The situation of cocoa production in Uganda
First consultancy progress report for the ADC/IDEA Project

November 2000

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CIRAD-Cocoa Programme

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EXECUTIVE SUMMARY

1. In an effort to expand and strengthen non-traditional agricultural exports in Uganda, the IDEA project selected cocoa as one of the five crops with strong export potential. National exports of cocoa have risen sharply over the last 5 years, from 900 tonnes in 1995 to 3000 tonnes in 1999/2000, in spite of low international prices.

2. IDEA officials have been concerned by the issues of the international competitiveness of the Ugandan cocoa sector and of ways to strengthen the impact of the Project in the short (and medium) term. The objectives of the service provided by the CIRAD expert were therefore fixed as follows:

- Review the current situation of the cocoa production sector in Uganda; assess international competitiveness, and prospects for future development of the sector
- Recommend improvement in agronomic practices
- Review the Cocoa Production Manual developed by IDEA and contribute to the elaboration of adequate training materials

3. To achieve these objectives, three visits to Uganda have been programmed. This report relates to the first visit, which took place from 19th to 30th November 2000

4. The perceived situation of the cocoa sector in Uganda can be summarised as follows:

Strengths
Good soil and climatic conditions for cocoa production
Low labour costs (800 to 2000 UShs /man.day; equivalent to US $ 0.45 to 1.1)
Land availability (mainly replacement of coffee or banana farms)
Limited pest and disease pressure

Opportunities
Coffee wilt disease stimulates farmer interest in Cocoa
"Niche" market strategy possible
Expansion of production while there is a recession in other producing countries (because of low international prices)→ Ugandan farmers will be in a better position when prices recover
Effort to improve exports can benefit cocoa (eg: reduction of freight costs between Kampala and Mombassa or Dar-El-Salam)
Favourable prospects for cocoa prices on international markets (deficit production/consumption)

Weaknesses
Few research results available for extension
Lack of planting materials with improved characteristics
Low/average cocoa quality (mouldy beans, small size)
Lack of incentive for high quality cocoa: absence of control, little information from the middlemen, no laboratory facilities

Risks
Social/political disturbances affecting production (Bundibungyo), trade and export
Price of cocoa remains low
Extension of *Verticillium* disease (on non-improved germplasm)

5. For the IDEA Project, this diagnosis, which needs to be confirmed, suggests various types of intervention to promote cocoa production in Uganda. Some activities could be valid in all cocoa growing areas (improve marketing, improve cocoa quality, train farmers in shade management, organise anti-mirid treatments, control rodents, etc.), others would be district-specific (soil fertility in Iganga and Mukono, control of monkeys in Hoima, etc.).

6. During this visit, "on the spot" training was also provided by the consultant for CDP officers and farmers, in response to specific questions or observations. The main topics were: cocoa pruning and shade management, anti-mirid treatment, assessment of soil texture and structure, disease control (*Phytophthora sp., Verticillium sp.*), cocoa fermentation, assessment of cocoa quality through the cut test. The Cocoa Manual prepared by CDP and IDEA officials was also reviewed and commented on during the visit.

7. For the next visit to Uganda, more time should be dedicated to the study of relations between exporters, middlemen and farmers, to the potential of the National Cocoa Association, and to the evaluation of soil fertility (in relation with climatic conditions) especially in the traditional coffee growing areas where cocoa is not yet significantly grown (such as Mubende, Mpigi, Kibale or Masaka districts)

8. In preparation for the next visit, cocoa samples will be analysed by CIRAD (and results sent to IDEA), contacts will be made to update information on wilt (*Verticillium* sp.), cocoa germplasm available in Uganda (identification of the clones used in the former seed gardens), and opinions of cocoa users in Europe. In Uganda, it is proposed to finalise the Cocoa Manual and establish contacts for the subsequent visit. The possibility of hosting a field day / training course on post–harvest treatments and quality assessment (with CDP officials, farmers, UCA delegates) during that visit should be examined.

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This progress report was drafted in accordance with the terms of reference in the contract between CIRAD France and Chemonics Inc. USA, to provide consultancy services to the Agribusiness Development Centre/ UsAid funded IDEA Project in Uganda. (see terms of reference in annex)

Context and Objectives of the Consultancy Mission to the ADC/IDEA Project :

In an effort to expand and strengthen non-traditional agricultural exports in Uganda, the IDEA project selected cocoa as one of the five crops with strong export potential. National exports of cocoa have risen sharply over the last 5 years, from 900 tonnes in 1995 to 3000 tonnes in 1999/2000, in spite of low international prices.

IDEA Project support to the cocoa sector mainly covers funding of the CDP (Cocoa Development Programme, Ministry of Agriculture, Animal Industries and Fisheries) for the establishment of demonstration plots and the training of farmers in good management practices. Some funding is also allocated to research activities through NARO (National Agricultural Research Organisation).

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To achieve these objectives, three visits to Uganda have been programmed. **This report relates to the first visit, which took place from 19th to 30th November 2000. It concentrated on the present situation of the cocoa sector in Uganda, outlining its constraints and potentials, and proposing certain priorities for intervention by the IDEA Project.**

The consultant wishes to thank IDEA officials for their support and for the organisation of the visit (especially for the transport and communication facilities). I am also very grateful to the CDP staff, in particular Mr Joseph Kimera, but also the many field and district officers who accompanied me during the visits to farmers and provided me with their insights on cocoa production in Uganda.

