Republic of Ghana

MINISTRY OF MANPOWER, YOUTH AND EMPLOYMENT

Hazardous Child Labour Activity Framework

For the Cocoa Sector in Ghana

June 2008

1 List of Abbreviations

CCLMS	: Community-based Child Labour Monitoring Systems
CRC	: Convention on the Rights of the Child
FURDEV	: Future Resources Development
GCLS	: Ghana Child Labour Survey
GDP	: Gross Domestic Products
GHS	: Ghana Health Service
ICI	: International Cocoa Initiative
ILO	: International Labour Organization
IPEC	: International Programme for the Elimination of Child Labour
MMYE	: Ministry of Manpower, Youth and Employment
NCHS	: National Center for Health Statistics -USA
NGO	: Non-Governmental Organisation
NIOSH	: National Institute of Occupational Safety and Health-USA
NSC	: National Steering Committee
STCP	: Sustainable Tree Crop Project
TBP	: Time Bound Programme
TWG	: Technical Working Group
WACAP	: West Africa Cocoa and Commercial Agriculture Project
WFCL	: Worst Forms Child Labour

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DEDICATION

I dedicate this document to the following persons who deserve the credit for the publication of this document. I, however, take the responsibility for any shortfall observed.

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Contents

EXECUTIVE SUMMARY

Ghanaôs economy is agrarian. Agriculture accounts for about 50% of GDP with the major cash crop being cocoa. In recent times there has been increased pressure on cocoa producing countries from international media, consumer groups and the general public on the use of childrenôs time and energy in the cocoa sector, particularly in activities that may be injurious to their health, education and development. The Ghana Statistical Service (GSS 2003) estimates that about 1.3 million (20.3%) children between 5-17years are in child labour. Over 240,000 of these children are in hazardous child labour, 80 percent of which are in rural areas and engage mainly in activities in the agricultural sector.

Since 2000, MMYE, international agencies such as ILO/WACAP, ICI, STCP etc. and local NGOs began studying the phenomenon of Child Labour in the cocoa sector and found that childrenôs involvement in farm activities is widespread and diverse. They concluded that the varying rate of participation of children in farm activities described as hazardous, childrenôs own evaluation of their exposures to farm hazards and the subsequent health problems elicited is suggestive of presence of hazardous work. However, these studies could not adequately quantify the hazardous child labour because of the absence of an appropriate evaluating framework. The existing hazardous lists in Childrenôs Act and those defined operationally by the Technical Working Group (TWG) of MMYE and researchers were not only limited in scope but unsuitable for the uniqueness of agriculture which is characterized by varied and rapidly changing hazards to which children are exposed.

Due to the limitations of previous hazardous lists, the MMYE tasked the consultant to produce a comprehensive hazardous child labour list for the cocoa sector. The overall goal of this project is to develop a comprehensive, acceptable and contextually relevant Hazardous Child Labour Framework for Ghanaôs cocoa sector to drive research, interventions, monitoring and enforcement. The framework will facilitate identification, quantification and evaluation of hazardous child labour and raise credibility of future studies. It will also provide the best options for intervention and evaluation to safeguard the health, safety & education of the children.

Because this document will be read by variety of stakeholders some of whom have minimum knowledge in child labour, the consultant sought to lay firm foundation in the subject area. Further detail of the background information on child labour can be obtained in the literature review report of this document. The document also contains enough details to secure readersô understanding on the basic child labour concepts. This, it is hoped, will provide clear understanding of the issues & facilitate informed and dispassionate discussion on this sensitive subject.

The document started with an introduction highlighting the spectrum of childrenôs participation in work ranging from an apparently useful socialization to work which is damaging depriving children of their health education and development. The dividing line could be thin. International and national response to this damaging phenomenon gave the reason for this project. The background and justification for the project has been highlighted in the above. Chapter 3 then set the scene by reviewing the legal and policy perspective of child labour including the concepts of economic activity, light work, young

workers, child labour and worst forms of child labour and ILO Convention 138 on minimum age and ILO Convention 182 on the worst form of child labour (WFCL).

The document then describes the key methodology process in the development of the framework i.e. formulation the framework through exploratory literature review and validation through stakeholder consultations. Four out six cocoa producing regions were visited during which the project team interacted with farmers, children, school teachers and opinion leaders. Their inputs were solicited and acceptability and practicality of the framework was also tested.

To operationalise carrying weight of children, a small anthropometric research was conducted during the community consultation phase. Height and weight of children were measured, related to their age and disaggregated by sex. The difference in weight- for -age chart shows no statistical significant difference between boy and girls. The weight-to- age chart was then compared against the same for USA and UK children. Its results show clearly that children in cocoa communities were far less nourished than developed country counterparts. However, it was observed that early socialization into farm work makes rural children mature faster and stronger than children of comparable age in cities. In addition, an opportunist carrying weight survey was done. It was found that children were routinely carrying between 10-60 percent of their body weight equivalent loads. Considering the fact that alternatives to head portage are limited and that rural children mature faster in terms of strength, the permissible carrying for children in cocoa growing communities was stated at 30 percent body weight equivalent for carrying distances not exceeding 2 miles (3Km). Nearly 85 percent of cocoa households live within 2 miles of their farm. To operationalise this carrying weight standard, the 30 percent body weight equivalent was converted to typical weights of full loads of carrying baskets (small, medium and large) of cocoa loads; dry beans, fermented beans, and cocoa pods.

Other standards defined were the working age using the Childrensô Act that is 13 years for light work and 15 years for employment in non-hazardous work. The consultant however, observed that the legal setting of light work at 13 years was out of reality with cocoa communities. The intensity of work standard i.e. number of hours per day or hours per week was also determined considering the drudgery and accident prone nature of peasant agriculture. The intensity standard was then disaggregated into schooling days and non-schooling days (weekends and holidays).

The hazardous framework is designed to be as exhaustive and practical as possible with sufficiently precise guide for use in rapid assessment and interventions. It is organised in a logical crop calendar manner to facilitate understanding and easy dissemination. It is made of 17 hazardous child labour standards of prohibited activities and conditions of work, a list of permissible works related to appropriate ages and general recommendation for participation of children in cocoa agriculture. The list of prohibited work for children under 18 years (unless otherwise stated) in cocoa is as follows:

- Clearing of forest and /or felling of trees
- Bush burning
- Working with Agrochemicals i.e. Purchasing, transport, storage, use (mixing, loading and spraying/applying), washing of containers and spraying machine and disposal.

- Present or working in the vicinity of farm during pesticide spraying or re-enter a sprayed farm in less than 12 hours
- Using machetes/long cutlass for weeding
- Climbing trees higher than 3metres (9 feetôs) to cut mistletoe with cutlass
- Working with motorized mist blower, knapsack sprayer and chainsaw
- Harvesting overhead cocoa pods with harvesting hook
- Breaking cocoa pods with breaking knife
- Carrying heavy load beyond permissible carrying weight i.e. above 30% of body weight for more than 2 miles (3Km). See Table 10.
- Working on the farm for more than 3 hours per day or more than 18 hours per week (for children on weekends, holidays and/or have completed school).
- For children in school, working more than 2 hours/day on a school day
- Working without adequate basic foot and body protective clothing (e.g. long sleeves, trousers and óAfro Mosesô)
- A child working alone on the farm in isolation(i.e. beyond visible or audible range of nearest adult)
- Going to or returning from the farm alone or working on farm between 6.00 p.m. and 6.00 a.m.
- A child withdrawn from school during cocoa season to do farm work
- Working full time on farm and not attending formal / non formal school (**applicable to children under 15 years**)

The list of prohibited child labour standards was justified in terms of its impact on the health, education and morals of children. Other reasons the communities suggested for not engaging children in certain activities were recorded as behaviour change motivator to help in designing acceptable intervention messages.

Finally, a number of recommendations were suggested as the way forward for the hazardous framework. These included issues of policy implications; reducing minimum age for light work from 13 to 12 years and legally adopting the frame work to give it authenticity for application. Interventions such as development of training and educational materials, training of frontline workers and massively engaging the cocoa communities using culturally-sensitive strategies to maximise impact cannot be over emphasised. Moreover, there is need for farm safety initiatives aimed at reducing health risk and drudgery of farming through the development of simple tools. Some research gaps have been identified such as up-scaling the anthropometric research to further refine the carrying weight standard, development of valid research instrument and checklist from the framework for research, Community Child Labour Monitoring Systems (CCLMS) and labour inspectors.

The journey to eliminating the Worst Forms of Child Labour in cocoa has just begun. It is hoped that this document will enlighten legislators, policy makers, service providers, academia, regulators, law enforcement agencies, NGOs to take immediate and pragmatic efforts to eliminate WFCL from the Cocoa sector and other sectors in Ghana. Indeed, óchildren our future, cocoa our heritageô; so says the NPECLC motto. The time to act is now.

1.0 INTRODUCTION

Working to survive has been a necessity for human beings throughout history and all around the world. In traditional agrarian societies, everybody in the community had to share in the task according to ability and capacity. This applies to children and adolescents as a means of socialisation and learning the basic knowledge and skills for a productive adulthood. The poorer the family, the more important was the contribution children and adolescents made to the well-being and survival of the family. This is a fact for majority of the poor in the world for whom resources are seldom enough to cover basic needs. It has been agreed globally that it is not all work that is harmful to children. From a young age, many children help around the home in the forms of running errands or assisting their parents in the household chores, family farms or businesses. With increasing strength, ability and maturity, they get more involved in undertaking task taking light jobs or learning valuable traditional trades. In this way, children acquire the skills and attitudes they will need as future workers and useful members of the community.

However, there is a thin line between social orientation and child labour which may be difficult to decipher by the communities. In most societies, the integration of children into social and working life may be so gradual that it is not possible to separate the phases. Others demarcate childhood from adulthood either by fulfilment of certain social rites and obligations, or by age.

It is age that international instruments generally use to define a child. They accord the rights and protection of a child for those under age 18. These principles are enshrined in the United Nations Convention on the Rights of the Child (UNCRC) 1989, which states that ***'children everywhere have the right to survival and opportunity, to protection from abuse and exploitation and to a say in the decisions that affect them'***. The Convention is legally binding and its fundamental principles are non-negotiable.

There has been resurgence of international attention on child labour with growing public concern about the use of childrenôs time and energy, particularly in activities that may be injurious to their health, education and development. This has resulted in the adoption of international conventions and treaties to protect children from all forms of abuse and exploitation. Key among these are the UN Convention on the Rights of the Child, the African Charter on the Rights of the Child, ILO Convention Nos. 138 on Minimum Age for Employment and 182 on the Worst Forms Child Labour.

Ghana, recognizing the problem of working children has ratified all the above Conventions, except the ILO Convention 138, which is in the process of ratification. These international instruments have been given effect in the national laws, for a comprehensive national legal framework, for the protection of children. The national laws include the Childrenôs Act, 1998 (Act 560), the most comprehensive law on children, the Human Trafficking Act, 2005 (Act 694), the Criminal Code (Amendment Act) 1998, the Domestic Violence Act, 2007 and the Whistle Blowerôs Act 2007.

The ILO Convention No. 182 requires each country through tripartite arrangement to develop a list of hazardous sectors and activities guided by the ILO Recommendation 190.

