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Promotion and Standardization challenges for Sustainable Organic Cocoa Production: a case study of *Ghana and Cameroon*

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ABSTRACT

Recently there has been a growing trend within the developed countries for the consumption of organically produced foodstuff due to the feeling amongst consumers that such foodstuff could be healthier because they a grown with draconian measures to ensure limitation on the use of synthetic chemicals.

This project has attempted to create promotion and standardization strategies for organic cocoa production in Ghana and Cameroon who are the second and sixth World producers of cocoa beans respectively.

This project has attempted to attain an environmental objective by making use of the economic advantages that are attainable through the premium prices that could be offered to the farmers, for organically grown cocoa.

The consumers interest for consuming organically grown cocoa products not withstanding, this project has also attempted to stress on the fact that organically y grown cocoa should also lay emphasis on the sustainability of the eco-system within which it is grown.

In the course of writing this project it was realized that the cocoa farming practices in the target countries during the period subsequent to the structural adjustment plan agreed between them and the World Bank, have been quasi organic because these governments could no longer subsidise the use of chemicals for cocoa production. Unfortunately credible certification and organisation of organic cocoa farming as well as promotion strategies for this sector in both countries have been very limited.

In this project it was identified that there are several huddles to cross if such an initiative to promote and standardise organic farming of cocoa in both countries should succeed:

- Organic farming requires rigorous application of prescribed standards that need to be adapted for the context of cocoa farmers in Cameroon in Ghana

- The farmers are predominantly illiterate and would require assistance from professional extension workers to assist them in farming cocoa organically.

- Cocoa farming is very much affected by different diseases and pests, which could adversely affect the growing of cocoa organically.

- Unfavourable national policy environments for organic agriculture could also affect the growth of the organic sector. Most politicians, policy makers and government agriculture researchers and extension workers are strong believers in the monolithic industrial approach to agriculture. This translates into hostility against organic agricultural promoters and results in no funding for research, training and extension in organic agriculture.

- The lack of any legislation in the organic sector for both countries could also hamper the promotion of organically grown cocoa.

- Research on organic cocoa farming is very limited in both countries.

- Any inspection and certification regimes will have to be credible and meet up to the standards in the cocoa importing countries. Even if certification is to be carried out by northern-based certification organisations, this will be carried out at high costs.

The farmers will also need powerful incentives to make them accept new farming practices.

The strategy that has been used in this project, is to review the prevalent cocoa farming practices and to discern from them, practices that could be considered as organic in order to propose standards for organic cocoa farming.

Unfortunately the target market for the produce are European and North American markets who have aggressive agricultural policies and stringent non mutually recognisable standards for organic farming which together with that proposed by the International Federation of Organic Agricultural Movements, seem not to have taken the context in the Developing countries into consideration when they were drafted. Therefore in this project a strategy that proposed a general code of practice that cuts across and selected the higher standards within these three standards adapted for the context of cocoa farming in Cameroon and Ghana was proposed, with respect to the farming practices and the certification system.

With respect to the production process, this project proposes that cocoa grown under the canopy of an existing forest or the practice whereby cocoa is inter-planted with other trees and crops should be part of the organic standards.
Organically grown seeds should be used for planting except in exceptional cases if it is proven that they were not available.

Each farm should have an organic management plan and the producers should be able to prove to the certifiers that they have been able to avoid the contamination of organic with non organic crops.

Under the recommendation advocated by these authors, any form of establishment of a new organic cocoa farm should be either that which is established in a selectively cleared forest for a new cocoa farm established in a primary or secondary forest, or in the case of an area which has already been deforested, cocoa inter-planted with other trees and food crops. New cocoa farms planted in a cut down forest even if inter-planted with other trees or crops, should not be referred to as organic. New and old cocoa planted in completely cleared forest in such a way that the plants are completely exposed to sunlight should not be referred to as organic.

Cocoa planted under the canopy of trees in either a primary or secondary forest, could be converted to an organic cocoa farm. This conversion should take place within a period of

three years during which organic farming practices are carried out and an organic management plan agreed upon between the farmers or their representatives and the certification body, is rigorously adhered to.

Biological methods used to help in the decomposition of fell down trees should also be encouraged.

With respect to nutrient requirements organic farming practices should be such that the use of synthetic fertilisers under normal circumstances should be forbidden. This rule can be derogated from in exceptional situations of nutrient requirements. In such cases the fertiliser used should be amongst the list of acceptable chemicals agreed upon between the farmers or their representatives and the certifying bodies.

With respect to the maintenance of the farm the use of synthetic herbicides such as glyco-phosphate marketed, as Roundup Monsanto should be forbidden.

Organic practices would require that diseases and pests be combated using methods that would avoid the use of synthetic chemicals. However as is the case within the three basic organic farming standards reviewed in this project, in exceptional circumstances where all non synthetic methods have been used and are unable to remedy the situation, chemicals within a list agreed upon between the certifiers and the farmers could be used to remedy the situation.

A list of chemicals permissible for use in exceptional situation either for treatment of seeds, diseases and pests or soil enrichment should be agreed upon and should be a reflection of similar lists advocated by the three basic standards for organic farming reviewed in this work.

This project has prescribed a method of certification where agreements could be reached between international certification bodies in Europe and North America and farmers on standards to be achieved and could be with the assistance of local bodies. Cost for certification as proposed here could be a percentage of the premium price for the organically grown cocoa.

In order for this initiative to succeed, this project has identified key stakeholders who have to play major roles:

- The cocoa purchasing countries need to encourage favourable trade terms for this sector and help to promote research.
- The public authorities in both Cameroon and Ghana should perceive the environmental and economic advantages in promoting this sector. In this connection they should pilot initiatives within the sector and negotiate agreements with the purchasing countries.
- For certification to be credible, certification bodies recorgnised by the purchasing countries should enter into partnerships with local entities on how to implement the prescribed standards prior to issuance of certificates.
- International business entities involved in processing organically grown cocoa should enter into agreements with farmers guaranteeing them they will purchase all the cocoa that is grown organically.
- Skilled extension workers would also be necessary to assist the farmers to comply with the organic standards and
- National and International NGOs could assist with dissemination of knowledge on organic farming and Research.

The market for organic food in general is on a steady rise for how long is this going to last we cannot tell. With regards to produce made from organically grown cocoa there is also nascent interest that has prospects to increase with time.

Sustainable organic cocoa farming apart from the environmental advantages also has the economic advantage of reducing the cost of cocoa production for farmers, because it will limit the use of chemicals, though this will require more labour input. The farming of cocoa has practically been organic ever since the governments could no longer subsidise cocoa farming in Ghana and Cameroon. The challenge therefore is to take advantage of this situation and put in place credible certification regimes so that the farmers can get

premium prices for the organically grown cocoa while at the same time environmental advantages are obtained.

If the trend of paying premium prices for organically produced crops evolves then the prospects for cocoa farmers in Cameroon and Ghana to get involved in organic cocoa farming will be high. This is a crucial factor that will determine the success or failure or organic cocoa farming in Ghana and Cameroon.

The initiative to promote and standardise sustainable organic cocoa farming in Cameroon and Ghana would seem to have economic advantages in the short term. But such prospects cannot be guaranteed in the long term because of the volatility that has been existing in the cocoa market and the uncertainty of the long-term interest for consumers to pay premium prices for organically produced foodstuff.

However the promotion of organic cocoa farming is still very important because with a gradual increase in the price of cocoa at the World Market, the situation might return to the precarious situation of the past where farmers would be able to return to the hazardous use of chemicals which according to their understanding will improve their yields.

Therefore there is all justification to embark on a project to promote and standardise organic cocoa farming in Cameroon and Ghana.

Even in the event that the farmers are unable to sell their produce as organic, or if premium prices are no longer paid for organically grown cocoa, there will still be the market for it as ordinary cocoa beans. This way at least an environmental purpose will have been served.

1 INTRODUCTION

The economy and the environment are said to be in an all-embracing inter-linkage relations in the sense of the reciprocal effects each can have on the other. Asserting these relations, Turner *et al*., 1994, has it that, "no economic decision can be made that does not affect our natural and built environments and, no environmental change can occur that does not have an economic impact". In the same vein, Hanley *et al*., 1997, describe the said relations as; "every economic action can have some effect on the environment, and every environmental change can have an impact the economy". Hence various management instruments including technological restrictions (eg, mandated abatement methods and other forms of Command and Control environmental regulations) and Economic Incentive instruments are employed to keep the balance of the interdependence relation between these two entities. All these are effort restriction measures to ensure "Human Well-being" and not necessarily money, towards the achievement of socially optimal levels in the use of the environment (Turner *et al*., 1994; Hanley *et al*., 1997). A production technology innovation, which is effort restricting in itself towards the achievement of sustainability and for that matter, social optimalility, in the use of the environment, must be worthy of promotion. Such is the attribute we deduce from the definition (given as follows) of organic agriculture and hence, the issue of our study:

A comprehensive definition of organic agriculture as given in a report from the United States Department of Agriculture (1980) is

"… a production system which avoids or largely exclude the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additives. To the maximum extent feasible, organic systems rely upon crop rotations, crop residues, animal manure, legumes, green manure, off-farm organic wastes, mechanical cultivation, mineral bearing rocks, and aspects of biological pest control to maintain soil productivity and tilth, to supply plant nutrients, and to control insects, weeds, and other pests"[1]. The report also includes the observation that, " the concept of the soil as a living system which must be "fed" in a way that does not restrict the activities of beneficial organisms necessary for recycling nutrients and producing humus is central to this definition".

[1] Available at www.fao.org/DOCREP/003/AC116E/ac116e02.htlm

1.1 Background to the issue of the study

The mainstay of the economies of most tropical countries is agricultural production of Export Crops (Cash Crops) and most especially for the countries under consideration in this study. In Ghana for instance where agriculture production accounts for a 60% employment, 50% GDP and 70% of total export earnings; cocoa is one of the main export earners (IFOAM, 2003). This may not be significantly different from the case of Cameroon as both countries share a common status of being agrarian countries. It is estimated that about 70 to 90% of cocoa is grown by smallholder farmers cultivating less than three hectares whiles the remainder is grown on estate basis EC, 2003)', indicating the importance of cocoa production in rural development. In spite of these contributions to the economies, means to reverse the falling trend (from about US$4000 a tonne in 1979 to about US$880 a tonne in October 2000, and US$ 1431 as of November 2003) (EC, 2003; IFOAM, 2003) in the world for the commodity are eluding. This by and large has contributed to unattractive domestic price pay to farmers for cocoa. In a related issue, farmers are unable to afford costs for productivity enhancing inputs and hence, more often than not, farmers compromise environmental promotion barely to maintain productivity. It is cited for example that there is limited export of fair trade cocoa from Ghana through Kuapa koko (a cocoa purchasing company in Ghana), yet real organic supply is yet to be tried, an issue attributed to reluctance on the part of the authourity for fear of spread of capsid attacks (IFOAM, 2003).

More on the compatibility note of the challenge consideration, paradoxically, unlike the developed countries where agriculture production is labour extensive and capital intensive and therefore costly to convert from conventional to organic farming, in the developing countries and for that matter, Ghana and Cameroon, most farming systems are labour intensive and may be cheaper to produce organically. Yet most small-scale labour intensive agricultural activities are associated with environmental degrading (deforestation especially) effects. In this regard, in Ghana for example, the rather risk averse measures of cocoa farmers converting more virgin land into production as opposed unaffordable use of fertilizer in a bid to improve productivity, has been blame as one of the main sources of deforestation in Ghana (MSE, 2002). Meanwhile organic farming has been asserted for its: environmental conservation/friendliness; being in tune with nature;

and offering (though oft-disputed) healthier production systems (EC, 2003[2]; IFOAM[3]). Yet again, organic farming relies on premium markets and government subsidies, and comes with a cost to farmers in the form of lower yields (at least in the first few years) (IFOAM (bid)). In relation to the yield-lowering attribute, it is found out in a study of trial organic cotton production in Northern Benin that, there was lowering of yield of about 20% and this needed a premium of about 20% more of the conventional price, if the organic approach should even up in revenue with the conventional production. The environmental improvement/enhancement was however proven in the form of relatively increased residue nutrient balance comparing the organic approach to the conventional cotton production (IFOAM[4])

Inferably, not only do we (authors of this thesis) see opportunities, but also, problems to be overcome, in our vision of organic approach as a means to ensure sustainable cocoa production in the focus areas in this study. Hence, we refer to such challenges as: the challenges of the measures needed; to sustain the incentive of premium market and support for farmers, and those of ensure credibility in conforming to the status of organic requirements to the relief of consumers (the problematic aspect); in order to "tap" the advantages in the environmental promotional attributes (the aspect of opportunity) of organic farming to foster sustainability in cocoa production.

The question therefore remains how to promote and standardize organic practices in cocoa production? The foregone challenges in a bid to answer this question are study under two broad dimensions as: the technical (comprising of production and certification) gap; and institutional (market (international and internal cocoa trade) forces verses government policies, stakeholder organization, research and development (capacity/expertise building)) gap, - for the transformation from conventional to organic cocoa production. The solutions to these questions as sought for in this study are geared towards the aims outline under section 1.2, as follows:

[2] European Commission (EC, 2003): Organic farming; guide to Community Rule. European Commission Directorate for Agiculture. Available at europa.eu.int/comm../agriculture/qual/organic/brochure/abio_en.pdf

[3] See: Organic farming and like minded movements in Africa.; available at www.ifoam.org

[4] See Organic Cotton production in Northern Benin. Available at www.ifoam.org

1.2 The aim of the study

The overall aim is to elucidate on the promotion and standardization implications in order to facilitate enhanced policy, planning and regulations so as to take full advantage of the potential in organic farming to sustain cocoa production in the focused countries (Ghana and Cameroon).

Specifically, we intend -

1. To study the trends in: production (land and other resource use, and environmental effects); and market of cocoa (conventional and organic)
2. To study the certification/standardization requirements of organic productions, and to assess in qualitative terms, how representative in terms of relevant "stakeholders'" interests, are the standards/demands of organic production
3. To make a comparative assessment of the gap between organic and conventional practices
4. To discuss the means of enhancing the adoption of organic practices in cocoa production and the policy implications thereof.

More specific question in relation to the categories of the challenges posed for this study are asked as follows:

For the technical gap (Natural Sciences issues);

- How can the transformation from conventional farming to organic farming be carried out in these areas?
- How can natural resources be maximized in organic farming methods in order to obtain substantial yields?
- How can organic farming methods be used to combat pests?
- What kind of inspection regimes could be put in place for such farms?
- What are the possibilities for research and development to improve on such farming methods?

- What strategies could be used to transfer the knowledge on such farming methods to the local farmers?
- Organic farming will likely lead to fall in production. How then can such a production method be made economically sustainable?

For the institutional gap (policy and economic issues)

- What proportion of the market for organically grown tropical export crops does cocoa cover?
- What can the National governments, international financial institutions as well as local and international NGOs, help to promote this kind of farming in tropical countries?
- How can local, regional and global economic policies be adapted to ensure the subsistence of organically produced tropical export crops?
- What kind of credible certification and labelling schemes could be put in place for such products? – What standards are needed and for whose interest?

The seeming economic incentive of premium organic prices should however not overshadow other economic concerns. Hence, although the economic implications may be implicit in the institutional concerns, peculiar attention must be devoted to the fact that organic practices may be yield depressive and for that matter, the need to include such as:

- How much income to farmers and, revenue to government, are likely to occur as of the adoption of a production policy of organic cocoa and,
- What should be the necessary policy intervention and institutional arrangement to mitigate the outcome of reduce yield?

1.3 Pre-understanding

We have as pre-understanding in this work that organic production of cocoa is environmentally sustainable and for that reason there is the need for its promotion. As to its Economic sustainability the authors of this thesis have not made a foregone conclusion though indications on organic food consumption at the global level gives a positive

indication. Therefore it will still be necessary to explore the potentials of the market in a more in depth manner. This not withstanding the authors believe that conventional cocoa farming methods will for a long time still take precedence over organic farming because amongst other reasons for the time being this method produces more substantial yields than organic farming methods and is what the farmers have been use to. With this in mind the approach here will be to encourage a gradual conversion process towards organic farming.

1.4 Methodology

To a large extend, this project has been a library-based research/study, as our information sourcing/gathering has largely been by means of literature review. Inspirations from course work were also used as well as material from credible Internet sources. Ideally, a field trip/survey conducted to solicit primary information from relevant stakeholders reflecting views from both demand and supply perspective would have enhanced diversity of the views and for the opportunity to have triangulate responses. However within the constraints of time and financing, we could manage with an interviews via e-mails) with two key agents: The Cocoa Research Institute of Ghana (CRIG), an outfit of the Ghana Cocoa Board (COCOBOD), representing views from the supply perspective and; an ex-President of a chocolate manufacturing company in Denmark, and an advocate for “Fair Trade Cocoa”, Mr. Hans Rysgaards, to have represented views form a knowledgeable individual from the demand perspective. The response from the later agent could not be made available on time for inclusion in this study report. Also, we could not have a representative number of responses on cocoa farming methods from local Cameroonian farmers’ perspective, for inclusion in this report against our original and initial plans As supplementary views, therefore, our methods also included a review of case studies including: a case of partnership for production and promotion between the Green and Black’s Organic Company of UK and Mayan Cocoa farmers of Belize - illustrating partnership that generates the driving force needed to promote organic cocoa production and; a case of organic cotton production in Benin, illustrating a cost and benefit study to determine mitigational measures to uphold the widespread and long term benefit thereof in organic cocoa production. The various background information on

concepts and other analytic framework have been accomplished through literature reviews and Internet sources. The only field trip was a short one (one week duration) to Ghana for the introduction of the study and the arrangement for interviews.

1.5 Limitations

This project focuses on the promotion and standardisation of organic farming of Cocoa in Cameroon and Ghana, however elements of cocoa farming; both organic and conventional, from other areas will also be made mention of for better illustration. In a like manner, information on the promotion of other organically grown tropical cash crops will also be useful.

The organic production method in this project will be limited to the primary production leading to the Cocoa beans and not the transformed products made from Cocoa beans for export. However the standardization and labelling process will have to include the transformed products made from cocoa beans. Initiatives via planning and regulation to boost the local transformation and consumption of organically grown cocoa beans products will also be part of the goals in this project.

This project will be limited to materials at our disposal and we will not be able to make on the spot assessments on the actual environmental, social and economic impacts of conventional cocoa farming in the countries under survey. Official government statistics from the countries under survey will also be hard to come by so this will be limited to what we can derive from the resources at our disposal

1.6 Conceptual framework

Two sub-sections are dealt with in this section. The first sub-section (1.6.1) seeks to explain the idea of organic farming and for that matter, organic cocoa production as it reflects the concept of sustainable agriculture. In the second sub-section (1.6.2), the means to facilitate the adoption of the idea of organic cocoa production are explored from the concept of promotion of agricultural technology innovations.

1.6.1 Organic Cocoa production in the Context of Sustainable Agriculture

Base on the attributes of environmental enhancing and premium export market, organic cocoa production is proposed in this thesis as a means to instil some "sustainability" into a hitherto, unsustainable conventional cocoa production from the view point environmental degradation (MSE, 2002) such as has been attributed to the later system of production. Yet, much concern has been raised regarding what 'sustainable development' and for that matter, 'sustainability of farming systems' means in practice, and whether sustainability actually deliver on its promises (Upton, 1996; Dryzek, 1996). This section of the thesis draws from various perspectives to set organic cocoa production in the context of sustainable agriculture.

With regards to it's meaning, Bawden, 1991, opines that, the complexity of the concept of agricultural sustainability can be appreciated in the different ways and means by which it is defined and sought for. Thus to some, sustainability relates to sufficiency of food, with agriculture being regarded by such a constituency primarily, as an instrument for feeding the world. Others define sustainability in an ecological context, with emphasis on the disruption of the biophysical balance through what is termed as "non-harmonious practices". Yet another group also extends the concept to the promotion of vital, coherent, rural culture and encouraging the values of stewardship, self-reliance, humility and holism, which have been mostly, associated with family farming (Bawden, bid). Perhaps, the most widely quoted definition as applies to sustainable development however, remains the Brundtland Commission's characterization as a " development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Green, 1997). Upton, 1996, however, is critical on this rather

popular definition on the basis that it is broad and general, and may lend itself to various different interpretations. According to Upton (bid), at the more local farm and village level, the essential concern is that the production system should not collapse in the foreseeable future. Whiles Upton's concept of sustainability is preferred on the accounts of specificity and focus, it will be the more adopted concept in this thesis, yet not so exclusive especially, from the Brundtland Commission's concept, considering Bawden (1991)'s exposition that; in the complex description of agricultural sustainability, the emphasis should be on a shift in thinking from the influence of the "Age of Productivity to that of the new Age of Persistency". In this choice of a definition of sustainable agriculture in this thesis, thought is given to the environmental economists view that; the economy and the natural environment are interlinked in an all-embracing faction to an extent that, every economic action can have some effect on the environment, and every environmental change can have an impact on the economy (Hanley et al., 1997; Turner et al., 1994). In terms of organic cocoa production therefore, sustainability should be seen in terms of how the environmental enhancing and the premium market attributes supplement each other in the event of failure of one (of the attributes), to ensure continuity/persistency of the local (macro as well as micro level) agricultural production system in general, and cocoa production in particular, through enabling transformations involving technological changes notwithstanding any wave of political or other institutional changes, regionally or globally.

