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## REPORT ON SAFE USE OF PESTICIDES IN FARMING - A TRAINING OF TRAINERS



**COASTAL SUSTAINABLE LANDSCAPES PROJECT**



CSLP *AUGUST 2018*

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# 1. BACKGROUND

The Ghana Coastal Sustainable Landscapes Project (CSLP) is a United States Agency for International Development (USAID) Feed the Future initiative and a U.S. Forest Service-managed intervention being implemented in the six coastal districts<sup>1</sup> of Ghana's Western Region. The project, originally a three-year project (2013-2016) funded with USAID Climate Change monies, was extended initially for another three years through September 2019<sup>2</sup> with Feed the Future funding, based on successes achieved within the initial phase. It worked to promote low emissions development in Ghana's Western Region by strengthening community-based natural resource management and monitoring and improving livelihoods in farming and fishing communities.

The project's second phase, under the U.S. government's Feed the Future Initiative, had a specific objective to reduce poverty and increase resiliency in the target communities through improved natural resource management, livelihood diversification, value chain development, and ecosystem conservation and restoration. The project interventions covered 43 core coastal communities with smallholder farmers and fisher folks as the main beneficiaries. In total, project actions of one sort or another had reached more than 82 communities as of early June 2018.

The interventions of the CSLP were guided by two main outcomes: (i) increased incomes from livelihood diversification and, (ii) improved environment and natural resource management. Specific activities included agroforestry and forestry best practices, short- and medium-term livelihood improvement activities (e.g. beekeeping, climate smart agricultural, CSA, vegetable production), on-farm tree planting of commercial and agroforestry species and management of greening areas / urban greeneries. Others included wetland/mangrove conservation, spatial planning, Village Savings and Loan Associations (VSLAs) and youth engagement (via formation of environmental clubs in public schools).

The CSLP used in-field consultations, targeted trainings, strategic capacity building, detailed technical assistance, and participation in institutional/policy level discussions and workshops based on field-level experience to achieve project objectives.

## 1.1 Introduction

The use of pesticides in farming is prevalent in Ghana. In the Western Region of Ghana pesticide application is very common in the tree crop (cocoa, rubber) and food crop production systems. In the first phase of the CSLP, observations and discussions with agricultural officers as well as farmers pointed to high risk associated with unsafe practices regarding pesticides application on the coastal landscapes. Inappropriate use, handling, storage and disposal of pesticides have been observed on many farms which increases the risk of pesticides to humans and the environment. The problem is also compounded by low literacy level of the majority of farmers, lack of information and

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<sup>1</sup> Shama, STMA, Ahanta West, Nzema East, Ellebelle and Jomoro Metropolitan/Municipal/District Assemblies (MMDAs)

<sup>2</sup> This was subsequently reduced to only two years, to September 2018, due to lack of financial resources in USAID/Ghana's budget

knowledge among farmers and to some extent low capacity of agricultural extension agents within the landscape as well as weak enforcement of pesticides regulatory regime.

In order to help alleviate the above stated problems the CSLP in collaboration with the Regional Environmental Protection Agency (EPA) and Department of Food and Agriculture (DoFA) at the district level as well as the Regional Agricultural Development Unit (RADU) of the Ministry of Food and Agriculture (MoFA), designed curriculum on Safe Use of Pesticides in Farming. The curriculum was used to train trainers who were selected staff persons of key agricultural extension institutions in the project area. Thus, participants of this training of trainers (ToT), were, in turn, to train farmers in their respectively operational communities (ideally where CSLP has existing interventions) with objectives stated in section 1.2.

## 1.2 Objectives

1. To train district management and technical staff persons of the Department of Food and Agriculture and Cocoa Health and Extension Division on **Safe use of pesticides in farming/agriculture.**
2. To develop a follow-on training plan for training farmers on safer use, handling, storage and disposal of pesticides, particularly those in farming.
3. Provide practical skills to farmers on best practices for handling, use, storage and disposal of pesticides.