The development of hazardous child labour list in the cocoa sector is one of such efforts by the government of Ghana to secure the future of her children.

2.0 BACKGROUND AND JUSTIFICATION

Thirtyï five percent (35%) of Ghanaôs population of 21 million is made up of children aged 5-17 years. Ghanaôs economy is agrarian with agriculture accounting for about 50% of GDP with the major cash crop being cocoa. The first nationwide survey known as the Ghana Child Labour Survey (2001) indicated that out of an estimated population of about 6.4 million children between the ages of 5 ï 17, about 2.5 million (39%) were engaged in economic activities and 1.27 million (20%) were involved in work that is considered as child labour and 242, 074 in activities considered as hazardous child labour. The research indicated that about 80% of child labour in the country occurred in the rural areas with 57% working in the agriculture sector.

In recent times, there has been increased pressure on cocoa producing countries in West Africa from international media, consumer groups and the general public on the use of childrenôs time and energy in the cocoa sector, particularly in activities that may be injurious to their health, education and development. Thus, the issue of child labour is increasingly becoming a major concern of the Government of Ghana.

In response to the international pressure and Ghanaôs own desire to improve the lot of her children, several initiatives have been put in place to eliminate the WFCL in the cocoa sector whilst contributing to dealing with the problem in other sectors in the longer term. These initiatives include research to understand the nature and magnitude of the problem to inform policies and other relevant interventions to give the children better and sustainable alternative to child labour.

Since 2000, COCOBOD, MMYE, General Agricultural Workersô Union of GTUC, Universities; International Agencies such as ILO/IPEC, ICI, STCP, etc. and local NGOs began studying the phenomenon of Child Labour in the cocoa sector. It was revealed that childrenôs involvement in farm activities is widespread and diverse. They concluded that the varying rate of participation of children in farm activities considered as hazardous, childrenôs own evaluation of their exposures to farm hazards and the subsequent health problems elicited is suggestive of the presence of hazardous work. However, these studies could not adequately quantify the hazardous child labour because of the absence of an appropriate framework to evaluate child work on cocoa farms.

The existing hazardous child labour list in the Childrenôs Act and the 2007 MMYE-ILO collaborated hazardous list provide the broad guide to contextualise hazardous child labour in agriculture, fishing, mining and quarry, etc. However, they are insufficient and unsuitable on their own as a benchmark for evaluating hazardous child labour in agriculture. Agriculture is a very tricky work domain characterized by rapidly changing hazards, risks and work environment. Thus, the typical concept of hazardous list based on predictable work environment in formal work settings has been largely unsuitable for agriculture. An existing list in the cocoa sector based on work done by ILO/WACAP and TWG has been generally agreed on by stakeholders. It was however found to be limited in scope and depth and therefore the need to make the list more comprehensive, subjecting it to deeper analysis and classification, using appropriate standards for age, schooling and risk health impacts.

It has therefore not been possible to use the existing hazardous lists in their current form to quantify hazardous child labour in the cocoa sector effectively.
The use of these lists lead to narrow and inflexible evaluation of childrenôs work, making them either unrealistic for the farming communities or too liberal that there seem to be no hazardous child labour in the cocoa sector. This has made the results from previous studies suffer credibility, warranting the call for international verification in to the issue considering the international interest the issue of the WFCL in cocoa is generating.

Moreover, unless there is a proper hazardous child labour framework in place it will be impossible to make any meaningful and conclusive interpretation of quantitative research or design community monitoring efforts and OSH outreach messages. Furthermore, it will not be possible to evaluate any interventions into child labour activities.

In view of the above limitations of the existing hazardous child labour list, the MMYE tasked the Consultant to produce a comprehensive hazardous child labour framework for the cocoa sector. The overall goal of this project is to develop a comprehensive, acceptable and contextually relevant hazardous child labour list for Ghanaôs cocoa sector to drive research and interventions.

This hazardous work list will facilitate identification, quantification and evaluation of hazardous child labour and raise credibility of future studies. It will also provide the best options for interventions and evaluation to safeguard the health, safety and education of the children and the general populace.

It is based on the occupational health and safety approach. This approach provides evidence of the health consequences of different types of child work activities to identify hazardous work and to characterize child labour that is most damaging to health in order to design programmes to protect the health of the child worker. However, producing a hazardous list based on potential health effects only could make the list too conservative and impractical. To develop contextually relevant hazardous framework therefore will require the risk approach. The risk approach examines each task or activity within the hazardous sectors, the activities children undertake, under what conditions and circumstances they work, with which tools they work, what protection they are given, etc. The experts working closely with adults and child workers will identify which aspects of work are actually harmful to the children and those that children can be permitted to undertake. This approach is important as it localises issues within each sector, allowing child-centred strategies into which both risk and beneficial child work are considered. In short, the risk approach avoids over generalisation or broad brush hazardous list to facilitate the targeting of the intolerables.

In addition, because of the importance of education, conditions which interfere with childrenôs education will also be considered under this list.

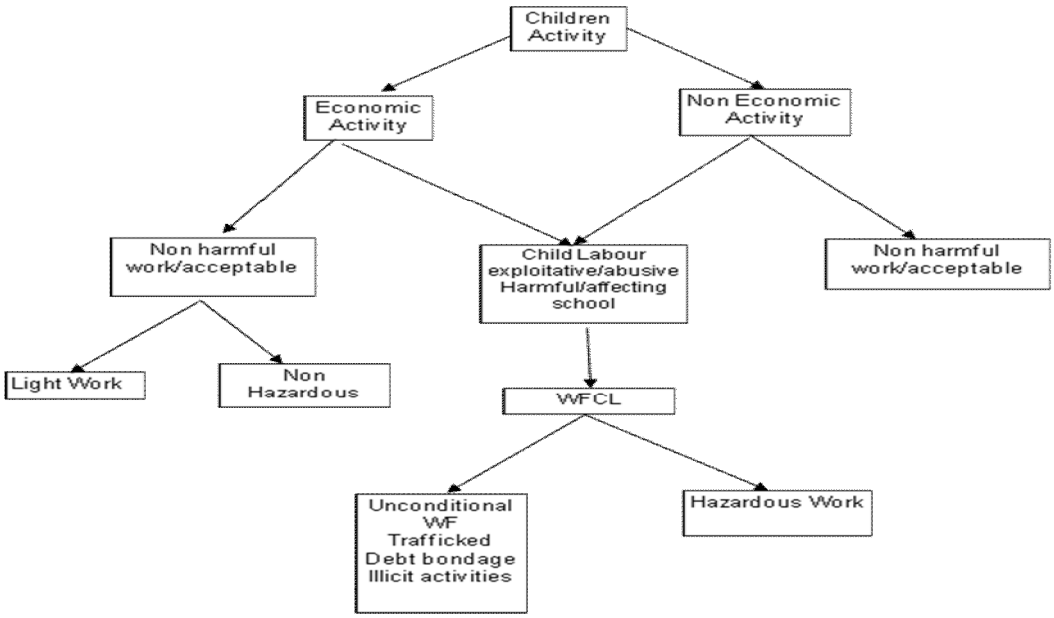
Moreover, any hazardous child labour list in the cocoa sector needs to be acceptable to all the key stakeholders. This will require stakeholder consultation especially with the farming communities, agriculture experts and academics, occupational health experts, economists, educationists, the judiciary, and civil society organizations. Thus, the project will produce a rigorous hazardous framework which will be acceptable to stakeholders, relevant to our context and yet provide enough standards to drive interventions for the next decade.

The development of a comprehensive hazardous work list will signify a major milestone of the country taking its destiny into its own hands to secure the future of her children, towards our Cocoa Certification target and will serve as impetus to the national Time Bound Programme (TBP). It will also give the best options for interventions and evaluation.

3.0 KEY CONCEPTS AND DEFINITIONS IN CHILD LABOUR

In discussing childrenôs activities, international policy perspective has classified childrenôs participation as economic activity/work and non-economic or non-work activities. The non-economic activities including household chores done in the childôs own household and schooling. The definition of child labour is based on economic activity/work which is described below.

Fig. 1: Conceptual Frame for Child Labour:



It is important to be clear with these terms and concepts as defined by international policy directions if any meaningful discussion on child labour can be achieved. This section describes the key terms and concepts used in child labour.

3.1 Economic activity

The definition of "**economic activity**" derives from the System of National Accounts (SNA) (rev. 1993), the conceptual framework that sets the international statistical standards for the measurement of the market economy. It covers all market production and certain types of non-market production, including production of goods for own use. Thus economic activity is a broad concept that encompasses most productive activities undertaken by children, whether for the market or not, paid or unpaid, for a few hours or full time, on a casual or regular basis, legal or illegal; it excludes chores undertaken in the childôs own household and schooling.

To be counted as economically active, a child must have worked for at least one hour on any day during a seven-day reference period. ñEconomically active childrenò is a statistical rather than a legal notion.

3.1.1 Description of Economic Activities

- **Market Economic activity**

Activities leading to production of goods & services that are primarily intended for sale or are sold on the market

- **Non-Market economic activity**

Own account production of Goods: production of agric crops, their storage, cutting wood, firewood collection, hunting , fishing, production of other primary products such as mining salt, water supply, processing agric products, other kinds of processing such as weaving cloths, tailoring, production of footwear, pottery, utensils and other durables

Own account construction and substantial repairs; Household activities such as replastering of walls, repairing of roof, major renovations or extensions to dwelling

3.2 Non-economic activity

"**Non-economic activity**" is defined as any productive activity falling outside the SNA production boundary. It consists mainly of work activities performed by household members in service to the household and its members.

3.2.1 Description of Non-economic activity

Housework; Household activities such as cooking, washing, indoor cleaning, upkeep of abode, care of textiles, installation, servicing, repair of personal & household goods, minor home improvements, maintenance & repair, care of family members, and procurement of household goods & services

Volunteering and Community Service; Community service and organizational volunteer work

Non Productive activities Education, training, study, leisure and culture, personal care

3.3 Light Work:

Not all work done by children should be classified as child labour that is to be targeted for elimination. Childrenôs or adolescentsô participation in economic work that does not affect their health and personal development or interfere with / prejudice their schooling or their participation in vocational orientation or training programmes is generally regarded as being something positive. This includes activities such as helping their parents around the home, assisting in a family business or earning pocket money outside school hours and during school holidays. These kinds of activities contribute to childrenôs development and to the welfare of their families; they provide them with skills and experience, and help to prepare them to be productive members of society during their adult life. This report uses the definition of light work as established in ILO Convention 138, Minimum Age for Admission to Employment which permits light work from the age 13 for developed countries and 12 for developing countries. Ghanaô Childrenôs Act permits light work from the age of 13.

3.4 Young workers

Young Workers are female and male adolescents below age 18 who have attained the minimum legal age for admission to employment and are therefore legally authorised to work under certain conditions. The ILO Minimum Age Convention, 1973 (No.138) stipulates that ratifying States fix a minimum age for admission to employment or work. Under this Convention, the minimum age for employment or work should not be less than 15 years, but developing countries may fix it at 14. A number of countries have fixed it at 16. Ghanaôs Childrenôs Act puts the minimum age for employment at 15 and permit young workers from age 15 years.