In terms achievements/performance measurement of sustainability, Bawden in a later presentation considers various aspects (indicators) of agriculture: from the levels of food production in the word; through income of individual farmers and, well-being of rural; to the natural environment as a productive base, and asserted that, sustainability in agriculture is a "slippery concept", which state is not achievable contrary to the way it is often presented (Bawden, Undated). On this platform, Bawden defines sustainability in utility terms, which lies in its application as an ethos that can be used as a guide to the thinking, values and actions that provide the context for "improvement" in the relationship between people and the environment about them. In this definition, a contextual construct is stressed rather than expression of an objective. The stress in this definition by Bawden (undated) is adopted as a guide to measure achievement of

sustainability in organic cocoa production in this thesis. This approach is based on a similar premise of difficulty in identifying a clearly defined indicator for measuring success or failure in terms sustainability in cocoa production, particularly as cocoa production involves diverse stakes of interests; be it in welfare gains to be derived from cocoa production as an economic activity and/or values in the resourcefulness of the environment, especially in the economies of the countries under focus in this study.
In a nutshell, as the indicator for the assessment of sustainability of cocoa production under organic practices therefore, this study emphasizes decisions in favour of measures that ensure persistency/continuity rather than productivity, as a guide to production activities. A necessary step towards the achievement of sustainable organic cocoa production however, lies in a successful adoption of the innovations of organic cocoa production. The next sub-sections therefore reviews some of the means employ in extension services to overcome barriers to promotion of innovations in agricultural production technology.

1.6.2 Sustainable Organic Cocoa Farming: challenges to its promotion for adoption

Within the framework of assessing sustainability in this study, strategy for promotion of sustainable organic cocoa farming seeks to clarify/identify: from the technical perspective, potential obstacles to adaptation of organic methods to the existing culture, practices and capabilities/capacities; and more from the institutional perspective, the driving force needed to develop and maintain incentives for, and hence, the role of, relevant stakeholders to commit resources to ensure persistency/continuity of keeping the organic system of cocoa production. In these regards, and on the basis of the fact that organic farming concept in relative term to the developed countries, is still in its infant stage of development in the developing countries in general and in the West African sub-region in particular (Wai and Panyakul, 1999) it is important to recognize the introduction of the organic approach to cocoa farming as a technological change and an innovation. It will be therefore imperative to ensure that the necessary mechanisms

needed for successful technology transfer and diffusion are in place. In this regard, Brenner[5] clarifies the concept of "technology transfer" through the following definitions:

- *Technology* implies knowledge, both theoretical and practical, of techniques.
- *Technological change* refers to any improvement in technique and includes minor, incremental modifications as well as major breakthroughs which are referred to as *innovations*
- *Technology transfer* as distinguished from *technology diffusion*, takes place, in a variety of forms, among individuals as well as organizations, both public and private, and that, technology may be transferred through learning (education and training) or through the introduction of new processes and products. It may also be transferred through non-commercial channels (e.g. through public extension systems) or through market transactions (purchase, licensing, joint ventures)
- *Technology diffusion* on the other hand refers to the transfer of technology, in the form of a final product, and its widespread distribution or dissemination to agricultural producers or other final consumers.

Be it technology transfer or diffusion, Brenner (bid) considers differences in the levels of economic and scientific and technological development, and emphasis two cautions in international technology transfers between countries: the first has to do with the uncertainty regarding what is actually transferred. This uncertainty stems from the intangible nature of technology, whatever the form it may take (whether knowledge, is exchanged or communication in the form of products, equipment, method or skills), and the tendency there is for a gap to exist between: the supplier's knowledge about the nature, use and particular emphasis of a technology and; what is conveyed to the recipient in blueprint, documentation or training. This is particularly important with transfers involving biological technologies in agriculture, considering the location-specific character of such technology and hence, the need for adaptation to particular climate, soil and other production conditions prevailing in different geographical locations. In terms of organic farming, these become particularly important especially when biological pest

[5] Brenner Carliene, 1997: Biotechnology Policy for Developing Country Agriculture. OECD; Policy Brief No. 14

control features prominently in the approach to disease, insects, weeds and other pest control.

In the second caution, Brenner draws from the knowledge of Pack and Westphal, 1986, and emphasizes the importance of technological capability in the country to which the technology is transferred, as a determining factor for relative success or failure. In this regard, technological capability or the ability to make effective use of technological knowledge, is deemed essential in order to: generate technology appropriate to a particular economic and socio-culture environment; identify, select and diffuse relevant technology; and to adapt, assimilate and make the most efficient use of imported technologies. The extent to which national technological capability is developed will determine to a large extent, relevant elements of technologies to be absorbed and assimilated in international technology transfer. On this basis, Brenner commends technology acquire from international sources to be an essential input to technological change and innovation, however, it can only complement local scientific and technological efforts, and not to be a substitute for the consolidation of national capacities through local knowledge, education and training, or learning-by doing (Brenner, bid). In this study therefore, we see successful adoption and perpetuity of organic methods in cocoa production to depend considerably on how compatible the recommended practices and requirements for certifications in organic farming will be to existing local knowledge and capacities/expertise.

The expositions from Brenner (1997) as reviewed in this study may reflect some of the general considerations for the adoption and diffusion of innovation by van den Ban and Hawkins (1996). van den Ban and Hawkins (bid) underscore the importance of the relationship between characteristics of an innovation in production technology and its rate of adoption. Hence, such characteristics as the; relative advantage, compatibility, complexity, trialability and, observabilty of an innovation in production technology are often analyzed.

Relative advantage analysis seeks to assess the chance/possibility/ability of the innovation to enable the farmer to achieve better goals or at lower cost than he or she could previously and that, a way to influence the occurrence of this advantage is to give incentives such subsidies to farmers. With the compatibility analysis, the innovations

must be in consonance with the socio-cultural values and beliefs, and with previously introduced ideas or with farmers's felt needs to ensure success in adoption and diffusion of the innovation. As far as complexity is concerned, the innovation in production technologies should demands less complex knowledge or skills for successful implementation. Innovations in production technology that come with the possibility for farmers to trial first on small scale on their own farms are assessed to have greater chance of adoption and diffusion. The trialability analysis becomes particularly important in this case of organic cocoa production in accessing the mode of transformation; as to whether the approach should be supplementary to, or substitution of the existing practice of cocoa production. In terms of observability, it is expected that the change as a result of the innovation be vivid to farmers in order to entice others to adopt the innovation.

A third caution to be given prominence as a challenge and a determinant of success or failure in the adoption of the technology of organic farming in cocoa production in this study is the proof of economic incentives and sustenance to relevant stakeholders compare to what is offered under the existing system of production. This challenge becomes important when one considers the role of cocoa production in the economies of producing countries, particularly, Ghana and Cameroon (Ref…to earlier sections.). Hence, this may mean to demonstrate the relative economic advantages in terms of income particularly to risk-averse farmers, and in terms of revenue to governments of the producing nations. To posterity and others in competition for inputs for cocoa production especially forestlands, there is the need to demonstrate assurance of continuous resourcefulness and other environmental benefits of the use of scarce inputs for cocoa production.

The Roles of Relevant Stakeholders

It is asserted that all agricultural research, extension and development activities take place within a given political, economic, institutional and agro-climatic context (Okali *et al*., 1994) and that, a knowledge of specific administration and institutional characteristics must be integrated into programme planning and implementation (Okali *et al*., 1994, after Heinemann and Biggs, 1985). Also, it is acknowledged as a rule in the context of extension services, that, a good programme can only be developed by

integrating knowledge and insights from participation groups, and that, not only knowledge and competence determine planning of programmes, but also the rights of the each of the groups upon which decisions are made (van den Ban and Hawkins 1996). Drawing from Richards' (1989b) Okali *et al*., (1994) further asserts that, within a wider debate (in farmer participatory research) about empowerment[6], social justice and community development, are the alternative views of distinction between "demand-side populism" that seeks after promotion of interests and claims by social groups from below, and the supply-side populism that seeks after the promotion, by "progressive" outsider, of self-improvement and self organization among the poor and weak. These assertions invariably may reveal the interests and, underscore the need for the roles, of relevant stakeholders to ensure adoption and sustenance of organic cocoa production.

As far as farmers' involvement is concerned, it is important to acknowledge the views of Okali *et al*. (bid) that: as a developing agenda, not only should the aim be to generate, test and disseminate technologies, but also to change the orientation of existing research and development structures, develop a sustainable, community-based research capability, and create new social and political institutions; also, it should be well acknowledged that innovations come from a number of different sources, including farmers (end users of agricultural production technologies), and that many agricultural producers actively seek, test and pass on new ideas, techniques and material; with regards to technological focus, farmers' involvement/participation has been exploited for the assessment of a variety of agricultural problems including both production and processing; in terms of principles, it is assumed in the first place that, many farmers are actively partaking in the search for new or improve crop planting materials, varieties of production techniques, and generally, livelihood options.

Secondly, formal research has not given cognisance of elements within local farming systems and the larger context within which they exist. With reference to the later principle, it is thought that sustainable techniques and solutions can be developed through an examination of such elements on the basis of the knowledge and understandings of both farmers and researchers (Okali *et al*., 1994). In a more extension service related, one

[6] In the sense of "the creation of an environment of enquiry in which people question and resist structural reasons for their poverty, through learning and action" (Okali *et al*., 1997: after Cromwell and Wiggins,

of the reasons for the need for farmers' participation according to van den Ban and Hawkins (1996), is the fact that farmers have information; including their goals, situation, knowledge, experience with technologies and with extension and of social structure of their society, which is crucial for planning a successful programme. In our quest for the promotion of organic cocoa farming therefore, we see successful adoption and sustenance to depend on how the innovation characteristics barriers especially the proof relative advantage, compatibility and complexity, are overcome by means of examining existing practices and knowledge and integrating them into the planning organisation of the organic cocoa production programmes. Also, how institutions and policies are structured to promote the interests of farmers will go a long way to facilitate the adoption and sustenance of organic cocoa production. Thus, the search for means to elicit farmers' involvement in the subject of this study may be considered within the domains of the "demand-side populism".

Government participation normally, in the traditional innovation transfer and diffusion is expected to facilitate the provision of technical training to support service providers and the provision of input resources (human, technical and financial); focusing the establishment, maintenance and management of innovation transfer and diffusion programmes[7]. Notwithstanding the decimal performance of the public sector such as mentioned earlier on in this section, underlying the expected role of government is the thought that the government research and extension agencies have financial and human resources, and also, have a large geographical spread which would enable them to address problems raised by other actors/stakeholders; farmers and NGOs especially (Scarborough *et al*., 1997). With the particular case in this study of promoting organic cocoa production however, it can be analyzed further that, not only is the government expected to play the facilitating role, but also, the government remains a target as an "adopter" at least at the technology transfer level, to be convinced of the incentives especially, economic incentive of adopting organic approach to cocoa production. Normatively, environmental agenda may be higher on the government's motive for participating in such a programme of production technology transfer but the ulterior

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1993, .91)

motive of economic incentive, may go a longer way to influence the decision to adopt an innovation. Thus, the role of governments in promoting organic cocoa production should not be assessed exclusively, considering the domains of demand and supply populisms such as described earlier on.

The effective roles of NGOs, the donor community and international agricultural research community as a whole, are normally thought to be intermediary and are often assessed in terms of ability to organize farmer groups, developing farmers' skills and ability to articulate needs, and assisting government workers in responding to this needs (Scarborough *et al*., 1997). In the said important roles of these NGOs and other like-minded organizations especially in rural development, extension education has been one of the policy instruments (Ban and Hawkins, 1996). The efforts of the NGOs to address problems faced by farmers are however judged invariably to create a parallel infrastructure in the form of credit schemes, irrigation systems and NGO-managed block extension service (thought to a recent approach) (Scarborough *et al*., 1997). Within the frame of describing the roles of relevant actors in this study, the contributions of NGOs to technology adoption and sustenance will be considered within the claims of the supply-side domain. Of specific interest in this study is the observation by Scarborough *et al*., (bid) that, as the scale and area of operation of the NGOs expands, they often acquire the same inefficient characteristics of the (public) systems that they aim to replace and hence, the need for collaboration between government agents and NGOs to make the state services more client-driven and cost reducing. As far as Ghana and Cameroon are concerned, a number of organic NGOs and like-minded organizations and their activities are mention under section …. Of this study report. Considering the high tendency for inefficiency, should any particular institution operates unilaterally, what should the institutional arrangement be for the promotion of organic cocoa farming as proposed in this study?

In the case of biotechnology development and transfer studied by Brenner (bid) in a number of developing countries including Kenya and Zimbabwe, commercial technical services were generally, considered to be more efficient than public extention systems in

[7] Paraphrasing Scarborough et al., 1997: Farmer-Led Extension; concept and practices (p.8). Overseas Development Institute, 1997. London, UK.

transferring technology and in communicating the information necessary to ensure optimal use and to encourage feedback from producers. These services from the private sector were however found to discriminate against producers and regions where market prospects are not promising.

To overcome such biases in the distribution of technical services in technology transfer, the need to create or strengthen collaboration between the public and private sectors and, to stimulate demand (creating markets) has been recommended. With this recommendation, the search and the discussions remain in this study to explore possible policy interventions and other necessary measures to attract farmers' involvement, government participation and the roles NGOs and relevant international organizations to ensure adoption and sustenance of organic cocoa production. To this effect, Brenner (bid) has some suggestions from the case of agricultural biotechnology transfer, and this may offer a guide to policy strategy for the promotion of organic approach to cocoa production. The following suggestions have therefore been deduced in this study from Brenner (1997) to suit a general situation of agricultural production technology transfer:

- Integration of policies and programmes about the technology to be transferred within a sectoral context, in a framework of the problems confronting agriculture and agricultural research in a bid to circumspect the application of the technology in question to specific problem areas
- Assertions of the effective demand particularly at level of producers, for the production technology to be transferred. This is to facilitate determination of the roles to be played by the public and the private sectors, in terms of investment policy, monitoring and dissemination of the production technology
- Strengthening of the linkages and networks among relevant stakeholders particularly in decision-making for strategic policy planning
- Strengthening of national capacity building in terms of human resources, financing and institutional development.

Considering the important role cocoa plays in the economies of our focused countries in this study and, the international nature of the trade in cocoa, collaboration efforts to promote organic farming in cocoa production should go beyond national to regional and even, to international levels. In this regard, the role of multilateral trade policies becomes

very important in determining sub-sequentially, the adoption of an innovation (production technology) that come with the challenge of the need to proof relative economic advantage and, economic sustainability. More importantly therefore, issues of the Uruguay Round and for that matter, World Trade Organization (WTO) negotiations for multilateral trade liberalization[8] becomes pertinent for our discussions of regional and international collaboration for the promotion of organic cocoa production. Specifically, the Lome Convention and subsequently, its proposed replacement; Cotonou Agreement, are of particular relevance. According to Kerkela *et al*., 2000, the Lome Convention has been the primary framework of the European Union's external activities with developing countries. Under this framework, preferential treatment for almost all in imports from 70 African, Caribbean and Pacific (ACP) countries, among others tools including direct assistance, training and stabilization funds has been used critically, for development. Under the Contonou Agreement however, the preferred tool is the Generalized System Preference (GSP) and this (GSP) is to be used under the main guideline of working in conformity to WTO rules. The GSP is to provide for importation with reduced tariffs or completely duty free access of a wide range of products that would be subject to higher customs duty if imported from non-GSP status countries. A quantitative analysis by Kerkela *et al*. (2000) of the schemes of free trade areas and GSP tariffs of the European Union (EU) showed negative effects to African countries. However, the effect of the free trade areas scheme may turn out to be positive, if it succeeds in increasing use of more domestic resources in the production. It also turns out that; the primary source for the negative result is the declining prices for African products on the world market (Kerkela *et al*., 2000). In the study by Kerkela *et al.* (bid), Ghana and Cameroon falls under the Rest of Sub-Saharan Africa region classification. The implications of the results from the study of Kerkela *et al*. (2000) for our current study include how organic farming practices adapt to local resources including existing farmers knowledge, and, how national negotiations and policy measures ensure the upholding of the free trade areas trade policy scheme. It may be of interests to learn that the Cancun round of the WTO Ministerial conference held from 10 to 14 September, 2003, ended without a consensus particularly

[8] See WTO, 1999: Trading into the Future, 2nd ed., available at http://www.wto.org ; for more on Uruguay Round Achievements.

on what is termed “Singapore” issues which include trade investment, trade and competition policy, transparency in government procurements and trade facilitations[9]. This means a lot in terms of determining prospects of further/future trade in cocoa in general in the case of this study, organic cocoa. Of particular importance in this regard are the notions of trade investments and competition policies, as these relate subsidy issues in agricultural production. This will be considered further in the summary discussions chapter. Meanwhile, we consider a review of background information on cocoa in the next chapter.

[9] Available at http://www.wto.org/english/thewto_e/minist_e/min03_e/min03_e.htm

2.0 BACKGROUND INFORMATION ON COCOA

2.1 Historical background on the cocoa plant

Cocoa is believed to have originated from several localities in the area between the foot of the Andes and the upper reaches of the Amazon, in South America and was grown in the region at least one hundred years ago by the Maya Indians who roasted the seeds (beans), producing an aroma so divine they believed the tree was a gift from the god Quetzacoati.[10]

Cocoa is a crop adapted to the moist, lowland tropics and thrives in a climate where the average temperature of the coldest month is not less than 16 degrees Celsius and is not colder than 10 degrees Celsius. It requires a well-distributed rainfall of 1,500 to 2,000, which is ideal for its growth.[11] However with proper management and Agricultural practices, Cocoa can be grown in areas with 700 mm to 4,200 mm of rainfall.[12] Irrigation is required in dry areas while rigorous disease control is required in wet Areas.[13]

Cocoa does best in rich deep loamy soils. Heavy soils should be avoided in high rainfall areas and light soils should be avoided in drier areas.[14] Soils should allow for rooting to at least one meter.[15] It can also be grown in River valleys with a constant moisture supply but the rooting depth should be at least 80cm.[16]

The cocoa tree belongs to the to the genus *Theobroma*, meaning "food of the god's in Greek. There are several species in this genus but only one, *Theobroma* Cacao, is grown

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[10] Sustainable Cocoa Producing Systems, A briefing of the IPM developing Countries Project funded by the European Commission (Environment in Developing Countries budget), available at: http://www.pan-uk.org/Internat/IPMinDC/pmn12.pdf 09-02-04

[11] Growing Cocoa the World's Favourite Crop, available at http://www.chocolateandcocoa.org/images/cocoagrowing.pdf 09-02-04

[12] *Ibidem*

[13] *Ibidem*

[14] Growing Cocoa the World's Favourite Crop, available at http://www.chocolateandcocoa.org/images/cocoagrowing.pdf 09-02-04

[15] *Ibidem*

[16] *Ibidem*

commercially. Worldwide the vast majority (estimates vary from 70% to 90%) is grown by smallholder farmers and the remainder is grown on estates.[17]

Theobroma cacao is, by biological design, an under-story tree in humid tropical forests. Its' aboriginal home consisted of multi-layered forest systems with a diverse arboreal canopy providing shelter from intense sun and rain as well as providing nutritious leaf litter. A multi-layered forest system continues to be the optimum environment for its cultivation as well as, we would like to suggest, for its' sustainable and commercial cultivation. Cocoa grown in this type of system, holds enormous potential for environmental and cultural conservation, in regions under intense pressure from logging, development and conventional, mono-crop agriculture.[18]

2.2 Cocoa production statistics

Cocoa is grown in more than thirty-five countries. The cultivated area covers between 3.5 and 4.5 million hectares. This area yields an annual production of approximately 2.7 million tons of cocoa beans.[19]

[17] Sustainable Cocoa Producing Systems, A briefing of the IPM developing Countries Project funded by the European Commission (Environment in Developing Countries budget), available at: http://www.pan-uk.org/Internat/IPMinDC/pmn12.pdf 09-02-04

[18] Migratory Bird Center, Birds and Research, available at : http://natzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Cacao/whinney.cfm 09-02-04

[19] Cocoa Story: Cultivation, Trade and Transport, Published by the European Cocoa Association, available at: http://www.eurococoa.com/cocoa/story/trade.htm 20-02-04

The most important producers of cocoa in hierarchical order are[20]:

Country	Production 2001-02 in tonnes	Production forecast 2002-03 in tonnes
Côte d'Ivoire	1,265,000	1,300,000
Ghana	341,000	475,000
Indonesia	455,000	440,000
Nigeria	180,000	165,000
Brazil	124,000	150,000
Cameroon	126,000	135,000
Ecuador	81,000	85,000
Dominican Republic	45,000	45,000
Papua New Guinea	41,000	42,000
Malaysia	25,000	40,000
Colombia	38,000	38,000
Mexico	35,000	35,000

[20] Statistics on main cocoa producing countries and their cocoa bean production (Reference: ICCO Quarterly Bulletin of Cocoa Statistics, 29 (3) 2002-03) published by the International Cocoa Organisation (ICCO) available at: http://www.icco.org/questions/production.htm 20-02-04

According to an interim Report on Cocoa [21] latest estimates for world cocoa production in the 2002/03 crop year indicate that output reached a record level of 3,045,000 tonnes, just exceeding the previous record of 3,036,000 tonnes set in 1999/00.