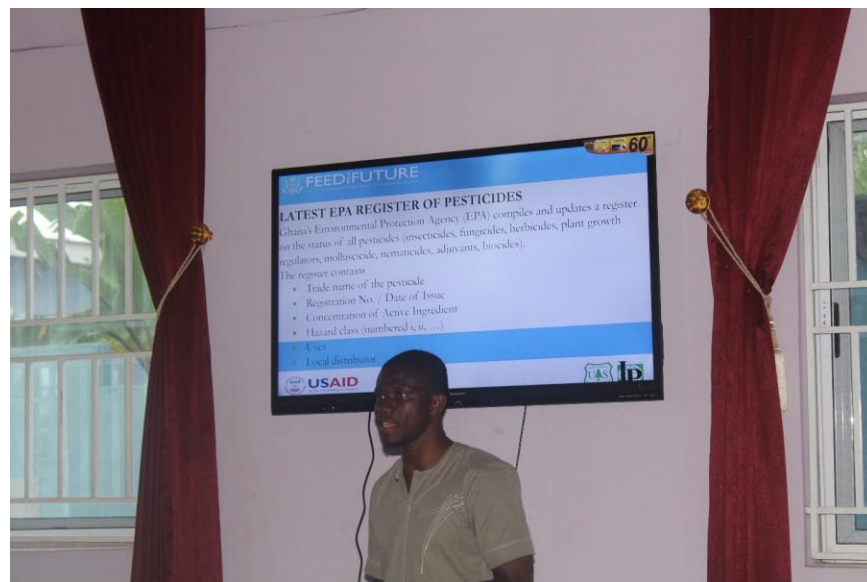
## 2. METHODOLOGY

### 2.1 Curriculum Development

A draft curriculum was developed by the CSLP and it was discussed with the Regional MoFA and EPA for their inputs. Suggestions from these stakeholders were incorporated in the curriculum and later disseminated to DoFA directors at the district/ municipal level for their comments. Having discussed comments from the DoFA directors, a final version of the curriculum (see **Error! Reference source not found.**) was used for this training.

### 2.2 Presentation of Concepts

Training facilitators delivered a presentation of key issues on use of pesticides in agriculture, broad sense definition pesticides, pesticide formulations, guidance notes of selection of pesticides, principles of safe disposal of pesticides, etc. Another module presentation was on integrate pest management (IPM) principles and methods. Teaching was delivered interactively by asking training participants to share their knowledge and experiences on each of the topics. More so, participants asked as many questions as they had, which were answered by either facilitators or some of the trainees. The training was facilitated by the CSLP's NRM Specialist and explanation of the EPA's register of pesticides document was facilitated a principal technical officer of the regional EPA.



*Photo 1: Regional EPA officer explaining key contents of the EPA register of pesticides to participants*

### 2.3 Video clips on Recommended Practices

Four short video clips were screened to participants in order to reinforce understanding of key concepts on best practices. Topics of the videos on include proper and safe use of pesticides tips, use of personal protective equipment, and pesticides safety for small farms.

## 2.4 Group Discussions

Group discussions (see **Photo 1**) on some general topics such as “usefulness of pesticides”, best practices for using pesticides in farming, appropriate methods for disposing pesticides, etc. This strategy was adopted as most of the training have field experiences on pesticide applications. Plenary sessions were held to discuss further discussion points presented by each group.



*Photo 2: Group discussion during training*

## 2.5 Skill Building Hands-on Exercises

In addition to discussions, some exercises were undertaken in order to build specific skills of trainees. One exercise was a visit to three pesticide vending shops<sup>3</sup> (see **Photo 3 B**) to collect information on different types of pesticides on the market. The information that was collected included details on pesticide labels, storage conditions and handling practices of the vendor. Each group then discussed and agreed on issues of lapses that were identified. In another exercise, each group took a sample list of pesticides and used the EPA register to identify the hazard classes of the pesticides and determined the registration status<sup>4</sup> of each pesticide product (**Photo 3 A**).