3.5 Child Labour

The term ñchild labourò is often defined as work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development. It refers to work that:

- is mentally, physically, socially or morally dangerous and harmful to children; and
- interferes with their schooling by:
    - depriving them of the opportunity to attend school;
    - obliging them to leave school prematurely; or
    - requiring them to attempt to combine school attendance with excessively long and heavy work.

Child labour is thus a narrower concept than ñeconomically active childrenò, excluding all those children aged 12 years and older who are working only a few hours a week in permitted light work and those aged 15 years and above whose work is not classified as ñhazardousò. The concept of ñchild labourò is based on the ILO Minimum Age Convention, 1973 (No. 138), which represents the most comprehensive and authoritative international definition of minimum age for admission to employment or work, implying ñeconomic activityò.

3.6 Worst Forms of Child labour

Whilst child labour of both boys and girls takes many different forms, the elimination of the worst forms of child labour as defined by Article 3 of ILO Convention No. 182 is a priority. The convention calls for immediate prohibition of the worst forms of child labour by enacting laws, regulations and standards. Secondly, it requires ratifying States to take urgent and effective measures to eliminate these worst forms through programmes of action. It applies to all children under the age of 18, but calls for special attention to girls. It covers four major categories:

- all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict;
- the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances;
- the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties;
- Work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children (hazardous work).

3.6.1 Unconditional Worst Forms

Many people and major international organizations make a distinction between the worst forms activities ñ**by definition" (also called the "unconditional worst forms")** and those ñ**by condition" (i.e. hazardous work).** Worst forms ñby definitionò are often illegal, criminal and also unacceptable for adults (first three in the list above). They include all those activities whose status as worst forms cannot be altered no matter what is done to improve conditions of work.

3.6.2 Hazardous Work:

In contrast, a list of what should be prohibited for the fourth category, hazardous work, needs to be determined on a national level. Thus, it is called a worst form ñby conditionò. In addition, some of these are activities that can be improved. If they are currently affecting the health and safety of the children who do them, this can in some cases be changed by altering the circumstances.

When speaking of child labourers it is important to go beyond the concepts of work hazard and risk as applied to adult workers and to expand them to include the developmental aspects of childhood. Work that leaves no physical scars may nonetheless damage the psychological health of the child or stunt his or her social or intellectual development. Therefore, keeping children from school can be considered as hazardous since education is an essential part of children's development. Work can interfere with education in the ways that it absorbs so much time that school attendance is impossible and that it often leaves children so exhausted that they lack energy to attend school or can not study effectively.

4.0 OBJECTIVE OF THE PROJECT

The overall objective of this project is to develop a comprehensive, ageï appropriate contextually relevant and acceptable hazardous child labour framework for Ghanaôs cocoa sector to drive research, intervention, monitoring and enforcement.

5.0 METHODOLOGY

The project to develop hazardous child labour framework for cocoa sector in Ghana began in July 2007. This project consists of two main phases: the formulation of the Hazardous Child Labour List and stakeholder consultations.

5.1 Formulation of the Hazardous Child List

5.1.1 Exploratory Literature Review

Compilation of the hazardous list in this project began with exploratory review of international and national legal framework on child labour and hazardous work. During this process, existing local and international published literature and experiences were consulted to identify most relevant and best knowledge available from experts. Information from International Conventions (ILO138 and 182,) Ghanaôs Childrenôs Act, Harkin-Engel Protocol, Cocoa certification documents, health and safety in agriculture and examples from NIOSH, HSE, etc. were searched. This was followed by the synthesis of major studies in cocoa sector of Ghana to identify priority hazards in order to tailor the hazardous list.

The literature search thus identified key issues and the context in which the list was developed. The results of the review were used as basis for development of preliminary draft of HCLF thus building on existing best knowledge and avoiding reinventing the wheel.

5.1.2 Inclusion criteria

The choice of priority issues for the hazardous list was based on the following criteria:

- Childôs age;
- Task which by type or nature is associated with serious negative impact on health and development;
- Circumstances/conditions which increases risk of impact, whether the work by nature is non-hazardous or not e.g. intensity of work, use of PPEs at work;
- Potential impact on schooling; and
- Objectives of the Ghana child labour laws; ôbest interest of the childô

5.1.3 Exclusion criteria

- Any issue/activity which did not potentially impact significantly on the childôs health and safety or education was excluded. Thus non-involvement of children based only on economic or related reasons were excluded from hazardous list.

- Childrenôs participation in activities/task/conditions of work for which alternatives are limited was tolerated as far as reasonably practicable.

The hazardous list is being designed to be as exhaustive and practical as possible with sufficiently precise guide for use in rapid assessment and interventions. It is organised in a logical crop calendar manner to facilitate understanding and easy dissemination.

The labour intensive nature of cocoa farming, the relative scarcity of labour, socio-economic and cultural factors of these communities demonstrate taking children from agriculture entirely to focus on school or other vocational training is not a feasible option at least in the next decade or so. However in participating in cocoa farming activities, clear guideline could be set with the help of families in the communities to appreciate hazardous labour and avoid engaging children in tasks which interfere with their present and future health, development and education.

In determining this guideline, it must be noted that farming is a tricky work domain with rapidly changing hazards, dynamic work environment and difficulty in regulation. Moreover, childrenôs participation in farming tasks is widespread, diverse and varying and occurs in remote inaccessible areas. Hence, understanding and goodwill of the community is crucial if any significant progress is to be made in eliminating hazardous work. The genuine involvement & participation of the farming community is fundamental to the process and non-negotiable. It will also require that any standard used in framing the hazardous list is delicate regarding balance between what is in the best interest of the children and what is feasible to the community.

Moreover, there cannot be one sizeï fit-all hazardous list for all working children. It should detail analysis and classifications reflecting hazardous nature of agriculture, demands of the law and work culture of farming communities. Therefore, the permissible work in this list is chosen to be commensurate with the childôs capability and maturity and of consequence to their health & development potentials. Thus the framework took into consideration age of the child (body size, strength, maturity), the duration of work (intensity), risk of a task, necessary protection provided, amount of training/coaching needed and flexibility for education.

The preliminary framework was reviewed by the Technical Working Group (TWG) comprising experts with vast working experience in the cocoa sector and in child labour issues in Ghana. The framework was thus enriched by local knowledge and experience. This was the end of the phase 1 of the project. The draft framework at this stage was ready for stakeholder consultations and validation.

5.2 Validation of the Hazardous List

5.2.1 Consulting farming communities

Key stakeholders in the cocoa sector are the cocoa farmers i.e. adult men, women and children. The consultation was done using participatory research approaches involving four out of the six cocoa regions from Octoberï December 2007. The consultations were

done in two districts in Western, two in Ashanti, two in Eastern and one in the Volta Regions.

The consultations involved tailored Focus Group Discussion (FGDs) and in-depth interview of workers (adults and children), community leaders and teachers.

The focus group and in-depth interviews revealed in detail how the cocoa communities interact and talk about child labour issues. It explored the meaning community members give to children's work, how they view this and the language they use in describing it. It generated some vivid accounts and provided insight into the dominant discourse and social pressures relating to child labour. The information gathered was used to modify the draft list.

In addition, a crucial gap was identified on how to quantify the acceptable weight of children by age with the corresponding load to be carried in order to close the document. This was done by a small anthropometric research conducted during the community consultations. Information on children's age, body weight and height were obtained from 1200 rural children and a sample of typical weights children carry in these communities was also taken.

An occupational psychologist was also consulted to make inputs on the acceptable working hours for children on the farm for children in school or out of school.

5.2.2 National stakeholder consultation

The third phase of the project was the one-day national stakeholder forum on the Hazardous Child Labour Framework for Ghana held in June 2008. The national stakeholders comprised MMYE, COCOBOD, Ministry of Food and Agric (MOFA), Ministry of Women and Children, Ghana Education Service (GES), EPA, Ghana Health Service, Ministry of Local Government and Rural Development, and District Assemblies within cocoa growing communities, Ghana Agriculture Workers Union (GAWU), Ghana Police Service and other Security Services. Local NGOs included Centre for the Development of People (CEDEP), Future Resources Development (FURDEV), Rescue Foundation, Take Care Africa Foundation, Projects Planning and Management (PROMAG), Children's Rights International and Rural Environmental Care Association (RECA). Other international development agencies such as DANIDA, ILO and UNICEF were also represented.

In this forum, decisions bothering on scientific evidence was juxtaposed with stark realities of economics, social, cultural and environmental constrains amidst trade-offs to arrive at an acceptable Hazardous Child Labour Framework that commensurate with our current level of development and the best interest of our children.

Thus the Hazardous Child Labour Framework eventually adopted was scientifically rigorous, economically feasible, politically, socially and culturally acceptable and yet has enough standards to drive intervention and research.

Consultation with teachers at Akim Wenchi

Community forum at Nope, Western Region

Community forum at Sabe No.1, Ashanti Region

Researcher taking anthropometric

Dr. Amoo, Occupational Health Consultant, in a presentation during the validation workshop.

Section of participants at the validation workshop

(Middle) Hon. Osei-Opare, Deputy Minister (Social Development), MMYE, flanked by (left) Mr. Charles Ntim, Deputy Chief Executive (Operations) of COCOBOD and Hon. Kenwuud Nuworsu, Deputy Minister (Labour), MMYE

6.0 KEY FINDINGS

6.1 Concept of a Child and Assignment of Responsibilities

The farming communities visited have varied perspective on the definition of a child but there was consensus on the following characteristics;

A child is:

- a person too young to take his/her own decisions and is under the control and guidance of the parents/guardians;
- a person with little information about life in general;
- a vulnerable person who needs the protection of adults;
- a person who is too young to work and take care of him/herself and should be provided for by an adult;

Assignment of domestic and farm duties to children in the communities are developmentally constructed i.e. tasks that are considered suitable for children were based on achievement of physical and psychological maturity rather than the age attained. The communities identify the following developmental milestones as shown in table 1:

Table 1: Relation between Age and Development stage of the child

Age in years	Developmental Stage
0--2	Too young do anything
3--5	Learning to walk and language acquisition stage
6--8	Domestic socialization begins
8--10	Accompanying parents to farm on foot begins
10--12	Introduction to basic farm work begins
12--17	Actual farm training begins

Thus, assignment of task to children does not coincide with clear demarcation of age. However, developmentallyï appropriate task perspectives are applicable outside of enforceable work standards. A process was facilitated to allow the farming communities to decide on the ageï appropriate work for children. i.e. work activities that are suitable based upon physical and cognitive capabilities deemed to be typical by age demarcations.

Ageï appropriate work standards required for purposes of the enforcement of labour laws in Ghana have been determined by the Childrenôs Act, 1998 (Act 560). Thus, the acceptable classifications of four age classes were considered as follows:

Table 2: Age specific work standards in Ghanaôs Children Act

Age Group	Work Category
Less than 13	Not to undertake any form of economic activity
13 to 14	Light work
15 to 17	Legal employment in non-hazardous work
18 and above	hazardous work

6.2 Some key issues on child participation in cocoa farming

Most of the cocoa specific activities require some level of maturity owing to sophistication and techniques and the hazardous nature of the work. For economic, cultural, health and safety reasons, children are not involved in most aspects of the cocoa farming. It was however, identified clearly that children of migrant workers, labourers and tenant workers were more likely to be exposed to harsher conditions at much younger age and school attendance was a problem.