Timing and Itinerary of the visit :

19/11/2000 : Arrival in Entebbe; transport to Kampala

20/11/2000 : Kampala
- Meeting at ADC/IDEA project offices with Stephen Humphreys, Umran Kaggwa (both IDEA project), Joseph KIMERA (Cocoa Development Programme; Ministry of Agriculture, Animal Industries and Fisheries): review of the programme and itinerary, discussion on the state of the cocoa sector in Uganda
- Visit to Esco Uganda Ltd offices and warehouse (Philip Betts): cocoa quality evaluation and export procedure

21/11/2000 : Mukono District (with J. Kimera, S. Humphreys)
- Visit to COREC Kituza research station (Director : Denis T. Kyetere): post-harvest facilities, nursery, cocoa rehabilitation plot.
- Nkokonjeru: cocoa station and CDP nursery
- Kijjudde: tour of cocoa Estate

22/11/2000 : Mukono District (J. Kimera, Umran Kaggwa)
- Kasawo sector: CDP cocoa nursery; visit to cocoa farms and demonstration plot; meeting with farmers and cocoa buyer
- Kitigoma sector : visit to cocoa farm

23/11/2000 : Jinja District (J. Kimera, Umran Kaggwa) :
- Kagoma sector : CDP nursery and cocoa farm
- Nakakulkwe sector : visit to cocoa farm
- Ndiwansi sector : visit to a cocoa farm and discussion with a group of cocoa producers
- Nawanyago sector : CDP nursery

24/11/2000 : Iganga District (J. Kimera)
- Buyarniwa sector : Ikulwe Cocoa nursery (CDP); Demonstration plot and discussion with group of cocoa producers
- Bukawongo sector: CDP demonstration plot and visit to farmers

25-26/11/2000 : Kampala (work on documents and progress report)

27/11/2000 : Hoima District (J. Kimera)
- Bulindi sector: CDP nursery
- Kiryangobe sector: CDP nursery, cocoa farm and CDP demonstration plot ; meeting with farmers of the Bunyoro Cocoa Farmers Association

28/11/2000 : Hoima District (J. Kimera)
- Kiziranfumbi sector: visit to cocoa farms, CDP nursery and meeting with cocoa producers
- Muteme sector: visit to cocoa farm
- Butema sector: visit to former seed-garden

29/11/2000 : Return to Kampala
Work on progress report

30/11/2000 : Wrap-up meeting with IDEA officials (discussing main conclusions, establishing priorities for next visit)
Meeting with J Kimera (CDP) and .....(IDEA) : review of Cocoa Manual
Departure for London and Montpellier

Description of the Ugandan Cocoa sector

According to former studies (Stevenson 1996, ClearConsult 2000), 80 % of Ugandan cocoa comes from the districts of Bundibugyo, Hoima and Mukono. These were therefore the districts visited as a priority, but due to security problems, it was not possible to travel to Bundibugyo district. Instead, visits wera also made to the cocoa growing areas of Jinja district and Iganga district.

Some characteristics of cocoa growing in these districts are indicated in table 1 (these data, based on estimates, often differ from one source to another, especially for yields):

District	Hoima	Mukono	Jinja	Iganga
Number of cocoa farmers	1300	2100	400	1000
Area under cocoa (acres)	2900	5700	1000	2100
Area per producer (acres)	2.23	2.71	2.50	2.10
Average yield (Kg/acre)	190	211	110	262

(source : E. Mwesigwa draft report to ADC/IDEA Project, November 2000)

The visits to the cocoa growing areas (inspection of cocoa farms, nurseries and demonstration plots) and discussions with numerous cocoa farmers and CDP officials, together with the consultation of existing documentation, led to the following understanding of the Ugandan Cocoa Sector.

Agroclimatic conditions

This characterisation of climatic conditions in the cocoa growing areas of Uganda is based on climatological statistics collected at many stations across the country up to 1973 (data provided by IDEA officials). These data were used for lack of reliable recent climatic statistics.

The diserable climatic conditions for cocoa production are (according to G Wood and T Lass, 1985):
- Minimum rainfall of 1250 mm per year (preferably 1500 mm), with no more than three consecutive months with less than 100 mm per month
- Temperature varying between 18°C (mean minimum) and 32°C (mean maximum)
- Absolute temperature minimum of 10°C
- No persistent strong wind.

It should be noted that cocoa can be grown in areas with different climatic conditions but with special management of the crop (wind break, irrigation, etc.) and that the rainfall pattern has to be evaluated in its interaction with the soil (water reserve) and radiation (potential evaporation) characteristics.

In this first approach, it was considered that low temperatures (due to altitude) and insufficient rainfall could be the main climatic constraints for cocoa growing in Uganda. Attention was drawn to the average minimum temperature, the total annual rainfall and to the extent of the dry seasons: number of months per year with less than 50 mm of rain per month, number of months per year with less than 100 mm per month, number of consecutive months with less than 100 mm per month.