The large mid-crop in Cote d'Ivoire came to port during the summer months, sending cumulative crop year arrivals over 1.3 million tonnes. This level of production was reached despite an armed conflict that caused significant disruption in the western parts of the cocoa zone. Record farmer prices during much of the main harvesting period encouraged farmers to remain in the interior to harvest the crop despite sporadic outbreaks of violence against farming communities. High prices also had a positive impact on the general level of farm maintenance and fertiliser use.[22]

In Ghana, production bounced back from the disappointing level of the 2001/02 crops to reach an estimated 490,000 tonnes. This is by far the largest Ghanaian crop in recent history, and it has only ever been bettered once, by the bumper 1964/65 crop which came in at 566,000 tonnes. Black pod was controlled and, as in Cote d'Ivoire, the high farmer price led to increased yields by encouraging better farm maintenance.[23]

In contrast to West Africa, Indonesian production last season was disappointing. Crop year exports of beans and bean equivalent cocoa products are estimated to have totalled 425,000 tonnes, down 4% on the previous 12 months. Although bean exports from Sulawesi in September were more than double a year ago levels, exports during May to August were over 25% down on the same period of 2002. High bean counts adversely affected yields and the incidence of pod borer reached record levels during the main crop season. However, the decisive factor leading to a reduction in crop year exports has been a significant increase in bean stocks at port. In 2002, stocks were reduced to low levels as cocoa was shipped to Europe to take advantage of the significant premium offered by the London futures market. This year stocks have been built up to supply the extra processing capacity expected to come on-stream in Asia during the fourth quarter.[24]

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[21] Cocoa Reports, Interim Report Published by ED & F MAN, available at : http://www.edfman.com/cocoa/main.html 20-02-04
[22] *Ibidem*
[23] *ibidem*
[24] *ibdem*

In the cocoa producing countries accounting for between 75,000 and 175,000 tonnes of annual production, output has increased in Brazil, Cameroon and Ecuador in response to higher world prices. Only Nigeria failed to respond to this stimulus, producing a disappointing crop of only 150,000 tonnes.[25]

2.3 Statistics on organically grown cocoa

The ICCO does not have figures of the percentage of organic cocoa produced worldwide, but the percentage is likely to be very, very small as this is a new and growing area for the cocoa production industry[26].

Some of the sources of organic cocoa are[27]:

Green & Black's, a UK company, use organic cocoa from a village in Belize and from a project in Togo to make its chocolate bars.

Mascao chocolate bars, which are made by Chocolat Bernrain's subsidiary Chocolat Stella in Switzerland, use organic cocoa from Bolivia.

Rapunzel chocolate, made in the USA, is made using organic cocoa from the El Ceibo cooperative in Bolivia.

The Organic Commodity Project Inc (OCP) was the first US based organic chocolate company and is the largest supplier of organic chocolate and cocoa products. OCP uses organic cocoa from Costa Rica, Panama, Peru, Ecuador and Brazil and is involved in the development of organic cocoa in Ghana, Venezuela and Trinidad. OCP has a full line of certified organic chocolate couvertures and cocoa products. Newman's Own Organics chocolate bars are produced using OCP products and ADM Cocoa is a contract manufacturer to OCP, producing OCP's Guayas Dark Organic Chocolate using beans from Ecuador. As well as working directly with cocoa growers, OCP handles the importing of organic cocoa and the coordination of the certification of manufacturers.

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[25] *Ibidem*

[26] ICCO, Organic Cocoa, available at http://www.icco.org/questions/organic.htm 11-03-04

[27] ICCO, Organic Cocoa, available at http://www.icco.org/questions/organic.htm 11-03-04

2.4 Importance of cocoa production to Cameroon and Ghana

As indicated in the table above, Ghana is the second world producer of Cocoa beans while Cameroon is the sixth.

With an estimated 3.2 million Ghanaians and 1.6 million Cameroonians involved in small holding cocoa production[28], the importance of this crop in both countries cannot be underestimated.

With a dramatic rise in the annual average price in U.S Dollars per tonne of cocoa at the London and New York Markets from 855.17 in 2001 to 1369.17 in 2002[29] and with current market prices on a small increase[30], if we take into consideration the annual production for both countries, Cocoa production undoubtedly plays a very important role for their respective economies.

2.5 Uses of Cocoa

Cocoa products are made from cocoa beans, which are the kernels from the cocoa fruit. Because the taste of cocoa is unique, it is used in many fruit products for extra flavour and colour. The best-known cocoa product is of course chocolate made from cocoa mass, cocoa butter and sweetening agent.[31]

The cocoa mass is the liquid product from the inner part of the fermented cocoa beans obtained through roasting and grinding of the beans after the beans have been mixed into the desired blend.[32]

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[28] ICCO Statistics on Smallholders involved in cocoa, ICCO global estimates available at: http://www.icco.org/questions/smallholders.htm 20-02-04

[29] ICCO Monthly and Annual Averages of Daily Prices of Cocoa Beans, 1960 – 2003, available at http://www.icco.org/prices/pricesave.htm 20-02-04

[30] New York Future price for March 2 2004 at 1531.33, see ICCO Daily Price for Cocoa available at: http://www.icco.org/prices/040302.htm

[31] Cocoa Story: Cocoa as raw material, European Cocoa Association, available at : http://www.eurococoa.com/cocoa/story/index.htm 11-03-04

[32] Cocoa Story: The production process - from cocoa beans to semi finished products, European Cocoa Association, available at : http://www.eurococoa.com/cocoa/story/production.htm 11-03-04

The Cocoa mass which is an intermediate semi-finished product is the basis for the production of cocoa powder and cocoa butter.[33]

The butter is obtained when fat is extracted out of the cocoa mass under pressure. The residual products after this process are called cocoa cakes. The cocoa cakes are ground into fine powder. It is this powder that contains the aroma, taste and colour of the of cocoa and is added to numerous food products for flavour and colour; for example biscuits, puddings desserts, creams, filled chocolates, ice creams etc.[34]

The cocoa butter is also used to make white chocolate, which does not contain any chocolate mass.[35] Other uses of cocoa butter are in the manufacture of some toiletries and cosmetics.[36]

At a far more smaller and local scale, cocoa can be used to produce animal feed. Cocoa pulp juice can also be used [37] to produce soft drinks, as well as alcoholic drinks when fermented.[38] Cocoa pod husks can be used for soft soap manufacture and can as well serve as fertiliser for cocoa, vegetables and food crops.[39]Cocoa bean shells can be used as organic mulch and soil conditioner for the garden.[40]

[33] *Ibidem*
[34] *Ibidem*
[35] *Ibidem*
[36] *Ibidem*
[37] *Ibidem*

[38] Products that can be made from cocoa, ICCO, available at: http://www.icco.org/questions/byproducts.htm 11-03-04
[39] *Ibidem*
[40] *Ibidem*

3.0 COCOA FARMING

The cocoa farming methods that are going to be analysed in this project, include Conventional cocoa farming and Organic cocoa farming. Organic cocoa farming will have some attributes present in the conventional farming methods but will however be treated in a separate chapter.

3.1 Conventional cocoa farming

Conventional cocoa farming in the context of this project refers to the prevailing cocoa farming methods other than organic farming. This method of farming may or may not necessarily involve the use of pesticides and artificial fertilisers and may not necessarily be environmentally unsustainable.

Two major categories of conventional cocoa farming can be identified: Shaded cocoa farming and Sun cocoa farming. Either method could be extensive (or plantation cocoa farming) or smallholder labour intensive cocoa farming.

3.1.1 Cocoa farming under shade

Cocoa grown under shade can either be established on land occupied by forest or by some other tree crop.[41]

This method is the dominant method applied in cocoa farming worldwide and is carried out by small holding farmers. Small holder farming in the context of cocoa farming is usually defined as a farm holding of less than 10 hectares, range 2h to 5h.[42] Prevailing statistics indicate that smallholding farmers are producing 90% of the World's cocoa.[43]

In order to better understand the environmental implications involved in this conventional method of small holder cocoa farming, an overview of the different farming methods

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[41] Wood and Lass at 119

[42] How many smallholders are there worldwide producing cocoa? What proportion of cocoa worldwide is produced by smallholders?, International Cocoa Organisation (ICCO), available at : http://www.icco.org/questions/smallholders.htm 17-03-04

[43] *Ibidem*

involved in the stages from the creation of the farm, to the production of the cocoa beans as well as the rehabilitation of old cocoa farms is going to be presented in the proceeding sections.

3.1.1.1 Establishment of the farm

As indicated above cocoa farms can either be established on land occupied by forest or by some other tree crop.[44]

In the case where cocoa is being planted in the forest, they are either established after planting a permanent shade following clear felling, or by thinning the forest before planting.[45] In addition, cocoa can be inter-planted with some other crops under suitable conditions.[46]

The dominant cultural practice of cocoa production in the West African region involves planting of the trees on a forestland selectively cleared and planted to various types of food crops for one or two seasons. [47] Felling of trees can be done by hand even though a cheaper method can be through the poisoning of the with2,4, 5-T, a technique that has been tried in Ghana.[48] When land is cleared, indigenous fruit, medicinal, and timber tree species (e.g. groundnut tree (*Ricinodendron heudelotii*), cola (*Cola nitida*), *Voacanga africana*) are deliberately retained both for their economic value and to provide shade for the cocoa plant. The clearing is done manually (with the exception of the use of chain saws to fell big trees) which together with the no-tillage method used when planting, causes minimum or no disturbance to the fragile soils.[49]

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[44] Wood and Lass at 119 Wood, G.A.R. and Lass, R.A., Cocoa, Fourth Edition, Longman New York 1985
[45] Ibidem at 119
[46] Ibidem at 120
[47] Leplaideur, 1985; ICRAF, 1987, Duguma and Franzel, 1996; Duguma et al 1990 cited in, Smallholder cocoa cultivation in agroforestry systems of West and Central Africa, Smithsonian National Zoological Park , available at : http://natzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Cacao/duguma.cfm 17-03-04

[48] Lieftingh 1966, cited in Wood and Lass at 137
[49] Smallholder cocoa cultivation in agroforestry systems of West and Central Africa, Smithsonian National Zoological Park , available at : http://natzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Cacao/duguma.cfm 17-03-04

In Cameroon, the field is initially planted with a mixture of egussi melon and maize. Egussi melon is a very important food crop in West Africa. This crop is a climber that grows around the unburned logs thus conserving moisture, increasing humidity and accelerating the process of its decomposition[50]. After harvesting the food crops, cocoa is inter-planted with maize, plantain, cassava and other food crops during subsequent cropping seasons. Inter-cropping with food crops is done to exploit the fertile soil and to increase shade for the cocoa seedlings. The cocoa is left to develop as farmers harvest the seasonal and annual crops as they mature.[51]

Depending on the density of the retained species and the mortality rate of the cocoa seedlings, the system is enriched by planting additional tree crops such as mango , African plum , avocado , guava , cola , orange and mandarin . Successful inter-cropping of cocoa with coconut , (Leach et al., 1974; Shepered et al., 1977; Ramadasan, et al. 1978) oil palm (*Elaeis guineensis*) (Hartley, 1966;Amoah et al., 1995), and rubber (*Hevea brasiliensis*) (Egbe and Adenikinju, 1990) is well documented.[52] As the cocoa tree and the other components grow to maturity, the system evolves to a closed canopy multi-strata system that resembles natural forest with most of the positive attributes associated with it[53].

The other alternative is to clear fell the forest and establish cocoa under planted shade. Obviously there is some disturbance to the eco-system perpetrated by this method and therefore the operations and their timing must be carefully considered in order to minimise the potential loss of nutrients tied up in the vegetation and organic matter. This method was commonly practiced in the West Indies and South America and has been used in some of the new areas in South East Asia. The main advantages of this method lies in the regular pattern of the shade it provides and the ease of planting and

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[50] ICRAF, 1987, cited in Smallholder cocoa cultivation in agroforestry systems of West and Central Africa, Smithsonian National Zoological Park , available at : http://natzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Cacao/duguma.cfm 17-03-04

[51] *Ibidem*
[52] *Ibidem* with reference to paragraph
[53] *Contra*, see Wood and Lass at 120

maintenance that results, even though the method is expensive and very often leads to longer periods of establishment.[54]

3.1.1.2 Shade requirements for young cocoa plants

Young cocoa plants require shading to ensure the right form of growth, and 50% shade for young cocoa is sufficient as a rough guide.[55] The shade also helps to protect the young plants from the wind.[56]

Heavy shade is needed initially but this must be adjustable in the first few years leaving in the end a small number of trees as shade for the mature cocoa.[57]

The properties of a good planting shade crop should be such that it will provide good shade throughout the dry season and not compete with the cocoa roots for moisture and soil nutrients and should be easy to remove when finished with, without damaging the cocoa canopy. Such a plant should not be an alternative host species to insect pests of cocoa and if possible it should be of commercial value.[58] Examples of such temporary shade crops include: bananas and plantains[59], *tannias* and eddoes, or cocoyam, which are used as temporary shade especially in West Africa.[60] Pigeon pea, papaya cassava and castor oil are plants that are also used to a lesser extent.[61]

Permanent shade trees for cocoa plants are more common in the South American and South east Asian Cocoa farms. The most commonly used include trees such as *leucaena leucocephala , gliricidia sepium, albizias , parkia javanica*. However there are also many other species that have been used or tried as shade for cocoa which are mostly of local interest.[62]

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[54] Wood and Lass at 120
[55] *Ibidem* at 121-123
[56] *Ibidem* at 123
[57] *Ibidem* at 126
[58] See Freeman cited in Wood and Lass at 127
[59] See Wood and Lass at 131 where some disadvantages in the use of platains and bananas as shades are presented.
[60] *Ibidem* at 132
[61] *ibidem* at 132
[62] See Wood and Lass at 128-131

In the West African region, forest shade is more commonly used after the forest has been thinned and cocoa planted therein. However this method depends on the soil, climate and distance from the markets. In places with sufficient soil moisture throughout the year, the forest is thinned leaving a few dominant trees and a few more intermediate trees. In drier areas, the forest may be completely felled because the farmers have learnt that the land will not support the forest shade and the cocoa during the dry season. This is the practice in Nigeria and some drier parts of Ghana.[63]

Farmers from West Africa from experience are able to identify trees suitable as shade for cocoa and those that are not. For example the following species are thought to be suitable shade trees[64]: *Terminalia spp, Chlorophora excelsa, Albizia spp., Ficus vogeliana and Entandrophragma spp*

The practice of inter-planting mature cocoanuts with cocoa is attractive because of the cost of establishing cocoa is low, the income per acre is increased and the cost of maintaining the coconut area is reduced. Further more the two crops are compatible.[65] Trials carried out on inter-planting cocoa with rubber, oil palms and some other crops like cocoanut have proven not to be economically viable.

With respect to the shade requirements of cocoa it can be said that young cocoa plants need some degree of shading in the nursery and also during the first 2-3 years in the field. The role of the shade is not just to reduce light intensity but also to buffer the micro-environment so that excessive moisture stress in the young plants is avoided. The need for shed decreases when the trees grow older and yields are usually higher when trees are grown with little or no shade. The higher pod production under this condition can only be maintained however when trees are well provide with nutrients, therefore necessitating fertiliser application. This notwithstanding, complete removal of shade gives rise to high yields which are difficult to maintain over long periods.[66]

[63] *Ibdem* at 136 with respect to paragraph
[64] See *ibidem* at 136 and 137
[65] Wood and Lass at 139
[66] *Ibidem* at 171 with respect to paragraph

3.1.1.3 Nutrient Requirements for young cocoa plants

Nutrient requirements for cocoa plants can depend on whether they are young or whether they are mature plants or not mature plants.

Trials on young cocoa plants in the nursery have indicated that this depends on the soil used for filling the bags. Chemically poor soils will show positive response to fertilisers. Fertiliser application in this case should be at very low rates and frequent applications are needed.[67]

For young cocoa on the field, there are indications that only small amounts of Nitrogen fertilisers are needed for cocoa planted on soils cleared from forest except when the parent material of the soil is very poor. Fertilisers are also needed in the planting holes for less fertile soils. Light intensity is also another aspect, which influences a positive response to fertiliser application.[68]

Trials in Ghana have indicated that for mature cocoa plants, higher yields are obtained for fertiliser application in unshaded areas than in shaded areas.[69]

Organic manures or mulches can also be used as fertilisers but their application in large quantities will not be very economical. However this can be carried out economically when mulch material is available on the spot as, for example, when leguminous shrubs such as *Fleminigia macrophylla* are used as temporary shade.

3.1.1.4 Maintenance of mature cocoa farms

Maintenance of existing cocoa farms will only be economical from optimal conditions for growth and yield. This would require that Weeds, pests and diseases should be effectively controlled; cocoa trees would be regularly pruned accordingly, shade would be correctly adjusted and appropriate fertiliser will be applied.[70]

[67] Wood and Lass at 180
[68] *Ibidem* at 183
[69] *Ibidem* at 183
[70] *Ibidem* at 195

A farm with complete cocoa canopy rarely needs more than occasional attention to remove some woody weeds and clear the vegetation at the field's edges and in pockets within the farm. Many cocoa farms however do not have complete canopy and these require regular and costly weed control.[71]

Herbicides such as Glyco-phosphate , marketed as Roundup Monsanto have been used in some cocoa farms in the past.[72] Hand weeding can be an alternative to the use of herbicides but for it to be economically viable, it can only be carried out in an environment where labour is cheap.[73]

Pruning of mature cocoa plants takes two forms: sanitary pruning to maintain the health and vigour of the tree and structural pruning to limit the size of the tree or to achieve a desired shape.

3.1.2 Sun Plantations

The main difference between cocoa planted under shade and sun cocoa plantations is that on sun plantations, farmers often plant only cocoa.[74]
Often the cocoa is shaded until it's mature enough to flower. Then the farmers remove the shade trees and expose the cacao to the sun's full strength.[75]

Extra sun affects cocoa production. Cocoa grown in full sun produces a greater yield than cocoa grown under a shade canopy, but for a shorter period of time. Within 10 years or so most cacao trees grown in full sun will stop producing pods altogether.[76] The growing of cocoa in this way is likely to increase the risk of capsid attack, shorten the economic life

[71] *Ibidem* at 196
[72] *Ibidem* at 197
[73] See analysis in Wood an Lass at 197
[74] All about Chocolate, Growing Chocolate: available at: http://www.fmnh.org/Chocolate/grow_farm2.html 24-03-04
[75] All about Chocolate, Growing Chocolate: available at: http://www.fmnh.org/Chocolate/grow_farm2.html 24-03-04
[76] All about Chocolate, Growing Chocolate: available at: http://www.fmnh.org/Chocolate/grow_farm2.html 24-03-04

of the cocoa farm and may cause desertification.[77]

Sun plantations affect both tree health and farmer income.

Growing cocoa on open sun plantations requires removing it from its rainforest habitat. Sun-plantation farming can result in both ecological and financial losses including[78]:

- Pollinators: Midges, cocoa's rainforest pollinators, breed in the leaf litter on the rainforest floor and are less common in sunny, mono-cropped fields;

-Natural pesticides and predators: Cacao trees on plantations are prone to pests and diseases. In the rainforest, a variety of plants, mammals, and insects provide a complex but natural system of pest management. This system disappears when cocoa is taken out of its niche and grown in large numbers;

-Income: To protect crops and keep cocoa production high, many growers must rely on expensive chemical pesticides and fertilizers. In addition, farmers who practice mono cropping and grow only cocoa have no backup source of income if pests and diseases damage their crops. And if the price of chocolate falls, farmers can suffer severe financial setbacks.

[77] Bloomfield &Lass at 31

[78] All about Chocolate, Growing Chocolate: available at: http://www.fmnh.org/Chocolate/grow_farm2.html 24-03-04

4.0 DISEASES AND PESTS AFFECTING COCOA

4.1 Introduction

In order to better understand the implications involved in comparing conventional cocoa farming to organic cocoa farming, it will be necessary to have an idea on the diseases and pests affecting cocoa and to know the present methods used to control them. This task is necessary because the ability to control these pests and diseases is determinant for the success of any form of cocoa farming that is to be encouraged.

A range of pests and diseases affects Cocoa, with some estimates putting losses as high as 30% to 40% of global cocoa production.[79] Diseases are usually caused by different kinds of fungi or may be viral, while pests affecting cocoa are predominantly insect pests but can also include birds and mammals.

4.2 Diseases

The major diseases affecting cocoa include: *Phytophtora* pod rot or black pod disease, *Monilophthora rorei* fungus which causes pod rot, *Crinipellis perniciosa* which is a fungus causing witches broom, cocoa swollen shoot virus, Vascular streak dieback and ceratocystis wilt.[80]

Amongst these diseases, only *Phytophtora* pod rot and cocoa swollen shoot virus will be analysed in this project because of the substantial effect that they have on cocoa farming in the West African region. The others some of which are prevalent in other cocoa farming regions of the world or others existing in all cocoa farming areas of the World, will not be analysed in this work for reasons of time and space. This is so because relatively they are less relevant to the object of this project.