Though cultural dimensions of cocoa farming did not vary significantly across cocoa regions, the extent of involvement of children in farm work showed some variations. In remote communities of Western Region, children in general did more work.

There was some disparity between what children admitted they do on cocoa farm and what their parents, teachers and opinion leaders said children do. Children and teachers account of extent of children involvement generally shows a more severe picture than parents and opinion leaders.

There was general consensus on task activity and conditions of which were considered hazardous to children and those suitable to children.

Carrying load was identified as the commonest activity children were involved in. This is obviously because it is an unskilled task and in most cases the only means of haulage of food stuff, cocoa beans, seedlings, etc. available to communities. The haulage was however supposedly done according to the childrenôs ability.

6.3 Cocoa-Specific Farm Activities

A review of many cocoa sector studies from 2000 shows the main stages of the cocoa production process as shown in the table above are pre-planting or land preparation, planting, farm maintenance, harvesting and post harvesting activities.

Table 3: Cocoa- Specific Farm Activities

1.0 Land preparation • Land Clearing • Felling and Chopping of trees • Burning • Destumping • Pegs Cutting • Lining and Pegging	**2.0 Planting** • Preparation of Seedlings • Carrying of Seedlings • Planting of Seedlings • Sowing at Stake
3.0 Farm maintenance • Weeding and thinning • Sanitation and Pruning • Mistletoe Control • Carrying Water for Spraying • Spraying/application of pesticides • Applying of Fertilizer	**4.0 Harvesting** • Plucking of Pods • Gathering • Heaping of Pods • Pod Breaking • Scooping of Cocoa Beans • Fermentation\
5.0 Post-harvest • Carting of fermented beans to drying area • Drying and sorting of beans • Carting of dry beans for sale	**6.0 Others** Cooking Looking after toddlers Watching over drying beans at night

6.4 Farming Tools Used In Cocoa Production

Obviously, cocoa farming is not amenable to extensive mechanization therefore, most tools are basic farming implements like cutlass, hoe, axe, óso-soõ/ógo-to-hellô, chisel, baskets, jut sacks, farming forks rake, etc. There were however, fairly sophisticated equipment like the knapsacks, motorised spraying machine and the chainsaw. Mull and Kirkhorn (Ergonomic research, 2005) using participant observation reported that children were involved in all farm activities and used all the tools available.

Table 4: Farming Tools used in Cocoa Production

Activity	Available Tools
Clearing and felling trees	Cutlass, Axe, Chain saw
Planting	Cutlass, Hoe, Earth Chisel
Weeding	Cutlass, Hoe
Agrochemicals	Knapsack , Motorized mist blower
Harvesting	Long cutlass, Pluckers; so-so or go-to-hell
Breaking pods	Small cutlass, breaking mallet
Carting fermented beans	Baskets, sacks
Drying and sorting Beans	Platforms/raffia mats/baskets
Bagging Beans	Jute sacks, Bowls

Breaking Knife

Long Cutlass for Weeding

Full length of Harvesting Hook

Cutting head of Harvesting Hook

Motorised Mistblower and
Knapsack sprayer

Respirator (PPE)

Table 5: Analysis of hazards in cocoa Production

Task/Activity	Potential Source of Harm	Factors Contributing to Negative health Impacts
• Carrying water for spraying, • Gathering pods, • Carting fermented/dry beans or seedling	• Head portage of heavy baskets/bag of pods or beans • Handling/ lifting heavy cocoa bags, motorised spraying gun etc	• Weight of the load • Age and body size, Distance
• Pre- planting activities • Weeding, Pruning and sanitation • Mistletoe control • Pod breaking	• Sharp and Dangerous Working tool	• Age of child • Training/coaching given • Hurry, excess work • opening tough pods • Debris entering the eye
• Spraying Pesticides • Application of fertilizers	• Exposure to agro chemicals	• Age of child, PPE • Awareness of danger • Poorly discarded pesticide containers
• Most farm activities e.g. weeding	• Awkward postures, • repetitive and forceful movements	• Age and body size • Duration of work • Appropriateness of the tool
• Carrying	Slips and falls	• Foot ware, terrain, raining season, hurry, time of day • Heavy or wield load • Night time
• All work	Farm environment • Snakes, Insects, wild animals, allergic plants and animals • Dust and Drift agrochemicals • Extremes of open weather(elements) • Falling cocoa pods, smoke and fire from burning	• No foot ware, protective clothing such as long sleeves, trousers or long dress, lone working

Hazards associated with cocoa activities and the factors that predispose to the realization of the hazards have been identified as indicated above. Children are particularly vulnerable.

6.5 Suggestions of Hazardous Work In Cocoa Production- From Literature

The table below shows the activities evaluated in some research works or groups as constituting hazardous work in cocoa. There is consensus in most of the issues but the divergent points need further analysis and categorization. Hazardous work is not only by nature or type of work but also by circumstances that make apparently harmless activities harmful to the childôs physical, health and moral development.

Table 6: Suggestions of Hazardous Cocoa Work

<table>
<tr><td>MMYE –TWG suggested List 2006
Tree felling
Burning
Spraying of insecticides
Fertilizer application
Plucking (with dangerous tools such as long harvesting hook)
Carting of heavy loads
Walking long distance with load (above 4 km)</td><td>RESCUE FOUNDATION- S. Hinson- Ekong 2006
Clearing of virgin forest
Burning of bushes
use of dangerous chemicals
plucking of cocoa pods using the long harvesting hook,
portage of heavy loads</td></tr>
<tr><td>Ergonomic Research -Diane Mull andKirkhorn,2005
Clearing virgin forest
Pruning or cutting at height > 9feets
Mixing, loading and applying chemicals
Harvest pods using short and long cutlass
Opening pods
Transporting heavy baskets or bags of pods and beans for long distances
Climbing trees and manoeuvring among branches
Cutting overhead pods with sharp blades</td><td>PILOT COCOA CHILD LABOUR SURVEY- MMYE/COCOBOD/WCF 2007
Land clearing
Felling of trees
Burning
Spraying insecticides
Application of fertiliser
Application of fungi/other chemicals
Pods plucking
Carting fermented beans
Carting dry beans for sale</td></tr>
<tr><td>STCP Website2002
using machetes to clear fields;
applying pesticides,
harvesting pods and
slicing them open to remove the beans</td><td>Children’s Act 1998
Portage of heavy loads
Applying agrochemicals</td></tr>
<tr><td colspan="2">NPECLC 2007; Age-for-work classification for permissible Work- derived from District Level Sensitization Workshops</td></tr>
<tr><td><u>18 and above</u>
Land clearing (felling of trees),
Burning and slashing,
Pruning,
Mistletoe control,
Fertilizer application
Plucking/ harvesting,
Breaking of pods
Drying (first 7 days for placenta removal)</td><td><u>15 and above</u>
Sowing at stake/ planting of seedlings
Brushing/ weeding
Drying (beyond the 7th day ï mixing)
Bagging and conveying to the shed
<u>13 and above</u>
Gathering and heaping,
Beans scooping</td></tr>
</table>

6.6 Anthropometric Research

The risk of injury arising from manual handling activities, which include the carrying of loads, is determined by the weight of the load, the distance covered, among other factors. A factor that had been given much attention is the human factor. Energy consumption increases when one carries his/her own body weight thus giving rise to the onset of early fatigue and accelerated risk of injury. An ergonomic assessment of the subjects is therefore essential as it would form a basis for any recommendations made as to what load weight would be appropriate for the various category of persons identified.

Ghana does not have existing anthropometric data on children (5-17yrs) in the rural /farming communities. Thus the pilot anthropometric research took height and weight measurements of 1152 boys and girls between the ages of 5-17 years in cocoa growing areas. The mean body weight and height for each age group was calculated. The range (mean plus or minus two standard deviations) which covers 95 percent of the children in each age category were determined (see details in appendix).

The weight component of the data showing age and gender is illustrated in table 7 below. The body weights were then plotted on the Centile charts showing the upper boundaries 97th Centile weights and lower boundaries of the 3rd Centile weights. This was compared to similar chart for boys and girls in UK and USA (see fig1-4).

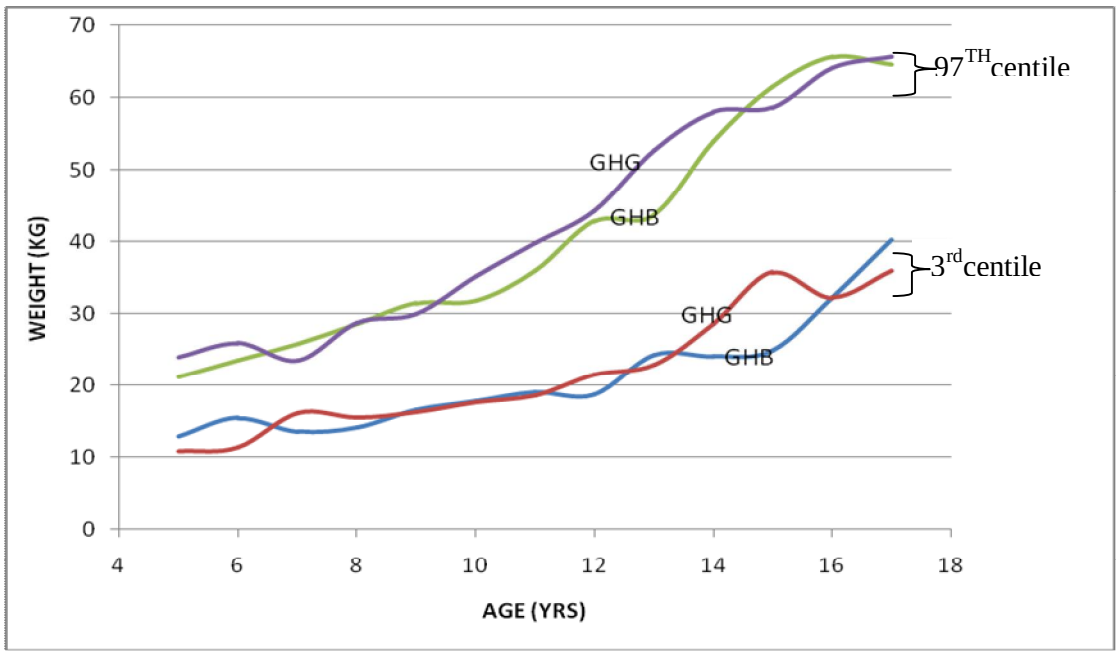
The result shows that in all cases, children in cocoa farming communities were far less nourished as compared to the developed country. Several empirical researches have shown that the main explanation for this difference is the socio economic factor which ramifies in better nutrition for children in developed countries. Thus the children in the cocoa areas are coming from a compromised nutritional state. Thus since most existing standard are based on data from the developed world, contextually relevant data like that from this anthropometric research is crucial.