Table 2 : Some climatic indicators of regional suitability for cocoa growing

Districts	Weather station	Average minimum temperature (°C)	Total annual rainfall (mm)	Number of months < 50mm	Number of months < 100 mm	Number of consecutive months < 100 mm	Suitability for Cocoa growing
Zone 1 :							
Bundibugyo District	Fort Portal (alt 1500 m)	12.9	1487	1	5	3	Yes
Kabarale District	Kasese (alt 959 m)	16.3	970	3	7	4	Questionable
Kasese Districyt	Rukoki (alt 960 m)	17.1	930	5	7	4	No
	Katwe (alt 1250 m)		810	4	10	6	No
Zone 2 :							
Hoima District	Hoima (alt 1158 m)	16.5	1435	1	4	3	Yes
Masindi District	Masindi (alt 1146 m)	16.8	1304	2	4	3	Yes
	Nakasongola (alt 1400 m)		1041	3	6	4	No
	Kiyandongo (alt 1350 m)		1274	2	5	3	Questionable
Zone 3 :							
Mukono District	Kawanda (alt 1196 m)	15.9	1218	0	5	3	Yes
Jinja District	Kituza (alt 1219 m)	15.1	1610	0	4	3	Yes
Iganga District	Jinja (alt 1175 m)	16.4	1321	0	7	4	Yes
Zone 4 :							
Mubende District	Mubende (alt 1553 m)	15.8	1218	1	5	3	Yes
Mpigi District	Kiboga (alt 1300 m)		1182	1	6	4	Questionable
Luwero District	Bukalasa (alt 1200 m)		1309	1	5	3	Yes
Zone 5 :							
Masaka District	Kibanda (alt 1159 m)	13.6	888	5	8	4	No
Rakai District	Masaka (alt 1450 m)		1120	5	7	4	No
	Mpanga Forest (alt 1350 m)		1361	1	6	4	Questionable

It is interesting to note that climatic conditions are not a limiting factor for cocoa establishment and production in several districts where this crop is already grown, but also that cocoa cultivation could be extended in the coffee growing areas of other districts (at least part of them).

These indications need to be confirmed by further investigations taking in account:

1. possible changes in climatic pattern since the 70s, and
2. local soil characteristics.

Observation of the vegetation and of several soil profiles (to assess soil texture- especially clay content - and soil structure – especially porosity and presence of obstacles to root development) confirmed that soils in the cocoa growing areas can be considered as moderately to highly suitable for cocoa cultivation (see also Stevenson ,1996). Attention should nevertheless be drawn to the some cases of depleted soil in the Mukono, Jinja or Iganga districts, especially after many years of continuous coffee/annual crop cultivation with no or little use of fertilisers. In Iganga, some fields are also unsuitable for cocoa growing because of very high sand content, or because of the presence of a superficial hard pan (laterite concretions).

Cocoa Cropping Systems in Uganda

In the districts of Uganda visited in November 2000, two types of cocoa fields are dominant:

- mature (and sometimes senescent) cocoa trees, in production, most having been planted between 1965 and 1975
- young cocoa trees, mostly planted after 1995, often associated with coffee, banana and food crops

Even though CDP nurseries were also distributing cocoa plants in the late 70s and the 80s, very few new cocoa farms seem to have been created in those years. It is assumed that cocoa seedlings distributed at that time were mainly used for replacing dead or missing trees in older cocoa farms.

The first type of cocoa fields (mature cocoa) has been described adequately in the C. Stevenson Report (Stevenson, 1996): density, shade, disease and pests, etc. In these fields, farmers are now actively replacing dead or missing cocoa trees, generally using seedlings provided by the CDP nurseries.

The second type of cocoa field is a more recent phenomenon and is characteristic of the renewed interest of farmers in a crop which suffered much from an inadequate marketing system and from instabilities through the 70s and early 80s.

The reasons expressed by farmers for deciding to plant cocoa are as follows (farmer opinions, by decreasing order of frequency):

1. to replace coffee affected by wilt disease (cocoa is considered to have the same soil/climatic requirements as coffee, and it is not affected by Coffee Wilt Disease); in Hoima district, cocoa was also chosen to replace bananas (affected by an unidentified wilt disease)
2. if the climate is good, cocoa gives money nearly all through the year, unlike coffee (once a year) or annual crops
3. cocoa needs less work than other crops (e.g. coffee), especially for weeding (once established)
4. cocoa price is higher than coffee price (depending on the sectors the farm-gate prices fluctuate around 350 to 500 UShs/kg cocoa compared with 200 to 400 UShs/kg dried coffee cherries)
5. cocoa is a perennial crop, it can provide income for many years without too much effort (unlike banana, which needs a lot of attention to keep it producing for many years): "some trees planted in 1968 are still producing well now !"
6. there is a good and ready market for cocoa (unlike at the time of the state monopoly)
7. during the establishment phase, cocoa is easy to intercrop with banana and other annual crops
8. cocoa beans can be dried in a maximum of one week, when coffee cherries need up to two weeks
9. cocoa seedlings are given free of charge (coffee seedlings or clones have to be bought)
10. with annual crops like maize, the risk of failure (low yield) is higher: there could be a short drought at the wrong moment; and farmers may not be available to perform the required tasks on time.