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[79] Pest and disease related damages to cocoa crops, International Cocoa Organisation (ICCO), available at: http://www.icco.org/questions/pests.htm 22-03-04

4.2.1 Phytophtora pod rot or black pod disease

This disease is caused by fungi of the genus *Phytopthora* that is represented in all cocoa growing areas of the world. Three species of *Phytopthora* affecting cocoa that have been identified include, P. *palmivora*, P. *megakarya* and P. *capscici*.[81] The first has been identified to be worldwide in location, the second was found to be confined to several countries in West Africa and the third in South and Central America as well as the West Indies.[82] However all the three species have been identified in Cameroon.[83]

In the early part of the 20th century cocoa production in Cameroon was severely affected by Black Pod with between one-fifth and four-fifths of all pods being affected. Crop losses worldwide are estimated at 44%, up from 10% to 30% in the 1980s due to the spread of the P. *megakarya* species in Africa, which can cause losses of 50% to 80%.[84]

These pathogens have more devastating effects in areas with prolonged periods of high relative humidity at, or near to saturation levels[85] as is the case with most cocoa farming regions of Cameroon.

This disease can be controlled using three different methods: breeding for resistance, cultural practices and chemical control.[86]

4.2.1.1 Breeding for resistance

Breeding for resistance involves the replacement of susceptible cultivars by ones showing durable resistance to the pathogens and is the ultimate solution for the elimination of the disease. This method can be combined with that of breeding for disease escape which

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[80] Pest and disease related damages to cocoa crops, International Cocoa Organisation (ICCO), available at: http://www.icco.org/questions/pests.htm 22-03-04

[81] See Wood and Lass at 267
[82] Brasier and Griffith (1979) cited in Wood and Lass at 267
[83] Bakala (1981) cited in Wood and Lass at 267

[84] Pest and disease related damages to cocoa crops, International Cocoa Organisation (ICCO), available at: http://www.icco.org/questions/pests.htm 22-03-04

[85] Bloomfield. & Lass
[86] See Wood & Lass at 277-278

involves a method in which the trees produce the bulk of their crop when climatic conditions are conducive to the spread of the disease.[87] However further research is necessary for this method to become widespread.[88]

4.2.1.2 Chemical control

Chemical control of this disease has traditionally involved the use of expensive copper based fungicides applied frequently, sometimes every 10 days, in areas of high infection.[89]

The structural adjustment plan (SAP) supported by the World Bank in Cameroon for example where hitherto the government subsidised the cost of the fungicides used for the treatment of this disease or even carried out the spraying of the farms in some cocoa areas before 1990 has led to a substantial reduction in the number of farms treated for this pod rot disease. This has in turn led to a substantial reduction of the area of land in Cameroon under cocoa cultivation.[90]

Recommendations for chemical control of *Phytophtera* pod rot [91] indicate that spraying of fungicides for this disease is not necessary in Ghana and the drier parts of Ivory Coast, while in Cameroon 2.5 grams of cuprous oxide[92] per litre of water is needed fortnightly during the rainy season coupled with cultural practices.

An interesting new technique was proposed which involves tying a number of bands of absorbent material previously impregnated with copper fungicide around the trunk and the main branches of each cocoa tree. This technique uses only small doses of the chemical and is thus economical and more environmentally friendly than the traditional methods.[93]

[87] *Ibidem* at 277
[88] See Ibidem at 277
[89] Bloomfield & Lass at 22
[90] Bloomfield E.M. & Lass R.A. at 22
[91] See Wood & Lass at 279-280
[92] Commercial name Nordox
[93] Bloomfield & Lass at 23

4.2.1.3 Cultural practices

Cultural practices involves a method through which the amount of infection of the *Phytophtera* pod rot can be decreased by reducing the relative humidity within the cocoa canopy thereby improving air circulation. This can be done through a reduction of the shade, regular weeding and pruning of the cocoa trees coupled with frequent removal of epiphytes and chupons.[94]

4.2.2 Cocoa Swollen shoot virus

This disease is transmitted by a mealy bug transmitted virus that occurs in all the main cocoa growing areas of West Africa.[95]

Cocoa Swollen Shoot Virus (CSSV) is found in West Africa, particularly Nigeria and Ghana. CSSV was identified in Ghana in 1936 and a tree removal policy was implemented. Over 185million trees have been destroyed in eastern Ghana since 1946. In 1983 another 31m trees were marked for removal, indicating that the disease was still not under control. In 1956 Padwick estimated that about 10% of the world's crop was lost through CSSV and more recent estimates put global crop losses at 11%. Bowers et al estimate the reduction in global cocoa production potential at 50,000 tonnes.[96]

4.2.2.1 Control

The only recommended method of control is the removal and burning of any diseased trees and their contacts.

Eradication has been the principal means adopted in Ghana since 1936, but in that time serious problems have been encountered, due in part to the expense and difficulty of

[94] Wood & Lass at 277
[95] Bloomfield and Lass at 24

operating routine survey and treatment operations with the required efficiency on such a massive scale.[97]

The solution to this disease can only be the planting of resistant planting material, but efforts towards breeding such material have only had limited success.[98]

4.3 Insect Pests

Insect pests on cocoa plants include Mirids or Capsids, Cocoa pod borer or Cocoa Moth, Mealy-bugs and Xyleborus beatle.[99] Amongst these insect pests that which has the most significant effect in the West African Region is the Capsid and will therefore be the only insect pest that will be analysed below.

4.3.1 Capsids

Mirids or Capsids feed on the sap of cocoa trees and damage the plant material. The wound they create allows the entry of fungi. Cocoa production in Ghana increased from 40,000 tonnes in 1910-11 to 300,000 tonnes in 1936-37, but then production was depressed by mirid attacks and the incidence of Cocoa Swollen Shoot Virus. Before 1957 crop losses due to mirids were estimated at 10%-20%. Holmes and Flood estimate the global annual losses in cocoa production by Capsids at 100,000 tonnes.[100]

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[96] Pest and disease related damages to cocoa crops, International Cocoa Organisation (ICCO), available at: http://www.icco.org/questions/pests.htm 22-03-04

[97] Bloomfield and Lass at 24

[98] *Ibidem* at 24

[99] Pest and disease related damages to cocoa crops, International Cocoa Organisation (ICCO), available at: http://www.icco.org/questions/pests.htm 22-03-04

[100] Pest and disease related damages to cocoa crops, International Cocoa Organisation (ICCO), available at: http://www.icco.org/questions/pests.htm 22-03-04

The successful control campaign with insecticides in Ghana led to a sudden surge in production from 1958/59 and 1960/61[101]. Insecticide control also remains necessary on a regular basis in Cameroon, Cote d'Ivoire, Ghana, Nigeria and Togo.[102]

In Ghana an Agro-chemical with fumigant action and low human toxicity which leaves no residue on the cocoa beans, or in the soil is applied in August to November by means of a mist blower. The cost, maintenance and expertise in the use of such equipment is wanting for the small farmers leading to applications at the wrong periods or of wrong dosages.[103]

Similar insecticides are used elsewhere in West Africa, but resistance to the most widely used ones have been noted on a number of occasions in most of the important growing areas and it is believed that this has come as a result of the wrong application of the chemicals by the farmers. There is thus an urgent need for alternative and more appropriate technology which is based on Integrated Pest Management (IPM).[104] This need has not only got an environmental advantage but is also necessary because chemical companies perceive capsids control in West Africa as only a small potential market and are therefore unwilling to allocate scarce resources to develop a novel insecticide to solve the problem.[105]

4.3.1.1 control

Control of this pest can be carried out by ensuring that the canopy of a cocoa farm is kept complete and that nests of predatory ants are protected. More research is however necessary in this field.[106]

The Structural Adjustment Plans in Ghana, Nigeria and Cameroon have resulted in liberalising input prices , including those for capsid pesticides. Consequently spraying for capsid has recently declined and the pest attacks have multiplied.[107]

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[101] This involved the use of lindane which is a highly persistent, toxic insecticide, since banned in many countries, see Sustainable cocoa production systems, pest management notes No12, available at: http://www.pan-uk.org/Internat/IPMinDC/pmn12.pdf 20-02-04
[102] Bloomfield and Lass at 26 with respect to paragraph
[103] *Ibidem* at 26
[104] *Ibidem* at 26
[105] See Wood & Lass at 26

4.4 Mammals and Birds

Mammals and birds can also cause damage to the pods through feeding on them or by permitting the entry of fungi. Losses from vertebrate pests may account for up to 5%-10% of the world crop. In Ghana in 1962, rodent damaged pods were estimated at between 1% and 11% and, in Nigeria in 1964, annual vertebrate losses were estimated at between 1% and 15%. In 1971 in Sabah losses through vertebrates were estimated at 3%-6%.[108]

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[106] Wood & Lass at 27
[107] *Ibidem* at 27
[108] Pest and disease related damages to cocoa crops, International Cocoa Organisation (ICCO), available at: http://www.icco.org/questions/pests.htm 22-03-04

5 ORGANIC COCOA FARMING

5.1 Organic Farming as distinct from Sustainable Farming

Before presenting an overview on organic farming in general and the status quo on organic cocoa farming in particular, it will be worthwhile to clarify the nuance between the concept of organic farming and sustainable farming.

Sustainable agriculture refers to agricultural systems which meet the needs of the present without jeopardizing the ability of future generations to meet their needs. Sustainable agriculture must integrate the goals of environmental health and economic stability. A perspective, which takes into account the entire system in which the agricultural operation exists, is a key part of any agriculture that can be considered "sustainable".[109] Sustainable agricultural production however may involve the rational use of biological or chemical pesticides.[110]

On the other hand organic farming could be defined as:

"...a production system **which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides**, growth regulators, and livestock feed additives. To the maximum extent feasible, organic agriculture systems rely upon crop rotations, crop residues, animal manure, legumes, green manure, off-farm organic wastes, mechanical cultivation, mineral bearing rocks, and aspects of biological pest control to maintain soil productivity and tilth, to supply plant nutrients, and to control insects, weeds, and other pests'.[111]

According to IFOAM[112] (International Federation of Organic Movements) organic agriculture is an agricultural system that promotes environmentally, socially and economically sound production of food, fibre, timber etc.

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[109] Considerations for the Sustainable Production of Cocoa, Published by Smithsonian Zoological Park, available at: http://natzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Cacao/whinney.cfm 20-02-2004

[110] See Sustainable cocoa production systems, pest management notes No12, available at: http://www.pan-uk.org/Internat/IPMinDC/pmn12.pdf 20-02-04

[111] www.fao.org/DOCREP/003/AC116E/ac116e02.htm , emphasis added by author

[112] Available at http://www.ifoam.org/ 06-04-2004

In this system soil fertility is seen as the key to successful production. Working with the natural properties of plants, animals and the landscape, organic
farmers aim to optimise quality in all aspects of agriculture and the environment. Organic agriculture significantly reduces external inputs by avoiding the use of chemo-synthetic fertilisers, pesticides and pharmaceuticals. Instead it
works with nature to increase both agricultural yields and disease resistance.

Certified organic agriculture is defined as production in accordance with agreed-upon standards for organic agricultural practices. These standards involve an annual inspection process, which certifies that the organic crop has been produced and handled with no synthetic chemicals or prohibited substances such as synthetic pyrethroids and paraquat. It must also have been grown on land free from application of these substances for a minimum of 3 years. Each organic agricultural operation must use an "organic plan" agreed upon by both the grower and the certifier. It must detail all aspects of the agricultural production of the certified crop. This includes such things as soil management, crop rotation, biological inputs, pest controls, post harvest techniques, storage, handling and document tracking.[113]

It should be noted from the above that organic farming could lead to sustainability but not all sustainable farming is organic. Sustainability in the agricultural sector can only be achieved in relative terms and cannot be absolute. It therefore is possible that organic farming might not be sustainable. However organic standards usually reach out for sustainability.[114]

From the above it is clear that organic farming is a *sui generis* type of farming method, different from other approaches to sustainable agriculture in that it has clearly prescribed standards and certification regimes.

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[113] Considerations for the Sustainable Production of Cocoa, Published by Smithsonian Zoological Park, available at: http://natzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Cacao/whinney.cfm

[114] Considerations for the Sustainable Production of Cocoa, Published by Smithsonian Zoological Park, available at: http://natzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Cacao/whinney.cfm

Another major factor, which distinguishes organic farming from other approaches to sustainable agriculture, is the use of the market to support the environmental, social and animal welfare objectives.[115]

5.2 Why should organic Cocoa Farming be promoted?

Organic farming has both environmental and economic advantages.In general, organic farming has the following advantages over other farming methods:

i) Environmental advantages would include Soil conservation, increased diversity of plants and animals, utilisation of local and renewable resources, reduced soil and groundwater pollution and can contribute towards specific habitat conservation.[116]

ii) There is an increase in demand for organic products because of the consumer perception that organic products are of high nutritional and health value, partly due to the restrictions on the use of fertilisers and pesticides, which reduces the likelihood of any harmful residues.[117]

iii) The existence of this niche market provides a means through which producers can be compensated for internalising external costs that would have been borne by the society.[118]

iv) Lower production intensity in organic farming can help in limiting surpluses due to lower yields per unit area and reduced areas of intensive farming.[119]

v) Organic farming offers opportunities for the diversification of farms and has the potentials to contribute towards rural development.[120]

In the African context in general organic farming has the following advantages

i) It provides ecological sustainability of the farming systems by the maintenance of highly diversified farming systems that are productive, resource conserving and

[115] Lampkin *et al* at 1
[116] Lampkin *et al* at 2
[117] *Ibidem* at 2
[118] *Ibidem* at 2
[119] *Ibidem* at 2
[120] *Ibidem* at 2

ecologically balanced. Such a system meets the needs of the farmer and buffers production against unpredictable weather changes and pest and disease outbreaks.[121]

ii) It gives smallholders control of their farming systems and eliminates reliance on external providers of farm inputs.[122]

iii) It prevents any possibility of poisoning from powerful agro-chemicals - for both humans and livestock.[123]

iv) It is associated with social equity: household heads and the rest of the family are provided with employment, producing agricultural products and services that meet their food and cultural needs. Agriculture in Africa is not merely a business, as industrial agriculture is, but is also the culture of the people. Organic agriculture meets the important cultural aspect of agriculture.[124]

v) As a premium price can be obtained for organic produce smallholders are able to earn a decent return from their investment, thus ensuring economic viability. This occurs under conditions where agriculture inputs and services continuously increase in price, while returns to farmers continue to fall, not only in Africa but also all over the world.[125]

Within the cocoa sector in Cameroon and Ghana the advantages of organic cocoa farming will include:

i) Lower cost of production for smallholder farmers whose major financial cost of production was due to the purchase of chemicals and fertilisers.

ii) Premium prices for organic cocoa produce.

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[121] The development of the organic agriculture sector in Africa Potentials and challenges Reports on Organic Agriculture Worldwide available at http://www.ifoam.org/orgagri/e&f29_africal.html 06-04-04

[122] *Ibidem*
[123] *Ibidem*
[124] *Ibidem*
[125] *Ibidem*

iii) The extra requirements for organic cocoa farming would lead to a reduction in rural exodus and creation of jobs and rural development in the cocoa growing areas.

iv) Avoidance of the hazardous and uncontrolled use of chemicals by farmers who are predominantly illiterate.

v) Organic Cocoa farming could lead to reforestation[126]

vi) Technically, there is ample evidence to show that cocoa production in agro-forestry systems in humid West and Central Africa is environmentally sustainable.[127]

vii) The multi-crop practice that can easily be used to improve on farming cocoa organically would lead to extra revenue for the farmers and security against any fall in prices for cocoa at the World Market.

viii) Even in the absence of premium prices for organically grown cocoa, it could still be sold as ordinary cocoa beans. Therefore weather there is a niche market for it or not, it could as well serve an environmental role and reduce production costs for farmers.

Other explanations to support the promotion of organic agriculture can be can easily be perceived.

The previous sections of this work dealing with cocoa farming methods have indicated that the system of Cocoa production in Cameroon and in Ghana is quasi organic and relatively sustainable. Sustainability is still however a subjective criteria. It is very general and is not rigorously scrutinized. For this reason, though cocoa production in Cameroon and Ghana is relatively organic, this however does not indicate that the

[126] Cocoa: From Deforestation to Reforestation available at http://natzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Cacao/ruf.cfm 06-04-04
[127] Smallholder cocoa cultivation in agro forestry systems of West and Central Africa, available at http://natzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Cacao/duguma.cfm

products can ipso facto be labelled organic. The fact that very unsubstantial use of pesticides and fertilizers might still be carried out for cocoa farming in Cameroon and in Ghana, though having little effect on the soil[128], does not exclude the fact that the use is uncontrolled and carried out hazardously. This might still be harmful to the farmers and also to the environment as a whole.

Also in order to meet both objectives of sustainability and having produce accepted as organic in the major consumer countries, strict credible certification and inspection regimes are still necessary.

By implication it could be said that if the farmers are practically farming organically, then the task of enabling them to adhere to the requirements of organic production methods will be relatively easier. This therefore can also be a convincing argument in favour of the promotion of organic farming for which the farmers may gain premium prices for organic produce that required almost the same input as the prevalent practice. Looking at this situation superficially, it would seem that putting in a place credible inspection and certification regimes would be the major challenge.

Unfortunately the solution to promoting organic farming of cocoa would not be that simple because several other aspects could adversely affect such an initiative.

As already indicated hitherto the Structural adjustment plan agreed between the World Bank and Cameroon and Ghana respectively, the use of chemicals for cocoa farming was being subsidized or even carried out by the respective governments. This governmental assistance to cocoa farmers was most effective when the World's cocoa prices were at their peak. Therefore the use of chemicals was seen as a method to improve on cocoa production. Today with the sector privatised, the farmers avoid using chemicals not by choice, but by circumstances created by the low prices in the cocoa market which makes the purchase of chemicals unaffordable to them. With the price of cocoa at the World Market still low as compared, to the hay days but yet on a steady increase in price and in demand, there is the tendency that, the situation could return to a stage where farmers

[128] See International Commodity-Related Environmental Agreement for cocoa: a case study, available at : http://www.unescap.org/drpad/publication/integra/volume3/malaysia/3my05e04.htm 06-04-04

would be able to afford for chemicals in order to improve their yields to benefit from the increasing demand. This would result inevitably into a major environmental problem.

A sadist solution to such a problem would be to do everything to keep the prices of cocoa low at the World Market. This can how ever not be an acceptable solution. To safeguard against such an eventuality, organic cocoa production still needs to be promoted and the farmers given incentives like premium prices for organically produced cocoa.

5.3 Obstacles to the promotion of organic cocoa production

- Organic farming requires rigorous application of prescribed standards[129] that need to be adapted for the context of cocoa farmers in Cameroon in Ghana

- The farmers are predominantly illiterate and would require assistance from professional extension workers to assist them in farming cocoa organically.[130]

- Cocoa farming is very much affected by different diseases and pests, which could adversely affect the growing of cocoa organically.

- Unfavourable national policy environments for organic agriculture could also affect the growth of the organic sector. Most politicians, policy makers and government agriculture researchers and extension workers are strong believers in the monolithic industrial approach to agriculture. This translates into hostility against organic agricultural promoters and results in no funding for research, training and extension in organic agriculture.[131]

- The lack of any legislation in the organic sector for both countries could also hamper the promotion of organically grown cocoa.

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[129] The standards reflect the context in the Developed countries

[130] See Considerations for the Sustainable Production of Cocoa, available at : http://natzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Cacao/whinney.cfm

[131] The development of the organic agriculture sector in Africa :Potentials and challenges available at http://www.ifoam.org/orgagri/e&f29_africal.html 07-04-04

- Research on organic cocoa farming is very limited in both countries.
- Any inspection and certification regimes will have to be credible and meet up to the standards in the cocoa importing countries. Even if certification is to be carried out by northern-based certification organisations, this will be carried out at high costs[132].
- The farmers will need powerful incentives to make them accept new farming practices.

5.4 Regulation of Organic Agriculture Worldwide

Even though organic Agriculture is a rapidly growing niche market worldwide, there seems not to be any universally accepted principles on what really constitutes organic farming. Most of the standards in the different countries of the world where organic farming is formally recognised have independent regulatory schemes for organic farming. However all of them share certain common characteristics.

At the level of the European Union for example, even though the EC regulation 2092/91 now regulates organic crop production for Member States, all the countries maintain their local authorities who oversee the inspection an certification of organic farms under this Regulation and in most countries licensed private sector bodies, partly operating their own standards , carry out the actual inspection and certification of organic producers in their respective countries.[133] This implies that even at the level of the European Community, there exists a plethora of inspection and certification bodies in the organic sector.

A 2003 organic certification directory lists 364 bodies offering organic certification services worldwide. This certification bodies are however unevenly distributed. 290 of them are located in the European Union, 106 in the U.S.A. , Japan Canada and Brazil.