Table7: Weight ï for- Age showing range of mean ± 2SD and Gender

	Boys			Girls			Combined		
Age	Mwt	Mean ± 2SD		Mwt	Mean±2SD		Mwt	Mean±2SD	
5	17.1	12.9	21.2	17.3	10.8	23.9	17.2	11.7	22.8
6	19.4	15.4	23.4	18.6	11.3	25.9	19	13.1	24.9
7	19.6	13.5	25.8	19.7	16.1	23.4	19.7	14.6	24.7
8	21.3	14	28.5	22.1	15.5	28.7	21.7	14.8	28.7
9	24	16.5	31.4	23.1	16.2	29.9	23.6	16.4	30.8
10	24.8	17.7	31.8	26.3	17.6	35.1	25.6	17.4	33.8
11	27.5	19	35.9	29.1	18.6	39.7	28.2	18.7	37.7
12	30.7	18.7	42.8	32.8	21.4	44.3	31.6	19.6	43.6
13	34	24.2	43.7	37.7	22.8	52.7	35.8	22.8	48.9
14	38.9	24	53.9	43.3	28.6	58	41	25.6	56.4
15	43.1	24.8	61.4	47.2	35.7	58.6	44.8	28.5	61
16	49	32.3	65.6	48.2	32.2	64.1	48.6	32.4	64.9
17	52.4	40.3	64.6	50.8	36	65.7	52.1	39.5	64.7

6.7 Weight-For-Age Centile Chart

Fig 2: WEIGHT ï FOR-AGE CHART FOR BOYS and GIRLS IN COCOA GROWING AREAS OF GHANA



GHB - Ghana boys Chart
GHG - Ghana Girls Chart

Fig 3: WEIGHT-FOR-AGE FOR CHILDREN COCOA GROWING COOMUNITIES IN GHANA

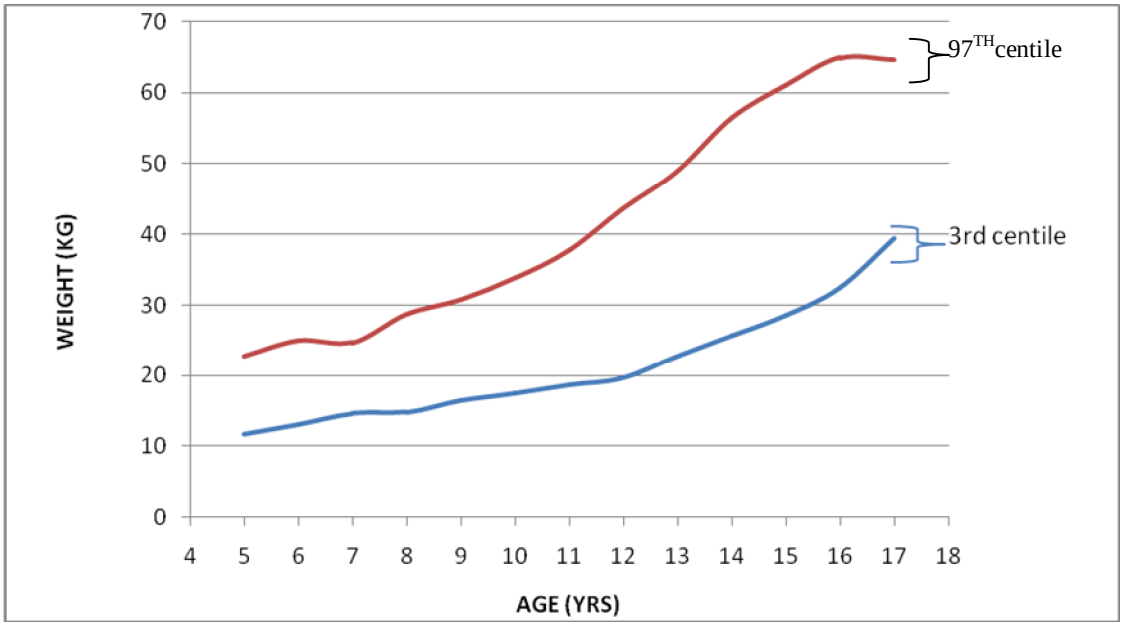


Fig 4: WEIGHT-FOR-AGE FOR BOYS IN GHANA COMPARED TO DEVELOPED COUNTRY

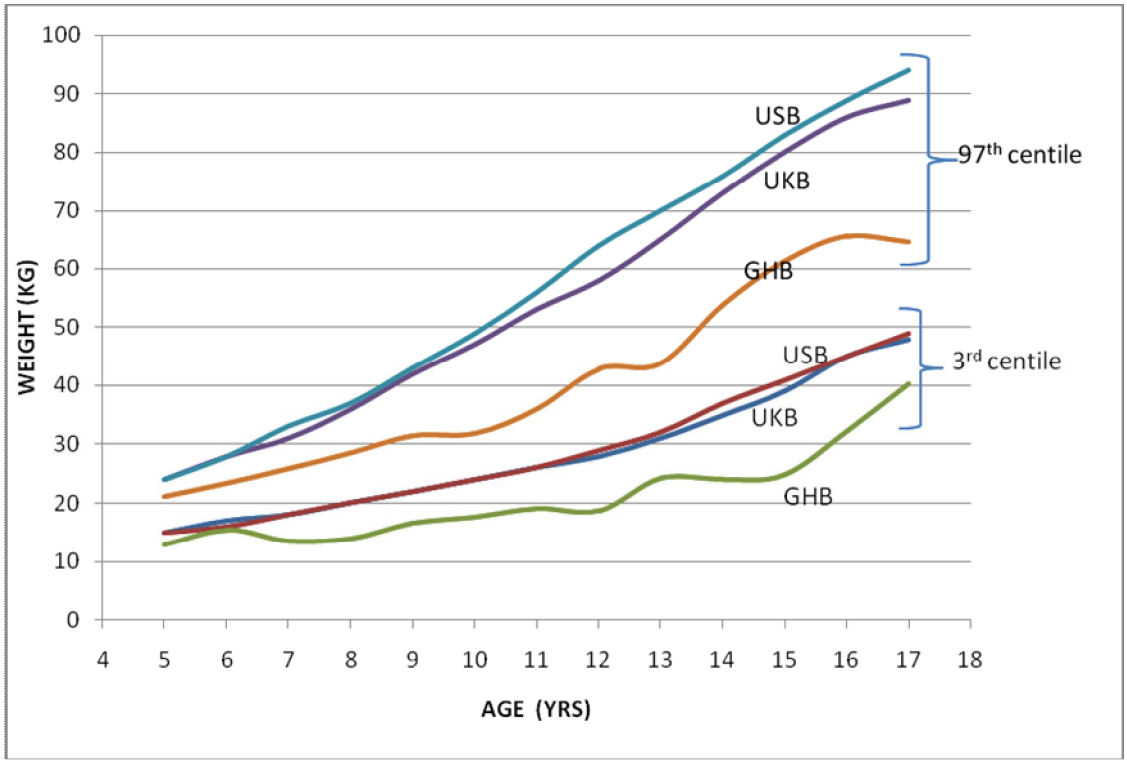
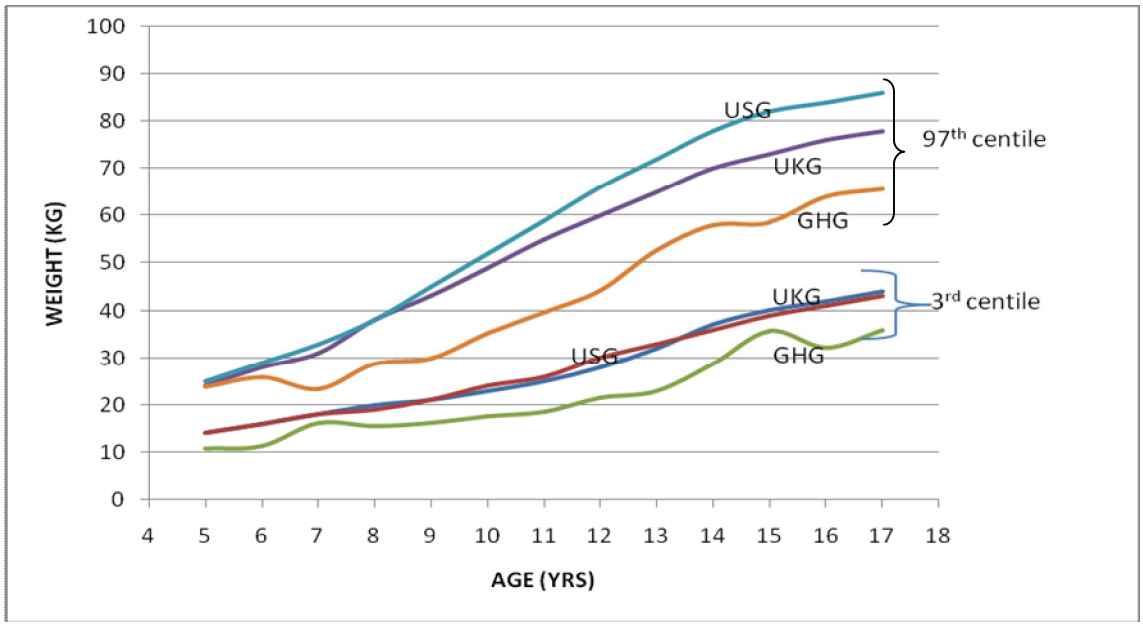


Fig 5: WEIGHT- FOR -AGE FOR GIRLS IN GHANA COMPARED DEVELOPED COUNTRY



Key

GHB- Ghana Boys Chart
GHG- Ghana Girls Chart
UKB- UK Boys Chart
UKG-UK Girls Chart
USB- US Boys Chart
USG- US Girls Chart

6.8 JUSTISFICATION FOR THE STANDARDS

6.8.1 Age Standard

In rural communities, gradation of responsibility of children in farm work is determined by the physical demands and complexity of the task. The cocoa farming communities visited assign work to children based on their personal developmental features such as the childôs physique, body size, strength and experience and not age per se. However, age of the child is the most important predictor of these personal developmental characteristics. Moreover, age is what the national laws and international conventions used as a surrogate for children personal characteristics in framing the laws.

The age categories used in framing this list corresponds to the Ghana Childrenôs Act specifications of employment and it is consistent with ILO minimum age convention 138. Though the minimum age for engaging children in light work is pegged at 13 years, the communities see age category differently. From interactions with cocoa communities, Sylvia Hinson-Ekong, 2006 found that cocoa growing communities generally define a child as any person below 12 years of age. She noted that children in rural farming settings mature faster than their city counterparts and attributed this to early socialization into family economic activities and responsibility.

Therefore, for practical purposes, this framework suggests light work for children in cocoa communities will be fixed at 12 years to begin with, as children as early as 9-10 have been observed to do light work. Moreover a child who starts school at 6 years will complete primary school by the end of 11 years.

6.8.2 Permissible Carrying Weight standard

Head porterage is among the commonest activities children undertake in rural communities, be it carrying water, food stuff, cocoa, etc. However, standardizing acceptable carrying weight for children is complex. This is because children vary in their development and hence stature, physique and strength. Therefore, children of the same age will vary in ability and what they can carry. It was found that cocoa communities assign carrying weight to children based on developmental characteristics and not necessarily age. However, the use of age appropriate carrying weight standard is the focus on the Child Labour List. So what is the age-appropriate acceptable carrying standard for children in cocoa?