Even though it was not mentioned by the farmers interviewed, it is clear that the fact that the ADC/IDEA project is giving support to CDP activities is giving farmers confidence in this crop.

Characteristics of these recently established cocoa farms :

- These new cocoa farms have mostly been established to replace coffee farms. Cocoa trees are planted next to dying or dead coffee trees (wilt), or between rows of (yet) healthy coffee trees. It seems that farmers do not intend to intercrop coffee and cocoa but are convinced that all the coffee trees will eventually disappear because of Coffee Wilt Disease.
- Cocoa is also established on food farms (banana, cassava), or on "empty" land: in Iganga district, these areas are mainly recent grass fallow; in Hoima district, cocoa extensions are set up on old bush fallow and in degraded forest (near rivers).

- As is the case on mature cocoa farms, cocoa is generally planted at a density of 1100 plants/ha (3m x 3m spacing), with temporary banana shade.

- Regular and adequate permanent shade has to be established with the introduction of Muzizi trees (Maesopsis eminii) at a spacing of 12m by 12m. This recommendation is widely accepted by cocoa farmers (they use their own Muzizi seedlings or seedlings provided by CDP). The planting of *Terminalia sp* trees for permanent shading of cocoa was also seen.

- The germplasm used for these farms is a local selection, made by CDP officials (for the CDP nurseries) or by farmers (seeds sowed directly in the field, technique known as "planting at stake"). The seeds come from pods harvested on trees showing no sign of disease, and producing big pods, with large beans. Bean size seems to be a more important selection criteria than productivity (at least for CDP officials). Some farmers have expressed their preference for trees of the Trinitario type and some Upper Amazon types, for their high productivity and bean size. From the visits made to some of the old cocoa farms planted with hybrids from Kituza seed gardens, it appears that these trees have good potential. The possibility of using trees selected from these old cocoa fields as a local source of "improved" germplasm needs to be investigated.

- On these new cocoa farms, diseases are not very prevalent (unlike on mature cocoa farms where *Verticillium* wilt and *Phytophthora* black pod can be a constraint in some sectors). Pests, and especially mirids are the main concern of the farmers. The cocoa trees should be protected against mirids as soon as they start bearing (year 2 or 3), since the insects will feed on these fast growing trees not yet protected by a closed canopy and sufficient permanent/temporary overhead shade. This raises the issue of the choice of pesticides (Dursban is used by farmers) and the availability of motorised or knapsack sprayers.

- "Vermin" (monkeys, baboons, squirrels and rats) is a major problem on mature cocoa farms, but it is less pronounced on the new cocoa farms. It requires special attention in Hoima district.

In various meetings with cocoa farmers, their attention was drawn to potential problems with growing cocoa in Uganda:

- When replacing coffee with cocoa, it has to be noted that intercropping with food crops will only be possible during the establishment phase (first 3 or 4 years). When cocoa trees are fully developed, they produce a closed canopy under which traditional food crops (maize, beans, matoke bananas, etc.) cannot be grown.

→ farmers seem to be aware of this and do not plan to establish cocoa in all their fields; they intend to keep some land for coffee or annual crops. This necessary balance between cocoa and other crops will require special attention in sectors with high levels of land saturation, such as some counties in Mukono or Jinja Districts. It is not so important in Hoima District where farmers still have uncultivated land available.

- Cocoa has higher soil and climatic requirements than coffee, especially during the establishment phase: cocoa needs a deep and rich (high organic matter content) soil, and cannot be established in sectors with a long dry season.

→ farmers know the importance of good maintenance (weeding), soil preparation (holing) and shade management during establishment (eg: cocoa planted close to bananas) and the production phase (adequate density of Muzizi trees), in reducing the effects of water stress; in poor coffee soils, some farmers are improving soil fertility with compost (coffee husks, manure) and by planting leguminous crops (such as beans) or shrubs (*Caliandra* sp.), but further studies are needed since the efficiency of these practices is not known (Are leguminous plants actually fixing nitrogen under Ugandan conditions? what are the recommendations for mulching ? for a cover-crop ?).

Post-harvest treatment and quality

From 1972 to the mid 80s, fresh cocoa beans were delivered by farmers to CDP centres where box fermentation and artificial drying (Samoa oven) was carried out. All these installation have since broken down, and nowadays cocoa in Uganda is generally fermented in heaps and sun dried. CDP officials have recently started demonstrating the use of fermentation boxes, but this technology is not yet widely adopted.

Several samples of cocoa beans were collected in the various districts and will be analysed by the CIRAD laboratory in Montpellier. This will provide IDEA with an independent evaluation of the quality of Ugandan cocoa (cut test and fat content). The results will be sent to IDEA as soon as they are available.