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[132] See The development of the organic agriculture sector in Africa: Potentials and challenges available at http://www.ifoam.org/orgagri/e&f29_africal.html 07-04-04

[133] Lampkin *et al* at 1

Out of this lot, 56 operate outside their home countries and do operate predominantly in the Developing countries.[134]

There are only seven existing certification bodies in Africa and most of them are in South Africa.[135] Neither the European Union, the U.S.A. nor Japan, approves any out of these seven.[136]

Organic standards and certification systems were first developed in the private sector at a time when "organic" was a small niche sector. The growth of organic agriculture and markets during the last decade has been accompanied by rapid growth in the number and complexity of private sector standards followed by the burgeoning of government organic regulations. Although certification was first begun to foster the confidence of buyers and to enhance trade in organic products, the plethora of certification requirements and regulations is now considered to be a major obstacle for a continuous and rapid development of the organic sector, especially for producers in developing countries. The organic market is now confronted with hundreds of private sector standards and governmental regulations, two international standards for organic agriculture [Codex Alimentarius Commission and the International Federation of Organic Agriculture Movements (IFOAM)] and a number of accreditation systems. Lack of co-operation and "harmony" is a central problem.[137]

A survey by the International Organic Accreditation Service (IOAS) shows that 56 countries are at some stage of regulating the organic sector; 32 countries have fully implemented regulations; 9 countries are implementing regulations; and 15 countries have draft regulations.[138]

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[134] Helga Willer & Minou Youssefi (Eds), The World of Organic Agriculture; Statistics and Emerging Trends 2004 available at http://www.soel.de/inhalte/publikationen/s/s_74.pdf at 47 07-04-04
[135] *Ibidem* at 47
[136] *Ibidem* see table on page 48
[137] IFOAM Conference on Organic Guarantee Systems Reader, 2002, International Federation of Organic Agriculture Movements, Tholey-Theley, Germany, www.ifoam.org. 07-04-2004
[138] Crucifix, David 'Report of the IFOAM Conference on Organic Guarantee Systems,' 2002, International Federation of Organic Agriculture Movements (IFOAM), Tholey-Theley, Germany, www.ifoam.org. 07-04-2004 With respect to paragraph.

In some of these countries, the regulations are limited to organic standards. Other countries also have implemented or are implementing accreditation (or similar conformity assessment requirements) for certifiers of products sold as organic. The three main importing authorities, the European Union, the United States, and Japan, have implemented comprehensive regulations with standards and provisions for oversight and approval of certifiers.[139]

There are only a small number of agreements in the regulating countries for the acceptance of organic products from other countries, and virtually no mutual equivalence agreements between countries. The EU regulation provides for approval of other countries, but the EC has listed just six approved countries, and the most significant importing country, the US, is not yet on the list. Japan also has a list of approved countries, and recently forged an interim agreement with the US for approval of products imported from that country.[140]

IFOAM organized a Conference on Organic Guarantee Systems in February 2002, which brought together representatives of the government and private sectors to identify the problems and possible mechanisms for solutions. Participants unanimously agreed that the organic guarantee system could be further improved through collaboration in order to eliminate both private and governmental trade barriers and reduce administrative burdens and costs. Protection of the integrity of the organic claim and of diversity in organic agriculture can be achieved by establishing equivalence (and hence, mutual acceptance) between different systems – both private and government. The Conference explored the different models that are, or could be available, for the establishment of equivalence in organic agriculture, namely[141]:

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[139]INTERNATIONAL HARMONIZATION OF ORGANIC STANDARDS AND GUARANTEE SYSTEMS OECD Workshop on Organic Agriculture ,23-26 September 2002, Washington D.C., USA ,Session 3.1 The Market for Organic Products ,INTERNATIONAL HARMONIZATION OF ORGANIC STANDARDS AND GUARANTEE SYSTEMS By Diane Bowen, available at http://www.ifoam.org/orgagri/oecd_harmonization_paper.html 06-04-04

[140] *Ibidem*
[141] *Ibidem*

Codex Alimentarius Commission guidelines for Organic Foods as well as guidance documents on Food Import and Export Inspection and Certification Systems, including the guidelines in preparation on the Judgement of Equivalence of Technical Regulations Associated with Food Inspection and Certification Systems provide technical reference points to preventing and resolving trade disputes. The Codex Alimentarius model can facilitate negotiations around inter-governmentally agreed standards and mechanisms for harmonization and equivalency.

The IFOAM Accreditation Program's provision for multi-lateral agreements between IFOAM Accredited certifiers through: recognition of functional equivalence (on the basis of the IFOAM International Basic Standards) and bilateral acceptance between two certification bodies (based on products and bilateral additional requirements).[142]

5.4.1 Organic farming in Cameroon and Ghana

The outcome of the global outlook on standards and certification regimes poses a major challenge to any organic farming practices that could be emerging in Africa. The first challenge that flows from this prevailing situation is that Most African countries on their own do not have any regulations on organic farming put in place and secondly even in the presence or absence of such Regulations, it would still require that the organic products from such regimes be approved as organic in the Western European and North American markets, which are the major destinations for their export crops like cocoa. The likelihood that there would be an approval of organic regimes, exclusively run by developing countries like Cameroon and Ghana is very slim. Even if certification is to be carried out by northern-based certification organisations, this will be carried out at high costs[143]. It will therefore become necessary for local certification bodies to go into partnership with certification organisations already existing in these Western countries.

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[142] *Ibidem*

[143] See The development of the organic agriculture sector in Africa :Potentials and challenges available at 66 http://www.ifoam.org/orgagri/e&f29_africal.html 07-04-04

5.4.1.1 Organic farming in Ghana

In Ghana the largest organic farming project is the Ghana Oil PALM Development Company (GOPDC). It has 18, 500 Hectares of organic land Certified by Ecocert, organic banana as well as mangoes, pineapple and smaller areas of vegetables and herbs.[144]

With regards to cocoa, there is only a limited support for fair trade cocoa from Ghana through Kuapa Koko. The Country however has not really developed a substantial supply of organic cocoa and some sources have claimed that there is reluctance on the part of the government to promote organic cocoa farming for fear of permitting the spread of capsids.[145]

Ecotrade is an umbrella organisation of 15 Ghanaian NGOs that was set up in 19 97 with the aim of promoting ecological and fair trade principles. Other established actors such as the Ghanaian Board of Small Scale Industries, The National Standards Board etc… subsequently joined this grouping which placed the development of Standards and certification high on its agenda. In recent times however, little has been heard from this organisation. [146]

The Ghana organic Agriculture Network (GOAN) groups organic NGOs and has worked actively with Henry Doubleday Research Association and PAN-UK in developing a range of programmes.[147]

Other actors in the organic sector in Ghana include the Traditional Organic Farmers Association (TOFA) and Ecumenical Association for Sustainable Agriculture and Rural Development (ECASARD).[148]

Firsthand information as investigated in this study from the Cocoa Research Institute of Ghana (CRIG) outfit of the COCOBOB, confirms the OCP's initiative in organic cocoa

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[144] Nicholas Parrot and Bo Van Elzakker, Organic and Like Minded Movements in Africa, Development and Status, Agro Eco, 2003 at 66, available as pdf file at http://www.ifoam.org/ 15-04-04
[145] Ibidem at 66
[146] Ibidem at 66
[147] Ibidem at 66

production in Ghana, and the following details are presented as the state of Organic C*ocoa production in Ghana:*

Organic Commodity Products (OCP) Inc. of 29 Elm Street, Cambridge, Massachusetts, U.S.A., has been involved in organic cocoa activities in Ghana over the past 5 years. Through out all these periods, OCP has been funding research into better ways of controlling insect pest, diseases and improving soil fertility in organic cocoa production by the Cocoa Research Institute of Ghana (CRIG). An official contract exists between OCP and CRIG for the development of alternative organic solutions to cocoa disease and pest control.

In July 2001 organic cocoa production verification trial was started by CRIG. Traditional Organic Farmers Association (TOFA) who have been collaborating with OCP over the years were the first group of farmers to have their organic cocoa fields up-graded using the break through by CRIG's research in controlling Capsids using crude Neem seed extract.

With permission from the Ghana Cocoa Board (COCOBOD), those areas where TOFA farmers are working have been excluded from all activities that are a threat to organic cocoa production such as the large-scale treatment against capsids. The Villages involved are Brong-Densuso, Oboatumpang and Brong No. 2, all around 8 km from Koforidua.

To make the program more sustainable, OCP is in constant educational programme with all the TOFA members, thereby, improving their knowledge in organic cocoa production meeting all the international standards.

There is clear sign that OCP and the farmers are taking steps towards the establishment of an internal control system based on the modified EEC regulation 2092/91. For the whole process, two groups (OCP and TOFA) are involved in the internal control from the farm level (technical practices) to the ready to market products (fermenting, drying and sorting). The organic production in the farm is under the responsibility of the OCP field staff and the TOFA President, Vice President and Secretary assist him.

The Internal Control System is applied to the entire members and their farms. COCOBOD personnel control and assess the final quality of the end product (beans).

The existing system is designed to cover the farm activities and its neighbourhood during field visits plus the post harvest practices.

Over all about six different forms are used in the organic programme, these are as follow:

- *Field History sheet*

[148] Ibidem at

- *Farm parcel registration form*
- *Farm visit form*
- *Extension visit form*
- *Memorandum of Understanding form*
- *The farmer/operators list.*

Field History sheet form: This is purposed to know exactly whether a particular farm in question do qualifies as an organic farm, based on the farm management records for the past 3 or 4 years.

Farm parcel registration form: This enables a particular parcel to be fully recognized in terms of tenancy agreement, age of the farm, yields in the past and forecast, other crops grown on the cocoa farm and the parcel map as an effort to locate the position of the parcel in the community.

Farm visit form: This form captures what the operator or owner is consciously doing on the farm as some one who has understood the organic production methods. It captures the operator or owners understanding and practices on the field from pre-harvest management practices to harvest times and post-harvest management, the use of labour and the use relationship between the operator and his neighbours.

Extension visit form: This enables normal extension visits to be done, the information derived are almost the same as the visit forms required. But then the form helps checking the basic requirements in farm management and hygiene. It reveals what the operator or owner is doing on controlling and preventing insect pest and diseases infestation as well as other management practices geared towards healthy farm and beans.

MOU: This is a one sheet designed document whereby both the operator and owner will read through making sure that they understand the content and have accepted or agreed on the content. This consolidates their commitment to the organic programme and also urges them to uphold the programme.

The Field History Sheet form after completion is sent to ECOCERT SA c/o ECOCERT INTERNATIONAL Foerster Str. 87 D-37520 Osterode, Germany for the required international certification.

Only TOFA members are engaged in the process of organic cocoa production as of now and all of them were considered in the March 2002 inspection. TOFA has been involved in organic cocoa farming for more than 5 years even though they did not request for organic certification. Apparently, the farmers are to seek certification for their organic produce. However, the cost of certification is beyond the reach of the farmers and more over cocoa in Ghana cocoa not categorized into organic and others prior to shipment and therefore no premiums are paid. TOFA did some of their activities under the GTZ supervision, with three years of activity from 1993 to 1995 (see article on Organic Cocoa Production in Ghana in Gate, D13584 F, N0.3/ 1995, July-September, page 40 by the

TOFA President). TOFA is a member of the International Federation of Organic Agriculture Movements (IFOAM).

The organic cocoa production programme by OCP/TOFA/PBC is being implemented in the Eastern Region of Ghana at Akwadum, Brong-Densuso that is 8km from Koforidua. The farms are individually owned, some landlords operate their own farms whereas others have contracts with operators who do take care of the farm and share the production with in either 'Abunu' or 'abusa' sharecropping system. Farms are contiguous in an organic unit block, associated with forest trees and edible crops. Cottages have been built in each main farm; their number varies according to the farm size and/or number of operators.

For the diseases and pest problems in the area, it has been noticed that:

- *Black pod disease is not a matter of concern here.*
- *Swollen shoots is serious here*
- *The main pest is capsid and a spraying programme has been lunched in collaboration with COCOBOD and CRIG. A spraying team has been trained, crude neem seed is made available, equipment has been bought (5 solo motorized sprayer) and the personnel are equipped.*

After evaluating the members commitment in organic farming, the contiguous settlement of the farms, the authorization not to consider the area under the on going campaign of capsid treatment by the State, the commitment of CRIG in the monitoring of the activities in these areas and the absence of treatment against Black pod disease due to the fact that the farms are not infected with the fungus because they are not too shade, all these farms have been considered as traditionally cultivated perennial crops, with applied practices in conformity with rules described in the amended EC Regulation 2092/91. Thus no conversion period was proposed.

Cocoa is a perennial tree crop. The crop is traditionally planted on virgin forestland and/ of rehabilitated or planted on soils that have been cultivated for many years in association with timber and other tree species and food crops. Mix cropping and permanent shade are the best solution to soil erosion. Since the soil is always covered from direct water erosion either by the trees or by the tree litter that will decay and form part of the soil organic matter pool. In the farms of more than 8 years old as it has been the case of the TOFA members; the erosion is controlled by the trees' canopy, which prevent direct raindrop impact on the soil surface. In younger plantations the shade left on the plot or the plantain cover will do the same thing.

The present knowledge available on fertilizers does not recommend any application by the farmers in their cocoa plantation established on "good soils" and under suitable climatic conditions.

Condition under which fertilizer application is necessary:

- *Farms created on exhausted soils due to subsistence cropping for several years, or to general soil degradation.*
- *Farm in need of growth renewal*
- *Farm lacking shade.*

CRIG has collaborated with farmers in the demonstration of composting and the use of natural phosphate compounds.

Even though high yielding cocoa hybrids exist in Ghana, the three areas are old cocoa cultivation areas planted with materials other than the new hybrids and the average yield per hectare is estimated at 580 kg/ha of commercial cocoa beans. In the 2002 cropping season a total of 131,994 kg of commercial cocoa beans was obtained from about 220 hectares of cocoa in the three communities. The proportion of total nation cocoa production, which is organic, cannot be estimated partly due to factors mentioned above. Before the advent of the nationwide capsid and black pod spraying exercise, most farms were like those described for the TOFA farms at Akwadum. Farms were basically low tech and traditional applying no form of manure and no chemical application against pests and disease with the consequence of very low yields in the region of 250 kg/ha commercial cocoa beans, however these were never classified or certified as organic.

The first visit for inspection and certification in Ghana was carried out in March 2002 by ECOCERT. They visited the OCP/TOFA communities described above for the inspection. The visit was the first prior to certification.

Abroad, only one buyer of the organic cocoa exists for the programme in Ghana: Organic Commodity Inc. At the community level, there are four licensed buying agents namely: PBC, ROCO, KUAPA KOKOO and PREMUS. TOFA and OCP have agreed to have only PBC as their local commercial buying agent.

5.4.1.2 Organic farming in Cameroon

Standardised Organic farming in Cameroon is still at a very dormant stage.

Local sources claim that 5000 hectares of land is certified for organic farming[149] and that there is further 2000 hectares of parcels of organic cocoa and coffee under conversion[150]. Crops that are

[149] See Wala , cited in The development of the organic agriculture sector in Africa :Potentials and challenges available at 63 http://www.ifoam.org/orgagri/e&f29_africal.html 07-04-04

[149] See Tetant pers comm., cited in The development of the organic agriculture sector in Africa :Potentials and challenges available at 63 http://www.ifoam.org/orgagri/e&f29_africal.html 07-04-04

grown on this land as organic include pineapples, mangoes, papaya, coffee and cocoa. Other certified crops include herbs, spices, tubers and medicinal plants. [151]

Cameroon has two leading local companies involved in organic cocoa (Export Agro and EXODOM who form a joint venture called EXA Biologique.[152] The main factor of expansion has been the willingness to develop existing production and comply with the standards of EEC Regulation 2091/92. The control and certification of this production had to be organized. The initial constraints were the organization of the collection and production, the costs of control and certification, and obtaining financial resources.[153] Their attempts to get support from local authorities for the organic sector has been futile.[154]

Currently in Cameroon there are seven exporters active in the organic sector and two groups: ASPABIC (Association for the Promotion of Organic Agriculture) and AVEGRO.[155]

In Cameroon, strictly speaking, no national standards exist (in the sense of the EEC Regulation 2092/91) for organic agriculture. The operators started from the opportunities offered by European markets to develop Cameroon's potential in organic agricultural production. Until now, the basis used has been EEC Regulation 2092/91.

International certification bodies do control and certificy. The two bodies present in Cameroon are IMO and ECOCERT.[156] Naturland (Germany are also reported to have some projects in Cameroon.[157]

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[151] *Ibidem* at 63
[152] Ibidem at 63

[153] History of the organic sector in Cameroon 1.1 Origin and pioneers, available at http://www.fao.org/DOCREP/004/Y1669E/y1669e0i.htm 07-04-04

[154] The development of the organic agriculture sector in Africa :Potentials and challenges available at 63 http://www.ifoam.org/orgagri/e&f29_africal.html 07-04-04

[155] *Ibidem* at 63

[156] History of the organic sector in Cameroon 1.1 Origin and pioneers, available at http://www.fao.org/DOCREP/004/Y1669E/y1669e0i.htm 07-04-04

Certified organic Cocoa reports according to ASPABIC statistics in 2001 were just about 10 tonnes.[158]

With regards to organic produce in general, despite the low quantities currently produced, difficulties in marketing exist and are linked to the irregularity of transportation means and to the difficult access to production areas. This is what partly explains relatively high loss rates. The lack of up-to-date data on prices and markets constitutes another bottleneck. One can also mention the scattering of smallholdings, the poor state of roads, the remoteness of areas with high production potential, the weakness of investments in agriculture and the lack of governmental action to support exports.[159]

5.5 Sustainable organic farming

As already indicated in the previous sections, sustainable and organic farming are very closely related concepts. However they do not mean exactly the same thing because, not all organically grown crops can be referred to as sustainably grown and vice versa. Therefore our approach in this work will focus on providing equal attention to both concepts with regards to cocoa farming.

Though organic farming strives to attain sustainability, it is the believe of these authors that not too much attention is placed on the sustainable aspect of it. Rather more attention is placed on the interest of the consumers. The approach here is to attain organic cocoa farming that will meet high standards of sustainability and even be certified as such.

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[157] See Herman 2003, cited in: The development of the organic agriculture sector in Africa :Potentials and challenges available at 63 http://www.ifoam.org/orgagri/e&f29_africal.html 07-04-04

[158] History of the organic sector in Cameroon 1.1 Origin and pioneers, available at http://www.fao.org/DOCREP/004/Y1669E/y1669e0i.htm 07-04-04

[159] History of the organic sector in Cameroon 1.1 Origin and pioneers, available at http://www.fao.org/DOCREP/004/Y1669E/y1669e0i.htm 07-04-04

5.6 Evaluation criteria for the feasibility for sustainable organic cocoa farming

Any feasibility studies on the potential of sustainable cocoa farming in Cameroon and Ghana has to take into consideration the Agricultural, socio-economic and environmental aspects involved in organic cocoa farming.

Since sustainability and organic farming are very similar concepts, the most likely place where organic farming can be carried out is the place with the highest potential for sustainable cocoa farming.

Therefore in order to evaluate cocoa growing areas in Cameroon and Ghana as regards the Agricultural, socio-economic environmental aspects involved with respect to the likelihood of sustainable organic cocoa farming, an evaluation criteria developed by OCP[160] for the suitability for organic cocoa farming for cocoa growing areas will serve as a source of inspiration.

In order to evaluate for new supplier groups, OCP developed a matrix of considerations referred to as their "sustainability standards". This standard combines evaluation of groups from both perspectives of environmental and socio-economic stability.[161]

These standards are made up of five major steps[162]:

i) Initial Ecological, Economic and Cultural Assessment of Site

ii) Identification of Reference Ecosystems

iii) Application of General Biodiversity Matrix

iv) Analyses of Sustainability Potential of Commercial Cocoa

v) Management Recommendations using Criteria Matrix

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[160] This is the Organic Commodity Project Inc. based in the U.S.A. , which promotes sustainable agriculture , focuses on cocoa because it can be used as an "anchor" cash crop in a diversified agro-forestry system. See Considerations For The Sustainable Prodcution of Cocoa , Stephanie Daniels, Roberto Mack and Joseph Whinney, Organic Commodity Project Inc. , Cambridge , MA, USA/San Jose, Costa Rica, C.A. available at http://www.dropdata.net/Coco_files/Ch13.pdf 21-04-2004

[161] See Considerations For The Sustainable Production of Cocoa , Stephanie Daniels, Roberto Mack and Joseph Whiney, Organic Commodity Project Inc. , Cambridge , MA, USA/San Jose, Costa Rica, C.A. available at http://www.dropdata.net/Coco_files/Ch13.pdf 21-04-2004

After the general characteristics of the site are known and reference ecosystems identified, the site characteristics are over laid into a "General Biodiversity Matrix" in which the site is evaluated along the following criteria[163]:

- Intraspecific Genetic Diversity

- Interspecific Species Diversity within Habitats

- Habitat Diversity within Site Landscape

From this assessment, an overall evaluation is done to assess the "Sustainability Potential" for a commercially viable cocoa program in this site. Examples of questions to consider in this step are[164]:

Is cocoa the target crop suited for this particular site, both ecologically and economically?

Is there sufficient community interest and / organization to fulfil the requirements of a sustainable cultivation program?

Are there external factors that would prevent the establishment of such a program?

From this point a decision must be made to continue in a more detailed assessment of the site. If the decision is affirmative, an analysis is conducted using a "Criteria Matrix". This matrix involves a very detailed look into the site considering several interdependent factors at once. For example, the optimum canopy structure and depth would be evaluated with optimum air and sun circulation for maximized commercial cocoa production, disease control and ecosystem integrity. A few of the criteria in the matrix are[165]:

- Presence of Pollinators and Seed Dispersers

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[162] *Ibidem*
[163] *Ibidem*
[164] *Ibidem*
[165] *Ibidem*

- Presence of Endangered Species
- Nutrient Cycling
- Soil Analyses
- Disease Concerns
- Undesirable Host Plants
- Watershed Integrity

It should be noted however that this assessment and planning tool is still being formulated and OCP believes strongly that implementation and not assessment will be the largest challenge[166].