According to Grandjean (1988) the carrying load recommended for adult should be 35% of body weight at walking speed of between 4.5 to 5 km/h. The maximum carrying distance was not defined. The NIOSH allowable weight standard for children working in American farms is 10-15% of their body weight and should not be carried for more than 10 -15 yards. Obviously this standard cannot be applied to farming communities in Ghana due to the following reasons:

In typical cocoa farming communities, head porterage may be the only means of haulage of farm produce from the farm to communities, market, etc. due to the unavailability of alternative technology, low socioeconomic status of farmers and farm footpaths are non-motorable. Thus, alternatives for haulage of farm products are limited.

Moreover, several researches on child labour in agriculture in many countries have reported that children carrying heavy loads over long distances can have detrimental impact on their health but could not quantify the weight. The Cocoa Labour Survey (Pilot and Scale-up) have shown similar findings. A small opportunistic carrying weight survey done during the Community Consultation phase of this project assessed over 60 children carrying varying items (including cocoa) from the farm, to the market, etc. It showed that children were routinely carrying loads equivalent to 10-60 percent their body weight but loads of up to 80-100 percent body weight was not uncommon.

Finally, Sylvia Hinson-Ekong (2006) observed that children in the rural areas mature faster than their counter part in the cities due to early socialization in farm work and the physical nature of farm work. This makes children in typical farming communities generally stronger than the average child of the same age and body weight elsewhere.

In view of the above, the maximum allowable carrying weight limit is fixed pragmatically at 30 percent body weight for not more than two miles (3Km). The recent Cocoa Labour Survey (2007) shows that nearly 85 percent cocoa households have their farms within 2 miles (3Km) of their dwelling. This limit though appears dangerous by health standards will be a realistic starting point for rural communities.

6.8.3 Work Intensity standard

The impact of child work intensity on education and health is an important determinant of hazardous work. It has been shown that under certain enabling conditions such as the implementation of Free, Compulsory Universal Basic Education (FCUBE), Capitation Grant and School Feeding Programme in Ghana, child labour have little effect on school enrolment and even minor effect on attendance. However, the number of hours, how often a child works and the type of work the child does has serious impact on mental capacity so that even modest amounts of child labour has been shown to lower cognitive achievement as a result of exhaustion or insufficient time to complete homework. This increases their chances of failing and repeating a grade or dropping-out of school altogether. Since a threshold level of hours of work at which damage begins is unknown precaution is advised.

In this regard, the 4 hours/day threshold used in the Ghana Child Labour Survey (2003) will have detrimental effect on education of children in farming areas. This is because the drudgery involved in farming implies working 4 hours on farm in a school day will leave the child too exhausted to gain from education even if the child attends school. ILO/IPEC suggests maximum of up to 2 hours per day in a school day and the USA suggest maximum of 3 hours per day in non-agric and non-hazardous sectors. This framework will use the suggestion of 3 hours per day in school days and not more than 18 hours per week in a school week

There is an important causal relationship between working hours and child health and safety so that additional hours per week increase the risk of harm to the child health. The risk of harm however differs according to sectors with agriculture being one of risky sectors. Hence, a conservative threshold of 14 hours per week was adopted by IPEC, so not to expose to excessive risks children working in the more accident prone sectors. The American law permits up to 8 hours per day and not more 43hrs per week for young workers (15-17yrs) in non agric and non hazardous sectors.

Findings from community consultations in this projects, Cocoa Labour Survey (pilot and Scale-up) shows that even an adult hired labourer works maximum 4-6 hours per day (rest inclusive). They suggested that children in permissible work on the farm should work for 2-3 hrs maximum per day. These children may stay in the farm longer and return with their parents later but actual farm activity should not exceed 3 hours per day.

Taking the drudgery and accident prone nature of farming into consideration this framework suggests that children of 15-17years may do actual permissible farm work but not exceeding 3 hours per day and not more than 21 hours per week.

6.9 Permissible Carrying Weight

Table 8 shows the equivalent weights corresponding to 30 percent of body weight of children in each age group. These are the acceptable carrying weight for corresponding ages. Children of 8 years and below do not usually carry loads. For each age category, the difference between boys and girls acceptable carrying weight was not statistically significant. Thus the combined carrying weight range for age is applicable for both sexes. The maximum acceptable carrying weight up to 2 miles(3Km) from the anthropometric data for a 17 year old child is about 20Kg, 14 year old is 17kg and 12 year olds is 14kg.

Table 8: Acceptable carrying weight limits

	MALE		FEMALE		***COMBINED***	
Age	**Mean**	**Range**	**Mean**	**Range**	***Mean***	***Range***
5	*5.1*	*3.9 - 6.4*	*5.2*	*3.2 - 7.2*	*5.2*	*(3.5 - 6.8)*
6	*5.8*	*4.6 - 7*	*5.6*	*3.4 - 7.8*	*5.7*	*(3.9 - 7.5)*
7	*5.9*	*4.1 - 7.7*	*5.9*	*4.8 - 7*	*5.9*	*(4.4 - 7.4)*
8	*6.4*	*4.2 - 8.6*	*6.6*	*4.7 - 8.6*	*6.5*	*(4.4 - 8.6)*
9	7.2	5 - 9.4	6.9	4.9 - 9	**7.1**	**(4.9 - 9.2)**
10	7.4	5.3 - 9.5	7.9	5.3 - 10.5	**7.7**	**(5.2 - 10.1)**
11	8.3	5.7 - 10.8	8.7	5.6 - 11.9	**8.5**	**(5.6 - 11.3)**
12	9.2	5.6 - 12.8	9.8	6.4 - 13.3	**9.5**	**(5.9 - 13.1)**
13	10.2	7.3 - 13.1	11.3	6.8 - 15.8	**10.7**	**(6.8 - 14.7)**
14	11.7	7.2 - 16.2	13	8.6 - 17.4	**12.3**	**(7.7 - 16.9)**
15	12.9	7.4 - 18.4	14.2	10.7 - 17.6	**13.4**	**(8.6 - 18.3)**
16	14.7	9.7 - 19.7	14.5	9.7 - 19.2	**14.6**	**(9.7 - 19.5)**
17	15.7	12.1 - 19.4	15.2	10.8 - 19.7	**15.6**	**(11.9 - 19.4)**

6.10 Weight of Typical Cocoa Loads

Table 9 below shows weights of full loads of basket used in hauling cocoa from the farms. Cocoa load type includes dry cocoa beans, wet/fermented cocoa beans and cocoa pods. The dry beans have least weights; weighs less than the half the corresponding quantity/volume of wet beans and cocoa pods. The cocoa pods and wet beans have similar weight though wet beans weigh slightly heavier.

Table 9: Weight of full load of typical baskets sizes used in carrying cocoa produce

	Full load Basket weight/kg					
	small		***Medium***		***Large***	
Load type	*mean*	*range*	*mean*	*range*	*mean*	*range*
Dry cocoa beans	7.5	*5.4-9.4*	10.8	*9.1-12.4*	14.4	*11.6-18.2*
Wet cocoa beans	24.9	*22.1-27.8*	29.3	*26.4-32.0*	35.0	*32.4-38.7*
Cocoa Pods	24.3	*21.2-26.7*	28.4	*25.7 –31.6*	33.6	*31.6-37.3*

Full cocoa pod load

Dry cocoa beans

Varying Sizes of basket

Children carrying developmentally appropriate weights

Child found carrying fermented bean load equivalent to 85% body weight

6.11 Standard Chart for Evaluating Carrying Weight

The maximum allowable carrying weight over 2 miles (3Km) for various age categories is illustrated in table 10. These maximum weights were evaluated in relation to full load of typical carrying baskets in the communities. Dry cocoa beans in small baskets are allowable for children from 9 years. Carrying cocoa pods and wet beans are suitable not for children below age of 10 years. Depending on the age of child, type of cocoa load; dry or fermented beans or cocoa pods and size of basket, the various standards are outlined in table 10.

Table 10: Standard chart for evaluating childrenôs head cocoa loads

Age	Maximum Allowable carrying weight over 2miles (3Km)/Kg	Equivalent of maximum carrying weight limit in typical full loads					
		Small basket		**Medium Basket**		**Large Basket**	
		Dry	Wet/pod	Dry	Wet/pod	Dry	Wet/pod
8-9	9	full	-	Two third		Half	-
10-12	14	full	half	full	half	Two-third	One third
13-14	17	full	half	full	One third	Three -quarter	One third
15-17	20	full	full	full	Two third	full	Two-third

7.0 HAZARDOUS CHILD LABOUR FRAMEWORK FOR THE COCOA SECTOR IN GHANA

Table 11.1 presents the Hazardous Child Labour List for cocoa informed by the literature, community consultations, anthropometric research and stakeholder validation workshops. ILO Convention 182 defines hazardous work as work which, by its nature or the circumstances in which it is performed, is likely to harm the health, safety or morals of children. Because children are still growing they have special characteristics and needs that must be taken into consideration when determining workplace hazards and the risks associated with them, in terms of physical, cognitive (thought/learning) and behavioural development and emotional growth.

7.1 Hazardous Child Labour List

Table 12: Hazardous Cocoa Child Labour List

Cocoa Farming Stage (refer Table 3)	CODE	Hazardous Child Labour Standards in Cocoa Farming Applicable to all children under 18 years	Health and other implication of exposure	Behaviour Change Motivator
Establishment and Maintenance	1.1	Clearing of forest and /or felling of trees	Snake bites, cutlass injuries, crush by falling trees, too laborious	Health and safety Lack of know how
	1.2	Bush burning	Burns, smoke inhalation with chest problems, death, burning of other farms	Health and safety Economic
	1.3	Working with Agrochemicals i.e. Purchasing, transport, storage, use (mixing, loading and spraying/applying), washing of containers and spraying machine and disposal.	Acute poisoning leading to death, chronic exposure with neurocognitive depression, cancer or reproductive problems	Health and safety Educational
	1.4	Present or working in the vicinity of farm during pesticide spraying or re-enter a sprayed farm in less than 12 hours	Acute pesticide poisoning or chronic (cumulative small dose exposures) poisoning problems.	Health and safety Educational
	1.5	Using machetes/long cutlass for weeding	Cutlass injury associated with haemorrhage, tetanus, amputations	Health and Safety
	1.6	Climbing trees higher than 3metres (9 feetôs) to cut mistletoe with cutlass	Fall from height with attendant injuries	Health and safety
	1.7	Working with motorized mist blower, knapsack sprayer and chainsaw	Noise-induced hearing problems, potential for severe injury from blades of chainsaw, bodily pains; Leakage from machine cause skin exposure and itching	Health and safety
Harvesting and Post Harvesting	1.8	Harvesting overhead cocoa pods with harvesting hook	Injury from falling blades, falling pods or tree top reptiles, neck and shoulder problems, destroying the budding nodes and reducing yields	Health and Safety Economic
	1.9	Breaking cocoa pods with breaking knife	Cutlass injury associated with haemorrhage, tetanus, amputations, damage to cocoa beans	Health and Safety Economic
	1.10	Carrying heavy load beyond permissible carrying weight i.e. above 30% of body weight for more than 2 miles (3Km). See Table 10.	Interfere with the skeletal growth, spinal deformity, chronic back, hip and joint problems in future	Health and Safety Suffering child