From the field visits, it appears that the quality potential of Ugandan cocoa is good, but several defects were identified :

- Production of small beans (less than 100 g for 100 beans) during part of the year. This is related to the occurrence of water stress during the pod development process (dry climatic conditions in several districts). On the world market, small beans fetch a discount price, since they have a higher shell:cotyledon ratio. This problem can be minimised in the short term through adequate shade management (to reduce the stress), and in the long term by the adoption of cocoa varieties with a larger bean size. It should be noted that the existence of small beans does not prevent Ugandan cocoa from competing on the world market (Indonesia exports more than 300,000 tonnes of relatively small grade cocoa), and that the irregularity of bean size (some small, some large) within one shipment can be a major problem for the grinding industry.
- A high level of mouldy beans (sometimes more than 10%), especially with cocoa from Bundibungyo district. This is related to inadequate drying and/or storing of incompletely dry cocoa. The occurrence of mouldy beans is a very serious defect, and can make the cocoa improper for the chocolate industry. CDP officials have started demonstrating the use of papyrus drying mats on a raised wooden platform to ensure that the beans are well ventilated (faster drying), not in contact with humid soil or dirt and easy to collect and protect in case of rain (fold the mat).
- Irregular or insufficient fermentation (high purple bean content, existence of slaty beans). The CDP recommendation is to ferment for 7 days and to turn the heap (mix the beans well and reform the heap) every two days, but many other practices were observed: only one turning , and too late (after 4 days); over-frequent turnings (after 2, 4, 5 and 6 days); first turning too late (first turning on day 5, then every day until day 8); 9 days' fermentation, etc. Farmers should be trained how to identify when their cocoa is fermenting correctly, whether it is in heaps or in boxes.

Harvesting of over-ripe pods (high risk of germinated beans) was also observed locally.

It should be noted that quality improvement will rely on adequate training of the farmers, but adoption will only be achieved if local buyers start caring for the quality of the cocoa they buy (not only the water content) and offer price differentials to farmers.

Cocoa Farming Units

Since cocoa is only one of the many crops cultivated by these smallholders, it would be very worthwhile gaining a better understanding of the role of cocoa cultivation in the management of the household unit: total income and expenses, labour constraints, land availability, etc. This work was not feasible in the context of this consultancy, but some relevant information was collected.

In all the districts, the family is the main source of labour for farming activities. Family labour is complemented by casual labour, generally on a contract basis: 3000 UShs to harvest one acre of well-managed cocoa; 10.000 UShs to 25.000 UShs to slash one acre of coffee; 200 to 300 UShs to make a cocoa planting hole, etc. Labour costs are generally higher in Hoima than in Mukono, Jinja or Iganga, but they also fluctuate within a district (casual labour tends to be more expensive near the Sugar Estates, for instance).

The availability of land for farming activities differs between districts. It is highest for the cocoa farmers of Hoima. These farmers have larger total holdings, even though their average cocoa farm is no bigger than in the other districts visited (about 2 acres). Their farming system is more diversified (with production of tobacco, cotton), and they have more fallow lands. Logically, it is in Hoima district that a high proportion of farmers intend to extend their cocoa fields on uncultivated land (grass fallow and secondary forest), and not only to replace coffee (or banana) shambas with cocoa shambas.

Among the three districts visited in the central and eastern region of Uganda, it appears that it is in Jinja district that cocoa farmers have the smallest total holdings. This constraint leads to the absence of fallow and a high density of food crops intercropped with coffee trees. Maintenance of soil fertility and self-sufficiency in food crops can be problematic in this situation.

The Uganda Cocoa farmers Association

A national association of cocoa farmers, the Uganda Cocoa Association, has been created recently. Several members of UCA (especially the presidents of the district associations) were met during the field visits and the situation of UCA was discussed (though it was not among the objectives of this first visit).

The objectives of the associations, at local and national level, are clearly identified by the farmers:

- improve quality
- increase cocoa production
- establish buying centres with "cocoa sale days" to improve prices (farmers do not seem ready for community marketing of their cocoa, partly because of unpleasant experiences in the past)
- have more power to get help from government and donors

The means to achieve these goals are not clear and do not seem to have been debated between the farmers.

During discussions, it appeared that two difficulties affect UCA abilities to conduct activities in favour of the cocoa sector. First, the organisation of cocoa farmers is very much a Top-Down initiative: the national association of cocoa farmers was created in order to have a representative of the producers on the professional cocoa Board, together with representatives of exporters, the government, agricultural research, etc. The district delegates who have met at national level are not always representative of the average local producers and often not officially "empowered" to represent them.

The second weakness is that the local base for UCA relies on associations of cocoa producers, most of which are not registered (thus they have no legal existence) and are the "relics" of former co-operatives created in the 70s and 80s to help with crop marketing. These co-operatives are strongly criticised by the farmers and there is therefore a risk of UCA being associated with these former negative experiences.

Trade and export

There was not sufficient time durin this first visit to cover this important aspect of cocoa trade and export in Uganda. One cocoa exporter, Mr Philip Betts, Managing Director of Esco Uganda Ltd, and one cocoa buyer in Mukono (see annexe 2) were interviewed.

It appears that cocoa from Uganda benefits from an acceptable reputation on the world market and that international buyers would be interested in buying more of this origin, despite some quality defects: small beans during part of the year and existence of mouldy beans. Infestation of cocoa by mites (insects) has also been recorded in some containers.

Cocoa export also enjoys a liberal market, with no taxes, duties or levies. The handicap of being a land-locked country has been reduced in recent years by the strong competition between modes of transport (rail, road, boat) and by the possibility of exporting either from Dar es Salaam-Tanzania or from Mombasa-Kenya. (some of these improvements were made for coffee export but they can also benefit cocoa export).

