior market intelligence to frustrate free riders contrasts with the passive role of the older international commodity organizations, which did little more than managing buffer stocks. In a way, the role of the trading company that we propose could be compared to that of central banks, that seek to control the money supply and to counteract speculative flows of 'hot money'.

[48] African Group (2006).

[49] Newmark (1998). Sonwa (2004). It may be needed to invoke the forest reclassification clauses of the Clean Development Mechanism to benefit from these facilities.

common fund for balance of payments support that could loosen the grip of international donors on developing countries.

A final word should be said on processing. Various reasons speak against large-scale processing of cocoa for export in West Africa. Tropical conditions are less suitable for storing cocoa beans and cause higher energy costs for cooling; processing is capital-intensive and brings limited employment for workers; and intermediate and finished cocoa products are less easily transportable than the beans themselves.[50] Nevertheless, this does not excuse the higher import duties that developed countries apply on processed products from developing countries. In crops where processing is less difficult, tariff escalation is a serious obstacle to activities that could add value to the crops themselves. The elimination of this obstacle remains a vital and justified demand.

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