General Issues	1.11	Working on the farm for more than 3 hours per day or more than 18 hours per week (for children on weekends, holidays and/or have completed school).	Predisposition to errors leading to accidents and injuries, increased exhaustion affect education and health (even hired adults work for maximum of 4-6 hours).	Health and safety Educational
	1.12	For children in school, working more than 2 hours/day on a school day.		
	1.13	Working without adequate basic foot and body protective clothing (e.g. long sleeves, trousers and óAfro Mosesô)	Injury from thorns, tree stump, snake and other reptile bites, insect bites, contact toxic irritant plants	Health and safety
	1.14	A child working alone on the farm in isolation(i.e. beyond visible or audible range of nearest adult)	Prone to abduction, defilement, indecent assault and rape; no help in case of injury or accident.	Health and safety
	1.15	Going to or returning from the farm alone or working on farm between 6.00 p.m. and 6.00 a.m.	Poor visibility leading to slips and falls, snake bites and injuries	Health and safety
	1.16	A child withdrawn from school during cocoa season to do farm work	Child losing out on education, leads to school dropouts and failures	Educational
	1.17	Working full time on farm and not attending formal / non formal school(applicable to children under 15years)	Increases tendency to participate in hazardous work, deprivation of the benefits of education	Health and safety Educational

7.2 **Permissible Work and Recommendations**

Against the background on communityôs perception of permissible work for children and taking cognisance of international and national laws that protect children, Table 11.2 provides information about permissible work for various age groups of children in Ghana. At a stakeholder forum for farmers, policy makers, researchers and social commentators the list was adopted for the guidance for cocoa farmers and enforcement by social institutions

Table 11.2: Permissible Work and Recommendations

AGE GROUP	CODE	ACTIVITY/TASK	RECOMMENDATION
5- 7	2.1	May accompany parents to the farm during weekends or holidays but do not undertake any specific task	Under adult supervision
8-11	2.2	Assist in taking care of babies and toddlers on the farm	Under adult supervision
	2.3	Helping in cooking and serving food	
	2.4	Running farm errands	
	2.5	Picking harvested pods from under cocoa trees in the company of adults	
	2.6	Uprooting weeds around young cocoa plants	
12-14	2.7	Filling of Nursery bags with black soil	Adequate training Under adult supervision
	2.8	Fetching water for spraying and leaving the farm before spraying commences	
	2.9	Gathering of cocoa pods	
	2.10	Scooping and removal of beans	
	2.11	Carting minor loads(see permissible carrying load standard in Table 10.2)	
	2.12	Watering of Seedlings at the nursery	
15-17	2.13	Assisting in planting cocoa	Adequate training Under adult supervision
	2.14	Weeding/brushing undergrowths with age -appropriate cutlass (Sua-ado or small cutlass)	
	2.15	Plucking within hand-reach pods	
	2.16	Breaking cocoa pods with breaking mallet or hitting on the ground	
	2.17	Carting load (See Table 10.2)	
	2.17.1	➢ Seedling for planting	Carrying weight should not exceed 30% bodyweight for more than 2miles(3 Km)
	2.17.2	➢ Water for spraying	
	2.17.3	➢ Cocoa pods for heaping	
	2.17.4	➢ Fermented beans to drying mat	
	2.17.5	➢ Dry beans for sale	

7.3 General Recommendations for Child Participation in Cocoa Farming

CODE	
3.1	All children of school going age should be in school and should not go to the farm during school hours or go to distant farm before or after school or be withdrawn to do farm work in peak seasons. Children from the age 12 can do light (age recommended permissible) work but not for more than 2 hours and preferably after school.
3.2	All children who accompany their parents to the farm should be provided with basic protective clothing at least foot and adequate body protection.
3.2.1	Ideally provide bite-proof protective boots with non-skid soles to prevent snake bites, slips and falls e.g. childrenôs Wellington boots. In the absence of this, Afro Mosses, canvas or any boot is recommended. Going to farm barefoot is hazardous and in bathroom slippers is not acceptable.
3.2.2	Body protection in the form of trousers, long sleeves and long dresses is recommended.
3.2.3	Sun hat is recommended on hot and sunny days
3.4	Incorporate at least 10 minutes break hourly for a working child and he/she should not work for more than 3 hours a day
3.5	Adults must sufficiently train a child on any farm work for even the basic ones before assigning duties
3.6	Close observation and supervision is required for any job a child does
3.7	Ensure adequate intake of drinking water hourly to prevent heat stress.
3.8	Do not allow the use of cutting tools for children 11 years or younger
3.9	Carrying loads should not exceed 30% body weight if farm is far (>2miles or 3Km). If the farm is farther, reduce carrying weight or have rest stops
3.10	Lifting/handling/carrying loads over short distance (Ò 500m) should not exceed 50% of body weight
3.11	In assigning permissible load to a child, adequate adjustment is required if the terrain is unfriendly. This is particularly the case in hilly and slippery terrains when it rains. It also applies when crossing a river with loads.
3.13	Stop children below 18 years from working with pesticides, even if Personal Protective Equipment is provided.
3.13	Children should stay at distances where they do not smell pesticides. Fetching water for sprayers during day of spraying when sprayers run out of water is unacceptable
3.14	Sick children should not be made to work under any circumstance.

3.15	Attaining 18 years is no license to engage in all cocoa activities. Persons 18-24 years should be well protected and engagement in any hazardous farm work should be graded until maturity, experience and training permits.

8.0 RECOMMENDATIONS

8.1 Policy Implications

8.1.1 Reducing the minimum age for light work in the Children's Act from 13 to 12 years

This project found clearly that the current age at light work in the Children Act is out keeping the general development level of children in the rural areas.

Though the minimum age for engaging children in light work is pegged at 13 years the communities see age category differently. From interactions with cocoa communities, Sylvia Hinson-Ekong, 2006 found that cocoa growing communities generally define a child as any person below 12 years of age. She noted that children in rural farming settings mature faster than their city counterparts and attributed this to early socialization into family economic activities and responsibility.

Therefore, for practical purposes, this framework suggests light work for children in cocoa communities should be fixed at 12 years to begin with, as children as early 9-10 have been observed to do light work. Moreover a child who starts school at 6 years will complete primary school by the end of 11 years. Fixing the minimum age for light work at 12 years is also in keeping with ILO 138 recommendation for developing countries

8.1.2 Legal Endorsement

To make framework authentic for implementation there is need to give it a full legal endorsement. The Childrenôs Act already caters for the expanded list of hazardous work/activities. Thus this framework should be forwarded to the Attorney Generalôs office for inclusion in the larger national hazardous list for all forms of child labour in key sectors of the economy.

The District Assemblies are encouraged to introduce the Hazardous Child Labour Activity Framework into their bye-laws. This should however be preceded by adequate community sensitization and education on the framework.

8.2 Interventions

8.2.1 Development of Training and Educational Materials

The framework was adopted as the working framework of Hazardous work in cocoa at a National Stakeholder Forum. Therefore, there is the need to convert the framework into educational and campaign material to facilitate dissemination. This will involve abridging the document into field training manual, leaflets, brochure, and billboards. It should also be translated into local languages to facilitate easy comprehension. More

concepts on permissible body weight would have to be made user-friendly using pictures and videos.

8.2.2 Training of Stakeholders on the Framework

Owing to the complex nature of the concepts in child labour, the consultant proposes the training of core persons who will be assigned the role of training all key partners and trainer of trainers on an on-going basis. This will include training of NPECLC, COCOBOD, Agric Officers, NGOS, GES, Security agencies, DAs, District Child Protection Committees, the media, MOESS, GAWU etc.

8.2.3 Awareness and Sensitization on the Hazardous Child Labour Framework

The health hazards to which these children are exposed and the potential impacts on their health and development call for immediate, effective, well targeted and sustained interventional efforts. The standards identified in this framework if implemented, would go a significant way to eliminating hazardous child labour in the cocoa sector. Therefore, major interventional initiatives should be taken to promote the understanding and adherence to the framework.

Particular issues include:

- Awareness creation and discourse on child labour using the above framework in the communities and at policy levels;
- Importance of education to the child in particular, and the family and society in general;

In dealing with culturally rooted issues like child labour, the Consultant recommends that engagement of the communities using social marketing strategies, mass media (radio or mobile vans) and media advocacy approach on sustained basis will be most effective. These campaigns should use effective culturally-appropriate strategies to educate and reach communities to maximise impact. Informal discussions, peer education, drama, theatre and other participatory community interactions methods would prove effective. It is therefore, important to invest in community contact.

8.2.4 OSH interventions-Farm Safety Initiatives

The current level of involvement of children in hazardous cocoa work calls for Cocoa Farm Safety initiatives targeting the following domains

- Health and safety (i.e. preventing risks and avoiding harm to the working child);
- Safe handling of tools for farm work;
- Promoting production and use of locally cheap basic protective clothing
- Chemical safety (i.e. safe use of chemicals).

This required preparation of the tailor-made OSH messages and materials, training of trainers and widespread dissemination to influence farming norms.

8.2.5 Development of labour saving techniques

Ending childrenôs participation in hazardous work in cocoa calls for innovation and modernization of cocoa farming by inventing simple and safer equipment and appliances that will be affordable and easy to use and reduce the risk to health in farming. These will include equipment to pick pods that will allow farmers to stand while picking and

prevent back and spinal problems which result from bending for long periods. Tools for pruning and opening cocoa pods and means of transporting loads.

8.3 Research Gaps

8.3.1 Anthropometric upscale

The anthropometric data obtained in this project provided a useful basis for defining contextually relevant carrying weight standard relevant to children in cocoa farming communities. However, these standards were based on a small anthropometric data. An upscale is urgently required to make-up representative samples involving a minimum of 8000 children from cocoa growing communities.

8.3.2 Development of Research Instruments for use in Surveys, CCLMS and Inspections

The hazardous framework provides the basis for developing research questionnaires and checklists for monitoring and evaluation of childrenôs work in cocoa. These instruments are important for use by researchers, labour inspectors and community child protection committees. This instrument should be communicated to all research bodies that have links to child labour.

8.3.3 Other Research Gaps

In preparing this document, the consultant realized that, there were a number of useful local and international research results in the cocoa sector which could be drawn upon. However, there is no clear cut programme in place to synthesize these finding results in a systematic, comprehensive and on ongoing basis to inform future research direction and intervention. I strongly recommend that the MMYE & ILO, Ghana contracts a consultant to do a thorough systematic review of all research in the cocoa sector and which should be updated on yearly basis. Specific research on the following will be useful:

1. Long term effect of hazardous child labour on adult health:
    - Long term effect pesticide exposure among spraying gang members
    - Chronic back and joint problems from heavy lifting in child hood

2. Intensity of work and school performance
    - Identify what intensity threshold of farm work that affects schooling achievement.