As regards local buyers on a village and district level, two constraints were identified: the lack of differential prices depending on cocoa quality (no incentive: see annex 2) and the very low-farm gate price. In Jinja, Hoima and Iganga districts, there are sectors with very little competition between buyers (often only one buyer) and the price offered is only 300 to 350 UShs/kg, when the Kampala price (sale directly to the export warehouses) is about 600-650 UShs/kg. Whilst this situation can be explained in the case of Jinja district by the limited quantity of cocoa produced there, it is not the case for Hoima. With such a low price, farmers risk losing interest in cocoa, an opinion also shared by the exporter interviewed.

The reasons for such a large difference between the Kampala price and the farm-gate price are not clear. According to the February 2000 report by ClearConsult to the IDEA project, the producers' share of the FOB price which was about 73% to 75% from 1996 to 1998, fell to 42% in 1999!

Considering the importance of the farm-gate price for the profitability of cocoa production and the need to establish incentives for the production of good quality cocoa, it is proposed to pay more attention to this aspect of trade during the next visit. Contacts should also be made with European cocoa buyers, to obtain their opinions on the demand for Ugandan cocoa.

Cocoa Extension Services: CDP activities

Two sets of CDP activities were reviewed during the visit : cocoa nurseries and demonstration sites.

The nurseries are generally in good condition (especially considering the limited resources allocated to CDP), and show the considerable experience of CDP staff in this matter.

The problems to be corrected at some sites are:

- Bags filled with an inappropriate soil. Since most CDP nurseries have been operating at the same sites for many years, the local resource of high fertility topsoil has been totally exhausted. Since CDP nursery attendants do not have a means of transporting topsoil over long distances, it is recommended that locally available soil be supplemented with small quantities of NPK fertiliser (2 to 3 g/polybag). The total cost incurred by a nursery would be very small (one 50kg bag = about 30000 UShs per year)
- Lack of wind breaks, and side protection from the sun's rays in the morning and evening (sunshades)
- The present size of polybags and their layout is adequate for seedlings up to 6 months old. When seedlings have to be kept longer (from one year to the next), it will be necessary to re-classify the plants by size and give them more space between seedlings.

The demonstration plots provide a very good setting for training farmers in the required practices. But their ability to persuade farmers to adopti the technologies is restrained by :

- the lack of clear demarcation between trees to which technologies have been applied and those to which they have not. In most cases, the comparison relies on remembering how the plot was a few years ago,
- the lack of data on yield (with/without, or before/after) and on costs (making it impossible to assess the profitability of the technologies)
- the absence of "promotion" of the sites: no signpost, no colours on the trees (some plots are next to a road and their impact would be easily multiplied if the attention of passers-by were attracted).

Some farmers at the demonstration sites also benefited from wooden fermentation boxes and papyrus drying mats (on a raised platform). Farmers have contributed with the allocation of a small fermentary house for the boxes. This equipment is well designed, easily available (the cost of a 3mx4 m papyrus mat is only 1000 to 2000 UShs), and farmers are using it. Some identification of the site, to attract the attention of other cocoa farmers to what is being demonstrated, is advised.

Cocoa Research in Uganda

Cocoa research is conducted at COREC Kituza (Mukono district). Research on cocoa in Uganda started in the 1960s. However, subsequent political instabilities led to a halt in research at Kituza in 1973. No significant cocoa research results have been obtained at Kituza for many years.

In 1988, some hybrid seeds were introduced from Costa Rica and Trinidad, and planted on the island of Ddamba, to broaden the basis for cocoa breeding in Uganda. It appears that these seeds are uncontrolled hybrids from identified clones (mainly Upper Amazons and Trinitarios). The performance of these introduced seeds has so far not been evaluated.

There are currently 6 scientists and 8 technicians at the Coffee Research Centre (Corec- Kituza), dedicating most of their attention time coffee (especially coffee wilt disease).
Activities on cocoa include :

- evaluation of the germplasm introduced on the island of Ddamba
- establishment of a cocoa nursery at COREC
- rehabilitation of neglected cocoa (demonstration plot started in May 1999)
- survey of cocoa pests and diseases
- inventory of possible bio-control agents for pests and diseases
- testing of insecticides for pest control

The demonstration plot on rehabilitation of neglected cocoa is very promising, but no yield data are yet available since the work only started in 1999.

During this visit in November 2000, it was not possible to assess the condition of the COREC cocoa seed gardens. It should be programmed for the next visit (in 2001).

Training activities

"On the spot" training was provided by the consultant during the field visits for CDP officers and farmers, in response to specific questions or observations. The main topics were: cocoa pruning and shade management, anti-mirid treatment, assessment of soil texture and structure, disease control (*Phytophthora sp., Verticillium sp.*), cocoa fermentation, assessment of cocoa quality through the cut test.

The Cocoa Manual prepared by CDP and IDEA officials was also reviewed and commented on during the visit. A new version should be prepared taking in account those comments.