5.7 Applicable standards for organic cocoa farming

Unless we are talking about regulating organic farming for local consumption would we attempt to create an entirely different standard for organic farming suitable for the farming practices in Cameroon and Ghana for example. But since in this case we are dealing with export crops destined for countries with hostile agricultural policies for import crops from the third world as well as stringent regulations for organic farming in imports of organically grown foodstuff, the option that is left is to adapt the dominant existing standards for the contexts in Cameroon and Ghana.

The dominant markets for cocoa worldwide are the European Union and the U.S.A who unfortunately do not have mutual recognition of their standards for organic farming.

While within the EU, organic agriculture is regulated at the regional level and the respective governments are expected to implement the regulations, within the U.S.A the regulation is such that it is the organic sector, which defines what is organic.[167]

A third option for the regulation of organic agriculture and accreditation at the global level is that developed by IFOAM for the benefit of its members. At the same time

[166] *Ibidem*
[167] Rungren at 15

however IFOAM , national and regional organic movements have supported the international , national and regional regulations that have reduced the influence of the organic sector and the possibility of the IFOAM system.[168]

In order to avoid being trampled over due to the conflict between giants on the regulation of organic farming at the global level, countries like Cameron and Ghana need to get as close as possible to all the standards prescribed by this different regimes. Such an approach may even serve as the genesis for a global regulation on organic farming.

These three systems are therefore going to be analysed to see how suitable they could be for organic cocoa farming in Cameroon and Ghana for example.

5.7.1 EU Regulation

In the context of plant production the EU Regulation[169] applies to unprocessed agricultural crop products and such products intended for human consumption composed essentially of one or more products of plant origin to the extent that principles of production and specific inspection rules for them are introduced into Annexes I and III; where such products bear, or are intended to bear, indications referring to organic production methods.[170]

According to article 6 of this Regulation, organic production method implies that for the production of products referred to as organic:
at least the requirements of Annex I and, where appropriate, the detailed rules relating thereto, must be satisfied;

- only products composed of substances listed in Annexes I and II may be used as plant-protection products, detergents, fertilizers, or soil conditioners[171];

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[168] *Ibidem* at 15
[169] Council Regulation (EEC) No 2092/91 of 24 June 1991 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs available at http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31991R2092&model=guichett 21-04-2004
[170] Article 1 (1) (a)
[171] Article 6 (1) (a)

- they may be used only under the specific conditions laid down in Annexes I and II and in so far as the corresponding use is authorized in general agriculture in the Member States concerned in accordance with the relevant Community provisions or national provisions in conformity with Community law.[172]

By way of derogation from paragraph 1 (b), seeds treated with products not included in Annex II and authorized in general agriculture in the Member State concerned may be used in so far as users of such seed can show to the satisfaction of the inspection body, that they were unable to obtain on the market non-treated seed of an appropriate variety of the species in question.[173]

Products not authorized at the date of adoption of this Regulation for a purpose indicated in Article 6 (1) (b) may be included in Annex II, provided that the following conditions are satisfied[174]:

- if they are used for the purpose of plant pest or disease control,

- they are essential for the control of a harmful organism or a particular disease for which other biological, cultural, physical or plant breeding alternatives are not available,

- the conditions for their use preclude any direct contact with the seed, the crop or crop products; however, in the case of perennial crops, direct contact may take place, but only outside the growing season of the edible parts (fruits) provided that such application does not indirectly result in the presence of residues of the product in the edible parts, and

- their use does not result in, or contribute to, unacceptable effects on, or contamination of, the environment.

If they are used for fertilization or soil-conditioning purposes they should be essential for specific nutrition requirements of crops or specific soil-conditioning purposes which cannot be satisfied by the practices mentioned in Annex I, and their use does not result in unacceptable effects on the environment or contribute to the contamination thereof.

[172] Article 6 (1) (b)
[173] Article 6 (2)
[174] Article 7 (1)

If need be, the following may be specified for any product included in Annex II:
- the detailed description of the product,
- the conditions of its use and compositional and/or solubility requirements, with regard in particular to the need to insure for these products a minimal presence of residues on edible parts of the crop and on edible crop products as well as a minimum effect on the environment,
- particular labelling requirements for products referred to in Article 1 where such products are obtained with the aid of certain products referred to in Annex II.[175]

Amendments to Annex II, concerning either inclusion or cancelling of products as referred to in paragraph 1 or inclusion or amendments of specifications as referred to in paragraph 2, shall be adopted by the Commission in accordance with the procedure laid down in Article 14.[176]
Where a Member State considers that a product should be added to Annex II or that amendments should be made thereto, it shall ensure that a dossier giving the reasons for the inclusion or the amendments is sent officially to the other Member States and the Commission, which shall introduce it to the committee referred to in Article 14.[177]

Annex I prescribes the method for organic crop production and plant products.
The principles set out in this Annex must normally have been applied on the parcels during a conversion period of at least two years before sowing or, in the case of perennial crops other than grassland, at least three years before the first harvest of products as referred to in Article 1 (1) (a). The inspection body may, with the approval of the competent authority, decide, in certain cases, to extend or reduce that period, having regard to previous parcel use[178].

[175] Article 7(2)
[176] Article 7 (3)
[177] Article 7 (4)
[178] Annex 1(1)

The fertility and the biological activity of the soil must be maintained or increased, where appropriate, by:[179] (a) cultivation of legumes, green manures or deep-rooting plants in an appropriate multi-annual rotation programme;
(b) incorporation in the soil of organic material, composted or not, from holdings producing according to the rules of this Regulation. Pending the adoption of common technical rules concerning organic livestock production, by-products from livestock farming, such as farmyard manure, may be used if they come from livestock holdings respecting existing national rules or, in the absence thereof, internationally recognized practices concerning organic livestock production.
Other organic or mineral fertilizers, mentioned in Annex II, may be applied only to the extent that adequate nutrition of the crop being rotated or soil conditioning are not possible by the methods set out under (a) and (b) of the preceding subparagraph.
For compost activation, appropriate micro organism or plant-based preparations (biodynamic preparations) may be used[180]

Pests, diseases and weeds shall be controlled by a combination of the following measures:
-choice of appropriate species and varieties,
-appropriate rotation programme,
-mechanical cultivation procedures,
-protection of natural enemies of pests through provisions favourable to them (e.g. hedges, nesting sites, release of predators),
-flame weeding

Only in cases of immediate threat to the crop may recourse be had to products referred to in Annex II.[181]

5.7.2 Regulation of organic farming in the U.S.A

Within the United States, the National Organic Programme oversees the standards for organic food production. It was established by a rule[182] under the Department of

[179] article 1(2)
[180] Annex 1(2)
[181] Annex 1(3)

Agriculture and it is under the Direction of the Agricultural Marketing Service (AMS). According to the preamble of this rule:

"Except for exempt and excluded operations, each production or handling operation or specified portion of a production or handling operation that produces or handles crops, livestock, livestock products, or other agricultural products that are intended to be sold, labelled, or represented as "100 percent organic," "organic," or "made with organic (specified ingredients or food group(s))" must be certified. Certified operations must meet all applicable requirements of these regulations."

The Regulation provides for exemption of organic production or handling that has $5000 or less in gross annual income. However the ingredients for such an operation cannot be used as ingredients identified as organic in processed products, produced by another handling operation. Such operations must also comply with the labelling requirements.

Handlers of organic produce who do not carry out any processing are also exempt from this Regulation as well as handlers of agricultural produce with less than 70% organic ingredients, but with a few limitations. Also exempt is any handling operation, which merely uses the word "organic " on the information panel.

All these cases where exemption apply are limited by the fact that contamination of such produce from prohibited substances during handling is avoided.

The Regulation excludes handling operations for 100% organic produce provided they remain in the same container and are unprocessed.

Specifications for production and handling according to this Regulation, makes allusion to the Organic Food Production Act 1990 which requires that all crop, livestock and handling operations requiring certification, should submit an Organic System Plan (OSP) which will commit them to the requirements of this Regulation.

This OSP is a form where the producer or handler and certifying agent collaborate to define on an on site basis, how the goals of this Regulation will be achieved.

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[182] Department of Agriculture, Agricultural Marketing Service, 7CFR PART 205 [Docket Number : TMD-OO-O2-Fr] , RIM, 0581-AA40, National Organic Programme, Agency . Agricultural Marketing Service US7A, available at; http://www.ams.usda.gov/nop/NOP/standards/ApplicPre.html 15-04-04

This plan must have an implementation schedule, information on the substances applied to the land, facilities or agricultural production methods used to evaluate its effectiveness as well as a description of the record keeping system of the operation.

Where there is mixed production or handling operations the plan must describe management practices and physical barriers used to prevent co-mingling of organic and non-organic products.

Any field or farm used for crop production must have had no prohibited substances applied to it for at least three years prior to the harvest of the crop.

The Regulation also indicates that synthetic substances with the National list of exempted material might be used as crop nutrient or for soil amendment.

Producers must use organically grown seeds, annual seedlings and planting stock, but may be allowed to use non-organic seeds or planting stock when equivalent organic varieties are not commercially available.

Planting stock used to produce perennial crop, may be sold as organically produced planting stock, after it has been maintained under a system of organic management for over a year.

With respect to pest, disease and weed control, in the event that biological and mechanical means are insufficient, this Regulation allows for the use of synthetic substances allowed on the National list, provided the conditions under which the substances are being used are documented.

5.7.3 IFOAM Basic Standards

The IFOAM Basic Standards for Organic Production and Processing[183] (IBS) provides a framework for certification bodies and standardisation organisations worldwide to

[183] IFOAM Basic Standards for Organic Production and Processing approved by IFOAM General Assembly, Victoria, Canada, August 2002, available at: http://www.ifoam.org/standard/norms/ibs.pdf 16-04-04

develop their own certification standards and cannot be used for certification on their own[184]

IFOAM accredited certification bodies must follow all the requirements relevant to farming or processing operations, but IFOAM Standards are also used by non-accredited certification and standard setting organisations as reference for setting their standards.

Part 3 of Section B deals with the production methods and proposes practice with respect to plant or animal production that will enhance optimum sustainability of the eco-system.

Standards according to the IBS, should determine how non-organic and organic production could be distinguished in production and documentation to prevent unintentional mixing of both.

It proposes for the use of seeds and plant material certified as ”organic ” for production, but allows for the use of conventional seeds and plant material where the organic types are not available , provided they are not treated with pesticides not otherwise authorised by these standards . However in the absence of untreated conventional seed and plant material, treated seeds could be used in which case the certification body shall establish the time limits and conditions for such an exemption.

It also proposes that conversion to organic may take place for the whole farm or a portion at first. An organic conversion plan is also required from the operator. This plan should be updated and should cover all aspects of these standards.

The conversion period according to the IBS should be at least 36 months and recommends that the length of the conversion should be adapted to the past use of the land, the ecological context and its implications as well as the experience of the operator.[185]

Apart from biological and mechanical control of pests weeds and diseases proposed by these standards, its Appendix 2 gives a list of authorised inputs in specified cases.

[184] See the Section A General Part of the IBS dealing with its scope
[185] See section B part 4.2

Avoidance of contamination of organic produce with non-organic produce is also an aspect proposed by this IBS.

5.7.4 Proposals of standards for Ghana and Cameroon

After reviewing the three major standards for organic farming presented above, it would seem that the draftsmen of these texts never took into consideration the context prevailing in developing countries. These documents were shaped to propose something different from conventional farming as it is being practiced in the developed countries and never took into consideration the small holding peasant farming practices prevailing in the developing countries. For this reason none of the above standards can be incorporated word verbatim, as standards for organic farming of cocoa in Cameroon or in Ghana. Rather the common trends amongst them and the higher standards for organic and sustainable farming in certain aspects present in any of them, will be used to try to make proposals for adapted standards for organic cocoa production in Ghana and in Cameroon.

One other important factor related to proposal for any standards is that, looking at the context of the crop in question and the fact that it is exported to developed countries with a plethora of organic standards, it will not be reasonable to have one fixed criteria to be implemented as standards for sustainable organic cocoa farming. Rather a code of general practice that cuts across all the standards could be enunciated and used on experimental farms.

It will be more advantageous for the farmers to have international partners who are willing to buy their produce before they could embark on a relatively larger scale of organic cocoa production. In such a situation the farmers will have to abide by the standards agreed upon with the international purchasing partner and local and international associations involved in certification.

In case any code of general practices for organic cocoa farming is already put in place and some experimental farms start running, it will be easier to agree and adhere to standards presented by any international partners.

Looking at the EU, U.S.A and the IFOAM standards for organic farming, some common trends are discernable.

The production methods in all three are targeted towards organic farming methods. Therefore any general code of practice for organic cocoa farming should incorporate the general requirements for organic farming.

They also in exceptional situations allow for the use of specified synthetic compounds to be used in combating pests, weeds and diseases as well as for soil enrichment and also for the use of treated seeds and plant material.

Therefore for the cocoa farming context in Cameroon and Ghana such practices should be acceptable in exceptional circumstances and a list of substances authorised for use in such situations should be agreed upon in collaboration with international partners.

Stricter conditions like that provided for by the EU Regulation that use of synthetic material for pest or disease control for perennial crops[186] should be carried out outside the growing season of the edible parts, will give more weight to any general code of practice for organic cocoa farming.

The period of 36 months prior to the first harvest seems to be a consensus period during which a farm must have been under organic management, for its products to be referred to as "organic". However adaptations to this can be agreed upon between the farmers and the certifiers.

In relation to conversion, it will seem that the three major standards for organic farming indicated above consider conversion to organic to begin with the planting of new seeds or seedlings and not the maintenance of an existing plantation. In the context of cocoa farming where the crops take about five years to get to maturity and where some plants can last for over 25 years this criteria based on insistence of replanting only will not be a reasonable one. Rather existing farms could be run under a system of organic management for a transition period before being referred to as organic.

[186] It should be noted that cocoa is a perennial crop

However in Areas where replanting is to be carried out, the organic standards could still be followed as well.

Also the inclusion of a criteria as that on the insistence for the documentation of the use of authorised synthetic material in exceptional cases to combat pests and disease and for soil enrichment as provided for by the U.S.A Regulation will be a good idea.

The inclusion of the IFOAM IBS proposal that that use of non organic treated seeds and planting material in exceptional circumstances should have time limits set and the conditions for such an exemption from the certifying body will give more weight to general codes of practice for organic cocoa farming in Cameroon and Ghana.

The idea of something similar to the Organic System Plan (OSP) provided for by the U.S. Regulation agreed upon between the farmers and certifiers to meet the requirements for organic cocoa production will also be a good idea.

Mechanisms to enhance the avoidance of contamination between organic and non-organic crops or produce should also be a part of the general code of practice.

Amongst these three major standards, that which gives the highest standards for organic farming and sustainability is that proposed by IFOAM's IBS, which insists on farming methods enhancing eco-sustainability and even gives recommendations on how such eco-sustainability should be achieved. If organic cocoa farming in Cameroon and Ghana is to be carried out in a sustainable manner then such criteria should be incorporated into any general code of practices for organic cocoa farming. In this connection, sustainable cocoa farming according to any general code of practices for sustainable organic cocoa farming should have as minimum condition that it is either cocoa grown under the shade of selectively cleared forest land or in the case of cocoa farms in deforested areas, cocoa that is inter-planted with other crops and suitable shade trees.[187]

[187] See chapter three for a better understanding of the sustainability of these farming methods

5.7.5 Certification

Certification basically is a certificate issued by the certification body indicating that a particular product meant for human consumption, conformed to the prescribed standards for organic production. This could either be processed or unprocessed foodstuff.

In the case under study, we are dealing with the production of cocoa beans using organic methods and are not involved in the process extending to processed food for which cocoa beans have been used. Therefore the certification involved in this case is that for unprocessed cocoa beans.

The concept of certification goes hand in hand with that on labelling which indicates that the producer had conformed to the organic farming practices prescribed.

Looking at article 11 of the EU Regulation dealing with imports from third countries[188], it is difficult to envisage how countries like Cameroon and Ghana on their own can have such recognition. Since organic produce are certified according to each member state suggesting that the production methods have been complied with, the best approach for any form of organic farming in Cameroon and Ghana targeting Europe will bee to look for partnerships with certification bodies in EU Member States. Coupled with the concept of free movement of goods within the EU, a certificate issued for any organic produce by any EU Member State certification body can freely be circulated within the EU. The only problem is whether such certificates will be well known by consumers in other Member States since there is a plethora of certification bodies within the EU. An alternative will be to apply for recognition by other certification bodies, once a particular certification from an EU member State has been granted.

Similarly in the U.S.A the Regulation provides that to receive certification, the producer must comply to the Regulation and submit organic production plan to accredited certifying agent. A similar approach to that proposed above for partnership with certification bodies would be the best way for organic cocoa produce from Cameroon and Ghana to be recognised. The IFOAM IBS proposes certification for similar

[188] The third country should have an inspection regime equivalent to that of the EU and should be so recognized by the Commission

circumstances. The criteria for eco-sustainability should also form part of the basis for the certification of cocoa beans purported to have been grown organically in Ghana and Cameroon.

A stumbling block for the possibility of partnership with certification bodies in either Europe or the U.S.A is the cost involved in the certification process for which fees are charged. This could be worked out between the farmers and the certification bodies such that a percentage of the premium price for the cocoa beans will go to the certification bodies.

5.7.6 Case study on certified organic cocoa farming

For the time being it may seem that major food processing companies are not very much keen to get involved in making food products out off organically grown cocoa beans. Instead it seems that smaller food processing companies are the ones taking advantage of this small niche market for products labelled as organic and in this case products made out of organically grown cocoa beans.

The approach used by this small business concerns involved in processing organically grown cocoa seems to be to create direct business contacts with the cocoa farmers abroad from whom they buy their organically grown cocoa. Unfortunately with regards to Cameroon and Ghana, these authors could identify no significant examples of such business partnerships. For this reason an example of such a partnership between a U.K. based company and some cocoa farmers in Belize will be used as a case study here, to see how the partnership can work and there from inspiration can be got for similar purposes in Cameroon and Ghana.

This kind of business relationship was created between a U.K. bases organic food processing company called Green & Black's Organic[189], who claim to be trading directly with some Mayan cocoa farmers in Belize and also claim that they pay to them premium prices for their organically grown cocoa and an additional fair trade price.[190]

[189] http://www.greenandblacks.com/html/our_story.php 10-04-2004
[190] *Ibidem*

Today according to them, they have a long term contract with the farmers, guaranteeing to buy all the cocoa they can produce .[191]

The cocoa, which they use, is grown under the shade of indigenous trees alongside other crops, including avocado, pineapple, coffee, papaya and bananas. The canopy of the shade trees, mahogany, cedar and teak-are grown above the cacao trees and ginger is occasionally grown underneath. They also claim the cocoa is not sprayed with pesticides.[192]

According to their web-site, the Green & Black's Organic Company incorporate both organic and fair trade standards for the produce they purchase from the farmers, claiming that what is better for the planet, has to be better for the people working on it.

The farms on which the organic cocoa is grown in this case, according to this web-site, is inspected annually by the Soil Association[193] which is the UK's leading campaigning and certification organisation for organic food and farming.

This inspection process involves a full physical inspection of the farm or facility where inspectors may take samples for the detection of substances not authorised under the organic standards. The inspection will also require access to all records and relevant support documentation so that a full traceability trail can be verified.[194]

Once the cocoa beans get to their factories, they also claim that, they carry out random sampling for pesticide residue.[195]

The case of Organic Cotton in Benin can also be inspirational for a policy on promoting organic cocoa production. In this case organic production is combined with Sustainability in Northern Benin[196] and it is a pilot initiative of Dutch/Beninese Integrated Development Project (PADEC-Kandi). The programme offers participants a guaranteed market at a

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[191] *Ibidem*
[192] http://www.greenandblacks.com/html/faqs.php 05-04-2004
[193] http://www.soilassociation.org/web/sa/saweb.nsf/aboutus/index.html 05-04-2004

[194] http://www.greenandblacks.com/html/faqs.php 05-04-2004
[195] *Ibidem*
[196] By Ton, Peter, 1999: Organic Cotton and sustainability in Northern Benin; in Organic Agriculture, the Credible Solution for the 21st Century.

price fixed in advance. As mentioned in the introductory chapter of this report, a premium of 20% above the local seed cotton price is paid for the organic cotton. The programme also provides free seeds and, and as of the time of the study, lends sprayers free of charge to the participants. It must be commented here that even though this may not seem healthy from economic assessment viewpoint for sustainability, it may be seen as a necessary intervention to mitigate the short-term effects of the project. Also the project is contractually bound to assist participant on regular a basis through a system of monitoring, research, and advice. In the said project, particular attention is to be given to mutual exchanges between project agents and participants and about observations and experiences as a means to stress the mutual learning components the pilot project.

The results from the study indicated an average yield of 411 kg/ha organic cotton (OC) and that, it will take an average of 600-650 kg/ha to make organic cotton production financially attractive compare to the average conventional cotton (CC) yield of 1,054 kg/ha. This assertion was based on the following (MARI[197]) equation:

OC yield x (100 + 20% price premium) = CC yield x (100-30% input credit reimbursement).

On the same basis of the MARI equation and, coupled with the fact that nutrient exports from cotton are a function of yield, the ecological sustainability was judged to be proven on the accounts that, organic cotton might generate the same revenue at a lower yield, and that, should external market guarantee the price premium in the long term, lower organic cotton yield might generate the same revenues whiles reducing nutrients export by 42% (Ton, 1999)

Implicitly for the challenges of organic cocoa production promotion, all things being equal, adherence to organic practices as suspected in the introductory chapter of this study, may lead to yield depression and that, it will take policy and institutional flexibility to adjust for the necessary radical mitigational measures. Other challenges that emerged from the cotton case study from Benin and, which may not be different for organic cocoa production include the challenges of; whether organic manure and for that matter, organic

[197] MARI stands for “Marge Apres Remboursement des Intrants” or “ gross margin reimbursement of input credit” (Ton, bid)

input especially from local sources, and the additional labour that goes with it, will be available in sufficient quantities for effective substitution?