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<sup>3</sup> Disclosure was made to the vendor that the exercise was of purely for training purpose and consent of the shop owner was sought before the exercise took place.

<sup>4</sup> Registration status could be either i). Fully registered, ii). Provisionally cleared or iii) Banned pesticide



Another worthwhile skill building exercise was drawing up of follow-on training plan by each districts' team. The rationale for this exercise was, that by drawing up their own modules and schedules for training farmers and other groups with stake in agricultural pesticides, the extension officers will be committed to carry out the task of training farmers.



*Photo 3: Group work/ skill building exercise on finding the registration status of a pesticide product in the EPA register of pesticides (A) and training participants collecting relevant regulatory information on pesticide products at a vendor's shop (B)*

### 3. RESULTS AND DISCUSSIONS

This training of trainers has successfully been completed. Thirty-seven (37) men and seven (7) women totaling 44 persons participated in the training as trainers for farmers. All were staff persons from four DoFA offices except three from the regional MoFA office and three staff persons from the regional Environmental Protection Agency (EPA) office. One EPA officer provided support for aspects of the training especially regarding register of pesticides. Participatory development of the curriculum for this training enabled full participation of DoFA, EPA and regional MoFA. The Cocoa Health and Extension Division of COCOBOD was also a primary target beneficiary of this training of trainers. However, due to intensive field activities of their staff it was decided that a different training section should be organized for them in September/October 2018<sup>5</sup>.

The facilitators asked for expectations of all participants before the training begun. It was clear from statements made by most participants that they did not have enough knowledge and skills to address pesticide problems. Post training evaluation revealed that all participants felt they have gained adequate knowledge and skills to train farmers on safe use of pesticides in farming. Having had their capacities built and gained confidence, the training participants are poised for action - train and/or advise farmers on best practices for use of pesticides in farming. Nonetheless, participants requested for further practical knowledge and technical backstopping from the EPA to be able to comprehensively address problems of inappropriate use and handling of pesticides in food production and industrial crop systems.

Although before the training, some of the participants did not express much concern on pesticide effects on the environment, after the training they realized that it is very important to emphasize to farmers the risks of pesticides to humans and the environmental. It has been noted from daily interaction of agricultural officers with consumers of farm produce that crop products are often contaminated with pesticide residues. Hence people are becoming increasingly aware of the health threat associated with pesticide contaminated food. Hence aware campaigns and trainings must be widened and intensified in food production communities.

The skill building exercise also brought to light realities of dangers associated with sale of pesticides by unqualified individuals. For example, in one skill building exercise in which a number of pesticide vendors were visited, it was observed that pesticides of different formulations such as powder and liquid were shelved together with poultry and livestock feed. It was also observed that a child (less than 16 years) was in charge of the shop at the time of our visit. With these risks at the vendor level, education and regulation must reach these groups also in the nearest future. The EPA and DoFA will be in a better position to undertake these tasks.

Another skill building exercise on registration status of pesticide products generated a discussion on a recent incident which appeared in the Ghanaian mass media on April 22, 2018. In this case, inappropriate use of (toptoxin), a hazard category Ib pesticide has resulted in death of three members of a family in Accra. The discussion highlighted the relevance of reading, understanding and following the directions on pesticides labels as well as trying as much as possible not to use the

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<sup>5</sup> This is no longer possible as the CSLP had to close down a year earlier than planned.

very dangerous (category I) pesticides. The discussion also reiterated the need to do more community awareness creation on the dangers of inappropriate handling, storage, use and disposal of pesticides.

It was also derived from group discussion on “usefulness of pesticides for agriculture” that many farmers apply pesticides haphazardly and sometimes listen to messages from unqualified pesticide vendors, due to inadequate number of agricultural extension agents to consult.

Participants suggested that there should be a national plan and strategy for adoption of integrated pest management that could be operationalized at the district or landscape level.