Conclusion :

- The perceived situation of the cocoa sector in Uganda can be summarised as follows:

  Strengths
  Good soil and climatic conditions for cocoa production
  Low labour costs (800 to 2000 UShs /man.day ; equivalent to US $ 0.45 to 1.1)
  Land availability (mainly replacement of coffee or banana farms)
  Limited pest and disease pressure

  Opportunities
  Coffee wilt disease stimulates farmer interest in Cocoa
  "Niche" market strategy possible
  Expansion of production while there is a recession in other producing countries (because of low international prices)→ Ugandan farmers will be in a better position when prices recover
  Effort to improve exports can benefit to cocoa (eg : reduction of freight costs between Kampala and Mombasa or Dar-es-Salaam)
  Favourable prospects for cocoa prices on international markets (deficit production/consumption)

  Weaknesses
  Few research results available for extension
  Lack of planting materials with improved characteristics
  Low/average cocoa quality (mouldy beans, small size)
  Lack of incentive for high quality cocoa: absence of control, little information from the middlemen, no laboratory facilities

  Risks
  Social/political disturbances affecting production (Bundibungyo), trade and export
  Price of cocoa remains low
  Extension of *Verticillium* disease (on non-improved germplasm)

- For the IDEA Project, this diagnosis, which needs to be confirmed, suggests various types of intervention to promote cocoa production in Uganda. Some activities could be valid in all cocoa growing areas (improve marketing, improve cocoa quality, train farmers in shade management, organise anti-mirid treatments, control rodents, etc.), others would be district-specific (soil fertility in Iganga and Mukono, control of mnkeys in Hoima, etc.).

- For the next visit to Uganda, more time should be dedicated to the study of relations between exporters, middlemen and farmers, to the potential of the National Cocoa Association, and to the evaluation of soil fertility (in relation with climatic conditions) especially in the traditional coffee growing areas where cocoa is not yet significantly grown (such as Mubende, Mpigi, Kibale or Masaka districts)

- In preparation for the next visit, cocoa samples will be analysed by CIRAD (and results sent to IDEA), contacts will be made to update information on wilt (*Verticillium* sp.), germplasm available in Uganda, and opinions of cocoa users in Europe. In Uganda, it is proposed to finalise the Cocoa Manual and establish contacts for the subsequent visit. The possibility of hosting a field day / training course on post-harvest treatments and quality assessment (with CDP officials, farmers, UCA delegates) should be examined.

Annex 1 :
Terms of references

CHEMONICS INTERNATIONAL INC.
AGRIBUSINESS DEVELOPMENT CENTRE
USAID-FUNDED IDEA PROJECT

Requisition Ref No. _____
Purchase Order No. 30

PURCHASE ORDER FOR SERVICES

I. Background

In an effort to expand and strengthen Non-Traditional Agricultural Exports in Uganda, the IDEA project selected Cocoa as one of the five crops with strong export potential. Over the past five years, exports have increased from 900 tonnes valued at $.64 million in 1995 to 3000 tonnes valued at $2.8 million in 1999. While world prices have dropped of late and it is difficult to encourage new growers, it is felt that targeted technical assistance and training will strengthen the existing producer base.

IDEA is currently funding a research activity through NARO (National Agricultural Research Organisation) to assess production potential of cocoa on Ddamba Island. CDP (Cocoa Development Programme) is training farmers in rehabilitation of abandoned farms and sound agricultural practices.

The major cocoa growing areas are Mukono, Iganga, Hoima and Bundibugyo districts. Farms in these areas are predominantly small-scale. The Uganda National Cocoa Producers Association (UCA) has begun the difficult task of organizing many of these small-scale farmers.

CIRAD (Centre de cooperation internationale en recherche agronomique pour le developpement) 2477, Avenue d'Agropolis, BP 5035, 34032 Montpellier, Cedex 1, France, has been working in several cocoa producing countries in West Africa for many years and has considerable in house expertise in the agronomy, post harvest handling and marketing of cocoa.

II. Purpose and Approach

The service provider will study the current systems of crop husbandry and recommend improvements in agronomic practices. The following areas should be addressed in detail:

- Choice of soil and site, and land preparation
- Plant breeding material and varieties, setting up nurseries if necessary
- Crop nutrition, to include choice and timing of inputs
- Irrigation
- Pest and disease control
- General husbandry of the plant, i.e. pruning, shade management, intercropping with other suitable crops
- Harvesting
- Post harvest handling and storage, covering all aspects of quality control
- Marketing

- Analyse the current yields and cost of production in Uganda to assess international competitiveness. Using benchmarks from West African and South American producers, CIRAD should propose realistic targets for Ugandan growers to achieve over the next few years.

Review of production manual

The service provider should review and comment on the current Cocoa Production Manual produced by IDEA.

III. Reporting

The contractor will report to:
Dr Stephen New
Horticultural Advisor
ADC/IDEA Project
Plot 18 Prince Charles Drive, Kololo, Kampala
Tel: 255482/3 Fax: 250360

IV. Deliverables

3 visits to Uganda will be completed during which the service provider will meet with producer groups, buyers and processors to determine weaknesses and conduct trainings, as necessary, that target improvement in deficient areas. After each of the first two visits the service provider will submit interim reports. After the third visit the service provider will produce training materials to be disseminated by IDEA project staff along with a final report outlining all the lessons learned and recommendations for the industry using other producer countries as the benchmark for the competitive analysis.

V. Timing and Duration

Three visits to Uganda will be made over the next year. The first visit will take place in November 2000. The following trips should occur in January and May 2001.