3. Short to medium term neurocognitive impact of agrochemicals exposure on children.

REFERENCES

	Key Studies Reviewed	Details
1	Cocoa Production, Supply Chain, Labour Issues and Challenges, A Demographic survey	COCOBOD 1997
2	Labour Practices and the Cocoa Sector of Ghana with special focus on the role of children in Ghana	IITA, Agbenyega O Gockwoski J, 2002
3	Ghana Child Labour Survey	GSS/ILO March 2003
4	Analysis of Job Tasks and Activities Performed by Children in Cocoa Production in Ghana	L. Diane Mull 2003, IIECL
5	Health and Safety Risk of Children Involved Cocoa Farming in Ghana	GHS /ILO/WACAP 2004
6	Child Labour in Ghana cocoa production: Focus on Agric Task ergonomic exposures Ass injuries and illness	Mull L. and Kirkhorn S, 2005 IIECL
7	Ghana Cocoa Sector Child Labour Survey	MMYE/COCOBOD/DAEA/WCF 2007
8	Towards Understanding of Hazardous child labour in cocoa/commercial Agriculture in Nigeria	ILO/IPEC/WACAP 2004
9	ñChildrenôs Involvement in Cocoa Farming Practices in Ghanaò	Department of Children, Ministry of Women and Childrenôs Affairs(2005)
10	Agricultural Health in the Gambia ii:A Systematic Survey of Safety and Injuries in Production Agriculture	Kuye R et al (The University of Iowa USA), 2006
11	National Time Bound Programme Document	ILO-IPEC, MMYE etc. August 2004
12	Conceptual Framework for Data Collection relative to Child Labour Certification in Ghana.	Sylvia Hinson-Ekong, Rescue Foundation 2006
13	ñRapid Assessment of child labour in selected cocoa growing areas of Ghanaò	African Centre for Human Development Commissioned by ILO/IPEC/WACAP (2004)
14	Farm Safety Interventions in the Cocoa Sector	Jim Gockowski and Sonii David (IITA/STCP). April 2007
15	An Evaluation of Farmer Field School Training on the Livelihoods of Cocoa Farmers in Atwima District, Ashanti Region, Ghana	Gockowski, Asamoah, Sonia et al 2006
16	Child Labour and Cocoa Production in West Africa A case of Cote Dôlvoire and Ghana	Boas and Huser, 2006
17	Report on Children involvement cocoa farming practices in Ghana	MOWAC 2005
18	Research on Child Labour on Cocoa on Farms in Ghana	GAWU, 2006

APPENDICES

Appendix 1: Field testing of the hazardous list

Appendix Table 1: Involvement of children in Hazardous work

Hazardous Activity or Condition of Work	No. of participants*	%
Clearing of virgin forest or thick bush or felling tress	24	2.5
Bush burning	24	2.5
Working with agrochemicals (mixing, loading and spraying or applying)	14	1.5
Present in the vicinity during spraying or re-entered sprayed farm in less 24hrs	93	9.8
Using long cutlass for weeding	126	13.2
Climbing and working on trees higher than 9 feet in height	16	1.7
Working with noisy or dangerous equipments (motorised spraying machine or chainsaw)	13	1.4
Harvesting overhead cocoa pods with harvesting hooks	46	4.8
Breaking cocoa pods with cutlass	76	8.0
Carrying/lifting/handling heavy weights above age and size (i.e. more than 30percent of the personôs body weight for more than 2km)	67	7.0
Working on the farm for more than 6 hours per day or more than 43hours per week	20	2.1
Working without adequate basic protective clothing	273	28.7
Working full time on the farm and not attending school	15	1.6
Working before 6:00 am or after 8:00 pm	1	0.1
A child working in isolation	36	3.8

*Total number of respondents (N) = 950 Source : Cocoa Labour Survey 2008

Appendix Table 2: Number of hazardous work activities that children engaged in

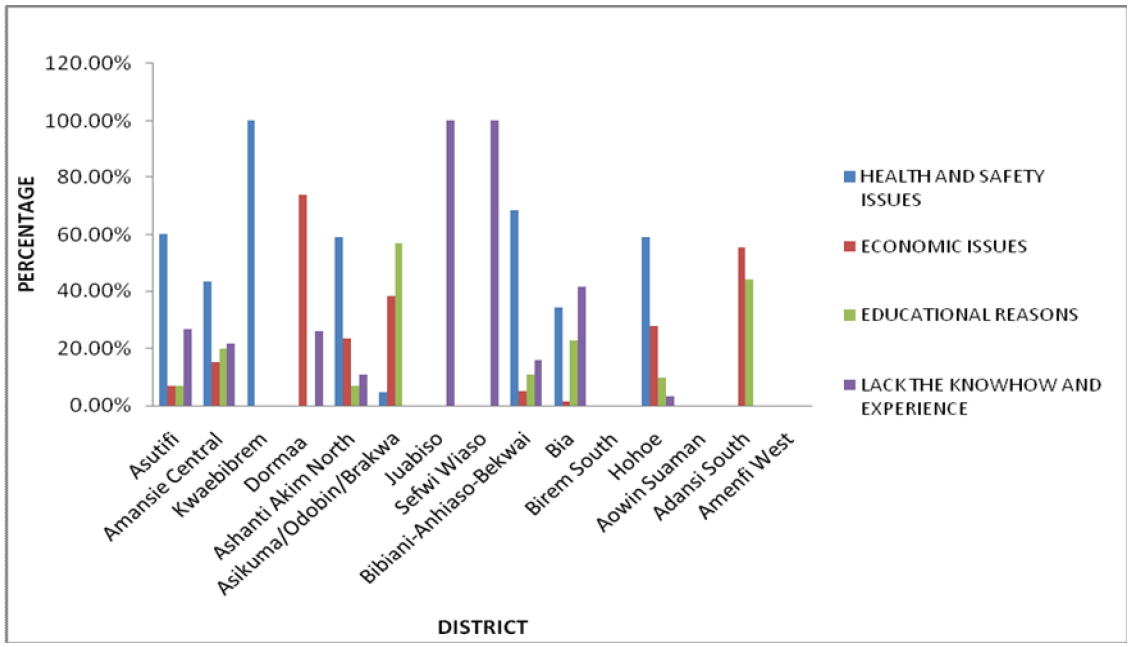
No. of hazardous activities children engaged in	No. of Participants	% Respondents
One	265	59.4
Two	87	19.5
Three	40	9.0
Four	19	4.3
Five	17	3.8
Six	8	1.8
Seven	5	1.1
Eight	4	0.9
Nine	1	0.2
Total	446	100.0

Source : Cocoa Labour Survey 2007

Out of the 446 children who participated in activities considered hazardous, 265 (nearly 60%) engaged in only one hazardous activity, 87 (19.5%) engaged in two, 40 (9%) in three, about 4% in up to five and another 4% in six or more hazardous work activities. Most children thus engaged in at least one hazardous work.

Reasons for not engaging children in hazardous cocoa farming activities

The main reasons for *not* engaging children in the cocoa activities relate mainly to the consequences of the farm activities on the childôs health and safety (46.7 percent of respondents) as well as the fact that the children lack the know-how and the experience (20.7 percent) in most of the cocoa activities involved. Effects on the childôs education (14.9%) and economic reasons (18.1 percent), including possibilities of the child damaging pods that could affect the farmerôs output, are tied to their lack of know-how and experience.



Source : Cocoa Labour Survey 2007

Appendix 2: Tools used in Cocoa Production

Tool /Equipment	Akan name	Use
Prunner	Afidie a yede twa nkrapan	To remove mistletoes (*or nkrapan or yankundro*
Harvesting hook	Soso	To harvest cocoa
Motorised mistblower	Motobro	To spray insecticides into cocoa canopies
Knapsack sprayer	Kafukafu	To spray fungicides
Sharpening stone	Sereboa	To sharpen cutlasses and knives
Felling axe	Akuma or abunua	To fell trees and chop it into pieces
Cutlass	Sekan	To weed or brush the undergrowth or for cutting wood and other uses
Drying mat	Aserene	To dry cocoa beans
Basket	Kenten	To carry farm produce including cocoa

5	13	17.1	2.1	12.9	21.2	17	17.3	3.3	10.8	23.9	30	17.2	2.8	11.7	22.8
6	19	19.4	2.0	15.4	23.4	20	18.6	3.6	11.3	25.9	39	19.0	2.9	13.1	24.9
7	31	19.6	3.1	13.5	25.8	29	19.7	1.8	16.1	23.4	60	19.7	2.5	14.6	24.7
8	42	21.3	3.6	14.0	28.5	50	22.1	3.3	15.5	28.7	92	21.7	3.5	14.8	28.7
9	58	24.0	3.7	16.5	31.4	49	23.1	3.4	16.2	29.9	107	23.6	3.6	16.4	30.8
10	66	24.8	3.5	17.7	31.8	76	26.3	4.4	17.6	35.1	142	25.6	4.1	17.4	33.8
11	56	27.5	4.2	19.0	35.9	42	29.1	5.3	18.6	39.7	98	28.2	4.8	18.7	37.7
12	79	30.7	6.0	18.7	42.8	55	32.8	5.7	21.4	44.3	134	31.6	6.0	19.6	43.6
13	62	34.0	4.9	24.2	43.7	59	37.7	7.5	22.8	52.7	121	35.8	6.5	22.8	48.9
14	69	38.9	7.5	24.0	53.9	64	43.3	7.3	28.6	58.0	133	41.0	7.7	25.6	56.4
15	67	43.1	9.1	24.8	61.4	48	47.2	5.7	35.7	58.6	115	44.8	8.1	28.5	61.0
16	29	49.0	8.3	32.3	65.6	20	48.2	8.0	32.2	64.1	49	48.6	8.1	32.4	64.9
17	25	52.4	6.1	40.3	64.6	7	50.8	7.4	36.0	65.7	32	52.1	6.3	39.5	64.7
	616					536					1152				

	Age for Height/cm														
Age	N	Mht	SDht	Mean± 2SD		N	Mwt	SDwt	Mean ± SD		N	Mwt	SDwt	Mean±2SD	
5	13	105.8	6.5	92.7	118.8	17	106.7	4.9	96.8	116.5	30	106.3	5.6	95.1	117.5
6	19	113.8	6.5	100.9	126.7	20	114.0	9.4	95.1	132.8	39	113.9	8.0	97.9	129.9
7	31	115.5	8.3	98.9	132.0	29	117.4	6.0	105.5	129.4	60	116.4	7.3	101.9	130.9
8	42	118.7	6.3	106.2	131.3	50	122.6	7.0	108.6	136.6	92	120.8	6.9	107.0	134.7
9	58	124.9	6.4	112.1	137.6	49	124.4	6.3	111.9	137.0	107	124.7	6.3	112.1	137.3
10	66	129.6	7.1	115.4	143.8	76	132.2	8.0	116.1	148.3	142	131.0	7.7	115.6	146.4
11	56	134.3	7.3	119.6	149.0	42	136.3	6.7	122.9	149.6	98	135.1	7.1	120.9	149.3
12	79	139.9	7.9	124.0	155.7	55	141.2	8.9	123.5	159.0	134	140.4	8.3	123.8	157.1
13	62	143.5	6.6	130.2	156.7	59	147.5	8.8	129.8	165.1	121	145.4	8.0	129.4	161.4
14	69	151.4	8.4	134.5	168.3	64	152.7	6.8	139.0	166.4	133	152.0	7.7	136.6	167.5
15	67	156.7	8.5	139.6	173.7	48	155.4	6.5	142.4	168.5	115	156.1	7.7	140.7	171.6
16	29	158.9	12.2	134.5	183.3	20	158.3	8.0	142.2	174.4	49	158.7	10.6	137.4	179.9
17	25	166.2	7.7	150.9	181.6	7	160.5	9.5	141.4	179.6	32	165.0	8.3	148.4	181.6
	616					536					1152				