5.7.7 Best practices for organic cocoa farming in Cameroon and Ghana

The form of organic cocoa farming for Ghana and Cameroon that is going to be advocated for in this chapter will be adapted from the more sustainable method of the prevalent cocoa farming practices in Cameroon and Ghana[198]. The farming practices hereby cited is either that according to which cocoa is grown under the canopy of an existing forest or the practice whereby cocoa threes are inter-planted with other trees and crops.

It should be obligatory for those farmers intending to establish new cocoa farms where organic practices would be carried out, to use organically grown seeds. Or planting stock but they may be allowed to use non-organic seeds or planting stock when the equivalent organic varieties are not commercially available.[199] Any organic farm should have an organic management plan agreed upon between the farmers or their representatives and the certification bodies.[200] Producers should be able to prove to the certifiers that they have avoided the contamination of organic crops by non-organic crops.[201]

This adaptation for an organic version of cocoa production will be done following similar steps in the prevalent cocoa farming practice; commencing from the establishment of the farm to the maintenance of mature plantations, conversion of existing farms to organic farms and means of combating diseases and pests.

5.7.7.1 Establishment of new farms

Under the recommendation advocated by these authors, any form of establishment of a new organic cocoa farm should be either that which is established in a selectively cleared forest for a new cocoa farm established in a primary or secondary forest [202], or in the case

[198] See chapter 3
[199] This is in line with the organic farming practices recommended by the three basic organic farming standards.
[200] This is similar to the practice recommended by the American organic farming regulation
[201] This is a basic requirement of the American Regulation
[202] See note 47 supra

of an area which has already been deforested, cocoa inter-planted with other trees and food crops[203]. New cocoa farms planted in a cut down forest even if inter-planted with other trees or crops, should not be referred to as organic.[204] New and old cocoa planted in completely cleared forest in such a way that the plants are completely exposed to sunlight should not be referred to as organic.[205]

Any form of clearing in a cocoa farm intended to be organic should either be manual[206] or mechanical and any use of herbicides or chemicals for poisoning of trees should be prohibited.

5.7.7.2 conversion of old farms

Cocoa planted under the canopy of trees in either a primary or secondary forest, could be converted to an organic cocoa farm. This conversion should take place within a period of three years[207] during which organic farming practices are carried out and an organic management plan agreed upon between the farmers or their representatives and the certification body, is rigorously adhered to.

Biological methods used to help in the decomposition of fell down trees should also be encouraged [208]

5.7.7.3 Shade requirements for young plants

Young cocoa plants require shading to ensure the right form of growth, and 50% shade for young cocoa is sufficient as a rough guide.[209] Heavy shade is needed initially but this

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[203] This will be in line with the sustainability of the organic farming system advocated for by the IFOAM basic standards

[204] This is so because it is well known now that it is possible to grow organic in the natural forest habitat instead of clearing down a forest

[205] See text related to notes 74,75 and 76 supra

[206] See advantage from text related to note 49 supra

[207] This period seems to be an implied consensus period for conversion of perennial plants from the three basic standards presented in this project work.

[208] See text related to note 50 supra

[209] ICRAF, 1987, cited in Smallholder cocoa cultivation in agro forestry systems of West and Central Africa, Smithsonian National Zoological Park, available at : http://natzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Cacao/duguma.cfm 17-03-04

[209] *Ibidem*

must be adjustable in the first few years leaving in the end a small number of trees as shade for the mature cocoa.[210]

The properties of a good planting shade crop should be such that it will provide good shade throughout dry season and not compete with the cocoa roots for moisture and soil nutrients and should be easy to remove when finished with, without damaging the cocoa canopy. Such a plant should not be an alternative host species to insect pests of cocoa and if possible it should be of commercial value.[211]

Examples of such temporary shade crops include: bananas and plantains[212], *tannias* and *eddoes*, or cocoyam, which are used as temporary shade especially in West Africa.[213] Pigeon pea, papaya cassava and castor oil are plants that are also used to a lesser extent.[214]

The most commonly used permanent shade trees could include trees such as *leucaena leucocephala , gliricidia sepium, albizias , parkia javanica.*

The method used in the West African region, where forest shade is more commonly used after the forest has been thinned and cocoa planted therein should be recommended for organic cocoa farming. However this method depends on the soil, climate and distance from the markets. In places with sufficient soil moisture throughout the year, the forest is thinned leaving a few dominant trees and a few more intermediate trees.[215]

The practice where in drier areas, the forest may be completely felled because the farmers have learnt that the land will not support the forest shade and the cocoa during the dry season should not be accepted as organic.[216]

Farmers from West Africa from experience are able to identify trees suitable as shade for cocoa and those that are not. For example the following species are thought to be suitable

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[210] *Ibidem* at 126
[211] See Freeman cited in Wood and Lass at 127
[212] See Wood and Lass at 131 where some disadvantages in the use of plantains and bananas as shades are presented.
[213] *Ibidem* at 132
[214] *ibidem* at 132
[215] See foot text related to note 63 supra
[216] See *Ibidem* at 136 with respect to paragraph

shade trees[217]: *Terminalia spp, Chlorophora excelsa, Albizia spp., Ficus vogeliana and Entandrophragma spp*. Such practices should be upheld and encouraged in organic cocoa farming.

The practice of inter-planting mature cocoanuts with cocoa is attractive because the cost of establishing cocoa is low, the income per acre is increased and the cost of maintaining the coconut area is reduced. Further more the two crops are compatible.[218] Therefore such a practice can be incorporated into organic cocoa farming.

5.7.7.4 Nutrient requirements

With respect to nutrient requirements organic farming practices should be such that the use of synthetic fertilisers under normal circumstances should be forbidden. This rule can be derogated from in exceptional situations of nutrient requirements. In such cases the fertiliser used should be amongst the list of acceptable chemicals agreed upon between the farmers or their representatives and the certifying bodies.[219]

The manner in which such chemical fertilisers are used and the reason for them being accepted should be well documented, through a method agreed upon between the farmers or their representatives and the certifying bodies.

Organic manures or mulches can also be used as fertilisers but their application in large quantities will not be very economical. However this can be carried out economically when mulch material is available on the spot as, for example, when leguminous shrubs such as *Fleminigia macrophylla* are used as temporary shade. This practice should be encouraged in the organic farming of cocoa.[220]

5.7.7.5 Maintenance of mature farms

[217] See *ibidem* at 136 and 137
[218] Wood and Lass at 139
[219] This list should be a reflection of the chemicals accepted for use in similar situations found amongs the three basic organic farming standards indicated in this project
[220] See Wood and Lass at 183

For any organic cocoa farm to be economical, there should be suitable conditions for growth and yield, based on the organic farming practices. This would require that weeds, pests and diseases should be effectively controlled. A practice such as the regular pruning of cocoa trees and the correct adjustment of shade and adequate organic nutrients would lead to optimal yields[221] in an organic cocoa farm and should be encouraged.

A farm with complete cocoa canopy rarely needs more than occasional attention to remove some woody weeds and to clear the vegetation at the field's edges and in pockets within the farm.[222]

Herbicides such as glyco-phosphate, marketed as Roundup Monsanto have been used in some cocoa farms in the past.[223] This clearly is not a practice that can be accepted as organic.

Hand weeding can be an alternative to the use of herbicides but for it to be economically viable, it can only be carried out in an environment where labour is cheap.[224] Labour is cheap for cocoa farming in Ghana and Cameroon so this practice can be recommended for organic cocoa farming.

Pruning of mature cocoa plants takes two forms: sanitary pruning to maintain the health and vigour of the tree and structural pruning to limit the size of the tree or to achieve a desired shape. Both practices should form part of organic cocoa farming.

5.7.7.6 Diseases and pests control

Together with the possibility of having credible certification for any cocoa grown as organic in Cameroon and Ghana, the combating of cocoa diseases and pests will fall amongst the major challenges for the success of organic cocoa farming in the target countries.

Organic practices would require that diseases and pests be combated using methods that would avoid the use of synthetic chemicals. However as is the case within the three basic

[221] See ibidem at 195
[222] *Ibidem* at 196
[223] *Ibidem* at 197
[224] See analysis in Wood an Lass at 197

organic farming standards reviewed in this project, in exceptional circumstances where all non synthetic methods have been used and are unable to remedy the situation, chemicals within a list agreed upon between the certifiers and the farmers[225] could be used to remedy the situation.

The manner in which such chemicals are used and the reason for them being accepted, should be well documented through a method agreed upon between the farmers or their representatives and the certifying bodies.

The two major diseases affecting cocoa in the west Africa region are Phytophtora pod rot disease or black pod disease and the cocoa swollen shoot virus.

5.7.7.6.1 Black pod disease

This disease can be controlled using three different methods: breeding for resistance, cultural practices and chemical control.[226] In any organic cocoa farming practice, chemical control can only be carried out under exceptional conditions and under a fixed criteria as indicated above.

5.7.7.6.1.1 Breeding for resistance

Breeding for resistance involves the replacement of susceptible cultivars by ones showing durable resistance to the pathogens and is the ultimate solution for the elimination of the disease. This method can be combined with that of breeding for disease escape which involves a method in which the trees produce the bulk of their crop when climatic conditions are conducive to the spread of the disease.[227] However, further research is necessary for this method to become widespread.[228] This is good practice to be included in organic cocoa farming.

5.7.*7.6.1.2 Cultural practices*

[225] This list should be a reflection of the chemicals accepted for use in similar situations found amongst the three basic organic farming standards indicated in this project

[226] See Wood & Lass at 277-278
[227] *Ibidem* at 277
[228] See *Ibidem* at 277

Cultural practices involves a method through which the amount of infection of the *Phytophtera* pod rot can be decreased by reducing the relative humidity within the cocoa canopy thereby improving air circulation. This can be done through a reduction of the shade, regular weeding and pruning of the cocoa trees coupled with frequent removal of epiphytes and chupons.[229] This is a good practice for organic cocoa farming

5.7.7.6.2 Cocoa Swollen shoot virus

The only recommended method of its control is the removal and burning of any diseased trees and their contacts. Eradication has been the principal means adopted in Ghana since 1936.This practice can be accepted for organic farming but care should be taken so that very limited harm is done to the environment.

A more scientific and method for combating this disease which however needs more research can be the planting of resistant planting material, but efforts towards breeding such material however have only had limited success.[230]

5.7.7.6.3 Insect Pests

The insect Pest that has the most significant effect on cocoa farming in Cameroon and Ghana is the Capsid.

Good organic practice to combat this pest could be such that control can be carried out by ensuring that the canopy of a cocoa farm is kept complete and that nests of predatory ants are protected. More research is however necessary in this field.[231]

The Structural Adjustment Plans in Ghana, Nigeria and Cameroon have resulted in liberalising input prices, including those for capsid pesticides. Consequently spraying for capsid has recently declined and the pest attacks have multiplied.[232] So this really is a major challenge for organic cocoa farming.

5.7.7.6.4 Integrated Pest Management (IPM)

[229] Wood & Lass at 277
[230] *Ibidem* at 24
[231] Wood & Lass at 27
[232] *Ibidem* at 27

This method of combating pests would do much good for any form of organic cocoa farming.

Integrated Pest Management or IPM is a system for manipulating plant pests (which usually includes insects, diseases and weeds) to keep them below economic thresholds. Management of cocoa pests has been gaining momentum in recent years. In contrast to conventional control, which relies almost exclusively on prophylactic use of chemicals to control pests, IPM uses ecologically sound, multiple management tactics for managing pests. Preventative control tends to use excessive pesticides, which often accelerate pest resistance and begin an upward spiral of pesticide use.[233]

Accurate pest management is dependent on a strong scouting program. Growers need to know the conditions of their crop and the pests in the field so that they can determine the best actions to take. Scouting, often referred to as monitoring or surveying of pests, is essential in an IPM program. Monitoring techniques include recording temperature and other weather conditions, regular surveys of plants for pests or their damage, use of insect traps, and observing plant growth stages, to mention a few. Systematic scouting data must be recorded so that is can be used in decision-making.[234]

An example of such a practice used in the cocoa farming sector that can be exported to support organic cocoa farming in Ghana and Cameroon is the use of the mealy bug-farming ant, known as the black cocoa ant, in Indonesia, to reduce mirid (capsid) damage[235].

[233] See Cocoa Intergrated Pest Management (IPM) , Ohio Agricultural Research and Development Center, Ohio State University available at http://www.oardc.ohio-state.edu/cocoa/default.htm 05-04-2004
[234] *Ibidem*
[235] See *ibidem*

6 COCOA POLITICS

In order to better understand the role of the main stake holders that will play a role in the promotion of sustainable organic cocoa farming which will be presented in the next chapter, it will be instructive to have an overview of the politics involved in the world cocoa market in particular and global agricultural market in general.

The politics in the cocoa industry ranges from that played by the International Cocoa Organisation, to the ripple effects of the structural adjustment plan imposed by the International Monetary Fund on the developing countries and the trade policies of the United States and the European Union

6.1 International Cocoa Organisation

The International Cocoa Organization (ICCO) was established in 1973 to administer the first International Cocoa Agreement, that of 1972 and its successor Agreements of 1975, 1980, 1986, 1993 and 2001. The Agreements were concluded among the governments of cocoa-producing and cocoa-consuming countries, under the auspices of the United Nations. The 2001 Agreement was negotiated at the UN Cocoa Conference in February 2001. This new 2001 Agreement has been open for signature and ratification on 1 May 2001 and entered into force on 1 October 2003. [236]

The 2001 International Cocoa Agreement excludes economic clauses and places greater emphasis on a sustainable cocoa economy. Through the creation of a Private Sector Board, the Agreement seeks the active involvement of the private sector in the achievement of its goals. It will also promote transparency in the world cocoa market through the collection, analysis and dissemination of relevant statistics and the undertaking of appropriate studies. Finally, the 2001 Agreement will strengthen the national cocoa economies of member countries through the implementation of a range of projects. [237]

Membership of the 2001 Agreement at 3 September 2003 comprised 28 countries, representing over 75% of world cocoa production and around 60% of world cocoa

[236] Facts about the International Cocoa Organisation available at http://www.icco.org/facts.htm 03-04-2004
[237] *Ibidem*

consumption countries. Countries that are not members of the Agreement often participate in meetings as observers.[238]

The ICCO is the main world forum for the gathering and dissemination of information on cocoa, for the promotion of cocoa research and studies of the economics of cocoa production, consumption and distribution and for the encouragement of development projects concerning cocoa. [239]

Smaller specialist Expert Working Groups exist to deal with specific issues. At present three such specialist groups exist dealing with cocoa quality, cocoa research and the environment, and cocoa stocks.[240]

As the 1993 and 2001 Agreements have no buffer stock provisions, liquidation of buffer stock cocoa accumulated under previous Agreements began in October 1993 and was completed in March 1998.[241]

6.2 The EU AND USA trade policies on Agriculture

The one factor that has the greatest effect on Agricultural produce from the developing countries is the agricultural policies of the developed countries.

74% of agricultural exports originate from the 14 most developed countries. This is mainly thanks to the active policies pursued by the main capitalist countries in the domain of world agriculture during the decades following the Second World War, which consisted in keeping a tight control over international raw materials prices (which are in fact at their lowest in the last 100 years), transforming, for better or for worse, entire countries into huge plantations and in subsidising their own agricultural sectors with massive injections of funding. In 2002 alone, the rich nations paid a total of 318 billion

[238] *Ibidem*
[239] *Ibidem*
[240] *Ibidem*
[241] *Ibidem*

USD in subsidies to their farmers, three quarters of which were used to keep prices low and generate surpluses for export.[242]

With respect to cocoa, the main reason behind cocoa-producing countries restricting themselves to mainly exporting beans - rather than manufactured cocoa, or the final product of chocolate - are the trade regulations on the European market. The EU 'protects' its market against the import of semi-finished and finished products by high import taxes. At the beginning of the 1990s, the EU used an import tax of 3 percent for cocoa beans and 16 percent for cocoa powder.[243]

Although lower import taxes were laid out within GATT (the General Agreement on Trade and Tariffs) in 1994, the position of power of the EU on the cocoa market has not been affected.[244]

The use of cocoa butter substitutes for the production of chocolate is also another factor having adverse effects on the cocoa producing countries. Traditionally, the European Union had forbidden the use of cocoa fat substitutes. When the United Kingdom, Ireland and Denmark, who do permit the use of fat substitutes, joined the EU in 1973, an exception was made for those countries. When Sweden, Finland and Austria became members, the same exception was made for them. The European Commission for this reason proposed to harmonise the legislation within the EU and wanted to allow the use of cocoa fat substitutes in all member countries.[245]

There has long been international debate on the use of cocoa butter substitutes. The European Union however finally implemented a Directive permitting the use of up to 5% of non-cocoa vegetable fats in place of the cocoa butter in chocolate.[246]

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[242] See The Cancun summit the WTO on the edge of the abyss ,By Luis Enrique Barrios, available at http://www.marxist.com/Globalisation/cancun_summit_mex.html 08-05-2004

[243] See the News Network of European World Shops, Food for Thought – Cocoa available at http://www.worldshops.org/activities/foodforthought/cocoa.htm 08-05-2004

[244] *Ibidem*

[245] See *ibidem*

[246] What is the Likely Impact of using cocoa substitutes in the Future?, published by the International Cocoa Organisation, available at http://www.icco.org/questions/buttereu.htm 09-05-2004

Elsewhere in the world there are different regulations regarding the use of cocoa butter substitutes, for example, in the USA, federal standards on labelling (developed by the US Food and drug Administration) allow only cocoa butter to be used in products sold as "chocolate". Products containing cocoa butter substitutes may not be sold as "chocolate".[247]

It is difficult to quantify accurately the effects of the EU Directive, which came into force in August 2003, but, prior to its implementation, the ICCO estimated that it would result in a total displacement of cocoa butter approaching 74,000 tonnes. This represents, in terms of loss in demand for cocoa beans, a volume exceeding 184,000 tonnes. This potential loss in demand for cocoa results in long term declines in production and consumption of cocoa and in cocoa prices and producer revenues. In 2005/6 cocoa productions would be 50,000 tonnes lower and prices about 8% lower representing a loss in revenue to cocoa producers of US$780m in constant 1995 terms.[248]

If there was to be worldwide adoption of the 5% allowance for the use of cocoa butter equivalents the impact could be double that of the implementation in the EU. The USA is the next biggest consumption group and it does not currently permit the use of non-cocoa vegetable fats.[249]

Fair-trading is however a growing concept which offers some benefits to the cocoa farmers.

Fair trade is not a new concept; the principles of fair trade were established in 1988 when Max Havelaar was set up in the Netherlands. The basic precepts of fair trade are that the product must have been traded in such a way that the primary producer gets a fair or better deal from the trade in the product; a portion of the purchase prices should be paid in advance to pre-finance the purchase of inputs by the supplier; and the fair trade company must enter into a long-term trading relationship with its supplier.[250]

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[247] *Ibdem*
[248] *Ibidem*
[249] *Ibidem*
[250] International Cocoa Organisation, Fair Trade Cocoa and Chocolate, available at http://www.icco.org/questions/fairtrade.htm 08-05-2004

The Fair Trade Labelling Organization sets the standard for cocoa and outlines the calculation of fair trade cocoa prices. The prices are calculated on the basis of world market prices plus fair trade premiums. The fair trade premium for standard quality cocoa is US$150 per tonne. The minimum price for fair trade standard quality cocoa, including premium, is US$1,750 per tonne. If the world market price of the standard qualities rises above US$1,600 per tonne, the fair trade price will be the world market price plus US$150 per tonne.[251]

With respect to cocoa, the Fair Trade Organisation (FTO) works with cocoa producer organisations in Africa and Latin America. At present, 11 producer organisations are certified by FLO within some Latin American countries and including Ghana[252] and Cameroon.[253]

The point of reference for FTO Certification are the International Fairtrade Standards. These Standards are developed by the FLO Standards & Policy Committee, in which stakeholders from FTO's member organisations, producer organisations, traders and external experts participate.
The FTO Fair-trade Standards are regularly reviewed by FTO, in close co-operation with all relevant stakeholders.[254]

The organisation of sustainable organic cocoa farming can make use of the experiences identified in the more prevalent fair trade practices for cocoa.