One finding that caught attention of participants is that the Plant Protection and Regulatory Authority (PPRA) of MoFA, does occasional monitoring visits and often find a lot of unapproved pesticides on the market. Such unapproved pesticides confiscated and reported to the EPA. However, the PPRA’s effort to regulate pesticide use in farming is woefully inadequate due to budgetary and personnel constraints.

Questions were raised by participants on whether or not the Government of Ghana is using a proper approach to managing the Fall Army Worm outbreak in Ghana. It was noted the quantity and the for distribution of pesticides to farmers could be ineffective. Sharing liquid pesticides by pouring them into smaller bottles of different kinds including bottles used for drinks could expose humans to pesticides and spillages create hazards to the environment.

Explanation provided to trainees on the EPA’s register of pesticides document<sup>6</sup>, facilitated by a principal technical officer of the regional EPA offered participants a rare opportunity to ask for clarification on pesticide labels, hazard classes and what to do if a fake pesticide product is found on the market. Again, a participant from the PPRA of MoFA explained the process of enforcement of regulations regarding use of pesticides in farming. It was noted that the current regulatory regime is very weak and this emanates from weak financial and human resources to undertake adequate surveillance.

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<sup>6</sup> February 2017 version

## 4. CONCLUSIONS AND RECOMMENDATIONS

### 4.1 Conclusions

The training of trainers delivered to MoFA and other GoG staff persons, revealed a very low knowledge of the participants on pesticide labels and the safety directions they are supposed to carry. However, the training has built the knowledge and skills to be capable of advising farmers to adopt safe use practices regarding pesticides. Most of the participants commented during post training evaluation that they did not previously understand the importance of pesticides labels.

Moreover, through group discussion it was concluded by participants that since there is low level of education in most farming communities, use of pesticides in farming is creating more problems than the benefits they are supposed to provide to agriculture. Therefore, it has now become imperative that agricultural officers, design and execute a training program, to address the issue. Through the skill building exercise, each of the districts' participants made a draft plan to implement this agenda. On the part of the CSLP, copies of the training documents were given to each district team to help in their subsequent training of farmers.

### 4.2 Recommendations

Following the successful training of DoFA staff on the coastal landscapes, participants must do a follow-on of the draft plan for training farmers in their respective operational areas. This calls for a little more resources the districts. Where resources are limited, the beneficiaries could deliver simple awareness messages to farmers any time they are on the field. This can be monitored from time to time to assess change in behavior and practices of farmers in relation to safe application of pesticides.

Regulatory schemes for safe use of pesticides must be strengthened by strengthened by the EPA in partnership with MoFA.

A national program on pesticides risks awareness creation and safe practices is seriously needed especially in the agricultural sector. Even more attention must be paid to cocoa farmers have become culprits and victims of misuse of pesticides in the coastal landscapes.

To make information on nationally approved pesticides readily available, the EPA should establish a regularly updated online portal of pesticides so that interested agricultural officers can access them. This will enable agricultural extension officers to provide up-to-date advice on pesticide to farmers.

## APPENDIX

### *Appendix 1: Outline of training modules used*

<b>Training Content Outline</b>	
<b>Module 1</b>	
1.	What is a Pesticide?
2.	Forms or Formulations of Pesticides.
3.	Types of Pesticides in Farming Systems
4.	Usefulness of Pesticides
5.	Potential Adverse Effects/Risk of Pesticides
6.	Steps to Mitigate Adverse effects of Pesticides
a.	Latest EPA register of pesticides in Ghana
b.	Best practices and tips for Safe Use of Pesticides, Storage and Disposal of Pesticides
7.	Videos and photo exhibition of appropriate and inappropriate practices
8.	Knowledge and skill building exercises (3 exercises in Groups)
<b>Module 2</b>	
9.	Integrated Pest Management (IPM) - Key principles, information sources and skills for successful IPM.
10.	Knowledge and Skill building Exercise –
11.	Plenary – presentation of group exercise findings and recommendations
12.	District level exercise: Plan/scheduling for training farmers