VI. Place of Work

The service provider will be based at the IDEA office in Kampala but will also spend time at the CDP and UCA offices. Considerable time will be spent in the field visiting farmers in the main cocoa producing areas.

Annex 2:
Interview with a local Buyer in Mukono District

Local buyer : Mr Lubwana Ben, cocoa buyer in Kasawo

→ His price paid to farmers is the Kampala price minus 100 UShs/kg
All the cocoa he collects goes to one exporter "because he is the one who gives a good price and pays quickly".

→ His costs :
- 20-30% annual interest on the money lent to him by his "friends"
- transport of cocoa from Kasawo to Kampala : 1200 Ushs /bag of 70 to 80 kg
- rent : 20000 Ushs/month for his buying shed in the village
- casual labour for cleaning (1000 Ushs/ 100 kg) and drying (500 Ushs/100 kg) the beans

The differential between the local price and the Kampala price, set here at 100 UShs (but in fact more than that: the Kampala price is about 700 Ushs, the local price 400 Ushs) seems too high, and seems to have increased from 98/99 to 99/00: why ?
→ needs further study

→ His marketing strategy :
He says competition is fierce, especially with the agents of the cocoa exporters who can pay 50 Ushs/kg over his price (also the coffee buyers involve themselves in cocoa when the market is good); but he retains his share of the crop because he is well known by the farmers, he is a cocoa farmer himself and he can lend money to his fellow farmers (maximum one month; amount depends on the quantity of cocoa that the farmer will later bring him)

→ Quality evaluation :
What he says : assess the "smell" of chocolate, break a few beans to see if the cocoa is fermented and dry; look at bean size (minimum 100 beans for 100 g). But it is difficult to reduce the price for bean size.
What he does :
- looks for mouldy beans; if he thinks there are too many, he prefers not to buy
- if the cocoa is not completely dry, he maintains the price but discounts on the weight paid.

Annex 3:
Farmer's memorandum on the situation of cocoa production at Kyriangobe, Hoima District

BUNYORO COCOA FARMERS ASSOC.
P.O.BOX 410,
HOIMA.

FARMERS MEMORANDUM TO THE USAID CONSULTANCY

INTRODUCTION:

Cocoa growing started in 1960's and intensified in the early 70's when it became a full project. Planting was however interupted by civial wars. This resulted into the destruction of the Infra-structure leading to poor extension and marketing. Efforts to rehabilitate the Cocoa Crop were launched by USAID/ IDEA Project in 1997 and this has given us a hopeful footing on which we stand even now. With these efforts Bunyoro Cocoa Farmers Association was born covering the areas of Hoima,Masindi and Kibaale. Here let me report that there were 1152 regestered farmers making a total of 1558 Ha by 1999.

CONSTRAINTS TO BE ADDRESSED:

With efforts to rehabilitate in 1997 geared by the Cocoa Development Project/USAID IDEA PROJECT the following were earmarked as major constraints to the Cocoa Industry

- Low Techenology
- Lack of comprehensive extension
- Vermin
- Poor Infra-structure for marketing shades and Office accomodation.

Here our guest of Honour, I am glad to report that the following have been done to improve on the above as from March,1998 with the help of IDEA Project.

1. TRAINING: This has been done to staff who had a 1 week training at Mukono D.F.I. Also a good Number of trainings has been held by the Headquarter staff for farmers and at least about 800 farmers have benefited. These trainings have covered crucial topics like Rehabilitation, crop main-

tanance, Harvesting and Processing. To this cause 2 demonstrations FIER have been established.

2. INPUTS: Nursery inputs - like polythene pots, Pangas, Slashers, Watering cans and Jericans have been supplied improving the Nursery work. Also 2 boxes and 2 Drying Trays were availed for demonstration to improve on quality. Here even some Nursery attendants have been employed.
With great hope when funds are released for the project we hope the following will be done.

1. More trainings to cover all the farmers.
2. To help improve staff mobility and ~~enrolments~~ Emoluments for a more comprehensive extension service.
3. Vermin - farmers were promised by IDEA Project that vermin control will be taken as a separate project and since that time farmers have been waiting. We hope the waiting will not be in vain. However vermin are still a major constraint.
4. Infra-structure. This was greatly affected by civial wars help is needed for repairs and renovation e.g the office block and the Kiryangobe Centre. Where possible also putting in place accomodation for staff and establishment of marketing shades in all the 9 ~~trying~~ Marketing centres.
5. More Nursery & Processing inputs to be availed to more farmers. This could help farmers who want to raise their own seedlings thus boosting production & quality.
6. Production Credit if availed would be of great help. Here we are hopeful for a revolving fund. This is also a special request to Government through the Director Cocoa requesting for cocoa to get her share from the Poverty Eradication Action programe (PEAP).

In conclusion we are grateful for what the Cocoa Dev.Project/IDEA have so far done to improve the Cocoa Industry. These efforts combined with the farmers response we are hopeful for a bright future of the crop. I however would like to reiterate the Moto that When farmers do more IDEA will do more. It is now up to us to see who is next to do more. I wish you a happy stay and good deliberations.

Byenkya.
(ANTHONY BYENKYA)
CHAIRMAN BUNYORO COCOA FARMERS ASSOCIATION