6.3 Structural Adjustment Programme and local cocoa politics

The main effect of the structural adjustment programme agreed upon between the Briton wood Institutions for cocoa production on countries like Ghana and Cameroon is that subsidies that hitherto were given to farmers for production have had to be cut. This has led to a reduction in the use of chemicals as pesticides or fertilizers, for cocoa production. It must be pointed out here that, marketing channels for cocoa as a commodity after the reforms under SAP however remained under full parastatal control of prices and marketing in Ghana,

[251] *Ibidem*
[252] See information on Kuapa Koko fair trade cocoa co-operative in Ghana
[253] See FLO Cocoa partners available at http://www.fairtrade.net/sites/products/cocoa/partners.html 10-05-2004

whiles in Cameroon, marketing channels for cocoa like coffee, remained under liberalised marketing and export[255] (Kherallah *et al.,* 2000). This move in Ghana is supported by the World Bank because of the premium which Ghanaian cocoa commands on the international market and also because of the negative experience of liberalisation in neighbouring countries with respect to quality control, reliability of delivery, forward sales and the predictability of export proceeds and taxes.[256]

An Allrefer.com source on cocoa in Ghana[257] has it that, government's initiative in reforming the cocoa sector in 1979, focused on governments role in controlling the cocoa industry through the then Ghana Cocoa Marketing Board. Further reforms however became necessary in 1984, which saw a reconstitution of the Board under its new and current name of Ghana Cocoa Board (COCOBOD). The reconstitution came with a reduced role of the COCOBOD; particularly, with the government shifted responsibility for crop transport to the private sector. Subsidies for production inputs (fertilizers, insecticides, fungicides, and equipment) were removed, and there was a measure of privatization of the processing sector[258] through at least one joint venture, among other institutional reforms. Further liberalization of the sector continued in the 1990s: In particular, the board raised prices to producers and introduced a new system providing greater incentives for private traders. In particular, COCOBOD agreed to pay traders a minimum producer price as well as an additional fee to cover the buyers' operating and transportation costs and to provide some profit. COCOBOD still handled overseas shipment and export of cocoa to ensure quality control. All cocoa, except that which is smuggled out of the country, is sold at fixed prices to the Cocoa Marketing Board. Although most cocoa production is carried out by peasant farmers on plots of less than 3 hectares, a small number of farmers appear to dominate the trade. Indeed, some studies show that about one-fourth of all cocoa farmers receive just over half of total cocoa income.

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[254] See http://www.fairtrade.net/sites/standards/standards.html 10-05-2004

[255] The Cameroon case started in 1994.

[256] See Agricultural Policy in Africa after Adjustment, CDR Policy Paper , Centre for Development Research, September 2000, Edited by Esbern Friis-Hansen at 25, available at http://www.cdr.dk/policypapers/agripol.pdf 11-05-2004

[257] AllRefer Reference-Ghana-Cocoa (1994 data): available at http://reference.allrefer.com/country-guide-study/ghana/ghana89.html 23-05-04

[258] Divestiture of the cocoa processing sector in Ghana actually took effect in 1999

As far as spatial distribution is concerned, the AllRefer source has it that, cocoa production occurs in the forested areas of the country-- Ashanti Region, Brong-Ahafo Region, Central Region, Eastern Region, Western Region, and Volta Region--where rainfall is 1,000-1,500 millimeters per year. Of environmental concerns is the fact that until the 1990s, the rate of converting land resources into cocoa production stood at 40 Ha/year, and that, the need to raise productivity to compete with South East Asian producer counterparts (from 300Kg/Ha to 1000 Kg/Ha) led to emphasis shift onto extension services, drought and diseases researches, and the use of fertilizer and insecticides.

Meanwhile, infrastructural development as far as transport and communication is concerned, the AllRefer source reports that the Ghanaian transportation and communications networks is being centred in the southern regions, especially the areas in which gold, cocoa, and timber are produced. The northern and central areas are connected through a major road system; some areas, however, remain relatively isolated. Of this transportation network, feeder roads continue to provide immediate access to the remote producing areas yet, with very fertile land for cocoa production. COCOBOD provides for the annual national budget (Road Fund)[259]to ensure that feeder roads in cocoa growing areas are maintained in a motor able state in order to facilitate evacuation of purchased cocoa from the various take-over points.

The deterioration of the country's transportation and communications networks has been blamed for impeding the distribution of economic inputs and food as well as the transport of crucial exports. Consequently, the first priority of the ERP was to repair physical infrastructure. Under the program's first phase (1983-86), the government allocated US$1.5 billion, or 36 percent of total investment, for that purpose and an additional US$222 million in 1987 for road and rail rehabilitation. In 1991 the Ghanaian government allocated 27 percent of its budget for various road schemes.[260]

[259] The Mini-CG Secretariat, 2002: Government of Ghana Economic Policy Framework Paper. P. 136.

[260] See http://www.AllRefer.com : reference data 1994.

Any analysis on cocoa politics in Ghana will not be complete without a presentation of the land tenure policy in Ghana. In this connections Darko, *et al*., 2000 and later, Darko, 2000, traced evidence of increase commercialisation of land and natural resource along a continuum of Pre-Colonial, Colonial and Post-Colonial regimes in Ghana. In this observation, a series and causative effects of increasing commercialisation influencing alliance between state authorities and local chiefs to marginalize stool subjects (community members) as far as access to resources and use of land is concerned occurred particularly starting from the colonial era. Further assertion is that, the issue marginalising a group of stakeholders may be of substance to influence reluctance on the part of the victims (individual farmers especially) towards land improvement measures under communal tenure (Darko, 2000). Of particular importance to our current study, is to assess cocoa production as it affects the environment and infrastructural development under these regimes. Not much difference is expected of these issues in term of Cameroonian situation, as both countries share similar structure of Pre-Colonial, Colonial and Post-Colonial state administration, and also common experiences in development policies, especially, the Structural Adjustment Programmes of the late Post-colonial era to date.

According to Amanor 1999, and Darko *et al*., 2000, the initial stages of the post-colonial era witnessed successive national governments, and for that matter, various state' interventions in policy, legislation and administrations of stool or communal lands. A concept evolved during this era, that gave overriding rights of the state to expropriate and disburse lands through appeal to " public interests and national development'. Government policies did not deviate much from this trend of alienation of local farmers' rights to use and benefit from land resources. It however, took place under a policy shift from national development towards private capitalist farming, and under this policy guide, the issue became affordability in terms of acquisition and land title registration, even to date. Of importance for the discussions of the role of government in our current study of promotion and standardisation challenges of organic cocoa farming, is the observation of how the concept of land expropriation and disbursement actions could be the influence behind the governments intervention of mass spray actions against capsid outbreaks.

Meanwhile, as reported in Darko *et al*., 2000 and Darko, 2000, the stool organisation as a land owning community is still functioning, under the national policy of Decentralisation as part of the overall Structural Adjustment Programme (SAP) introduced in the 1980s. This stipulates privatisation of parastatals and the establishment of joint Ghana and foreign capital operations. Legislations evolved[261] to this effect, that seem to open a new chapter for local chiefs to negotiate for joint ventures in their land resource expropriation that will bring benefit to all community members (Darko, 2000). In the view of Hammer, 1998,under the decentralisation policy of Ghana, not only is the District Assemblies expected to use community participation for the provision of social infrastructure, but also, community participation is increasingly being explored by commercial firms as mode of developing economic ventures with support of community, but without directly employing them. In our search for collaboration at all level for the promotion of organic cocoa production, such national policy will be needed to enhance joint efforts.

[261] For more on the policies, legislations and administration of stool land, readers may refer to: Amanor, 1996; Amanor, 1999; and Darko *et al*., 2000

7 PROMOTION OF SUSTAINABLE ORGANIC COCOA FARMING

In the previous sections of this work proposals have been made on how to overcome the difficulties involved in carrying out organic cocoa farming in the technical sense and recommendations for standard setting for this practice have been presented. This has also been coupled with the political issues involved in the cocoa sector, which highlighted obstacles to the cocoa sector in general due to the local and international status quo on cocoa politics and economics. In this chapter, the promotion strategy for organic cocoa farming will be the main issue to be focused on.

Any form of promotion will have to take into account the obstacles emanating from the status quo on cocoa politics and economics and the role that could be played by stakeholders who will inevitably be involved in the success or failure of this initiative.

These stakeholders will include the governments of the respective countries, Policies of the importing countries the local farmers, international business concerns, international and local certification bodies as well as local and International NGOs.

7.1 Government involvement

The role of the government in Cameroon or Ghana in promoting organic cocoa farming is crucial. However as already indicated in previous sections of this work, neither the government of Cameroon nor Ghana plays any significant role in the promotion of organic cocoa farming and it does not constitute any part of their agricultural policies. Rather as is the case in Ghana the government is reluctant to do so for fear of the spread of capsids. However the main parastatatal involved in the cocoa sector as already indicated has authorized certain areas to be reserved for organic cocoa production but itself is not involved in any of the processes. Rather the driving force behind this project seems to be an international NGO.

Despite the fact that the Structural adjustment programme existing in Cameroon and Ghana implies limitations on any form of government subsidies to the agricultural sector, this does nothing to stop such governments from being involved as the driving force towards policy making in the organic agricultural sector.

First of all this governments should realise the economic and environmental advantages involved in promoting organic cocoa farming and should make sure it is included in their agricultural policies.

The role of the government in this connection could be to, create contacts between local agricultural institutions and international organisations involved in organic farming, co-ordinate standard setting initiatives, promote the training of local extension workers who are to sensitise and educate the farmers on organic cocoa farming practices and can also help to look for international food processing companies who might undertake to purchase the farmers produce. The governments could also negotiate better trade terms for organic produce, with economic blocks like the like the EU and countries like the USA as well as agreements for the recognition of the organic farming standards for the cocoa they produce to the respective organic farming standards within EU or the USA so that they could have a wider access to the respective markets, for the organic cocoa.

7.2 Policies of the importing countries

The policies of the importing countries with respect to agriculture are also very important in order for organic cocoa farming to succeed.

The most difficult issue that will be encountered for cocoa to be sold as organic in either the USA or in any country within the EU, will be the recognition of the certificate indicating that the cocoa produce in question was grown using organic standards equivalent to theirs. In this connection, the policies within these trading blocks should encourage the creation of partnerships between their certification bodies and local organisations within Cameroon and Ghana. They could also negotiate agreements on standards for organic cocoa farming with Cameroon and Ghana.

The USA and the EU have been traditionally involved in the funding of projects in developing countries and funding for organic cocoa farming as well as promotion for research and development in this sector will be a good initiative on their part.

In a more pessimistic note, the uplifting of policies such as the excessive taxation for semi-processed agricultural produce by the EU, would have been of great economic

advantage for the cocoa producing countries. However looking at the state of affairs, it is unlikely that such polices will change in the near future.

7.3 International business entities

It is unfortunate that major players in the World processed food market, are not very much keen to promote organic foodstuff. However smaller players are taking advantage of this situation and creating a niche market for themselves.

Being small players in the market means they can easily deal directly with the local farmers as is the case with the UK based Green and Black Organic company involved with cocoa farmers in Belize and having certification carried out by the UK based soil association.

Neither Ghana nor Cameroon has any of such partners ready to buy all the organic cocoa specific group of farmers could produce even though both countries have better potentials to produce cocoa organically than Latin American countries. Therefore such overseas organic cocoa processing companies are hereby informed that there is the possibility to do better business in Ghana and Cameroon.

The premium prices paid for organic cocoa by such companies will also have to be maintained in order to serve as incentive for the potential organic cocoa farmers.

7.4 Certification bodies

Credible certification for organically grown cocoa is also very important for the promotion of organically grown cocoa. However it will be implausible to think of recognition of organically grown cocoa certified by local certification bodies. Certification can only be carried out in partnership with the certification bodies in the target countries for the cocoa produce.

This initiative can be enhanced by international business concerns involved with local farmers who could find it easier to create connections with the certification bodies in their

respective countries, to oversee that the process carried out by the local organisations meet up to their standards.[262]

ECOCERT, involved in preliminary stages for the certification of cocoa produced organically in Ghana, is a step in the right direction, but as indicated the market for the organic produce is wanting because business partners were not sought for before encouraging the farmers to go organic. Furthermore certification procedure in this case has not yet been carried out but only a single inspection of the farms.

7.5 Farmers

The farmers who constitute the backbone for any organic cocoa farming are however the weakest link in the chain. They are predominantly less literate and lack the ability on their own to farm using the rigorous methods required for organic farming. For this reason, farmers need to be organised in co-operatives or similar associations through which the know -how and co-ordination on matters related to organic farming would be carried out with them.

The farmers would also have to be convinced that premium prices are paid for cocoa grown organically in order for them to conform to such practices. They should be able to realise that there are economic and environmental advantages involved in them farming organically.

For the farmers to understand all these complexities involved in organic farming they will need to be assisted by extension workers either from the government or NGOs, who trained in organic farming practices.

7.6 NGOs

NGOs both national and international could also be very important in the promotion of organic cocoa farming. This could be through the dissemination of knowledge on organic cocoa farming practices and research and development in the same domain.

[262] See the example of the Green & Black and the Farmers in Belize for which the UK based soil association carries out the certification

In Ghana for example the role that is being played by the OCP In this domain is worthy of praise and more of such initiatives would be welcome in both Cameroon and Ghana.

8 CONCLUSIONS

Comparatively, our study describes existing (conventional) agricultural (food in general and specifically, cocoa) production system as being quasi organic on the basis of common knowledge of the methods and the use of local input such as crop rotation, intercropping of cocoa with food and other tree crops, organic and green manure etc. technically therefore, not much cultural shock in terms of compatibility with existing production culture, is expected from the adoption of organic methods. What remains formidable to be overcome in this regard however is the relatively complex nature of practices and the rigorous application of the prescribed standards and the rather plethora certification requirements and regulations. This is asserted to be a major obstacle for a continuous and rapid development of the organic sector. In effect, the standards and certification in organic practices were not planned to adapt and reflect the interests and conditions of the developing world producing countries. Looking at resources, financial and human, that it takes to this rectification; a condition that is said to be behind the certification needs of the OCP-Ghanaian organic cocoa production initiative, the onus rests on national governments to strengthening national extension services system as internal measures, to adapt these standards and certification to suit knowledge level of the end users in this case, cocoa farmers to facilitate the transfer and diffusion innovation of organic cocoa production. There is also the need for national government then to forge alliance, and preferably, seek regional collaboration with neighbouring producing countries, and support from organic-like minded organisation to seek the necessary accreditation and clearances for the marketing of their products for premium.

Considering the role of the national governments to these effects against the politics as a result of the role cocoa plays in the economies under consideration in this study, it will take a strong political will and a moral sense of serving the interests of a wider society to break the inertia behind the reluctance, as alleged in the Ghanaian issue of mass chemical spray against Capsid outbreaks, on the part of national governments to favour the conversion onto organic cocoa production. It will be admonished at this point and in line with the suggestion from Brenner that, national governments must see the need to convert

in the light of an integral move/action to solve/serve a longer lasting resourceful need of land for agricultural production needs.

As far as the mode of introduction and the need to maximise resources under organic cocoa production system are concerned, this study considers the rate of 40ha/year conversion of forests land into cocoa farms and the need for organic practices to contribute to the abatement of rampant shifting cultivation, to favour a focus on conversion existing farms to ensure sustainable organic cocoa production. Structural wise, the target should be community a unit of participation rather than scattered individual cocoa producers. This will favour harmonious practices and application of organic standards. The approach by the OCP-Ghanaian initiative of organic cocoa is therefore commendable in this study. The community approach will also afford the national opportunity for trial, and for impact assessment in order to determine the appropriate mitigational measures. The community approach will also focus effort as far as extension educational exchanges is concerned.

As to how organic farming methods are used to combat pest and disease, the Integrated Pest Management (IPM) approach has bee recommended in this study. In this regard, biological control methods should be the prior choice. As it were for the cotton case study, the greatest challenge remains the availability of the local biological and the organic materials in sufficient quantities. For the *Neem* extract treatment against Capsid outbreak such is practiced in the OCP-Ghanaian organic cocoa production, it is important to ensure readily availability of the *Neem* supply and wild sources cannot be dependable. There is therefore the need to research into the possibility of *Neem* Plantations, possibly, an agro forestry approach of maintaining on farm *Neem* trees in cocoa farms. The later approach in particular will limit pressure on diverse land use possibilities.

Perhaps, what may be seen as the greatest challenge are the economic concerns emanating from the need to prove economic relative advantages of conversion onto organic cocoa production. This is against the background of the fact that yield depression may be eminent with organic farming. In this situation, agricultural or cocoa subsidy

intervention will be necessary to mitigate the internal and immediate problems of farmer's income reduction whilst the long term and as a means of mitigating the national loss of revenue from the cocoa sector will be advocating and advertising for premium. In this wise, regional collaboration between neighbouring producing countries is recommended. The need for a push/advocate for premium market should be paramount on the agenda of the unified front that is to be sought for in such collaborations. This also has institutional implications such as discussed in the next paragraph

As far institutional responsibilities are concerned, it can be inferred from the states of organic farming so far gathered in this study from both Ghana and Cameroon that, hitherto, the initiative has largely come from NGOs and like-manner external/international environmental organisations. Such external initiatives however turn to emphasise the ecological/environmental concerns much to the neglect of the economic issue, although such premises as ecological order, economic, and social orders features prominently in their agenda. In this assertion, at least a clue can be taken from the Ghanaian situation where through the initiative of OCP's, farmers have committed their cocoa farm resources to the organic project yet; unaffordable cost of certification to the farmers has left them without premium for their produce. Contrary to such stand of the NGOs, at least the governments action of mass chemical spray in times of Capsid outbreak can be judged towards achievement of economic motive of protecting revenue from the cocoa sector much to the neglect of the environment. Wai and Panyakul pose the issue under discussion this way: " can a holistic production system thrive without a holistic trading system and social fabric? To present a credible global alternative, we need market systems that not only accommodate differences in land resources, scale, agro-ecological conditions and national economies, but also address the shrinking number of farms, unemployment, rural poverty and food insecurity. (Wai and Panyakul, 1999). In this study of ours we advocate for such concerns as presented in the view of Wai and Panyakul to influence the interests of all stakeholders and relevant institutions: private sector, farmers, national governments, NGOs and other international organisations. Such concerns should guide their responsibilities, as the various stakeholders seek their interests in advocating for organic practices. In the ongoing debate at the Copenhagen Consensus, we will advocate for donor support yielding to

payments of economic prices for goods from developing countries as a better option for sustainable development.

In perspective for further research/study and development, there is the need to conduct a case study of cost benefit assessment involving the socio-economic and ecological impacts of organic cocoa farming. This will enable the determination extent of impact, the necessary remedial actions and the national policy, planning and regulations for intervention. It is also acknowledged that our suffered a deficit of primary information especially from the demand perspective of organic to evaluate adequately, the prospects of the economic incentive in the form of premium prices for the organic products. We recommend that future studies should make room to fill this gap in our study.

The market for organic food in general is on a steady rise for how long is this going to last we cannot tell. With regards to produce made from organically grown cocoa there is also nascent interest that has prospects to increase with time.

Sustainable organic cocoa farming apart from the environmental advantages also has the economic advantage of reducing the cost of cocoa production for farmers, because it will limit the use of chemicals, though this will require more labour input. The farming of cocoa has practically been organic ever since the governments could no longer subsidise cocoa farming in Ghana and Cameroon. The challenge therefore is to take advantage of this situation and put in place credible certification regimes so that the farmers can get premium prices for the organically grown cocoa while at the same time environmental advantages are obtained.

However to get African cocoa farmers especially those in Cameroon and Ghana involved in certified organic cocoa farming involves a lot of challenges.

-The governments and the farmers have to be convinced it is something a positive.

-The farmers who are predominantly illiterate will need to be assisted by extension workers.

-The local initiatives on organic farming will need to be assisted by international partners. This assistance should be especially related to certification, business partners and assistance in research and development.

- research and development on organic farming practices will be very important.

If the trend of paying premium prices for organically produced crops evolves then the prospects for cocoa farmers in Cameroon and Ghana to get involved in organic cocoa farming will be high. This is a crucial factor that will determine the success or failure of organics cocoa farming in Ghana and Cameroon.

The initiative to promote and standardise sustainable organic cocoa farming in Cameroon and Ghana would seem to have economic advantages in the short term. But such prospects cannot be guaranteed in the long term because of the volatility that has existed in the cocoa market and the uncertainty of the long-term interest for consumers to pay premium prices for organically produced foodstuff.

The promotion of organic cocoa farming is also very important because with a gradual increase in the price of cocoa at the World Market, the situation might return to the precarious situation of the past where farmers would be able to return to the hazardous use of chemicals which according to their understanding will improve their yields.

Therefore there is all justification to embark on a project to promote and standardise organic cocoa farming in Cameroon and Ghana.

Even in the event that the farmers are unable to sell their produce as organic or if premium prices are no longer paid for organically grown cocoa, there will still be the market for it as ordinary cocoa beans. This way at least an environmental purpose will have been served.

LIST OF ABBREVIATIONS IN ALPHABETICAL ORDER

AMS (Agricultural Marketing Service)

COCOBOD (Cocoa Board)

CRIG (Cocoa Research Institute of Ghana)

CSSV (Swollen Cocoa Shoot Virus)

EASARD (Ecumenical Association of Sustainable Agriculture and Rural Development

EC (European Community)

EU (European Union)

FTO (Fair Trade Organisation)

GATT (General Agreement on Tariffs and Trade)

GOAN (Ghana Organic Agriculture Network)

GOPDC (Ghana Oil Palm Development Company)

IBS (International Basic Standards)

ICCO (International Cocoa Organisation)

IFOAM (International Federation of Organic Movements)

IOAS (International Organic Accreditation Service)

MOU (Memorandum of Understanding)

NGO (Non Governmental Organisation)

OCP (Organic Commodity Products)

OSP (Organic System Plan)

SAP (Structural Adjustment Plan)

TOFA (Traditional Organic Farmers Association)

USA (United States of America)

USD (UNITED STATE OF AMERICAN DOLLARS)

UK (United Kingdom)

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